



# INDUSTRY TRAINING NEEDS ASSESSMENT REPORT

NOVEMBER 2017  
ABRIDGED VERSION







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# LIST OF ABBREVIATIONS

Deutsche Gesellschaft für Internationale Zusammenarbeit (**GIZ**)

Kenya Association of Manufacturers (**KAM**)

Kenya Industrial Transformational Master Plan (**KITP**)

Kenya Industrial Training Institute (**KITI**)

Kenya National Medium-Term Plan II (**MTP II**)

The Third Medium Term Plan for Vision 2030 (**MTP III**)

Kenya National Occupational Classification Standard (**KNOCS**)

Kenya National Qualification Framework Authority (**KNQA**)

Kenya Technical Trainers College (**KTTC**)

National Industrial Training Authority (**NITA**)

Rift Valley Technical Training Institute (**RVTTI**)

Rift Valley Institute of Science and Technology (**RVIST**)

Toolkit Institute Limited (**TI**)

Technical and Vocational Education and Training (**TVET**)

Technical and Vocational Education and Training Authority (**TVETA**)

Training Needs Assessment (**TNA**)

Vocational Training Centres (**VTCs**)

Youth Polytechnics (**YPs**)



# ACKNOWLEDGEMENTS

KAM wishes to acknowledge the commitment of the industries that took part in making the training needs assessment exercise successful. The team conducting TNA was well received, human resources managers from member companies ensured that assessors had access to technical personnel, mainly machine operators and their supervisors. This enabled the Consultancy to gain a better understanding of their production operations and their training needs.

In addition, KAM acknowledges the valuable contribution of key stakeholders and informants who provided their inputs throughout this assignment. Respondents and informants in this category included the regulator and trainer – the National Industrial Training Authority (NITA) where two senior officials took time to respond to detailed questionnaires and provided invaluable input on industrial training in Kenya.

KAM management was represented by Ms Joyce Njogu - Head of KAM Consulting. Select Technical Training Institutions (TTIs) also made their contributions from a pedagogical perspective. Those interviewed included the Kenya Industrial Training Institute (KITI), Rift Valley Technical Training Institute (RVTTI) and SOS Technical Training Institute, Buru Buru.

During the training needs assessment, 34 industries were visited. The assessed 34 companies covered the following sectors: building, mining and



construction, plastics and rubber, marine, business process outsourcing, food, beverage and tobacco, leather and footwear, metal and allied, motor vehicle, energy, electrical and electronics, pharmaceuticals and medical equipment, textiles and apparels, and timber, wood products and furniture.

Besides, KAM acknowledges the generous financial contribution from our partners GIZ that made the TNA exercise fruitful and the constant inputs in ensuring the outcomes of the findings reflects real gaps.

**Phyllis Wakiaga**  
**KAM Chief Executive**







## FOREWORD BY KAM CHAIRLADY



Kenya Association of Manufactures (KAM) continues to be committed in addressing the skills challenge facing our country today. As a membership organization, we appreciate that for the industries to continue manufacturing they need to have the right skills set.

However, the gap between skills needed by industry and what the technical institutions teach remains a challenge which has partly contributed to the rising unemployment rates in the country. This has partly been caused by unsatisfactory consultations between the curriculum developers, the industry and technical training institutions which has led to graduates acquiring skills that do not match industry requirements.

For Kenya to achieve Vision 2030, the country's economic development blue print that aims to transform Kenya into a newly industrializing, middle –income economy investing in industrial skills was identified as one of the key enabler.

The current growth in infrastructural development like the LAPPSET, Oil and gas exploration, power plants, the real estate boom currently being experienced, promotion of green energy among others will indeed require massive investments in skills.

Towards ensuring focus on skills and closing the existing skills gap, KAM leadership has entrenched skills development agenda in the current business plan and the industry training needs assessment conducted last year was aimed at identifying gaps in skills that need to be filled for the industries to continue producing quality products and services that meets investor standards.

Kenya Association of Manufacturers appreciates all our members and stakeholders that took part in the assessment exercise that has led to this report that we are launching today. We appreciate the support of our partners in ensuring that the TNA exercise was successful.

KAM welcomes all the stakeholders and partners to work together in the implementation of the recommendations and research findings in this report and in this way, the skills challenge in our nation will become history.

**Flora Mutahi,  
KAM Chairlady**

# 1.0 EXECUTIVE SUMMARY

On 20<sup>th</sup> September, 2017 the Kenya Association of Manufacturers (KAM) contracted the consulting services of the Toolkit Institute Limited to conduct a Training Needs Assessment for the technical employees of their member industries. The assignment was to cover industries in 6 regions: Central, Nairobi and Machakos, Nakuru, Eldoret, Kisumu and Mombasa. The objectives of the assignment were to sample and identify skills gaps for existing employees in the leading sectors and engage stakeholders on current policy implementation.

TI was awarded the contract to carry out the TNA exercise after rigorous vetting exercise of the service providers who had submitted their bids. Several meetings were held between TI and KAM to ensure a thorough understanding of the exercise.

