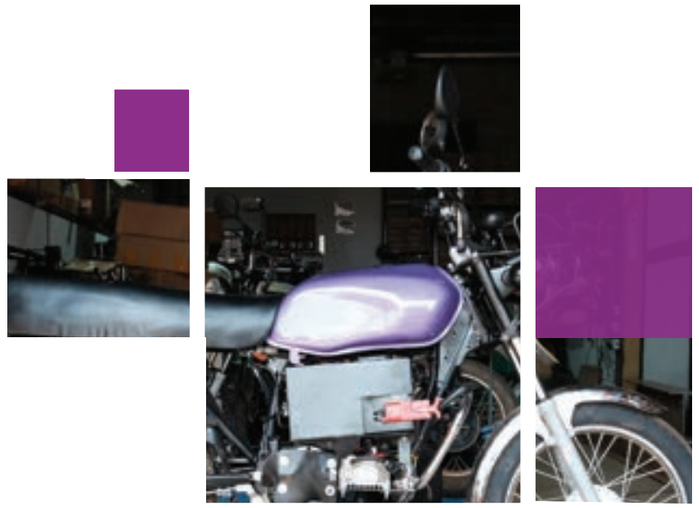

MANAGERS' TRAINER'S MANUAL

E-MOTORCYCLE

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Directorate of Industrial Training.

The manual was prepared and reviewed by the Bodawerk International Ltd.

August 2023

ACRONYMS

E4D	Employment and Skills for Development in Africa
PREEEP	Promotion of Renewable Energy and Energy Efficiency Programme
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
MEMD	Ministry of Energy and Mineral Development
ATP	Assessment and Training Package
DIT	Directorate of Industrial Training
HV	High Voltage

INTRODUCTION

The transition to renewable energy in the mobility sector has the potential to decouple the cost of public transport and transportation of goods from the global oil market while reducing pollution and addressing climate change issues. Multiple stakeholders in East Africa have taken up the challenge, trying to initiate or accelerate the transition to E-Mobility. This process includes its own challenges and hurdles.

One major challenge is the availability of talent with the right skills and tools to support the operations of these companies and vice-versa, many young East Africans lack the necessary education and skills in relevant fields and trades to participate in the transition to renewable energies. Therefore, there is a gap between the private sector efforts and the current educational and skilling levels among the youth. The transition to renewable energies requires closing of specific skills gaps on the managerial, technical and end-user level.

On the managerial level, modern workplace skills and competencies (including the use of digital solutions, project management and basic technical understanding of renewable energy technologies) are required to ensure the relevance and productivity of Ugandan managers.

For technicians, knowledge about renewable energy technologies, their specific applications e.g. electric motorcycles and hands-on skills to maintain technology are crucial. In the experience of Bodawerk International Ltd, the diagnosis of a problem in an electric vehicle plays a very important role.

Additionally, the end-user requires training to ensure a successful technology transfer and sustainable operation of renewable energy technologies. Besides a basic technical understanding, it is of utmost importance to educate users about road safety practices. This includes promoting awareness of traffic rules and regulations, safe driving techniques, and the importance of adhering to speed limits among other safety precautions.

We integrate the inclusion of financial literacy. This is because the technology transfer will largely happen on a financed basis, in order to successfully complete a financing scheme (e.g. lease-to-own/PAYGO), the end-user must understand the key success factors of managing such a loan. A comprehensive understanding of financial concepts is essential for the seamless execution of financing schemes such as lease-to-own or pay-as-you-go (PAYGO).

The development of applied and certified training will allow the Ugandan workforce to benefit from the economic potential of the transition to renewable energies. Vice-versa, the availability of a productive workforce with a sector-specific skill set will enable the growth of the renewable energy and specifically e-mobility sector fueled by private sector investments.

1.1 Purpose of the Guide

This manual is an integral component of a comprehensive set consisting of three distinct manuals, individually tailored to cater to three occupations within the electric vehicle industry; managers, technicians, and operators.

The primary purpose of this manual is to provide instruction for trainers or facilitators to plan for and carry out upskilling and in-service training of operators of the e-motorcycles by any individual or institution interested in providing capacity building for the named category.

1.2 Using the Manual

This manual focuses on the preparation for and organization, implementation, and evaluation of training for e-motorcycle operators. The intention is to provide facilitators with basic training techniques and resources summarized in a simple and easily understandable manner. It is expected that facilitators will employ the processes and approaches prescribed in the manual when training the aforementioned category of users in the operation of the e-motorcycle.

Facilitators should ensure that the content is adapted to suit individual situations and target audiences, including participant skill and experience levels in operating an e-motorcycle. The content can be presented by a facilitator and/or used by fellow operators whose capacities have been built individually or in groups using methodologies that are appropriate to each module. Training methods and approaches are not rigid and so a facilitator, in his/her planning, should choose the best methods that suit the category and context of a particular group of participants and are included for relevant practical topics.

Whereas training can occur at an offsite (e.g. a temporarily set-up training space) or onsite location, we would very much prefer that training takes place onsite at a fully-fledged e-mobility facility. This is important because actual e-mobility practices and skills can be demonstrated/observed to and by the operators immediately.

A fully-fledged e-mobility facility encompasses a comprehensive infrastructure and resources to support various aspects of electric mobility training key considerations and requirements could be in terms of:

Physical space: The training venue should have adequate space to accommodate training activities, including classrooms, practical training areas, and workshops. The size of the space should be determined based on the expected number of trainees and the types of training activities to be conducted.

Charging Infrastructure: The training venue should include charging infrastructure to facilitate hands-on training and practical sessions. This includes charging stations or access to charging equipment.

Vehicle Fleet: Electric motorcycles should be available at the training venue to provide rainees with hands-on experience.

