THE merSETA 2021 VIRTUAL INTER CHAMBER CONFERENCE REPORT

CONFERENCE THEME: "TRANSITIONING RESEARCH OUTCOMES INTO INNOVATION PROJECTS"

1.   **OPENING AND WELCOME:** merSETA CEO: Mr. Wayne Adams

The CEO welcomed the delegates and opened the conference convened against the background of the loss of a stalwart in the skills development arena, Ms. Adrienne Bird who played a crucial role in creating the vision of the skills pipeline that ensures lifelong learning. Ms. Bird's book "From Sweeper to Engineer" that is being launched is evidence of progress made along the journey that extended over 3 decades. merSETA is hoping to rely on the dialogue inspired by the book to map a future for a vibrant manufacturing sector through skills development.

He indicated the conference programme is designed to share:

1.   insights, findings of research conducted during the 2020-21 financial year and new skills development ideas of the 6 CCs being the Metals and Engineering, Auto Manufacturing, Motor Retail, New Tyre Manufacturing, Plastics Manufacturing and Automotive Component Manufacturing Chamber Committees. The research includes that conducted by the Auto Manufacturing CC entitled "Investigating the cause of skills mismatch in the automotive sector where the sector is unable to meet supply and demand, and if there is a shortage/surplus of artisans in the automotive industry, establish the extent of the surplus and shortage per trades", the combined merSETA affiliated trade unions' research being "The digital virtual communication and liaison capacity building innovation project", the Metal Manufacturing CC research "The Metal Industry – Led Skills Development Plan" and the Motor Retail CC's investigation of the relevance of occupations and skills required for the motor industry with specific reference to aftermarket sales, maintenance, refurbishment and repairs sub sector.

2.   capture and consolidate innovative ideas of the entire mer sector value chain.

merSETA, like its stakeholders is facing the challenges of 4IR e.g. the NSDMS, COVID 19 and climate change. The SETA in retaining its position as leader in closing the skills gap continually considers the organisational design to achieve success in delivery; forecasts skills demand and supply; predicts future skills; interrogates the level of competence of key occupations in the sector; diffuses new elements of climate change; aligns with technology enhancement; integrates new product visions and virtual systems into existing qualifications for ongoing professional development and analyses the unique skills development needs of large employers versus SME employers versus township economies and the skills needs of vulnerable workers who deserve a just transition to new employment opportunities.

Conference, given the impact of COVID 19 that accelerated the need for advance technologies and business models to allow the sector to thrive in a digitally driven economy will, in confronting the future, initiate a sustainable process to engage the new economy. The process includes new jobs and occupations driven by localisation in economic patriotism strengthened by the informal sector, infrastructure development and maintenance.

He wished the participating delegates an informative and enlightening conference.

2. KEYNOTE ADDRESS AND BOOK LAUNCH: HONOURING THE LIFE WORKS OF ADRIENNE BIRD THROUGH HER BOOK TITLED "FROM SWEEPER TO ENGINEER": Messrs. Alec Erwin and Daryl McLean

2.1 Mr. Alec Irwin

Ms. Adrienne Bird as political economist approached her thesis at what happened historically to place the skills issue in a broader economic context. She submitted the introduction and the first chapter of the thesis to Mr. Alec Irwin on 15 April 2009. The thesis later was the background against which Ms. Bird wrote the book "From Sweeper to Engineer". The chapter recorded in detail how she started working with trade unions as an administrator in what was called a façade to labour study courses in 1983 which was attended by shop stewards and organisers. Administration is central to organisation which was a constant theme in the courses. A new leadership for the trade union movement formed that allowed learning to occur from many different inspirations. Adrienne from this participative theoretically rich learning experience developed a love of the learning environment and the vitality of gaining knowledge and translating it into operational systems. Three areas she combined effectively are:

1. participative learning and research

2. formalised education and precise and replicable skills especially in the dawn of industrialisation

3. wages, grades, skills and the manufacturing processes in order to develop human resources to operate and occupy these realities.

Ms. Bird, by 1985, was appointed education officer in MAWU who merged during 1987 with the auto unions into NUMSA. NUMSA following the merger was at the centre of the SA manufacturing sector and initiated the thinking regards skills, wage bargaining and a democratic future for the working class. Adrienne began to plan a comprehensive study of research and innovating whilst NUMSA established research and development groups in key areas the one of focus being skills and skills development. Study tours followed to e.g. the ILO to peruse the various skills development programmes, Germany, Japan, America and Australia but it was the German system and the Australian approach that best matched the SA thinking. The research programme provided a platform for participative research and learning.

Seminars started with discussions of prevalent problems and addressing it which set the path for policy making through participative analysis and effective well administered implementation. Adrienne set about systematising the methods and ideas and moving towards a new set of paths for skills development from the realisation that learning and skills development could take place through problem solving and access to formalised knowledge. She therefore became an advocate of RPL.

The traditional artisanal skills remained important but it had to be considered against the more advanced industrialisation, the drive towards mechanisation, digitisation and ICT that was looming. Other research and development groups and study tours by national negotiators noted that if SA opened its economy and industrialised it would have to revolutionise its approach to both skills and the organisation of work which

included grading structures. Shop steward researchers who visited auto plants in Japan, Germany or America saw the plants were extensively mechanised. It was often hard to recognise the traditional artisan as work on the production lines were digitally controlled and machine dominated. The:

1. German sector was well organised with local training institutions and structures that could respond rapidly to new developments i.e. the seed of the SETAs.