Additionally, the parties agreed on the modalities like the need to conduct interviews with key informants to gain insights from stakeholders. The stakeholders identified were significant players in

TVET, Technical Training Institutions, KAM board members, NITA representatives, and a few KAM members in the service and consultancy sector.

KAM offered support through initiating contact with participating members by sending out invitation letters that introduced TI and the TNA exercise. KAM provided TI with a list of 68 Industries and the contact details of the human resources managers. TI sampled 50% of the provided industries covering 34 out of the 68 industries. TI went beyond the list of selected industries and reached out to gain valuable input from companies operating in the Export Processing Zone Authority (EPZA).

The industries that participated in the TNA were receptive and welcomed the skills upgrading initiative for their employees and openly shared information during interviews. Assessors were also given an opportunity to tour factories to better understand production processes which added value to the information collected.



**Ms Joyce Njogu,**  
Head KAM Consulting



**Mr Paul Mburu,**  
TVET Program Coordinator

Due to the political environment during the initial stage of the TNA exercise some company visits and interviews were disrupted. The most affected region by the political disruptions, protests, and campaigns were Kisumu and Nairobi.

The assignment commenced on 20<sup>th</sup> September 2017 with a total of 34 companies being visited in 12 sectors in Mombasa, Central, Nairobi, Nakuru, Eldoret and Kisumu. Upon completion of the field work, the Consultancy presented the findings to KAM on 3<sup>rd</sup> November 2017. The assignment ended on 14<sup>th</sup> November upon the presentation of the final report to KAM.

## 1.1 SUMMARY FINDINGS AND RECOMMENDATIONS

**1. Priority Skills Gaps:** The TNA exercise identified skills gaps and urgent training needs in technical skills, life skills and safety/occupational health. Industries recommended training to cover these three areas. While curricula for technical skills and safety can be developed or updated as appropriate, life skills training can be directly undertaken by KAM. The KAM Manufacturing Academy could extend its ongoing life skills training, which mostly targets executives, to industries' technical personnel as industries

highlighted this as an urgent need during the assignment.

**2. Training Curriculum and Packages for Technical Skills and Safety Training** Building on the momentum of this Consultancy, KAM can work with service providers to develop training curriculum and packages for OSHA trainings. Under KAM leadership, Identified Service Provider will work in a consultative manner with industry and other key stakeholders to develop and implement a competency based curriculum that will address the identified skill gaps.

**3. Areas of Further Research:** A research department pertaining to technical skills and industry needs should be instituted at KAM Manufacturing Academy to ensure that the evolving techniques in industry are a consistent reference point for Kenyans Technical Training Institutions (TTI). KAM should conduct further investigation to detail the practical skills and exposure technicians require in fulfilling industrial competency. The results of such research should continually inform the development and or updating of training curricula and packages. Comprehensive job descriptions devised or reviewed by industry players and shared with TTI instructors in industry and curriculum design specialists would significantly contribute to the development of standardized courses.

**4. Design of Short Upskilling Courses:** Based on the training priority areas articulated by industries, KAM should roll out short up-skilling courses that take place as part of on-the-job training. The short courses can range between 2-5 days conducted on a regular interval until the desired skill level is attained and certified. The main concern of industries is to prevent disruption of operations by sending their technical staff on extended training courses.



*Ms Jane Kamau-Manager NITA Athi River and Mr Moni Panesar -CEO Panesar Furnitures*





*Textile and Apparels Manufacturing*

#### **5. Regular Technical Skills Training for Industry Staff:**

Based on the training curriculum and packages developed, KAM should develop regular training scheme for upgrading and updating the skills of all industrial staff in order to maintain an industrial capacity that is able to cope with the fast changing global technological and competitive environments. KAM can assign training providers to deliver the training in all the six regions in the country.

**6. Mode of Training Delivery:** KAM should organize training to be delivered within industry setting as opposed to taking trainees away from their work to training in Technical Training Institutions. Training within industry in short courses was generally voiced as the preferred approach by industries. This was for operational reasons and the need to use appropriate technology and modern production machinery which are not available in most Technical Training Institutions.

**7. Dialogue between Industry and Technical Training Institutions:** KAM together with the Government need to create a forum for industries and TVET institutions to work together

in a collaborative approach framework for implementation.

**8. Consistency in KAM internships:** KAM should strengthen her ongoing internship programme and maintain a robust monitoring system. Industry players raised the need for more consistency in the numbers and timeliness of the interns deployed by KAM.

**9. Priority Training Areas:** The priorities for training as identified during the Consultancy include the following:

- i. Industrial electrical installation and industrial electronics
- ii. Production supervisory work
- iii. Boiler attendant/installation/maintenance
- iv. Welding and fabrication/mechanical fitters
- v. Carpentry and joinery
- vi. Production design (especially with use of Arc CAD)
- vii. Quality control

## 2.0 INTRODUCTION AND BACKGROUND

KAM in partnership with GIZ E4D/SOGA-Kenya Initiative is implementing a Technical and Vocational Education and Training (TVET) project titled **“Promoting Youth Employment through Technical Human Development”**. The project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), the UK Department for International Development (DFID), the Norwegian Agency for Development Cooperation (NORAD) and Shell. The project aims at improving access to technical jobs and economic opportunities for youth in Kenya. The project entails working with industries, TVET institutions, government and government agencies in charge of technical and vocational training and other implementing partners to place over 500 graduates on internships in industries and subsequently jobs.