Integration with IT Systems: The training venue should have the necessary IT infrastructure to support digital training materials, simulations, and interactive learning experiences. This may include computers, internet access, and software

However, off-site training can be done away from an e-mobility facility for reasons of the practical operation of the motorcycles, experiencing new learning spaces through exposure visits or for reasons related to building synergies with other technical partner institutions or sector stakeholders. To ensure that the training is a success, users of this manual should carefully read and fully comprehend the content.

Considering the breadth of knowledge and practical skills to be covered, it is advisable to allocate a duration of days for this intensive training program. This timeframe allows for a structured and in-depth exploration of key concepts while providing ample opportunities for hands-on practice and interactive learning.

To effectively utilise these 6 days, the facilitator should split the training into well-defined modules, each addressing specific aspects of e-mobility. By dividing the content into logical segments, trainees can immerse themselves in focused earning, gradually building their understanding and expertise.

1:3 Target Users of the Training Manual

The target users of the manual are individuals and institutions (government, NGOs, private sector players, vocational training institutions) who are interested in building the capacity of emotorcycle fleet managers.

1.4 Organisation of the Manual

The training program consists of four modules, each with a specific focus.

Module 1 is an introduction that provides a comprehensive overview of the training, including an introduction to the features and functionality of the electric motorcycle and its different parts how they differ from the conventional ones.

Module 2 focuses on Electrical Conversion building the competencies and skills of technicians to convert the conventional petrol-powered power train to the electrical power train used by electric motorcycles.

Module 3 focuses on building the competencies and skills of technicians' practical transformation of the chassis of the conventional motorcycle to be able to receive the motor and the mounts.

Finally, in **Module 4**, focuses on troubleshooting to i dentify the errors and faults on both the mechanical and electrical components of the e motorcycle.

Lastly, **Module 5** focuses on the assessment and evaluation of theoretical and practical assessments during and after the completion of the training modules.

The E-Motorcycle Training Manual provides all the necessary information required to conduct the training effectively. The manual includes a list of learning outcomes that participants will gain during the session. The session overview provides details on teaching methods, time required, and materials needed for each activity. The manual also includes a series of training activities with step-by-step instructions that explain how to carry out the activities

OCCUPATIONAL PROFILE FOR AN E-MOTORCYCLE FLEET MANAGER

The occupational profile for an E-motorcycle Fleet Manager defines the duties and tasks a competent Manager is expected to perform in the world of work (on the job), in the e-mobility sector. Since it reflects the skill requirements of work life, the Occupational Profile is the reference document for the subsequent development of a curriculum, training modules and assessment instruments (test items) which are directly relevant to the duties and tasks of a manager in the e-mobility space, particularly e-motorcycle fleet manager.

Two key issues arise when looking at the Occupational profile of an E-motorcycle Fleet Manager:

1. Since e-mobility is quite a new field in Uganda, the Fleet Managers do not yet fully appreciate and understand the intricacies of calculating costs and failure mechanisms, defects and maintenance schedule that accompanies management of such a fleet. Needless to say, a number of the managers are now used to the existing fuel-powered machines and are, experientially, well acquainted with their performance weaknesses and strengths; but not the e-motorcycles.

2. Costs of acquisition machines are quite prohibitive for most of the operators and yet in the long run the cost of ownership is low. They therefore have to operate machines for other people, ride to own or enter into a hire purchase agreement/credit financing arrangement to own one. This therefore means it is important for them to manage the finances generated from their use of the vehicles prudently to manage their obligation to the financing or leasing firm. As such, managing their sales and revenue becomes a duty on their side and forms part of their profile.

Duties and Tasks of an e-motorcycle Fleet Manager

By definition, a duty describes a large area of work in performance terms and also serves as a title for a cluster of related tasks. This means the duties of an E-motorcycle Fleet Manager within the e-mobility space relate to the broad areas within which their daily activities are clustered, and these are majorly planning for their work, implementation of the planned activities and reporting and documentation for effective delivery of results and also optimum utilisation of resources.

Meanwhile, a task or job tasks represent the smallest unit of job activities with a meaningful outcome. Tasks result in a product, service, or decision. They represent an assignable unit of work and have a definite beginning and ending point. Tasks can be observed and measured.

With the advent of technology and the changing operational dynamics, most of these responsibilities are best executed using digital organisation tools. It is therefore a basic requirement to understand and work with these tools at the beginner level, including filling of online capture forms, updating of sheet data, as well as timeline updating through progress reporting. It would then be prudent that managers in the e-mobility space have their capacities built on basic components and functionality of electric motorcycles and also digital and smart management information and digital organisation tools.

Duties and Tasks of an E-Motorcycle Fleet Manager

DUTIES	TASKS		
Duty A	**A1**	**A2**	**A3**
Undertake planning	Identify periodic tasks and sequence them in years, months & weeks.	Prepare operational plans	Prepare activity sheets
	A4	**A5**	**A6**
	Prepare budget	Allocate tasks to downlines and peers.	Design concepts notes
	A7	**A8**	**A9**
	Make work plan	Identify team members for a task	Organise meetings for both strategic and operational stakeholders.
Duty B	**B1**	**B2**	**B3**
Organising	Identify activities	Group activities	Assign tasks and assignments
	B4	**B5**	**B6**
	Make and confirm appointments.	Consult different stakeholders.	Determine and assign deliverables.
Duty C	**C1**	**C2**	**C3**
Staffing	Manpower/Human resource planning	Select and recruit staff	Assign staff duty stations or operating units.
	C4	**C5**	**C6**
	Induct and orient staff	Identify and map human resource capacity/gaps	Training and develop the capacity of staff.
	Appraise and evaluate staff performance.	Promote and transfer staff.	Fairly compensate staff
Duty D	**D1**	**D2**	**D3**
Directing	Supervise staff	Motivate staff	Counsel and guide staff
	D4	**D5**	**D6**
	Communicate to staff both verbally and in text.	Lead the staff	Develop a winning team
Duty E	**E1**	**E2**	**E3**
	Establish performance standards	Measure performance	Compare performance to planned action
Controlling	**E4**	**E5**	**E6**
	Undertake remedial action	Set measurable targets	Set resources usage thresholds.
	Monitor and evaluate processes	Automate processes	Reprimand and punish human resources
Duty F	**F4**	**F5**	**F6**
Maintain records	Prepare job cards	Maintain inventory	Keep track and record of log sheets and equipment maintenance schedule.
	F4	**F5**	**F6**
	Store tools, materials and equipment	File and store records	Obtain, keep and use service manuals for the electric motorcycles.
Duty G	**F1**	**F2**	**F3**
Perform administrative function	Prepare reports	Manage finance	Supervise workers
	F4	**F3**	**F6**
	Laisse with stakeholders' customer feedback	Assign work	Procure and dispose of tools, materials and equipment.

