

Working Group 1&3

Kaizen Certification system and common Key Performance Indicators (KPIs)

Summary of the Activities

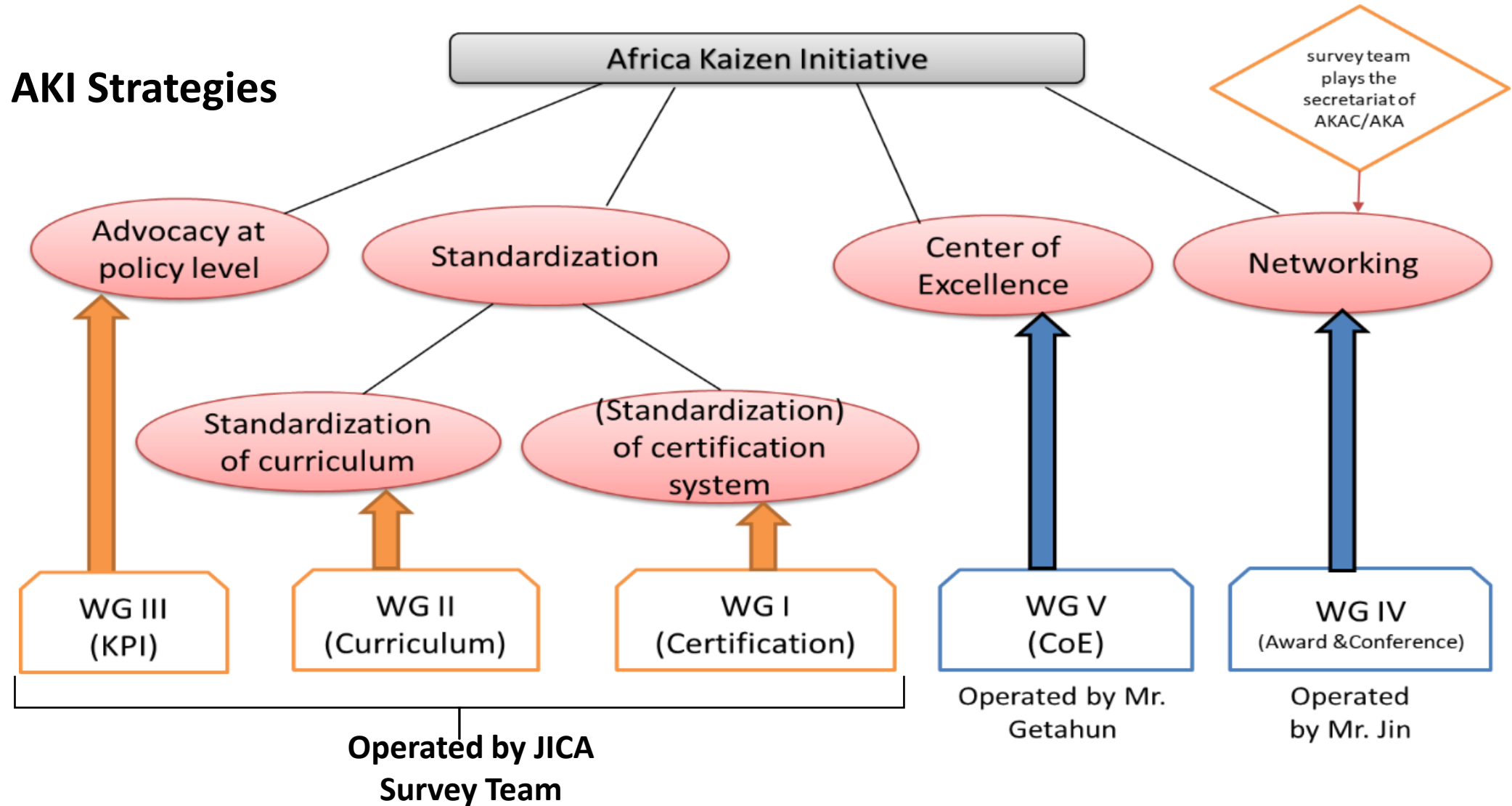
AKAC 2023, ETHIOPIA

10th October 2023

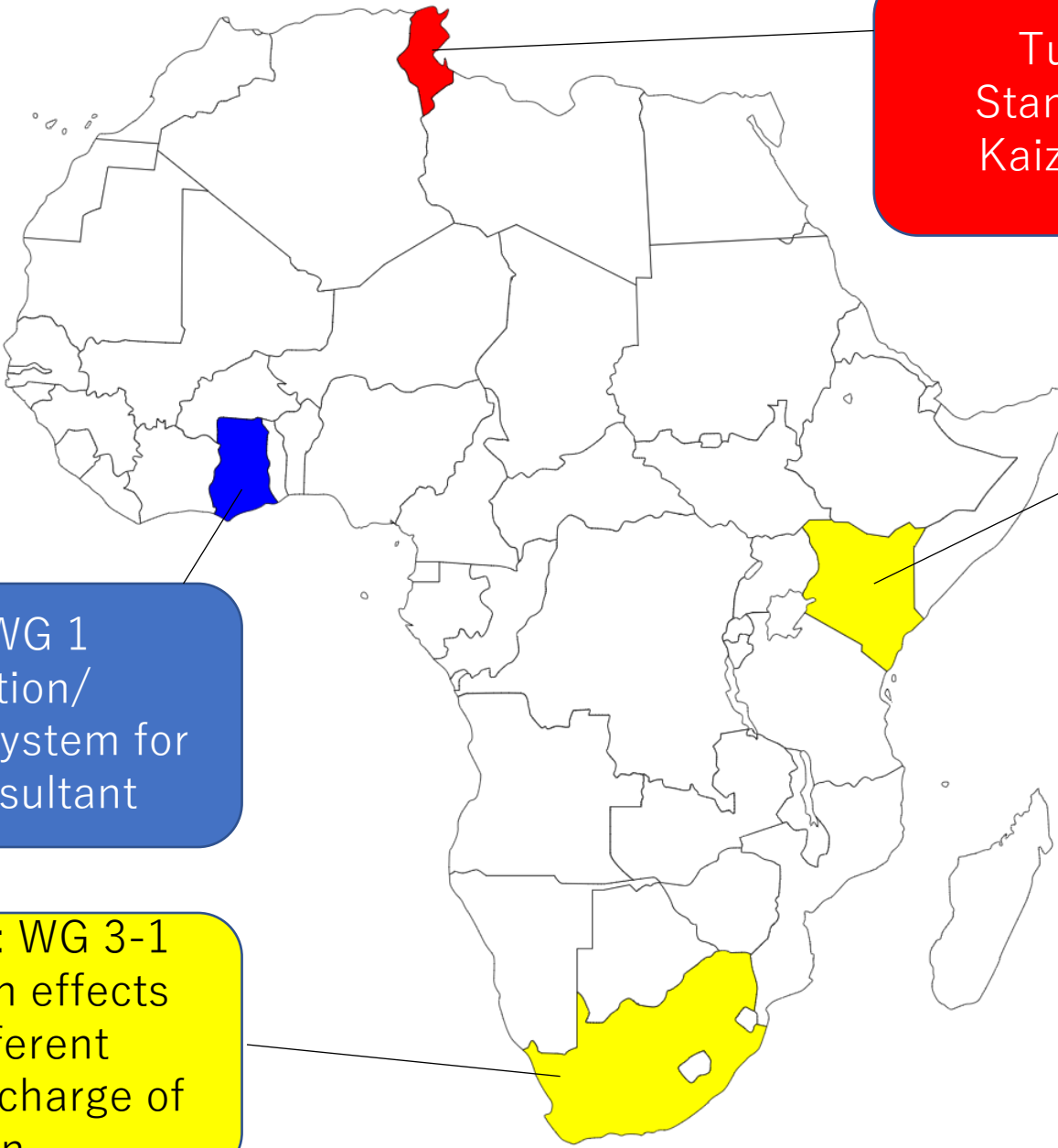
Chair of WG 1&3

Mr. Hosni BELHADJ, CETIME, Tunisia

General Background



**Pilot country
for WG 1&3**



Tunisia: WG 2
Standardization of
Kaizen curriculum

Kenya: WG 3-2
KPI of Kaizen
effects
Pro: Coverage of
Kaizen is wide

Mauritius: WG
3-3
KPI of Kaizen
Pro: effects
focusing on
non-industrial
sector

Ghana: WG 1
Certification/
Recognition system for
Kaizen consultant

South Africa: WG 3-1
KPI of Kaizen effects
Pro: 3 different
institution in charge of
Kaizen