The TVET program has a practical and pragmatic approach to the inadequacies of skills training. As noted in the literature review section of this Report, complains of ill-equipped graduates from technical training institutions abound. This is due to the missing link between training and industry.

KAM is a key player nationally in contributing to and shaping the dialogue on reforming technical training to match industry needs. KAM has already taken practical steps like sourcing graduates of technical training institutions (TTI) and deploying them as interns to various industries across the country.

In order to further strengthen and enrich its ongoing TVET program, KAM retained the consulting services of TI to conduct TNA for Skills Upgrade of Industry employees. Toolkit Institute brought unique strengths and attributes to this consultancy based on current trends in the training and development of vulnerable Kenyan youth. The industry players that Toolkit works closely with include manufacturers, employers, and distributors of products in the leading sectors of the economy.

The TNA assignment was carried out by Toolkit Institute to establish industry needs in skills upgrading for existing employees as well as identification of skills that are lacking or new ones that could potentially be introduced. The outcome of the assessment conducted by TI will inform curriculum development and guide technical training for the industry employees’.



*Dr Dinah Mwinzi, PS State Department for TVET and Ms Phyllis Wakiaga KAM CEO during the skills workshop*

## 3.0 SITUATIONAL ANALYSIS

### 3.1. Operational Context

The assignment coincided with the national election period. It had been hoped that the TNA exercise would not be undermined by any election related disruptions however; the political situation caused mobility challenges as some areas were too volatile to coordinate and plan visits. In Kisumu, some production operations were halted until the situation calmed as technicians and managers were unavailable for interviews and the Consultancy rescheduled numerous visits to the region.

The Consultancy faced similar challenges in Nairobi during this period and lost a full week of visits and interviews owing to the additional public holidays granted to aid the ease of the reelection process. As soon as the negative effects of the political transition ceased, the Consultancy resumed data collection through scheduled visits and interviews.

Another challenge that the Consultancy faced is the timeliness and responses by industry players and other respondents.

### 3.2 Skills Training Legal & Policy Framework

The technical skills training and education in Kenya is governed by a well-established legal and policy framework. The framework has been developed in recent years (from 2010-2014) signifying an increased national awareness to the fundamental role of technical skills in Kenya's economic growth. The established framework also demonstrates a strong commitment to skills development by the Government and various fundamental players. The legal framework comprises of three main statutes which provide for specific skills development, skills application, skills recognition, and certification:

1. The Industrial Training Act, 2012
2. The Technical and Vocational Education and Training Act, 2013
3. Kenya National Qualification Framework Act, 2014

The Industrial Training Act was first enacted in 1959 and has been revised numerous including the comprehensive review in 2012 which led to the establishment of the National Industrial Training Authority (NITA). The Act has one main role, broadly defined as the regulation of training of persons engaged in industry and this is the most relevant statute to the work of KAM and its members.

The Technical and Vocational Education and Training Act, 2013, was assented to by the President on 14<sup>th</sup> January 2013. The Act established a Technical and Vocational Education and Training Authority (TVETA) to promote access, equity, quality, and relevance in the sector by regulating, inspecting, registering, accrediting, and licensing institutions, programs, and trainers. The main purpose of TVETA is to regulate and coordinate TVET and the development of standards and guidelines for a globally competitive workforce. This aligns with the purpose of the KAM TNA exercises as it aims at economic growth and development anchored on a well skilled Kenyan labor force.

The Kenya National Qualification Framework Act of 2014 established by Kenya National Qualification Framework Authority (KNQA) which is mandated at developing a framework for recognition of qualifications in education and skills obtained in and outside Kenya. The work of KNQA is fundamental to the technical skills sector in Kenya and the various industries sampled for purposes of this assignment. The KNQA has



developed a draft frameworks but these are in the process of being subjected to stakeholder reviews, and developed into a national policy. For technical personnel to have their acquired skills assessed and recognized on a national scale, it will be important for KAM and its members to remain informed of the progressive steps taken by the KNQA.

### 3.3. Current Policy Implementation

TVET Act, 2013, and Industrial Training Act, 2012, both states that technical training be demand driven based on industrial requirements. The Government implements both Acts through formal training in TVET institutions with NITA encouraging industry players to accept interns through monetary incentives.

There have also been welcome efforts by the Kenyan Government encouraging O-level school leavers to join technical training by offering bursaries and school fees loans to enable successful completion of training.

### 3.4. Literature Review

The Consultancy conducted a desk review to capture past work and studies on youth polytechnics and economic activities in Kenya. Government documents as outlined in the list of references at the end of this report were examined. In addition, TI reviewed documents on similar programs including information sourced through the internet and print media.

KAM's strategic focus for the business development period 2017 - 2019 is closely aligned to the aims of Vision 2030 and the Kenya Industrial Transformation Program (KITP) with the goal of supporting skill based job creation and increasing employment in the manufacturing sector by 33% to drive industrial transformation.