Skills and Competencies

- Effectively communicate to a team
- Delegation of roles and responsibilities
- Motivating staff and peers
- Organising and managing tasks
- Building effective teams
- Self-development
- Emotionally intelligent
- Leadership competencies
- Public relations competencies

MODULE 1: INTRODUCTION TO E-MOBILITY AND E-MOTORCYCLE

Overview: The purpose of this module is to enrich participants' understanding of the e-mobility space and also how e-motorcycles are different from the conventional ones including knowledge on the different parts and their uses.

Sub-module 1.1: The Transition to E-Mobility (Trends, Global, Regional and National Perspective)

Overview: This section covers what e-mobility is, why it is a new phenomenon and the advantages and disadvantages that come with it. The module shall also cover the adoption and uptake of e-mobility around the world, East Africa and Uganda specifically.

By the end of the session, participants shall be able to;

1. Understand and explain of what e-mobility, the key concepts and technologies associated with e-mobility.
2. Explain the advantages and disadvantages of e-mobility in terms of the environmental, economic, and social benefits and factors that influence adoption.
3. Understand the challenges and limitations it presents in terms of infrastructure, range anxiety, and battery technology.

Time: 2 Hours

Tools, Equipment and Materials

- Computer
- Projector

1 STEP

Welcome participants to the managerial training for e-mobility and ask them to introduce themselves.

- Inquire about the training goals and expectations of the participants.
- Request each participant to jot down their expectations on a sticky note and place them on a previously prepared board designated for expectations.
- Share your own professional background in the field of e-mobility and encourage participants who possess relevant experience to provide a brief over view of their own experiences to the entire group.

2 STEP

Define e-mobility from a broad perspective listing other types of electric vehicles like electric scooters, bicycles, buses, and tractors

- Show participants pictures projected on a screen of the various types of electric vehicles and discuss each type briefly.
- Allow participants to ask questions and provide feedback.

3 STEP

Engage in a discussion about the e-mobility industry by utilizing visual aids such as logos and images showcasing products or services offered by various players in the sector. This can include a diverse range such as automakers, battery manufacturers, charging infrastructure providers, ride-sharing companies, and asset financing companies, both from local and international contexts.

4 STEP

Using visual aids such as pictures discuss the environmental advantages of e-mobility, such as reduced greenhouse gas emissions and air pollution.

5 STEP

Discuss the economic benefits, including potential cost savings through reduced fuel and maintenance expenses. Highlight the social benefits, such as improved air quality, and noise reduction.

6 STEP

Identify and explain the key factors that influence the adoption of e-mobility, such as government policies, incentives, and regulations.

- Discuss the role of charging infrastructure availability and accessibility.
- Explore the impact of consumer attitudes, range anxiety concerns, and perceived performance limitations on the adoption of EVs.

7 STEP Share real-world case studies and success stories of e-mobility implementation in different regions.

- Encourage learners to explore innovative solutions and initiatives in the field of e-mobility.

8 STEP Assignment: Divide the class into groups and assign each group one learning outcome to review research papers, industry reports and provide a brief presentation the next day.

Sub-module 1.2: Design and Functionality of the E-Motorcycle

Overview: This section shall cover the design of the e-motorcycle and its different parts/components and their uses and an overview of some safety precautions to be observed at a high level.

By the end of the session, participants shall be able to:

1. Understand and explain the design of the motorcycle and its components.

Time: 1 Hour

Tools, Equipment and Materials

- An electric motorcycle.
- Petrol powered motorcycle.

NOTE: In the absence of the two, drawings of them shall be used

1 STEP Discuss the uses of the various components while providing participants with a hands-on opportunity to examine and appreciate an electric motorcycle, allowing them to physically interact with the various components that constitute what makes up an electric motorcycle such as the battery, controller, DC-DC converter.

2 STEP Discuss how an electric motorcycle works and delve deeper into the safety precautions undertaken during the preparation of components and electrical and mechanical conversion of the electric motorcycle.

3 STEP Discuss the impact of design choices on performance, efficiency, and safety.

Sub-module 1.3: Conventional vs converted motorcycles - a comparison

Overview: This section covers the differences between the conventional motorcycle and the electric motor cycle after undergoing the conversion process. The advantages and disadvantages of the electric motorcycle measured against the traditional cycles shall be discussed here.

By the end of the session, participants shall be able to:

1. Understand and explain the key differences between conventional motorcycles and electric motorcycles.
2. Explain the advantages and disadvantages of the electric motorcycle.

Time: 2 Hours

Tools, Equipment and Materials

A conventional and electric motorcycle.

NOTE: In the absence of the two, drawings of them shall be used.

1 STEP Initiate a discussion among participants to conduct a physical comparison between a petrol-powered motorcycle and an electric motorcycle.

2 STEP Highlight the growing interest in electric motorcycles to alternative fuels and the importance of understanding the differences between these two options. Explain the advantages and considerations of electric motorcycles, including reduced emissions, potential cost savings, and technical challenges.

3 STEP Present an overview of conventional motorcycles, including their history, design, and key components.

- Discuss the types of conventional motorcycles, such as sport bikes, cruisers, and touring bikes.
- Explain the advantages and considerations of conventional motorcycles, including performance, fuel efficiency, maintenance, and availability.