WG I (Kaizen Certification system)

Objectives of WG I expressed in the initial ToR

- Review the current status of certification system for Kaizen related consultants in each country;
- Identify the difficulties/existing problem and future challenges to set up the certification system in each country;
- Identify the future prospects of certification system;
- Agree about the pilot country where the pilot activities to set up the certification system within the framework of the survey
- Produce the draft of the implementation plan to establish the certification system in each country

Contents of the Pilot Program for WG 1

| | |
|-------------------|---|
| Activities | <ul style="list-style-type: none">• The JICA survey team is visiting the selected country to assist them set up the certification system. |
| Duration | <ul style="list-style-type: none">• About 3 weeks x 3 times visit to pilot country (Ghana) by JICA survey team until October 2023 |
| Evaluation | <ul style="list-style-type: none">• The findings will be reflected to the contents of the “guidelines” |
| Input | <ul style="list-style-type: none">• Dispatching JICA survey team• Technical assistance to set up the certification system in the selected country• Various cooperation from the selected country (Ghana) to set up the certification system• Commitments to set up the fee-based Kaizen training/consultancy |
| Outputs | <ul style="list-style-type: none">• Draft of the “guidelines”• Standardized exam collection based on the standardized curriculum as the output of WG 2 if possible |

With the support from pilot activities Commercial Kaizen Service Packages was established in Ghana

STEP 1 Application of Basic Kaizen (5S, visual control, muda dori, etc.)

- ✓ Understand overview of Kaizen.
- ✓ Foster Kaizen mindset on an individual and at organizational levels.

| 1st Visit | 2nd Visit | 3rd Visit | 4th Visit | 5th Visit |
|--|--|-------------------------------|-------------------------------|---------------------------|
| Introduction Observation & Interviews | Agree on Themes, KPIs & Methods | Check Progress & Advise | Check Progress & Advise | Presentatio n & Review |

Focus on Priority Issue **STEP 2**

- ✓ Attain tangible benefits for the company growth.

| 1st Visit | 2nd Visit | 3rd Visit | 4th Visit | 5th Visit |
|---------------------------|--|-------------------------------|-------------------------------|---------------------------|
| Observation & Analysis | Agree on Themes, KPIs & Methods | Check Progress & Advise | Check Progress & Advise | Presentatio n & Review |

Qualification (Certification) for Fee-based Kaizen Consulting Provision (Tentative)

| Level | Qualification | Requirement |
|------------------------|---|--|
| Kaizen Trainer Level 1 | can provide Step 1 fee-based consulting | <ul style="list-style-type: none"> • 5-day CRT • 5-time company visits (OJT) in each of 2 companies of Step 1 • 1-day Communication Training • Kaizen knowledge & skills • Consultancy Skills |
| Kaizen Trainer Level 2 | can provide Step 2 fee-based consulting | <ul style="list-style-type: none"> • Qualified Kaizen Trainer Level 1 • 2-day CRT • 5-time company (OJT) in 1 company for Step 2 • Kaizen knowledge & skills • Consultancy Skills |

CRT pass criteria: Test 70%

Attendance 100%

OJT: Reporting (by Forms) 100%

Communication: Attendance 100%

Active and cooperative participation

Expected output of WG1



Guideline for
Certification System
of Kaizen

Africa Kaizen Initiative (AKI)
Working group 1

Developing a certification guideline that can be referenced by African countries which implement Kaizen and newly introduce a certification system for Kaizen trainers/consultants.

Significance of establishing Kaizen certification system

- Establish standards for Kaizen consulting skills
- Guarantee quality of the Kaizen consulting
- Stimulate self-development of the Kaizen consultants
- Add values on Kaizen consulting services

Components of Certification System

- Authority
- Legal foundation
- Training and testing bodies
- Requirements
- Registration
- Validity/Renewal Period

Progress on Formalizing Kaizen Certifications

| | Authority | Legal Status |
|----------|---|--|
| Ethiopia | Kaizen Excellence Center | Memorandum of understanding with Ethiopia Industrial Engineering Association |
| Cameroon | Ministry of Small and Medium Enterprise (BDS Consultant Certification Committee) | Minister's approval on TOR of the BDS Consultant Certification Committee |
| Tanzania | Ministry of Industry and Trade (Tanzania Kaizen Unit) | Ministerial technical guideline |
| Tunisia | Ministry of Industry, Mines, and Energy (National Productivity Improvement Committee) | (draft) ministerial order |
| Zambia | KAIZEN Institute of Zambia | internal |
| Ghana | Ghana Enterprise Agency | internal |