2. Japanese model allowed for entrants of a higher age with high levels of formal education often at tertiary level. This allowed for rapid training on the job and multi skilling and tasking breaking down the traditional rigid occupational divides that originated in the guild system

3. Australian system was suited to SA's history of discrimination and undertraining in the workplace. They introduced an incentive for training by adopting a concept of renumeration for skill acquired rather than skill applied. Incumbents moved up in the grades based on training received.

It was in the Auto NBF where a development unfolded being a vital platform to adapt to advanced manufacturing that required rapid adaption to new skill needs. It facilitated teamwork and multi - tasking and multi - skilling with fair renumeration. By the mid-90s the notion of continuous training that was first identified in Germany was introduced. It was essential for the assembly plants to be part of the global auto industry. Losing skills to the supply chain is therefore not a loss but an opportunity. SMEs of highly trained workers emerged from the assembly plants and supplied the plants with Tier 1 and 2 components.

Adrienne Bird and NUMSA shared a comprehensive vision and clear understanding of the overall economic benefits of an effective skills development system which is part of the wider systems of grading and renumeration. It is also part of a wider drive for industrial development based on quality jobs. It will be a fitting tribute to a worthy comrade to address the challenges with the energy and determination of Adrienne Bird.

2.2 Mr. Daryl McLean

The purpose of the book include tracing the engineering and artisan engineering pathway. Key questions were why the pathways were established, whether they were successful, how they changed, why they ended and whether they should be re - established.

Ms. Bird's line of analysis was the P.E.O.P.L.E framework i.e. P for people putting human beings at the centre of the analysis; E for the education and training landscape including formal and informal systems; O for the occupational structure of organisations; P for the political economy and how it shaped the occupational architecture and the education and training landscape; L for ladders and levers i.e. how learning and occupational pathways functioned to include or exclude people and E for evaluation and impact i.e. assessing what was learnt during the period.

Ms. Bird analysed the various stages of development i.e. of the artisan and engineering occupations and professions and how the pathways worked. Apprenticeships specifically suggested the notion of complex skills conveyed from one generation to the next by a skills practitioner and artisan forms of learning existed from pre - colonial times across the world. It was through a forensic analysis of the artisan to engineer pathways in SA and investigating 2 individuals who were trailblazers. The one individual had no

technical skills but he embarked on a process of teaching himself technical skills and once he had developed the technical skills he led a campaign for the certification of resident mining engineers. He also created a second pathway for artisans. The other individual followed in the footsteps of the first which confirmed artisan engineering pathways did not actually exist. The Gold Diggers Association, in a political economic context, initiated a CoC whereby men whose tasks included lighting explosives were required to demonstrate to a team of assessors they were competent to perform the function whereafter they were issued with a CoC. The COCs were issued in SA for the first time in 1897 to overseers and engineers. It made reference to engineers but it did not define the qualification or the level of the engineer, but a pathway emerged from artisan to certificated engineers.

The apprenticeship was a suitable trade but it was not linked to a higher education level qualification. Experience was assessed by considering the incumbents age that was a maturity indicator and writing of an exam but it did not define the level of experience required. Several people found their way to being an engineer. Africans were not allowed to apply.

Adrienne became involved in debating the feasibility of creating pathways though the glass ceiling between occupations and professions displaying her father's certificates and how he moved from being a petrol pump attendant to be an assistant engineer. It was at a point when the SA Engineering Council started to elaborate occupational and learning pathways as a mean to bridge the gap. However hard ceilings were in place during the NUMSA battles to prevent inter occupation mobility or vertical mobility within occupations. The key work NUMSA did in exploring key obstacles preventing people to progress within learning and their work provided the pathways. Subsequent work mapped into the grading system.

"From sweeper to engineer" is valuable in the current context as it illustrates Ms. Bird's gift of going to the core of the matter, identifying a key transformative issue and building a system that allowed people to unlock their potential. It exemplifies the contestation of distrust between government, business and trade unions and that it took special people to build the trust. The book makes an argument for agency at different levels being at a human level as people are capable of extraordinary things when given the opportunity and at the level of National Treasury and Business who opposed introduction of the SDL but Adrienne ensured it was addressed.

Conference delegates are encouraged to read the book and assess its value in the current context which is seen as a radical redesign of productive processes which means a radical redesign of skills needs is going on. Some jobs are disappearing whilst other jobs are changing, and new jobs are appearing and are interfacing with occupations and learning pathways at an expedited pace. The P.E.O.P.L.E framework can be used in the current context given 4IR, climate change and a post pandemic environment.

3. **PRESENTATION: 2020-21 CHAMBER COMMITTEES' EFFECTIVENES ASSESSMENT REPORT and THE WAY FORWARD: Presented by:** Mabatimi Management Services: Dr. Tony Khatle

    1. Background

        The effectiveness of the CCs is assessed annually. The study comprises an investigation of the areas assigned to the merSETA CCs, the performance in terms of their roles and functions, demographics to understand the status profile of CC's members', sector information in terms of

which the CCs function and the issue of a conflict of interest and breaching good governance with specific reference to members representing their constituencies and merSETA.

2. Purpose

The assessment provides members with the knowledge that they have the ability and commitment to fulfil their responsibilities. It includes an understanding of the responsibilities of the AA in terms of applicable legislation and government policies within which the entity functions.