4 STEP Compare the performance characteristics of conventional motorcycles and converted motorcycles.

- Discuss factors such as acceleration, top speed, range, and power delivery.
- Showcase real-life examples or case studies of converted motorcycles to highlight their performance capabilities.

5 STEP

Compare the maintenance requirements and availability of parts for conventional motorcycles versus converted motorcycles.

- Discuss the challenges associated with maintaining converted motorcycles, such as specialized components and limited service centers.
- Highlight the importance of considering maintenance and availability factors when choosing between conventional and converted motorcycles.

6 STEP

Explore the customization and personalization possibilities offered by both conventional motorcycles and converted motorcycles.

- Discuss the extent of modifications and the creative freedom available in each option.
- Share examples of customized conventional and converted motorcycles to inspire participants.

MODULE 2: ELECTRONIC TECHNOLOGY ECOSYSTEM

Overview: The purpose of this module is to enrich participants' understanding and appreciation of the environment in which the electronic technology e.g. digital electronics, circuit
Designs etc are operated. operation of the motorcycles.

Sub-module 2.1: Sustainable Mechanisation - a case for E-Motorcycle

Overview: This section covers sustainable mechanisation practices and innovations with the e-boda being an innovation that helps in minimising carbon footprint, noise and air pollution. A key consideration shall also be made on its relative affordability, the ease of maintenance and the use of renewable energy sources in charging batteries of the same.

By the end of the session, participants shall be able to:

1. Explore sustainable mechanization practices and innovations with a focus on the *e*-boda as an innovative solution. The e-boda aims to reduce carbon footprint, noise, and air pollution.
2. Evaluating the affordability, ease of maintenance, and use of renewable energy sources for charging the EV's batteries.

Time: 1 Hour

Tools, Equipment and Materials

- Computer
- Projector.

1 STEP

Introduce the e-boda as an innovative solution for sustainable mechanization.

- Highlight the importance of finding eco-friendly solutions to reduce carbon footprint, noise, and air pollution.

2 STEP

Provide an overview of sustainable mechanization practices, emphasizing the need to minimize environmental impact while maximizing efficiency and productivity.

- Discuss examples of sustainable mechanization practices in the e-mobility sector.

3 STEP

Explain how the e-boda aims to reduce carbon footprint, noise, and air pollution.

- Share success stories or case studies highlighting the positive impact of the e-boda in real-world scenarios.

4 STEP

Discuss the key factors to consider when evaluating the e-boda, such as affordability, ease of maintenance, and the use of renewable energy sources for charging its batteries.

- Present information on the relative affordability of the e-boda compared to traditional mechanization solutions.

- Explore the maintenance requirements of the e-boda and compare them with conventional machinery. Discuss the use of renewable energy sources, such as solar or wind power, for charging the e-boda's batteries.

6 STEP

Share case studies or examples of organizations or industries that have successfully implemented the e-boda or similar sustainable mechanization innovations.

- Discuss the benefits and challenges they encountered during implementation.
- Facilitate a discussion on how these examples can inspire participants to explore sustainable mechanization practices in their own contexts.

Sub-module 2.2: Electronic Wastes Disposal and management

Overview: This section covers the safe practices for waste disposal with a particular focus on electronic waste. It focuses on proper management practices like reuse, regulated recycling, material recovery, incineration, and landfilling. Mainstreaming and institutionalising this practice at the different workplaces shall also be a key focus.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

- Computer
- Projector
- Samples of e-wastes like dead batteries etc

By the end of the session, participants shall be able to:

1. Understand and explain the importance of safe practices for waste disposal, including the handling of e-waste.
2. Understand and explain proper management practices for e-waste, such as reuse, regulated recycling, material recovery, incineration, and landfilling.
3. Understand and explain strategies for mainstreaming and institutionalizing safe waste disposal practices in different workplaces.

STEP 1 Welcome participants to the training session. Ask participants to share their understanding of electronic waste and take note of their responses for discussion.

STEP 2 Discuss the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

- Present the Basel Convention's definition of electronic waste, which includes discarded electrical or electronic devices and their components.

- Define electronic waste using the Basel Convention's definition.

3 STEP Display images of electronic waste on a projected screen such as motorcycles, old computer parts, mobile phones, laptops, televisions, refrigerators, and other electronic devices.

- Include images of electronic waste recycling facilities, landfills, and environmental pollution caused by improper disposal.

4 STEP Briefly discuss the Electronic Waste (E-Waste) Management Policy.
Explain that an effective e-waste management policy is crucial to address the growing concerns related to electronic waste.

- Show a slide with key highlights of the policy, such as the objectives, legal framework, responsibilities of stakeholders, and enforcement mechanisms.

5 STEP Ask participants to share their opinions on why we should be concerned about electronic waste. Give participants an opportunity to voice their perspectives on the topic.

- Provide feedback and appreciation for each submission.
- Delve deep into why we should be concerned about e-waste.

6 STEP Explain that electronic waste poses significant environmental and health risks if not managed properly.

- Discuss the potential consequences of improper disposal, including the release of hazardous substances into the environment, soil, and water contamination, and the health effects on both humans and ecosystems.

7 STEP Discuss the concepts of the 3Rs of waste management reduce, reuse and recycle. Using illustrations explain in detail what each R means in relation to waste management.

8 STEP Discuss strategies or methods for effective e-waste management.

9 STEP Discuss categories of E-Waste generated from Electrical and Electronic Equipment.

- Present visual aids or slides depicting the different categories of e-waste.
- Discuss each category, providing examples and highlighting their impact on the e-waste stream.
- Encourage participants to share their experiences or knowledge related to each category.

10 STEP Discuss hazardous components of e-waste.

- Present visual aids depicting hazardous components found in e-waste.
- Discuss each component, explaining its potential risks to the environment and human health.
- Encourage participants to ask questions or share their insights on hazardous e-waste components.

11 STEP Facilitate an interactive discussion with participants, allowing them to share their experiences, challenges, or ideas related to e-waste management.