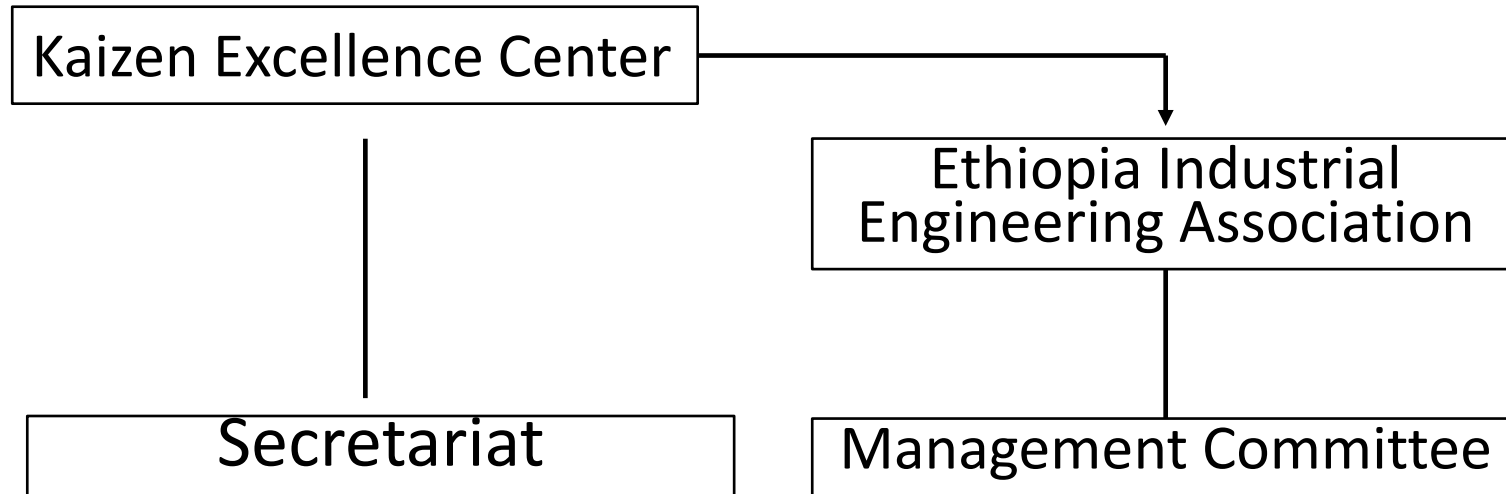
⇒ No country has established a nationally recognized Kaizen certification system beyond the ministerial level **except Ethiopia.**

Role Divisions

| | Accreditation | Trainings | Assessment |
|----------|---|--|--|
| Ethiopia | Kaizen Excellence Centre | Universities / Colleges / Kaizen Excellence Centre | Ethiopia Industrial Engineering Association |
| Cameroon | Ministry of Small and Medium Enterprise | Small and Medium Enterprise Promoting Agency | Small and Medium Enterprise Promoting Agency |
| Tanzania | Ministry of Industry and Trade | College of Business Education | College of Business Education |
| Tunisia | Ministry of Industry, Mines, and Energy | Industrial Technical Centers | Industrial Technical Centers |
| Zambia | KAIZEN Institute of Zambia | KAIZEN Institute of Zambia | KAIZEN Institute of Zambia |
| Ghana | Ghana Enterprise Agency | Ghana Enterprise Agency | Ghana Enterprise Agency |

⇒ Ideally, training and assessment should be carried out by different organizations for increasing credibility.