3. Assessment Methodology

The assessment was initially through distributing questionnaires during meetings and allocating time in which members could complete the questionnaires. The method changed following COVID 19 to being conducted in digital survey format. Assessment categories include the following sections:

3.1 research i.e. the sub sector's input into skills planning, policy making, recommendations and advice

3.2 monitoring i.e. keeping up to date with developments in terms of e.g. the SSP

3.3 management of CCs and identifying the need for a secretariat to perform administrative functions and distribute agendas and notices of meetings

3.4 biographical information.

4. Outcomes:

4.1 Attendance: The Motor CC had a 68 % attendance rate, Auto Manufacturing CC 62 %, ACM CC 50 % and Plastics CC 48 %.

4.2 Biographical information indicated in terms of:

4.2.1 participation that 59 out of 100 members participated in the 2019 survey and 73 of the 102 members participated in the current survey i.e. 74.5 %

4.2.2 gender that CC's comprise 48 or 66 % males and 25 or 34 % females as opposed to the 14 females in 2019 which is a significant increase

4.2.3 age distribution that members 50 to 60 years old constituted 38 % of members, 40 to 50 years constituted 52 % and members between 20 and 30 are not represented which is critical for succession planning. Two members are over the age of 70

4.2.4 race showed 47 % of members are African, 30 % White, 15 % Coloured and 7 % Indian which is an improvement from 0 % in 2017 and 3 members in 2019

4.2.5   educational levels of CC members that 26 % are at NQF level 7, 21 % at NQF level 4, 16 % at NQF level 6 and 10 % at NQF level 2

4.2.6   years of experience that 34 % has 11 to 20 years' experience, 30 % has 1 to 10 years' experience and 21 % has 21 to 30 years. 36 % of the members has a year's experience but it is based on the addition of the new ACM CC in terms of which 20 members are new

4.2.7   chamber constituency representation that employer and employer association are 49 % representative, trade unions 34 %, the AA 11 % and public 4 %. Employer representation in 2019 was 48 % and that of trade unions 34 %

4.2.8   the size of the sector that 51 members originated from large employers, 12 from medium enterprises, 6 from small enterprise and 1 from a micro enterprise in the informal sector

4.2.9   provincial representation that 32 members were from Gauteng, 15 from the Eastern Cape and 10 from KwaZulu-Natal

4.2.10   research responses that 70 % of the members indicated the research was outstanding, 63 % indicated it was good and 7 % were not sure. It does not differ significantly from 2019

4.2.11   policy that 225 of the 528 responses received thought it was good, 84 were not sure, 11 thought it needs improvement and 10 thought it is poor. It differed significantly from 2019

4.2.12   monitoring that 398 indicated it was outstanding, 119 were not sure, 6 recommended improvement whilst others indicated it was not applicable

4.2.13   management of committees that 189 indicated the management was good, 77 were not sure, 12 recommended improvement and 2 indicated it was not applicable.

5.   Findings

Findings included the general CC representation is still male dominated; the youth is not well represented which must be addressed for the purpose of succession planning; the racial composition is predominantly African at 47 %; most Chamber members have education at NQF level 7; 49 % of members represents the employer constituency and 34 % the trade union constituency and Gauteng was best represented at 44 % followed by the Eastern Cape at 31 % and KZN at 14 %.

6.   Challenges highlighted by members include members do not have the necessary resources such as laptops and tools and connectivity; they lack relevant support material; they do not have research and development skills such as reading and writing research reports; they require training on how to conduct virtual meetings; they do not have adequate funding for research and

innovation projects; they struggle with the new way of doing business and they do not receive information on time.

7. Recommendations include that merSETA should:

    7.1 ensure members receive basic research skills to be able to engage with reports.

    7.2 consider training initiatives to empower CC members to operate on digital platforms. It should be supplemented with tools and data to function optimally in the new space.

    7.3 consider allocating funding to improve the CCs' effectiveness through availing funding for research and innovation projects that would empower members.

    7.4 consider ways to improve CC meetings by distributing electronic packs on time and demand that members read in advance as it would contribute optimally to the successful facilitation of meetings.

    7.5 encourage representation of youth and women in the CC structure to advance equity and diversity.

    7.6 encourage and empower CC members to contribute to policy making and policy development.

    7.7 consider ways and mechanisms to draw SMEs into the sector.

    7.8 engage AA in reviewing and exploring the conflict of interests, breaching good governance in terms of fiduciary duties and constituency representation as opinions indicated there was conflict of interest and a breaching good governance.

8. Conclusion

    The study outlines challenges and unprecedented challenges resulting from COVID 19 and the lockdown e.g. virtual meetings, members operating on digital platforms and a shortage of tools such as laptops and data.

9. Chat box comments

    9.1 Two of the main concerns that are not highlighted in the report are constituency representation and meeting participation.

    9.2 The context for participation of Women and Youth in the CCs must be clarified considering CCs are focused on respective industries as opposed to social sectors.

4. **REFLECTING ON MERSETA'S STRATEGIC RESEARCH: THEMES, HIGHLIGHTS, FINDINGS AND RECOMMENDATIONS: Presented By:** Manager: Knowledge Management: Dr. Paul Laughton

1. The presentation pertains to conclusive research conducted during the preceding 3 years. The value of research lies in the fact that it provides evidence that can identify problems, create an understanding of the problem, make findings based on the understanding and effect improvements to solve the problems. Interesting examples include advertising smoking cigarettes based on doctors and athletes smoking a specific brand or consuming cooldrink as it contained more sugar and caffeine or properties of a coco plant. It is a marketing ploy and not based on research and an understanding of the damage it could cause.