- Address any questions or concerns raised by participants.
- Encourage participants to provide examples of successful e-waste management practices they have come across or implemented.

Sub-module 2.3: Transition to Renewable Energy

Overview: This section covers the different renewable energy sources and also how they can be used to leverage growth in the e-mobility sector with a particular focus on e-motorcycle charging. A cost-benefit analysis of using a renewable energy source weighed against the conventional energy sources shall be made to amplify and reinforce this point.

By the end of the session, participants shall be able to;

1. Explain and understand the different types of renewable energy sources and their suitability for powering e-mobility.
2. Explain and understand how renewable energy sources can be leveraged to support the charging infrastructure for e-motorcycles.

3. Conduct a cost-benefit analysis to compare the advantages of using renewable energy sources over conventional energy sources for e-mobility.

Time: 2 Hours

Tools, Equipment and Materials

- Flip charts
- Computer
- Projector
- Solar equipment etc

1 STEP Provide an overview of renewable energy sources, including solar, wind, hydroelectric, geothermal, and biomass.

- Explain the characteristics and advantages of each renewable energy source.
- Discuss their potential for sustainable and clean energy generation.

2 STEP Explain the compatibility of different renewable energy sources with e-mobility.

- Discuss the energy requirements for e-motorcycle charging and how renewable sources can meet those demands.
- Highlight the environmental benefits of using renewable energy sources to power e-mobility, such as reduced greenhouse gas emissions and improved air quality.

3 STEP Explore the different types of charging infrastructure for e-motorcycles, including home charging, public charging stations, and fast charging networks.

- Discuss the importance of reliable and accessible charging infrastructure for promoting e-mobility.
- Highlight the role of renewable energy sources in powering e-motorcycle charging infrastructure and enabling sustainable transportation.

4 STEP Introduce the concept of a cost-benefit analysis and its relevance in evaluating the use of renewable energy sources.

- Compare the costs and benefits of using renewable energy sources versus conventional energy sources for e-mobility.
- Consider factors such as installation costs, operational costs, environmental impacts, and long-term economic benefits.

6 STEP Discuss the importance of collaboration with relevant stakeholders, such as renewable energy providers, charging infrastructure operators, and local communities.

- Explore strategies for building partnerships to facilitate the integration of renewable energy sources into the e-mobility sector.
- Emphasize the need for awareness campaigns and education to promote the benefits of renewable energy- powered e-mobility.

7 STEP Facilitate group discussions and interactive sessions to encourage learners to share their perspectives, experiences, and questions related to renewable energy and e-mobility.

8 STEP Encourage learners to explore further resources, industry reports, and research on renewable energy-powered e- mobility.

Sub-module 2.4: The High Voltage Wiring Harness

Overview: This sub-module shall be used for building the capacity of participants in the interpretation of the wiring diagrams, and preparing them both theoretically and using multimeters. Orientation to different pins and connectors used in the conversion process.

By the end of the session, participants shall be able to;

1. Prepare for wire harnesses assembly
2. Assemble fully functioning harnesses as per the requirement

Time: Hours

Tools, Equipment and Materials

- Testing board
- Multimeters
- Wiring diagrams

By the end of the session, participants shall be able to;

1. Prepare for wire harness assembly
2. Assemble fully functioning harnesses as per the requirement

STEP 1

Before starting the harness preparation process, it is very important to understand the quality requirements needed for an E-bike. This document provides step-by-step procedures on how to ensure a quality harness to be used for the E-Bike assembly.

STEP 2

Preparation

Ensure your work table is clean and free from any hazard before you start the wiring harness preparation process.

Ensure all the necessary tools and materials are available.

STEP 3

Operation

Instruct and demonstrate to participants to;

- Measure and cut the cables as per the dimensions;
- 1020mm of pink wire(2pcs), 320 mm of purple and black(2pieces)
- Strip both ends of the cables at least 10 mm.
- Crimp firmly on one end of all cables' male pins and theother end of the female pins.
- Fix the side that has male pins into the 6-pin male connector in the orientation of pink cable at position **1,** another pink cable at **2,** green cable at position **3,** purple in **4** and one black at position **5** and another black at **6**.
- Apply 6 pins male lock into the connector with the help of a nozzle plier.

- Apply tesa thread tape for insulation. i.e.; insulate the two pink wires together, the two black wires together leaving the green and purple wire un-taped.

- Cut two braided sleeves at a length of 1000mm and 300mm. Apply heat at the ends of the braided sleeves.

- Insert the insulated cables into the 10mm braided sleeve. i.e. the insulated pinks alone, the two insulated blacks, green and purple into another sleeve.

- Insert the pins of the green, purple and two black cables into the 6-pin female connector in the orientation of the first black cable at position 1, second back cable at position 2, green cable at position 5 and purple at position 6.

- Apply a 6-pin connector lock female to hold the pins firmly into the connector.

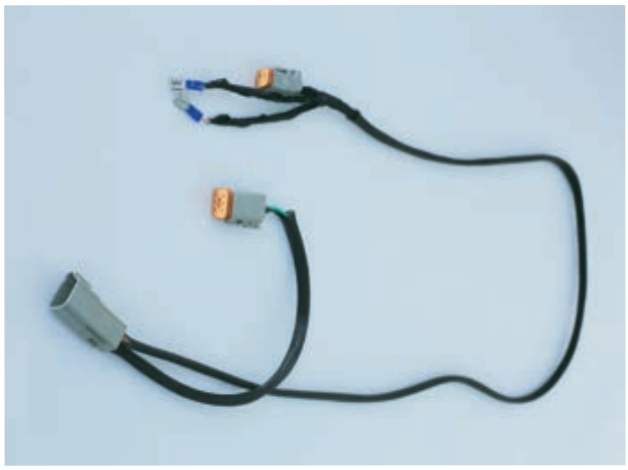
- Insert the two pink cables into the 2-pin female connector.