Kenya Vision 2030 is the country's development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrializing, middle-income country providing a high-quality of life to all its citizens by 2030. The economic,

social, and political pillars of Kenya Vision 2030 are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology, and innovation (STI); land reform; human resources development; security and public-sector reforms.

According to Kenya Vision 2030, human resource development is a key aspect to developmental growth. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy. This will be done through life-long training and education. As a priority, a human resource database will be established to facilitate better planning of labour requirements in the country. Furthermore, steps will be taken to raise productivity to international levels. Other measures will include the establishment of new technical training institutions, as well as the enhancement of collaboration between industry and training institutions. This directly correlates to the goals of KAM which center around aligning workforce reform with the service reform agenda to identify new approaches that further develop a competent, flexible, sustainable, and responsive workforce.

Kenya aims to become the provider of choice for basic manufactured goods in Eastern and Central Africa, before breaking into other markets by targeting "niche" products for example organic foods and beverages. This will be done through improved efficiency and competitiveness at industry level with the State investing in training, research, and development. In pursuit of Vision 2030 goals, the youth are the bedrock of requisite human resource skills for technological and industrial transformation. Kenya Vision 2030 will lead to increased wealth and social well-being as well as enhancement of the country's international competitiveness.

According to the *UNDP Skills Gap Analysis for Graduates of Youth Polytechnics, Vocational Training Centers, and Out of School Youth Report* evidence from employers indicates that graduates of Youth Polytechnics (YPs) and



Vocational Technical Colleges (VTCs) have trouble using modern equipment. They also lack adequate trade skills, innovation, creativity, and knowledge largely due to limited practical exposure. The youth polytechnic graduates need at least six months of industrial orientation to effectively integrate into the workplace. Besides low technical skills, the graduates are also weak in work attitude, communication, customer care, behavior, and social skills. This shows disconnect between the training offered by institutions and what is demanded by employers and society. There is therefore a critical need to align the courses offered to the needs of the industry.

The report findings indicate that employers, graduates, and trainers agree that the most significant skills gaps among the youth are: capacity to use modern machines, trade knowledge and practical industrial exposure, in that order. These results are largely due to inadequate infrastructure available within the YPs and VTCs plus the lack of partnership and exchange between the institutions and industry.

The globalization of trade and removal of import restrictions has increased competitive pressure in the market place. This requires suppliers of goods and services to adapt to new technology and change work ethics to improve productivity and efficiency in addition to providing quality services to remain relevant. It also entails that the workforce be equipped with skills, knowledge, and attitudes necessary for increased levels of productivity. It is important to note that several manufacturers are still using traditional materials like steel and timber instead of currently preferred aluminum and plastic products for training and production of goods.

The change-over will require new techniques and upgraded tools. This was evident during the TNA exercise as several production supervisors articulated their employees need training on operation and maintenance of new automated machinery used in their production processes.

Only a few employers in the country have documented job descriptions, job specifications and performance standards by which the output of the workforce can be measured. It is now necessary for large companies and Micro, Small and Medium Enterprises (MSME) to define competencies required to perform jobs and the training needed to bridge the skill gap in the various sectors. Skill gaps occur when employees are not 'fully proficient' in their job. This rang true for the KAM members that participated in the TNA with most production supervisors commenting that new employees usually lack the technical skills to make them immediately productive and a company will need to conduct intensive on-the-job training which can last anywhere from 6 months to 1 year.

The Ministry of Industrialization and Enterprise Development (MOIED) has developed a strategic, comprehensive, and integrated program entitled Kenya Industrial Transformational Master Plan (KITMP) to guide Kenya on its journey to industrialization. The objective of the Economic Pillar of Vision 2030 is to create a robust, diversified, and competitive manufacturing sector in three ways: boosting local production, expanding to the regional market, and taking advantage of niches in the global market.

To realize these opportunities, there are six challenges to overcome: infrastructure and land availability, skills and capabilities in priority sectors, quality of inputs, cost of operation, access to markets and investor-friendly policies. The second of the six challenges, relating to levels of skills is aligned to KAM priorities for skills upgrading within industry.

KAM operates in 14 leading sectors in the Kenyan economy, presented in the table below and the TNA exercise sampled companies operating in these sectors to capture a holistic view of the technical training skills landscape.

1. Agriculture & Fresh Produce	2. Leather & Footwear	3. Plastics & Rubber
4. Building Mining & Construction	5. Metal & Allied	6. Services & Consultancy
7. Chemical & allied	8. Motor Vehicle Assemblers & Accessories	9. Textiles & Apparel
10. Energy & Electronics	11. Paper & Board	12. Timber, Wood & Furniture
13. Food & Beverages	14. Pharmaceutical and Medical Equipment	

*Figure1: Leading Sectors in the Economy*



*Work Readiness Training at Jacaranda Nairobi*



## 4.0 APPROACH AND METHODOLOGY

### 4.1 Design of Training Needs Assessment Tools

The following tools were developed and shared with the client:

- Observation Tool
- Stakeholder's Questionnaire
- Managers Questionnaire
- Technicians Questionnaire

The methodology that the consultancy applied to realize the deliverable can be described as follows;

### 4.2 Structured Meetings and Site Tours

- TI Visited 34 companies in 12 Sectors
- Visits were conducted in: Mombasa, Central, Nairobi, Nakuru, Eldoret and Kisumu regions.