Certification, Accreditation, and Registration System (CARS) in Ethiopia



- Kaizen Excellency Center (3)
- Ethiopia Industrial Engineering Association (1)
- University (1)
- Ethiopian Chamber of Commerce (1)
- Ministry of Trade and Industry (1)
- **Manufacturing Industry Development Institute**
- Civil Service Commissibn

Exam Committee

⇒ Examination is outsourced to a third party organization.
(Increased credibility)

Registration of Kaizen Trainers/Consultants

| | Registration System | Certification Validity |
|----------|--|------------------------|
| Ethiopia | Kaizen Excellence Centre | 2 years |
| Cameroon | Small and Medium Enterprise Promoting Agency | 2 years |
| Tanzania | Ministry of Industry and Trade | 3 years |
| Tunisia | Ministry of Industry, Mines, and Energy | 5 years |
| Zambia | KAIZEN Institute of Zambia | 3 years |
| Ghana | Ghana Enterprise Agency | - |

⇒ No country has established open database of the qualified Kaizen trainers/consultants.

Definitions of the Levels

| | Level 1 | Level 2 | Level 3 |
|----------|--|--|--|
| Ethiopia | Basic Consultant Provide basic Kaizen services and problem solving | Intermediate Consultant Provide QPI support, cost and delivery support, problem solving | Comprehensive Consultant Provide comprehensive services including Kaizen, management marketing, and inherent technology |
| Cameroon | Basic Consultant provide basic Kaizen service | Advanced Consultant Provide basic Kaizen services and trainings to companies | |
| Tanzania | Trainer provide basic Kaizen service mainly to MSMEs | Advanced Trainer provide advanced Kaizen service to large scale companies | Trainer of Training Train the Kaizen trainers |
| Tunisia | Basic Trainer Implement Kaizen project | Advanced Trainer <ul style="list-style-type: none"> • Implement Kaizen project • provide Kaizen certificate trainings under supervision | Master Trainer <ul style="list-style-type: none"> • Implement Kaizen project • supervise Kaizen certificate trainings |
| Zambia | | | |
| Ghana | Provide basic Kaizen service | Provide Kaizen that solves core corporate issue | |

Trainings for Kaizen Trainers/Consultant Certifications

| | Level 1 | Level 2 | Level 3 |
|----------|--|---|---|
| Ethiopia | Basic Consultant | Intermediate Consultant 2-year experience as a Kaizen consultant | Comprehensive Consultant 2-year experience as a Kaizen consultant |
| Cameroon | Basic Consultant 4 weeks CRT 5 companies ICT (total 500 hours) | Advanced Consultant 17 days CRT 5 companies ICT (total 500 hours) | |
| Tanzania | Trainer 4 days CRT 1 SME ICT (6 visits) | Advanced Trainer 2 days CRT 1 Large company ICT (23 visits) | Trainer of Training Provide basic trainings twice |
| Tunisia | Basic Trainer 10 days CRT 2 companies ICT (total 10 visits) | Advanced Trainer 17 days CRT 4 companies ICT (total 30 visits) | Master Trainer Provide Basic and Advanced Trainings once for each |
| Zambia | Level 1 2 days CRT Level 2 3 days CRT Level 3 3 days CRT 1 company ICT (12 visits) | | |
| Ghana | 5 days CRT 2 companies ICT (total 10 visits) | 2 days CRT 1 company ICT (total 5 visits) | |