2. Similar industry specific scenarios must be identified of practices in the sector that must be measured against research to formulate an understanding of the practices and whether improvements must be effected to address any challenges.

3. Questions of clarification that could be asked within sub sectors to formulate and understanding include:

    3.1 identifying the extent to which robotics, automation and AI as drivers in the sectors over the next 10 years will improve the sub sector

    3.2 how data can be used to gain an advantage i.e. adopting a data driven approach to gain a competitive advantage to be globally competitive

    3.3 the impact of using solar power for manufacturing and other processes to create a sustainable environment going forward

    3.4 which of the materials used presently will change over the next 10 years e.g. substituting steel in tyres with carbon fibre or manufacturing scaffolding in different materials and not steel and how it will affect the sector

    3.5 determining the social economy in the mer sector in size and in monetary value as it is an untapped resource that must be explored for opportunities

    3.6 how to make Chamber driven research projects more beneficial.

4. Research is only as successful as the integrity of the data collected. Research cannot grow past data that is not accurate hence the reason the SETA relies on the CCs to provide research data. Stakeholders are accordingly encouraged to share knowledge, expertise and networks as they may not be aware of the significance of the information they have and make continuous contributions to merSETA staff on technological advances and changing occupations. More can be achieved through working together.

5. Research can be human focused like ethics e.g. the ethics of AI or robotics in the context that it is not only driven by profits, economy and industry. The humanitarian component is more qualitative as opposed to profit driven research.

6. Trends include:

6.1   reliance on data to solve problems has increased.

6.2   green manufacturing has become important to solve environmental issues.

6.3   automation and robotics however it contain an up and a downside and it significantly impacts the economy.

6.4   in terms of AI that many manufacturing processes are done by people who can be trained to identify objects on a conveyer system but AI can identify objects and with complex algorithms determine sequels.

6.5   ethics such as that of AI and cars driving themselves and for example picking the best of 2 lanes to drive in especially since the algorithms are based on several assumptions

6.6   globalisation and identifying the response to the ERRP i.e. upskilling, reskilling and other opportunities. It could be a way to grow the social economy through people that are unemployed to make it more sustainable.

7.   Challenge

Curriculum development must be enhanced to ensure structural problems are addressed and to expedite response times. OEMs in Europe upskill staff within 3 to 6 months to be able to respond speedily.

8.   Conclusion

merSETA will be launching the research publication namely Connecting the Dots in the mer sector during July 2021. It reflects on the highlights of some of the conclusive research done between 2017 and 2020.

9.   Chat box comments

9.1   Triangulation aims to use multiple resources of information to enhance the credibility of the discourse.

9.2   A practical example of the importance of research is how the RDG work resulted in a policy and systems and that research is not reliant on a few experts but can draw from the knowledge of various people and diverse groups.

9.3   The dilemmas relating to big data and AI are definite and include not only ethics, but also cultural standards embedded in the code. Home grown coders must be engaged to ensure cultural standards are maintained in the AI. It is important for localisation and manufacturing locally.

9.4   Reference to ethics and the impact especially on technology and influencing and shaping

the direction of work and of skills development is important. The cursory reference to ethics must therefore be escalated to a central question for the SETA's discourse. It is a unique opportunity to lead and drive the issue of future work into industry and shape the thinking of industry on how to take advantage of technology in a manner that does not undermine life or welfare.

Response: Ethics extend across all the debates in the skills development eco system. One of the purposes for presenting "From sweeper to engineer" is to help merSETA and its stakeholders to deepen the debate around the current skills development system. The VUCA world requires creation of cross cutting themes to map the transition to the new skills eco system based on the pandemic, technology and in terms of the environment.

9.5 The remark regards curriculum development, engaging stakeholders and making continuous contributions to merSETA staff on technological advances and changing occupations must be investigated. The SABS has a system whereby members can raise subject matter inputs into standard setting (in the SABS context) in terms of which merSETA can make input into the curriculum. It would be prudent to look at the link i.e. https://isolutions.iso.org/ecom/public/sabs/Livelink?func=llworkspace. The SABS seems to have similar challenges in terms of stakeholder engagement and getting subject matter experts to contribute meaningfully.

9.6 Sustainability related programs must be added in the drop downs of the WSP and ATR submission platforms to measure/record/gather data about the sustainability of submissions.

5. **METAL CHAMBER - "METAL INDUSTRY - LED SKILLS DEVELOPMENT PLAN":** Metal Research Provider: RF Research: Prof. Hoosen Rasool

1. Background

   DTIC developed a SMP of which only one of 54 pages referred to skills development. The research was conducted subsequently to supplement the Plan. The study includes consideration of the situational context, SWOT of the industry, skills intervention reprioritisation and recommendations that need to feed into the merSETA SSP.

2. Methodology

   The research methods included interviews, an online survey and literature reviews.

3. The industry SWOT analysis

   3.1 Strengths include business confidence is improving and that the GDP despite the anticipated third COVID 19 wave was predicted to grow.

   3.2 Weaknesses include increasing electricity prices, unreliable electrical supply, increase in

logistical costs especially cross border, increase in imports, insufficient demand due to COVID 19 and declining prices.

3.3   Threats include low capacity utilisation amongst firms, availability of raw material, the third COVID 19 wave and low economic activity.

3.4   Opportunities include government's infrastructure stimulus package and SMP interventions to resuscitate the industry. The SA steel industry although not big in comparison globally employs 6.1 million people. Two jobs in the steel industry support 13 jobs in the supply chain which is good for creating employment.