- Apply a 2-pin female lock into the connector.

4 STEP

Post Operation

Instruct and guide participants to ensure that the harness is well prepared, test it by visually looking to ensure the right cable orientation, test for continuity using a multimeter to ensure that cables are not broken and pins are firmly crimped and test on a testing board to ensure that its working.



MODULE 3: DIGITAL WORK INFRASTRUCTURE & PLATFORMS

Overview: The purpose of this module is to build and enrich participants' competencies in the use of digital infrastructure and solutions as an intentional strategy for digital migration and work process efficacy.

Sub-module 3.1: Online Workspaces

Overview: This section covers the use of tools and features available in Google Workspace, which help enhance productivity and streamline work processes. Google Workspace lets teams share ideas instantly, join meetings remotely and from anywhere, collaborate in real time, and more.

By the end of the session, participants shall be able to:

1. Understand the Core Applications including Gmail, Google Drive, Google Docs, Google Sheets, Google Slides, and Google Calendar.
2. Navigate and Customize Google Workspace.
3. Manage Email and Calendar.
4. Create and Edit Documents, Spreadsheets, and Presentations.
5. Utilize collaborative tools in Google Workspace, such as real-time editing, suggesting changes, and commenting features.

Time: 3 Hours

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

1 STEP Provide an overview of Google Workspace and its core components, such as

- Gmail
- Google Drive
- Google Docs
- Google Meet
- Google Sheets
- Google Slide
- Google Calendar

- Explain how these tools can streamline workflows, enhance team collaboration, and improve overall productivity.

2 STEP Explore the features of Gmail, including email organization, labels, filters, and advanced search options.

- Discuss how managers can effectively use Gmail for communication, task management, and email collaboration with their teams.

3 STEP

- Introduce additional communication tools within Google
- Workspace, such as Google Chat and Google Meet, and highlight their benefits for real-time messaging and video conferencing.

Explain the features and benefits of Google Drive for file storage, organization, and sharing.

- Demonstrate how to create folders, upload files, and share documents with team members, both within and outside the organization.
- Discuss version control, commenting, and collaboration features within Google Drive to streamline document collaboration.

4 STEP Provide an overview of Google Docs, Sheets, and Slides, highlighting their collaborative editing features and real-time collaboration capabilities.

- Demonstrate how managers can create, edit, and share documents, spreadsheets, and presentations with their teams.
- Showcase the benefits of simultaneous editing, commenting, and revision history for effective collaboration.

5 STEP Discuss the features and functionalities of Google Calendar for scheduling meetings, managing appointments, and coordinating events.

- Show how managers can create shared calendars, schedule meetings, and invite team members to events.
- Highlight the benefits of integrating Google Calendar with other Google Workspace tools for seamless scheduling and collaboration.

Sub-module 3.2: Cloud storage and file sharing platforms

Overview: The sub-module covers the types and uses of common cloud storage platforms like Google Drive, Ms OneDrive, iCloud Drive, Dropbox etc. It details why it is important to use them as a central repository for documents that can be accessed by a whole team and also some of the challenges that cloud

By the end of the session, participants shall be able to:

1. Explore the various types of cloud storage and file sharing platforms, such as Google Drive, Microsoft OneDrive, iCloud Drive, Dropbox, etc.
2. Gain an understanding of the uses and benefits of these platforms as central repositories for documents that can be accessed and shared by entire teams.
3. Address the challenges associated with using cloud storage platforms.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

1 STEP

Overview of Cloud Storage Platforms

- Provide an overview of common cloud storage platforms such as Google Drive, Microsoft OneDrive, iCloud Drive, Dropbox, etc.
- Highlight the key features, benefits, and differences between eac platform.

2 STEP

Types and Uses of Cloud Storage Platforms

- Dive deeper into the types and uses of cloud storage platforms, focusing on their capabilities for file storage, synchronization, sharing, and collaboration.
- Discuss how these platforms can serve as a central repository for documents that can be accessed by the entire team, facilitating seamless collaboration and version control.
- Provide examples of real-life scenarios where cloud storage platforms have improved team efficiency and document accessibility.

3 STEP

Exploring Specific Cloud Storage Platforms

- Select a few popular cloud storage platforms (e.g., Google Drive, Microsoft OneDrive) and provide step- by-step demonstrations on how to create an account, upload files, organize folders, and share documents.
- Highlight the specific features and functionalities that are unique to each platform.
- Encourage managers to follow along on their devices, explore the platforms and ask questions for clarification.

4 STEP

Discuss common challenges associated with using cloud storage platforms, such as security concerns, data privacy, and access controls.

Provide best practices for managing and organizing files, ensuring data security, and collaborating effectively within the platform.

Sub-module 3.3: Digital communication platforms

Overview: This section covers the types and uses of different digital communication platforms like Ms Teams, Zoom, Google Meet, Webex Meetings, Whova, BigBlueButton etc. Additionally, a few work platforms like Moodle and pallets shall also be covered depending on the availability of time.

By the end of the session, participants shall be able to:

1. Familiarize participants with different types of digital communication platforms, such as Microsoft Teams, Zoom, Google Meet, Webex Meetings, Whova, BigBlueButton, Moodle, and Padlet.
2. Gain an understanding of the various uses and applications of these platforms for effective communication, collaboration, and virtual meetings.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

 Computer

 Projector

 Flip charts

 Markers

 Sticky notes

Highlight the importance of leveraging these platforms for effective communication and collaboration in today's digital age.

Provide an overview of different digital communication platforms, such as Microsoft Teams, Zoom, Google Meet, Webex Meetings, and other relevant platforms.

- Explain their key features, functionalities, and applications in various professional settings.

3 STEP

Discuss the factors to consider when selecting a digital communication platform, such as team size, nature of interactions, security requirements, and integration capabilities.

4 STEP

Explore the essential features and tools available in digital communication platforms, including real-time messaging, audio and video conferencing, screen haring, and file sharing.