### 4.3 Structured Interviews and on-site Observations within Industries

An Observation Tool was used to give a general overview of the production processes, products made, number of employees and the general conditions of the manufacturer.

The visits went through the following steps;

- I. Debriefing with HR Manager to ascertain the key respondents
- II. Factory tour (upon request); this allowed a brief overview of the manufacturer's production process and workforce.
- III. Interview session with Production Manager/ Supervisors; these sessions allowed thorough understanding of the manufacturer's production method and workforce skill requirements.
- IV. Interview session with 2 or more technicians, i.e. electricians and machine operators, where technicians provided in-depth perspectives of their skills gaps and training requirements.



*KAM CEO presenting a recognition letter to Osho Chemicals HRM for their commitment in TVET program*

### Through the TNA exercise the Consultancy was able to:

- (a) Identify existing skills and competency levels among employees (YP graduates and out-of-school youth-training needs analysis).
- (b) Identifying and mapping out critical skills required for competence to be achieved (critical skills gap analysis).
- (c) Generating recommendations on the viable skills upgrading options to impart necessary skills to employees.

## 4.4 Interviews with Training Institutions and Key Informants

The assignment required engagement with select training institutions as industry routinely engages trainees from such establishments. Industry would also benefit from up-skilling their technical personnel in some of the TVET institutions.

The consultancy interviewed key informants from KTTC, SOS Buru Buru and KITI institutions based in regions the TNA spanned.

## 4.5. Data Analysis and Reporting

The data and information gathered from the field visits and interviews was collated and analyzed by the Consultancy. The data was categorized into themes and the assignment report generated.

- Suppliers of manufacturing equipment and machinery offer training on the use of the machinery as soon as the equipment is purchased however there is little to no training on trouble shooting and programming for the machinery.

Most technical staff are skilled only around the task they perform, i.e. sewers may not be able to perform other functions other than sewing using their allocated machine.



Linking Graduates with Industries in Mombasa



## 5.0 KEY FINDINGS

KAM provided the Consultancy with a membership list of 68 companies that are participating in the ongoing KAM TVET program. The 68-member industries are spread across 6 regions and cover 13 sectors.

The regions are Nakuru, Nairobi, Eldoret Mombasa, Central and Kisumu. The results indicated that there were findings common to all sectors. These were on production processes, on job training and up skilling, criteria for recruitment, training within industry vis- à-vis TVET Institutions, internship schemes, lack of skills beyond basics and technical skills mismatch.

### Production Processes

- Most manufacturing production processes are mechanized and parts of the finished product move through an automated system and operate within an assembly line with machine operators/technicians having specific specialized tasks at each point of the assembly line.
- Most machine operators are only involved with one stage in the production process and may have knowledge of the entire production process but cannot necessarily perform those functions.
- Most production processes are conducted in two 8-hour shifts or one 8-hour shift.
- Different companies operating in the same sector have specialized technical skill needs for their specific production procedures.
- For most industries, a maintenance department caters for all troubleshooting, repair, and upkeep of machinery.
- The most critical stages of production differ per company. Although commonly use of vacuums, compressed air and steam, plus unplanned changes in the vital stages tend to cause major losses and significantly affect quality of output.



### 5.1 On-the-Job Training and Up-skilling

- Electricians and plumbers need to have formal skills training.
- Trained technical staff still require on the job training as institutions offer courses that are not informed by industry.
- On-the-job training can take 6 months to 2 years depending on the complexity of the production process.
- Some industries train their technical staff cross-functionally but this is not the norm.

### 5.2 Criteria for Recruitment

- The criteria for recruitment are completion of high school, Form 4 certificate, and in some cases the minimum requisite is basic literacy levels.
- For more manual processes, industry prefers male operators whereas in areas requiring refined technical skills such as stitching, or Colour dyeing, female operators are preferred.

### 5.3 Training within Industry versus TVET Institutions

- There is a great need for training in energy management, water management and Computer Aided Design (CAD) across the sectors.
- The nature of most production processes will not allow for training to be arranged offsite.
- Most companies are comfortable releasing employees to undergo onsite training so as not to disrupt company operations and to ensure that specialized machinery used during training.
- Institutions cannot afford to tailor courses to suit these specialized needs.
- Industry is keen to equip machine operators with soft skills, i.e. communications, work ethics, time management, and anger management.
- The internship programme was initiated and implemented with the KAM and GIZ E4D/SOGA Programme where
- Member companies engage interns from KAM, NITA, Don Bosco, and other training institutions on a regular basis.
- These interns are usually absorbed as fulltime employees due to the exposure they will have received through on-the-job training and understanding of the manufacturing processes.
- Member companies are open to an apprenticeship/attachment programs to enhance the quality of interns they engage with.