3.5   Threats include the decrease in the contribution of steel manufacturing to GDP from 24 % in 1990 to 13 % in 2018 due to deindustrialisation in SA. The global steel industry has not recovered from the 2008 financial crisis.

4.   Trends in terms of which skills development must respond include:

4.1   the decrease in global steel production considering the shift towards new production models that are environmentally friendly e.g. circular economy priorities, reusing manufactured products, lower greenhouse gas emissions, demand for repurposing, using less energy and being carbon conscious.

4.2   material substitution acceleration i.e. substituting traditional metals with steel that is lighter, flexible and durable that can be easily transported. The demand is accelerating the rate of materials development and technology in the industry.

4.3   the impact of 4IR in the steel industry and the way steel mills are being restructured and reorganised to be driven by data and technology.

4.4   investments in new business lines as steel is no longer considered as a product but as a service i.e. from the time the consumer purchase steel to the end - product reaching the consumer's facility as a service.

4.5   the impact of COVID 19 which led to supply chain disruption, job destruction, consolidation in the industry, demand for higher skills intensities and the industry being driven by data technologies. The continental free trade agreement is an opportunity for SA steel industry to grow into Africa especially because SA is nearer than China.

4.6   jobs and occupations are changing e.g. that of a metallurgist or welder that is changing due to technology which might result in upskilling the incumbent as he requires more skills and knowledge to perform the same job or de - skilling as he might require less knowledge and skills to perform the same occupation because of automation.

4.7   outsourcing and automation whereby machines are replacing the work of human beings meaning the same learning programmes will become questionable as it will not be what the workplace requires.

4.8   a shift across all sectors away from the traditional model of learning, working and retiring to a model of lifelong learning i.e. learning cannot stop because of technological advances.

5.   Findings relating to the MSP include that:

5.1   it does not make reference to innovation projects such as that by merSETA

5.2   the Plan refers to apprenticeships and coaching and mentoring but apprenticeships cannot continue to be punted in the new world. Innovation that relates to 4IR e.g. micro credentialing must be considered. The metal industry indicated previously they require short interventions for in the job training. Digital or micro credentialing is part of a global trend of micro learning i.e. whatever is learnt whether it be formal or informal is captured digitally on a digital skills passport protected by blockchain technology. Quality councils are anticipated to become irrelevant as taking 3 to 4 years to develop a qualification is too long especially since a certificate can be obtained from organisations like Microsoft within a short period.

6.   Recommendations

It is recommended that:

6.1   a feasibility study be conducted to introduce a micro credentialing project for merSETA in terms of which workers can accrue value as they gain knowledge during their tenure of employment that is not accredited to them.

6.2   firms be encouraged to offer short or micro credential courses and on the job training.

6.3   potential micro credential platforms be identified to access courses and that a licence be purchased that will enable workers to use it.

6.4   blended learning be introduced and to explore the opportunity to scale it up to have one platform for merSETA stakeholders for training.

6.5   incentives be introduced to encourage employers to employ and train workers.

7.   Chat box comments

7.1   How can micro credentials be funded and what innovations are needed to adapt the regulated funding model and partnerships? It is particularly important for inclusivity and the informal economy as well. New funding models are an essential part of the debate.

7.2   As much as what the perception is that apprenticeships will remain a constant, statistics presented at a NADAB meeting demonstrated the challenges SA has in meeting the target to develop 30 000 artisans. Creative solutions are required such as credible e – learning, e – assessments, e – logbooks and e – moderation. The human factor remains important and cannot be discarded but a blend will go a long way to assist in reaching the targets. What is

scary is that Germany at any stage has 500 000 as a target for artisan training.

7.3 Stakeholders must start to embrace using the RoI calculator. Colleagues should also consider a quality learning dimension overlay in this approach. Apprentices can contribute to productivity efficiency and utilisation, but it should be measured in conjunction with quality learning opportunities.

7.4 Micro credentialing is the answer to respond to change and upskilling quickly.

7.5 Digital credentials are a worthwhile addition to current qualifications, but the threat remains access to the workplace for WIL. A new approach to WIL must be investigated especially for new entrants to the sector who have the potential to shape and design and innovate.

7.6 It is concerning that whilst the industry evolves technologically, the SA manufacturing industry finds itself not ready to cope with the rapid technology changes.

7.7 The critique of the SMP in that it dedicated one page to skills development is important. It imposes a responsibility on the sector to strengthen and deepen their role by developing more pages on skills development. Dr. M. Mashilo would be raising the question from a labour perspective and if needs be, follow up on the answer.

6. **AUTO MANUFACTURING CHAMBER 2020-21: PROJECT REPORT: "INVESTIGATING THE CAUSE OF SKILLS MISMATCH IN THE AUTOMOTIVE SECTOR WHERE THE SECTOR IS UNABLE TO MEET SUPPLY AND DEMAND, AND IF THERE IS A SHORTAGE/SURPLUS OF ARTISANS IN THE AUTOMOTIVE INDUSTRY, ESTABLISH THE EXTENT OF THE SURPLUS AND SHORTAGE PER TRADES":** Auto Chamber Research Provider: B & M Analysts: Mr. Mbongeni Ndlovu

1. The presentation focuses on 4 main questions i.e.:

    1.1 Is there an over or under supply of artisans in the automotive assembly industry?

    1.2 What potential disruptions will affect skills demand in the short to medium term?

    1.3 How to improve skills planning

    1.4 Whether further research opportunities alluding to the question of innovation exists.

2. Question 1: Is there an over or under supply of artisans in the automotive assembly industry?

    2.1 Ways of becoming an artisan is through an apprenticeship, work experience, learnerships and the ARPL. The relationship between vehicle production and employment over the preceding 5 years was explored to conceptualise the performance of the industry. Both steadily increased i.e. production by OEMs increased by 2.2 % and employment increased by 0.13 %. It links to the fact of an existing trend of workforce productivity and mechanisation underlying performance.