- Demonstrate how to effectively utilise these features to enhance the communication, collaboration, and virtual meetings.
- Provide tips and best practices for utilizing the features in different scenarios.

5 STEP

Discuss the importance of proper etiquette and communication guidelines when using digital communication platforms.

- Cover topics such as professional tone, active listening, clear and concise messaging, and respectful communication in virtual settings.
- Highlight the importance of maintaining professionalism and inclusivity in online interactions.

6 STEP

Explain the best practices for planning, scheduling, and conducting virtual meetings using digital communication platforms.

- Discuss techniques for engaging participants, managing agendas, facilitating discussions, and handling technical issues during virtual meetings.
- Share tips for creating interactive and productive virtual meeting environments.

MODULE 4: RESULTS-BASED MANAGEMENT

Overview: The purpose of this module is to improve participants' work as Managers to deliver results effectively as a direct contribution to achieving the organization's strategic objectives. It shall enrich the participants' understanding of how they should manage for results as they work with their different team members.

Sub-module 4.1: Managing for Results - An Overview

Overview: This section covers what RBM is, the results chain in operational and strategic terms, the RBM cycle, and the key pillars of RBM like planning, monitoring, evaluation and Learning of work processes. It is intended that managers should have competencies that allow them to focus their energies on achieving results.

By the end of the session, participants shall be able to:

1. Gain a comprehensive understanding of what RBM is and its significance in the context of organizational management.
2. Familiarise yourself with the results chain, both in operational and strategic terms.
3. Become acquainted with the key pillars of RBM, namely planning, monitoring, evaluation, and learning.
4. Recognize that RBM requires specific competencies for managers to effectively focus their energies on achieving results.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

1 STEP

Introduction to Results-Based Management.

- Share an overview and definition of the RBM.
- Outline the importance of RBM in achieving organizational goals and enhancing performance.
- Give a brief history and key concepts of RBM.
- Discuss the enabling factors which contribute to the success of the RBM system.

2 STEP

Understanding the Results Chain

- Explain the results chain and its components (inputs, activities, outputs, outcomes, impacts).
- Share practical examples and case studies to illustrate the results chain.
- Discuss the importance of clearly defining and measuring results.

3 STEP

The RBM Cycle

- Discuss the overview of the RBM cycle
- Introduce the pillars of the RBM cycle. For example; planning, implementation, monitoring, evaluation, and learning.
- Give a detailed explanation of each phase and its significance in achieving results.
- Discuss the iterative nature of the RBM cycle and the continuous improvement process.
- Probe the trainees to share and explain what specific competencies managers need to be able to achieve results.

Questions	What resources are used?	What is done?	What is produced or delivered?	What changes do we need to achieve?	What long term changes are we aiming for?
Concepts	Inputs	Activities	Output	Output	Impact
Concepts explained	Financial, human and material resources	Tasks and actions to transform inputs to outputs	Products generated or services delivered	Intermediate changes on team or company.	Long term changes either on the team members or the company being served.

Sub-module 4.2: Results-based planning

Overview: This section covers what results-based planning is and why it is important to plan. A number of planning strata shall be in focus: strategic plans, periodic work plans, budgeting, activity planning etc.

By the end of the session, participants shall be able to;

1. Understand what results-based planning is and its importance.
2. Gain skills in drafting and reviewing tools used in results-based planning for example strategic plans, periodic work plans, budgeting, activity planning etc.

Time: 2 Hours

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

1 STEP Define what results-based planning is with examples. Share the case studies to prompt thinking about planning: a quote from Benjamin Franklin and a conversation between one Alice and a Cheshire cat.

2 STEP Explain the importance of planning using a combination of methodologies and tools.

3 STEP Identify and explain the factors used in planning such as the purpose of planning; how to use facts and data for decision - making; aligning the plan to specific business objectives; setting verifiable goals; identifying who on the team is accountable for what actions, outputs, and outcomes, along with an implementation timeline and milestones for reporting progress

4 STEP Discuss in detail the types of plans used in the organisation or departments and their timelines.

- Share with the participants the samples and different samples of plans

5 STEP Prepare a detailed group assignment with a case study in which the participants can be able to identify and document the entire results-based planning process. Assign 3-4 groups

Sub-module 4.3: Results-based monitoring and reporting

Overview: This section covers the areas of what results- based monitoring is and **1)** Tracking implementation or operational monitoring **2)** Tracking results or results monitoring. Another aspect of this sub-module shall be on what

By the end of the session, participants shall be able to:

1. Understand how to track the implementation progress and effectively monitor the results of projects or initiatives within their teams or departments.

Time: 2 Hours

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes
- Presentation slides

1 STEP Introduction to Implementation and Results Monitoring

- Share the overview of the importance of tracking implementation and monitoring results.
- Explain the key terms and concepts related to implementation and results monitoring.
- Give a brief history and key concepts of RB

2 STEP

Setting Up Effective Tracking Mechanisms.

- Identify and define key performance indicators (KPIs) for tracking implementation progress.
- Discuss various tracking tools and technologies available
- Develop a structured approach to tracking implementation through project management techniques.
- Discuss the best practices for setting up tracking mechanisms within teams or departments.

3 STEP

Analysing Data

- Explain the importance of results monitoring and its impact on decision-making.
- Collect and analyse relevant data to measure progress and results.
- Explain how to interpret data and identify trends or patterns.
- Communicating results effectively to stakeholders.

4 STEP

Monitoring Results

- Discuss the common challenges in implementation and results monitoring.
- Strategies for problem-solving and overcoming obstacles.
- Making data-driven decisions and adjusting course as necessary.
- Encourage a culture of continuous improvement within the team or department

5 STEP

Conduct a practical session to develop individual action plans to track implementation and monitor results effectively.

- Carry out a question-and-answer session.

MODULE 5: COLLABORATION & SYNERGY BUILDING

Overview: The purpose of this module is to build participants' skills and competencies in harnessing their potential to build and broker mutually beneficial relationships in their work and life ecosystem, both with supervisors and downlines, and peers alike.