### 5.4 Lack of Skills beyond the Basics In:

- Apparel production (e.g. - design and embellishments are needed for seasonal goods and fast fashion)
- Specialized sewing machine mechanics.
- Expertise to produce finished leather and leather products.

- The talent pool of engineers in key sectors (e.g. construction, oil, and mining) and for qualified professionals for BPO.
- SME knowledge, access to market and credit restrict company development.

### 5.5 Technical Skills Mismatch

- Industry stakeholders raised concern about the skills mismatch between industry and trainers and attributed it to the fact that training content in formal institutions is not reviewed as frequently as industry evolves.
- Industry demands unique skill sets, owing to specialized machinery used in their production processes.
- Training Institutions are willing to impart the specialized skills to trainees to suit specific industry demand, if industry supports them.
- The solution lies in customizing short courses focusing on the specific skills required by industry.
- It would also be beneficial to both industry and institutions if trainers gain practical experience with industry operations and develop knowledge on practical aspects of the production process where trainees will be mostly involved.
- Developing a flexible and blended training programs where trainees acquire demand-driven competencies, placing emphasis on apprenticeship, simulation (where applicable) training programs in industry. This would require industry to provide prototypes with institutions to inform the curriculum or training packages.
- Have a well-coordinated training content development program, between industry and CDAC where the industry set, standards, and CDAC industry collaboration develops the content and instructors.

# 6.0 OBSERVATIONS AND RECOMMENDATIONS

## 6.1 Observations

1. Industry would like to contribute to training and skills development among the youth if a formalized program is implemented.
2. The attachments and internship programs are important for the youth skills training and industry is ready to upgrade the skills of the employees if training can be conducted onsite without affecting operations.
3. The industries are ready and willing to collaborate with TVET institutions and the government to develop a competency based curriculum to impart appropriate practical skills for the job market.

## 6.2 Recommendations

KAM together with the Government need to create a forum for industries and TVET institutions to work together in;

1. Development of competence based curriculum and a collaborative framework for implementation.
2. Continuously update technical training institutions with the evolving technology and machinery applicable in industry.
3. Promoting industrial research, development, and innovations in engineering.
4. Offering consistent and timely internships for industry.
5. Providing a conducive environment for industrial growth and development by reducing costs of power and taxation to potential employers especially those exploiting local resources.
6. Building capacity of industries to grow through adoption of more production techniques that would reduce production costs and improve employability opportunities.
7. Training industry employees in appropriate vocational skills, life skills and safety in order to improve their performance and productivity.
8. Develop a regular training programme for upgrading and updating the skills of all industrial staff in order to maintain an industrial capacity that is able to cope with the fast changing global technological and competitive environments.

# 7.0 CONCLUSION, OPPORTUNITIES FOR KAM AND WAY FORWARD

## **KAM Role in National Mediation between Educators/Trainers and Industry Actors**

The current skills sector in Kenya is in dire need for a bridging dialogue and structured way forward between the skills needed by industry and the rather lacking training taking place in Technical Training Institutions (TTIs). The public and private TTIs continue to operate 'conveyor belt' production of technicians who are joining the labour market. Unfortunately, industry is unable to absorb such technicians as work-ready and subject them to the same type of basic training that untrained recruits undertake.

The gap existing between education and industry is one that can be bridged by key stakeholders representing industry. And herein lies a very unique opportunity for KAM to play a mediator role bringing the Industries, Training providers, Ministry of Labour, Ministry of Education (TVET & TVETA), regulators like NITA, and other relevant stakeholders like the Kenya National Chamber of Commerce and Industry (KNCCI) together to map the way forward in the planning of appropriately suited technical training which feeds industrial growth in the country.

## 7.1 Development of Training Curricula for Technicians in Priority Areas

There is immediate need for KAM to develop training curricula based on the identified needs and to ensure that such curricula is specialized in technical skills dictated by industry needs. One of the ways to attain synergy with industry is to align the specific skills training areas identified or based on the actual industries covered in this Consultancy. Priority areas of training include; Skills upgrading in diverse trade areas depending on the target industries e.g. gas or arc welding

of specific metals, industrial safety of workers, optimal utilization of resources and systems for enhancing efficiency e.g. Kaizen, ISO certification, management for high performance and life skills.

Nearly all companies visited require machine operators, who can handle machines currently used in the respective industries. As such, a generic curriculum needs to be developed for machine operators and then customized to the machinery in use per industry.

The development of training curriculums should also cover other skills in demand across most sectors.

The priorities for training as identified during the Consultancy include the following:

1. Industrial electrical installation and industrial electronics
2. Production supervisory work
3. Boiler attendant/installation/maintenance
4. Welding and fabrication/mechanical fitters
5. Carpentry and joinery
6. Production design (especially with use of Arc CAD)
7. Quality control

## 7.2 Additional In-Demand Skills for Specific Sectors

Should KAM Academy have the capacity and ability to extend the development of training curricula, it is recommended that KAM conducts training for the following skills:

- i Laboratory technician/industrial chemical analyst for the chemical and Allied sector
- ii Textile technologists for Textile and Apparels sector



- iii. Solar panel manufacturing and maintenance for Energy, Electricals, and Electronics
- iv. Millers for the Food, Beverage and Tobacco Sectors

### 7.3 Soft Skills Training

Traditionally, life-skills are emphasized in formal education however, the need to do so in vocational training is apparent. Industries articulated the need for continuous training in life skills for technical and artisanal employees. Most industries profiled during the study mentioned the need for singular or multiple soft skills courses in areas such as Time Management, Conflict Resolution, Record Keeping, Team Work and Work Ethic (including adherence to safety and occupational health procedures).