2.2 Artisan skills increased as a % of total employment from 62 % in 2014 to 66 % in 2019 which reflects a trend of workforce productivity and automation. Underlying is a proportionate increase in demand for artisan skills in the industry. Key features of the current composition of artisans show proportionate demographic representativity in terms of race against national averages. A significant gender imbalance existed currently in terms of 90 % of artisans being male against 16 % females reported in 2014 but data sourced from the WSPs and ATRs could be flawed because some OEMs did not report during the period.

2.3 Ways to determine whether there was an over or undersupply of skills included:

2.3.1 focusing on data, prominence of vacancies i.e. separating the unfilled vacancies by trade and identifying the reason for the vacancies which in terms of electricians, industrial engineering technologists and mechanical engineering technicians was a shortage of skills, mechanical fitters was due to a lack of qualifications and electric trade assistants due to a lack in experience

2.3.2 conducting interviews with the OEMs, merSETA Regional Offices and experts in the industry. Responses included:

2.3.2.1 in terms of the skills supply in operations that it was because of a lack of practical training as part of artisan training, the supply chain being TVETCs and high schools, that the NC(V) was almost the equivalent of technical high schools it was not seen as centre of excellence training

2.3.2.2 that because training happened inhouse that the training requirements would be adjusted through increasing the number of placements within the learning academies

2.3.2.3 20 % were negative and referred to issues of artisans struggling to retain knowledge and the fact that the ARPL needs more oversight

2.3.3 60 % indicated there was an oversupply with reference to automotive mechanics, automotive electricians and millwrights as the main sources of oversupply. 40 % indicated there was an under supply but the response was diverse in terms of the trades mentioning mechatronics, tool makers, fitters, electricians and millwrights.

2.4 The conclusion in respect of whether there was an over or under supply of artisans is recognising that there is mechanisation of workforce productivity that already exist in the industry and that the data emanating from the WSP and the responses to the interviews suggest there is a slight oversupply in artisans. In terms of the trades that are either over and under supplied it is the mechatronic technicians, tool makers, fitters, electricians and millwrights.

3. Question 2: What potential disruptions will affect skills demand in the short to medium term?

3.1 Sources of disruption that were identified are:

    3.1.1 additive manufacturing

    3.1.2 green technologies that refer to an awareness of climate change and the contribution by fossil fuel emissions that it is forcing policy makers to implement stricter regulations for OEMs. It means an increase in terms of new energy vehicles e.g. hybrid vehicles and battery electric vehicles. Engine sizes decreasing and improvements in fuel economy is anticipated over the next 10 years that will be supported by increasing new energy vehicles.

    3.1.3 use of advanced materials. Supply chain channels could be disruptive for example the steel manufacturing processes could be disrupted by the use of different kinds of materials.

    3.1.4 internet of things in terms of which a trend has been identified for digitisation and digitalisation i.e. the use of internet devices is changing the business model of a vehicle to become not only a product but a service such as uber and bolt. The industrial internet of things applies to the production of vehicles and an increase in trend around the use of digital training to solve problems and the existing robotics driven though a digital platform.

    3.1.5 big data i.e. using big data, machine learning and AI and how production as a supply chain process can be optimised using the computer power of AI and other technology platforms. It means in terms of the actual impact on industry that in terms of a Canadian study that looked at industry 4.0 trends and analysed the impact by occupation that 45 % of toolmakers will be eliminated by robotics, 25 % of welder and related operating tasks will be eliminated, machinists and machine operators will start using 3 D printers and C and C cutting machines and the maintenance tasks performed by electricians will be partially eliminated with more use of predictive maintenance systems using big data.

    3.1.6 COVID 19 in terms of its implications for skills development. The biggest potential trend is the impact on online and elearning and assessments.

4. Question 3: How to improve skills planning:

4.1 Key issues that were raised by stakeholders include the education system and technical schools not producing sufficiently, the TVET funding model, lack of advance training materials for electricians and millwrights and the administrative systems of SAQA, QCTO, merSETA and DHET being overly complex and administratively burdensome not allowing for a quicker responsiveness in terms of skills demand.

4.2 Lessons that emerged from the international scan include that advanced countries are developing programmes to incentivise young people towards more training because of the realisation of a potential loss of skills to other sectors; developing IT enabled matching

platforms that can match artisans with vacancies; funding of market research to anticipate skills demand; hiring overseas technical skills to supplement local skills and strengthening education institutions to meet industry standards through formal partnerships between specific institutions and the OEMs.

4.3   Recommendations include encouraging young people to focus on STEM; improving TVET using industry sponsored and directed models; forging partnerships with overseas technical institutions and OEMs to facilitate skills transfer; developing matching platforms; forecasting by OEMs i.e. research and short courses that are aligned with models of change for technology improvements; curriculum reform; implementing industry and company related training centres; SETA representation in the QCTO to expedite qualification development and merSETA focusing on the development of short courses and workshops for the latest technologies.