Sub-module 5.1: Managing for Results - An Overview

Overview: This section covers what team building is, the importance of building a team and the steps to effective team building. The sub-module shall also focus on several team- building ideas and activities that participants can employ at their different workplaces to harness the collective strength of their team to achieve organisational results.

By the end of the session, participants shall be able to:

1. Explore the concept of team building, emphasizing its significance and presenting the key elements for successful team building.
2. Understand various team-building concepts and exercises that individuals can utilize in their respective workplaces to maximize their team's combined abilities and accomplish organizational goals.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

1 STEP Conduct a role-playing exercise where participants act out different team roles. Assign roles such as leader, facilitator, communicator, and problem solver, and encourage them to interact and collaborate to achieve a specific objective. This activity will demonstrate the importance of teamwork and the different roles required for effective collaboration.

2 STEP Define what a team and teamwork mean.

3 STEP Illustrate the difference between a group and a team. Present scenarios or case studies involving a group and a team, and ask the students to identify the key differences. For example, you could describe a situation where a group of individuals are assigned individual tasks and work in isolation, compared to a scenario where a team collaborates, communicates, and supports each other to achieve a common objective.

4 STEP Discuss the different types of teams.

5 STEP Explain to participants how to create high-performing teams.

6 STEP Discuss the four stages of team development: forming, storming, norming and performing.

7 STEP Divide managers into small groups and assign them different case studies related to team-building challenges.

- Instruct each group to analyse the case study, identify the underlying issues, and propose effective team-building solutions. Allow groups to present their findings and facilitate a class discussion to compare different approaches and lessons learned.

8 STEP Discuss the problems affecting teamwork.

9 STEP Share ways how teamwork can be enhanced.

10 STEP Encourage managers to reflect on their own teams and create an action plan to implement team-building strategies discussed during the session.

Sub-module 5.2: People-Centred Management

Overview: This section covers what people-centred management is and the steps to employ in managing employees from different ethnicities, cultures, tribes, clans etc. It covers the organisation processes with people at the centre of everything and how employees can refine their own individuality, achieve growth, and fully demonstrate their full potential as they contribute to the results within the organisation. A comparison between RBM and people-centred management shall be covered here also.

By the end of the session, participants shall be able to:

1. Understanding People-Centred Management.
2. Manage a diverse workforce.
3. Put People at the Center.
4. Employee development and growth.
5. Comparing Results-Based Management (RBM) and People - Centred Management.

Time: 2 Hours

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

STEP 1 Explain the importance of understanding and implementing people-centred management principles in creating a positive work environment.

2 STEP

Definition and key principles of people-centred:

- Provide a clear definition of people-centred management and explain its core principles, such as valuing employees, fostering inclusivity, promoting individual growth, and prioritizing employee well-being.
- Engage managers in a brief discussion to share their initial thoughts and perspectives on people-centred management.

2 STEP

Benefits of People-Centred Management.

- Discuss the advantages and benefits that organizations can derive from implementing people-centred management practices.
- Highlight how a people-centred approach can improve employee satisfaction, engagement, retention, and overall organizational performance.
- Share relevant research findings or success stories to reinforce the benefits of people-centred management.

3 STEP

Strategies for Implementing People-Centred Management

- Present practical strategies and approaches that managers can employ to implement people-centred management within their teams and organisations.

- Discuss methods for promoting individual growth and development, fostering open communication, providing opportunities for employee feedback and participation, and ensuring work-life balance.

- Use real-life examples or case studies to illustrate the successful application of these strategies.

Sub-module 5.3: Conflicts and Conflict Resolution

Overview: This section covers what conflict is, the different types of conflict, the causes of conflict and how the same can be resolved within the organisation.

By the end of the session, participants shall be able to:

1. Define Conflict: Understand the nature and definition of conflict in the workplace, recognizing that conflicts can arise in various forms and impact individuals and teams.
2. Identify Different Types of Conflict: Differentiate between interpersonal, intergroup, and task-related conflicts, recognizing the unique characteristics and challenges associated with each type.
3. Analyse Causes of Conflict: Identify common causes of workplace conflicts, including communication breakdown, differing goals, personality clashes, and resource allocation issues, to gain a deeper understanding of the underlying reasons behind conflicts.
4. Apply Conflict Resolution Strategies: Acquire knowledge of various conflict resolution strategies, such as collaboration, compromise, accommodation, and assertiveness, and develop the ability to apply the most appropriate strategy based on the nature and context of the conflict.

Time: 2 Hour and 30 minutes

Tools, Equipment and Materials

- Computer
- Projector
- Flip charts
- Markers
- Sticky notes

STEP 1

Divide the class into small groups the previous day and give them the assignment to work together on the same document in Google Docs.
Based on the knowledge they acquired during the Digital communication platforms submodule.

Create a folder in Google Drive in their work groups.
Create subfolders and clearly label them as taught and upload documents relevant to your manager training this week.
Do the assignment collaboratively in Google Docs.

Assignment:

1. What is conflict?
2. Types of Conflict
3. How do you manage conflict in the workplace?
4. Can conflict be good?

2 STEP Discuss common causes and sources of conflicts in the workplace, such as miscommunication, differing goals, resource allocation, and interpersonal issues.

3 STEP Facilitate a group discussion to identify additional causes based on participants experiences.

4 STEP Create a visual representation (e.g., on a flipchart) of the causes of conflict identified by the group.

5 STEP Introduce various conflict resolution strategies, such as collaboratio compromise, assertiveness, and accommodation.

Explain each strategy in detail, highlighting their advantages, suitable scenarios, and potential drawbacks.

Provide examples or case studies to illustrate the application of each strategy in resolving workplace conflicts.

6 STEP Divide participants into small groups and assign them a case study or scenario. Instruct them to analyze the conflict and propose the most appropriate resolution strategy. Allow groups to present their findings and facilitate a class discussion to compare different approaches.