### 7.4 Areas of Further Research

In developing updated circular, KAM should conduct further investigation to detail the practical skills and exposure technicians require in fulfilling industrial competency.

Comprehensive job descriptions devised or reviewed by industry players and shared with TTI instructors in industry and curriculum design specialists would significantly contribute to the development of standardized courses.

A research department pertaining to technical skills and industry needs should be instituted at KAM Academy to ensure that the evolving techniques in industry are a consistent reference point for Kenyans TTIs.

### 7.5 Technical Skills Training / Upgrade through Short Courses

As noted in the sectoral skills gaps in this Consultancy KAM member industries have articulated the priority areas in training. Upon development of the training curricula, it is recommended that KAM should roll out the training programme, focusing on short up-skilling courses that take place within industry or as proximate as possible so that technicians can undertake the training while continuing with their jobs. The main concern of industries is to prevent disruption of operations by the extended absence of technical or production personnel. KAM should therefore plan the training programme in accordance to the preferred schedule of the industries.

## 7.6 Field Work Schedule by Companies Visited

### 7.6.1 List of 34 Companies (with Sector, Region and Date) Visited by Toolkit Institute

	NAME OF INDUSTRY	REGION	SECTOR	DATE VISITED
1	Kenya Vehicles Manufacturers Ltd	Central	Motor Vehicle	2/10/2017
2	Universal Cooperation Ltd	Central	Pharmaceutical & Medical Equipments	2/10/2017
3	Vallem Construction	Central	Motor Vehicle	2/10/2017
4	Norbrook Kenya Ltd	Central	Chemical and Allied	3/10/2017
5	Coopers K Brands Ltd	Nairobi	Chemical and Allied	3/10/2017
6	Rexe Roofing Products Ltd	Nairobi	Timber, Wood Products and Furniture	3/10/2017
7	Capwell Industries	Central	Food, Beverages and Tobacco	4/10/2017
8	United Aryan Ltd	Nairobi	Textile & Apparels	4/10/2017
9	Rongai Workshop&Transport Ltd	Nakuru	Motor Vehicle	4/10/2017
10	Bata Shoe Company Ltd	Central	Leather and Footwear	5/10/2017
11	Megh Cushion Ltd	Nairobi	Motor Vehicle	5/10/2017
12	Mega Pack Ltd	Nakuru	Metal and Allied	5/10/2017
13	Reliable Concrete Works Ltd	Nakuru	Building, Mining and Construction	5/10/2017
14	Mutsumoto	Nakuru	Motor Vehicle	5/10/2017
15	Shayona Timber	Nakuru	Timber, Wood Products and Furniture	6/10/2017
16	Solinc E.A Ltd	Nakuru	Energy, Electrical and Electronics	6/10/2017
17	African Coffee Roasters	Nairobi	Food, Beverages and Tobacco	9/10/2017
18	EPZA	Nairobi	Food, Beverages and Tobacco (Edible Oil)	9/10/2017
19	Fantex Ltd	Eldoret	Textile & Apparels	10/10/2017
20	Eldoret Grains	Eldoret	Food, Beverages and Tobacco (Edible Oil)	10/10/2017
21	Nodor	Nairobi	Timber, Wood Products and Furniture	10/10/2017
22	Earth Oil	Nairobi	Food, Beverages and Tobacco (Edible Oil)	10/10/2017
23	Rivatex Ltd	Eldoret	Textile & Apparels	11/10/2017
24	Rai Plywood's	Eldoret	Timber, Wood Products and Furniture	11/10/2017
25	Adec	Nairobi	BPO	11/10/2017

26	Kibos Sugar and Allied Industries	Kisumu	Food, Beverages and Tobacco	12/10/2017
27	Foamatt	Kisumu	Timber, Wood Products and Furniture	12/10/2017
28	Jumbo Mattress	Kisumu	Timber, Wood Products and Furniture	13/10/2017
29	Kapa Oil Refineries Ltd	Nairobi	Food, Beverages and Tobacco (Edible Oil)	13/10/2017
30	Kisumu Concrete Ltd	Kisumu	Building, Mining and Construction	13/10/2017
31	Ashton Apparel	Mombasa	Textile & Apparels	23/10/2017
32	Alpha Logistics Services	Mombasa	Marine	23/10/2017
33	Kentaste Ltd	Mombasa	Food, Beverages and Tobacco	24/10/2017
34	Umoja Rubber Ltd	Mombasa	Plastics and Rubber	24/10/2017