4.4   The long term priority is curriculum reform around electricians and millwrights to adjust to the new technologies.

5.   Question 4: Whether further research opportunities alluding to the question of innovation exist: It is recommended in SAAMP in the technology and associated skills pillar that SA need a technology roadmap that covers more than the introduction of the new electric vehicles. However it must also account for disruptions such as active and passive safety, material composites and additive processes that are required.

6.   Chat box comments

6.1   The presentation was useful in terms of the entire automotive component sector.

6.2   The report demonstrates research contributed a lot of work in terms of answering the questions.

6.3   The question of whether an over or under supply of artisans exist is a concern as it is at the centre of skills planning and the core of the work of the SETA. Skills planning cannot happen without an understanding of the current circumstances and of what the future holds and the research did not go beyond 2019 in terms of establishing the current scenario. It leaves a gap to be filled to be able to make full use of the research.

6.4   Stakeholders should not wait for example for curriculum development but should be proactive and recommend steps to merSETA staff to deal with technological advances.

6.5   The question of over and under supply of artisans applies to all 6 chambers especially at occupational level.

6.6   Steps to become an artisan are outlined on https://nasdsc.dhet.gov.za/site

6.7   If there is a sense of oversupply the real need would be for an artisan with a mix of skills or skills sets that go beyond those offered by new market entrants. OEMs for a while reported

they are doing their best to maintain the current labour force rather than take on new labour entrants. WSP data indicates a low demand from the auto manufacturing sector.

6.8   It is proposed that stakeholders from the various chambers agree to a dedicated session on "Supply chains, changes and technological advances in the auto industry".

6.9   Several plants closed the tool and dye departments following which toolmakers were deployed elsewhere because it was no longer viable to have the departments.

6.10   Research begins to identify interventions to address disruptions and guide development of a programme to apply once digitising of plants begin to ensure skills are available should there be a request for volumes.

7.   SUMMARY OF EMERGING CHAMBER INNOVATION PROJECTS: BREAK AWAY SESSIONS: TRANSITION FROM RESEARCH TO INNOVATION PROJECT CONCEPTS: Programme Director: Mr. Hosea Morapedi

1.   Key to the 2 innovative projects is the notion of supply and demand of skills. The:

1.1   demand for skills will mostly be from industry and will be influenced by the impact of 4IR, the green economy and advanced manufacturing processes which impact how industries are structured to meet current and future needs.

1.2   supply will be by institutions, processes and resources to ensure training is taking place and that the quality of training and institutions is assured.

Implications for innovation projects are that the projects must be informed by credible research.

2.   Areas that were emphasised include the:

2.1   need for short programmes that are company or industry specific because of the rapid changes that are taking place due to technology

2.2   question of providing incentives to encourage companies and institutions that are pro 4IR to provide interventions such as investing in STEM courses to encourage companies to train learners on STEM which is key for emerging occupational qualifications and training interventions.

3.   Prospective innovation projects include:

3.1   a project in respect of blended learning

3.2   occupational changes and the proposal that occupations must be reviewed. It could be an innovation project that focuses on a consolidated approach to occupations i.e. formulating, designing and implementing occupations.

8. CHAMBER BREAKAWAY SESSION TO BRAINSTORM INNOVATION PROJECT IDEAS FOR FEEDBACK AT THE VIRTUAL PLENARY SESSION

9. FEEDBACK: BREAKAWAY SESSIONS

9.1 Feedback from Metal Chamber Convener

Proposed topics for an innovation project emanating from the breakaway are:

1. responding to GBV in the industry based on preliminary work conducted that suggests GBV is a serious but concealed problem in the industry which is severely hampering development of those affected by GBV

2. consolidating the SETA wide response into a single SETA response that must include the response of the Chambers and AA to the COVID 19 disruption, the impact thereof and what it means for the SETA.

9.2 Feedback from Motor Chamber Convener

The group:

1. investigated the relevancy of occupations and skills required for the motor industry with specific reference to the after-market sales maintenance refurbishment and repairs sub sectors. The change in technology of the motor vehicle especially as regards the hybrid or electric vehicles created a demand for further skills and upskilling.

2. considered the high unemployment amongst the youth and recommended exploring the possibility of providing short course skills training in the vehicle underbody service industry with particular emphasis on wheel alignment SAQA unit standard 15100 and wheel balancing SAQA unit standard 260720 that could be offered by a Centre of Specialisation affiliated to the TVETCs. The introduction of accredited short courses is one of the most important training systems in SA since it provides sufficient training to meet workplace requirements in terms of knowledge, time, practical application, commitment, cost and resources for all parties concerned. The course facilitation and achievement can enable candidates to continue with accredited professional development or venture into business situated in a rural or urban area that will circumvent the problem of job saturation in formal business centres. The problem statement for the project is whether the 19 TVETCs Centres of Specialisation have suitably qualified lecturers and practical work areas with regards wheel alignment and wheel balancing equipment to be able to satisfactorily facilitate the required short course programmes.

9.3 Feedback from Plastics Chamber Convener

1. The draft paper on the project of the Plastics Chamber that looked at Plastics Pipe Manufacturing

Sector that found it as a sector in distress with a range of different contextual factors responsible for it has been submitted to the CC. Feedback is awaited.

2.   Two recommendations have relevance to innovation projects being:

2.1   the value chain in the plastic pipe sector and quality assurance through standard quality control methods. An opportunity for digital transformation of quality assurance processes throughout the value chain that allows development of certificates of authenticity through the technologies that will allow industry to trace the pipe right from the original manufacturer to installation and welding and traceability around the welding of the pipes that takes place during installation

2.2   to strengthen and empower 2 industry bodies that are currently supportive being Plastics SA and the Recycling Pipe and Manufacturers Association. Several recommendations were presented from an innovation perspective e.g. the need to modernise machinery in support of short runs, customisation of products that will create market diversification opportunities that currently do not exist because the majority of manufacturers are focused on volume and facilitating and supporting new black entrants into the industry.

9.4   Feedback from Auto Chamber Convener

The group did not formulate a concrete proposal during the breakaway but will be working on a proposal going forward. Proposed topics include:

1.   adopting a structured process to integrate the curriculum into 4IR with the support of the QCTO and the MICT SETA who has elements of skills programmes related to robotics etc.

2.   employees adding value to the curriculum so that it becomes meaningful for existing and new trainees coming into the organisation.

9.5   Feedback from New Tyre Chamber Convener

1.   The problem statement formulated in 2019 for the innovation project which MANCO subsequently approved was to create a repository where available training material for the Tyre industry is housed which is accessible to learners in the industry. The statement was concretised by COVID 19 during 2020.

2.   The project is to pilot a digital learning academy delivering the Rubber Production Technology Certificate that was previously offered by NMU. The purpose of the project is to address existing challenges such as:

2.1   delayed development of training material for qualifications to be accredited

2.2   inflexible timing of delivery of training which is mostly during working hours

2.3   the high cost of training the traditional way

2.4 extended processes e.g. the development of Rubber Production Machine Operator that has taken 5 years but it has not been accredited and training materials have not been developed

2.5 the extended process of moderation of learners which needs to be accelerated without losing governance

2.6 training facilitation being dependent on the availability of facilitators

2.7 service providers delivering customised training who are not available.

3. Objectives of the New Tyre Chamber virtual learning academy include:

3.1 providing access to a virtual digital education platform that is economical and inclusive of everyone

3.2 changing behaviour of people to work online and to run programmes online

3.3 having a common learning infrastructure and a common learner management system that can align and track learners' progress

3.4 maintaining a digital learning portfolio record for each learner

3.5 introducing a robust monitoring and evaluation system supported by a governance framework

3.6 developing new programmes and qualifications to go onto the portal

3.7 increasing opportunities to not only upskill existing employees but also learners coming into the industry

3.8 accommodating millennials and the way the learn being through micro learning

3.9 moving from the current state of structured learning through learning from others with social interaction through subject matter expert networking collaboration platforms that can be done online to action learning through experience and on the job training.

4. Support required includes buy in from the tyre companies, buy in from the identified provider for the pilot project being NMU and project funding.

5. Next steps include aligning the project to the previous research project of developing a cloud based career pathing tool of available careers within the tyre industry considering the various areas i.e. production, engineering, planning, quality and health and safety. It identifies opportunities for development and the qualifications and skills required to achieve the opportunities. The understanding will be to identify career opportunities and learners upskilling

themselves with qualifications housed on the digital platform.

9.6   Feedback from Automotive Components Manufacturing Chamber

1.   NAACAM concluded its first quarterly survey for their flagship project being the high gear skills project. Results of the survey identified significant skills gaps at all occupational levels within the ACM sector specifically at leadership and artisanal occupational level.

2.   The biggest challenge is the lack of technical skills of graduates entering companies and the misalignment between TVETCs and universities of technology curriculum and industry requirements.

3.   It informed 6 key focus areas being to improve technical skills of graduates entering the ACM sector, improve the alignment of the curriculum of TVETCs, universities, and universities of technology to have greater alignment with both industry and production skills requirements, pay greater attention to what is happening in the 4IR space in the ACM sector to understand the skills requirements across the respective component sub sectors, drive the Automotive Component and Assembly qualification roll out, increase the focus on B-BBEE in the ACM sector with an emphasis on youth and women transformation and cleaning the SIC codes to ensure the correct categorisation of employees and companies in the sub sector.

10.   CLOSING REMARKS AND VOTE OF THANKS: Acting COO: Ms. Sebolelo Mokhobo-Nomvete and Senior Manager: ARIP: Ms. Helen Brown

1.   Senior Manager: ARIP: Ms. Helen Brown thanked the Chamber Manager and Team for the work in facilitating the conference. She expressed appreciation for the work of the CCs in terms of innovative ideas that will be further stretched into the chambers to produce real programmes and projects to support the sectors. The Motor Chamber referred to identifying skills programmes that can be offered by the centres of specialisation that will result in informal employment and transferred employment. She indicated innovative projects are not easy and required participative analysis such as that by Ms. Adrienne Bird that created access to formalised knowledge.

2.   Acting COO: Ms. Sebolelo Mokhobo-Nomvete indicated the work of merSETA includes depending on delivery partners in the education and training delivery eco system such as the delivery partners introducing innovation projects. The strongest levers are incentives that must be relooked to align them with the changes and the services offered e.g. quality assurance services. The conference provided the opportunity to launch Ms. Adrienne Birds book that even though historic contains valuable lessons going forward into the changed environment. Skills development is about the economy and what it is that can collectively be done to catalyse changes in the economy and sustain the economy specifically pertaining to the mer sector. The thinking going forward must be directed at how practically to use 4IR which must be through education and training delivery partners in order to make education and training more accessible. She thanked meeting participants and the team for ensuring the conference is a success.

DATE
HB/hm
21 May 2021

CHAIRPERSON: merSETA 2021 VIRTUAL INTER
 CHAMBER CONFERENCE