### 7.6.2 List of Key Stakeholders and Informants Interviewed by Toolkit Institute

NO.	PERSON INTERVIEWED	NAME OF INSTITUTION
1	Mr. James Chege	Rift Valley Technical Training Institute (RVTTI)
2	Mr. Willy Rotich	Kenya Industrial Training Institute (KITI)
3	Mr. Gabriel Maina /Ms. Agnes Nindi	SOS Technical Training Institute, Buruburu
4	Mr. Stephen Ogenga/ Mr. William Mwanza	National Industrial Training Authority (NITA)
5	Ms. Alice Atogo	Export Processing Zone Authority (EPZA)
6	Ms. Joyce Njogu	Kenya Association of Manufacturers (KAM)

## 8.0 KEY REFERENCE DOCUMENTS

1. Kenya Vision 2030
2. Kenya Vision 2030 Medium Term Plan II
3. The Third Medium Term Plan for Vision 2030 (MTP III)
4. The Industrial Training Act, 2012
5. The Technical and Vocational Education and Training Act, 2013
6. Kenya National Qualification Framework Act, 2014
7. Kenya Industrial Transformation Program (KITP)
8. UNDP: Skills Gap Analysis for Graduates of Youth Polytechnics, Vocational Training
9. Centers and Out of School Youth Report, 2014.

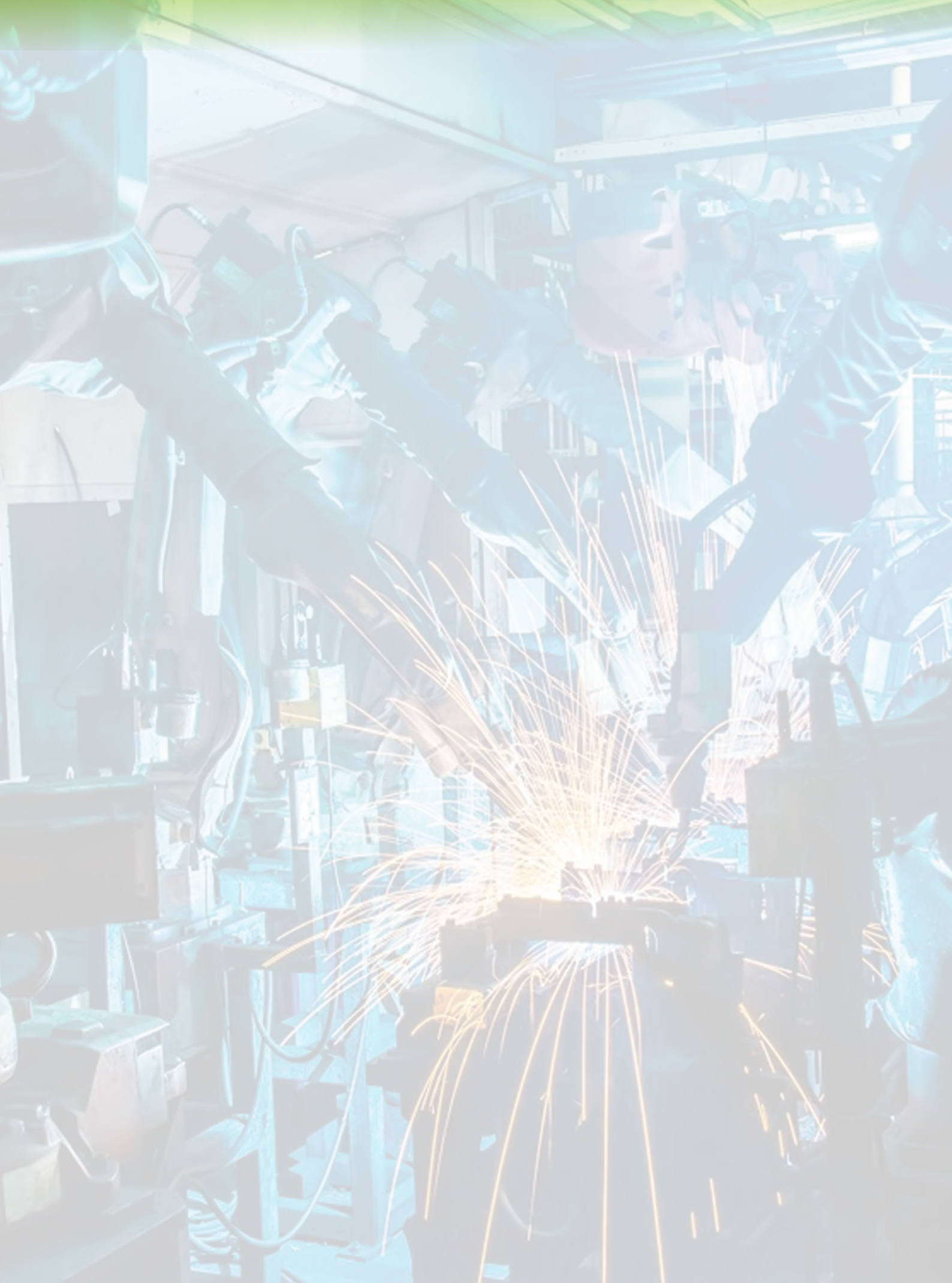




# Pictorial











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