Coverages in CRT

| Classification | No. | Title of contents | Tunisia | | | Ethiopia | | | Tanzania | | | Zambia | | | Cameroon | | |
|----------------|-----|--------------------------|---------|---------|---------|----------|---------|---------|----------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | Level 1 | Level 2 | Level 3 | Level 1 | Level 2 | Level 3 | Level 1 | Level 2 | Level 3 | Level 1 | Level 2 | Level 3 | Level 1 | Level 2 | Level 3 |
| Module I | 1 | Productivity and Quality | X | | | X | | | | | | X | | | | X | |
| | 2 | Introduction of Kaizen | X | | | X | | | X | | | X | | | X | | |
| | 3 | 5S | X | | | X | | | X | | | X | | | X | | |
| | 4 | Visual management | X | | | X | | | X | | | X | | | | X | |
| | 5 | Muda Dori | X | | | X | | | X | | | X | | | | X | |
| | 6 | QCC | X | X | | X | | | X | | | X | | | X | | |
| | 7 | 7 QC tools | X | | | X | | | X | | | X | | | X | | |
| | 8 | Standardization | X | | | X | | | X | | | X | | | | X | |
| | 9 | Kaizen Consulting | X | | | X | | | X | | | X | | | | X | |
| | 10 | Product planning | | X | | X | | | X | | | | | | | X | |
| | 11 | Inventory control | | X | | X | | | | X | | X | | | X | | |
| | 12 | Method study | | | | X | | | | X | | | | | | X | |
| Module III | 13 | Basic Management | | | | | | X | X | | | X | | | | X | |
| | 14 | Critical thinking | | | | | X | | | X | | | | | | X | |
| Module II | 1 | 7 QC tools(Advanced) | | X | | | X | | X | | | X | | | | X | |
| | 2 | new 7 QC tools | | | | | | X | | | | X | | | | X | |
| | 3 | SMED | X | | | | X | | | | | | | | | X | |
| | 4 | Time study | | X | | X | | | | | | | | | | X | |
| | 5 | Work sampling | | | | X | | | | | | X | | | | X | |
| | 6 | Line balance | X | X | | X | | | X | | | X | | | | X | |
| | 7 | Layout | | X | | X | | | X | | | X | | | | X | |
| | 8 | TQM | X | X | | | X | | | | | X | | | | | X |
| | 9 | SQC | | | | X | | | | | | X | | | | | X |
| | 10 | Cost management | | | | | X | | | X | | X | | | | | X |
| | 11 | TPM | X | X | | | X | | | X | | X | | | | | X |
| | 12 | TPS | X | | | | X | | | X | | X | | | | | X |
| Module IV | 13 | Accounting | | X | | | X | | | | | | | | | X | |
| | 14 | HRM | | | | | | | | | | | | | | X | |
| | 15 | Marketing | | | | | | X | | | | | | | | X | |
| | 16 | Strategic Planning | | | | | | X | | | | | | | | X | |
| | 17 | Business development | | | | | | X | | | | | | | | | X |

Number of Sub-Modules Covered in Kaizen certificates

| | Module 1 Basic Kaizen (Total 12) | Module 2 Advanced Kaizen (Total 12) | Module 3 Basic Business Management (Total 2) | Module 4 Advanced Business Management (Total 5) |
|----------|---|--|---|--|
| Ethiopia | Level 1 12 Level 2 0 Level 3 0 <u>Total 12</u> | Level 1 5 Level 2 6 Level 3 1 <u>Total 12</u> | Level 1 0 Level 2 1 Level 3 1 <u>Total 2</u> | Level 1 0 Level 2 1 Level 3 3 <u>Total 4</u> |
| Cameroon | Level 1 5 Level 2 7 <u>Total 12</u> | Level 1 0 Level 2 7 <u>Total 7</u> | Level 1 0 Level 2 2 <u>Total 2</u> | Level 1 0 Level 2 4 <u>Total 4</u> |
| Tanzania | Level 1 9 Level 2 2 <u>Total 11</u> | Level 1 3 Level 2 3 <u>Total 6</u> | Level 1 1 Level 2 1 <u>Total 2</u> | Level 1 0 Level 2 0 <u>Total 0</u> |
| Tunisia | Level 1 9 Level 2 3 Level 3 0 <u>Total 11</u> | Level 1 5 Level 2 6 Level 3 0 <u>Total 9</u> | Level 1 0 Level 2 0 Level 3 0 <u>Total 0</u> | Level 1 0 Level 2 1 Level 3 0 <u>Total 1</u> |
| Zambia | Level 1 10 | Level 1 10 | Level 1 1 | Level 1 0 |
| Ghana | Level 1 & 2 Total 12 | Level 1 & 2 Total 9 | Level 1 & 2 Total 0 | Level 1 & 2 Total 0 |

* Overlapped modules are not counted in Total.

* The depth of teaching/learning level of each module is not expressed in above table.

Recommendations

- Formalize the certification system either under a national legal system or collaboration with a well-recognized association
- Separate the accreditation / training / assessment bodies
- Open database of the certified Kaizen trainers/consultants
- Mutual **partnerships/recognitions** among the Kaizen certificates under the AKI **if** the certificate is formalized at the ministerial level or higher in a respective country.
 - Creation of the *Pan-African Common Exam Questions*: Each country will use the collection as a part of its own exam (**Standard written Examination**)
 - Periodical updating of the certification system of member countries

Drafting and contents of the guidelines

- As of September 2023, WG 1 is still in stage of drafting the guidelines (about 80% of achievement)
- Table of contents of the guidelines is still under discussion and is detailed in the draft report of AKAC 2023

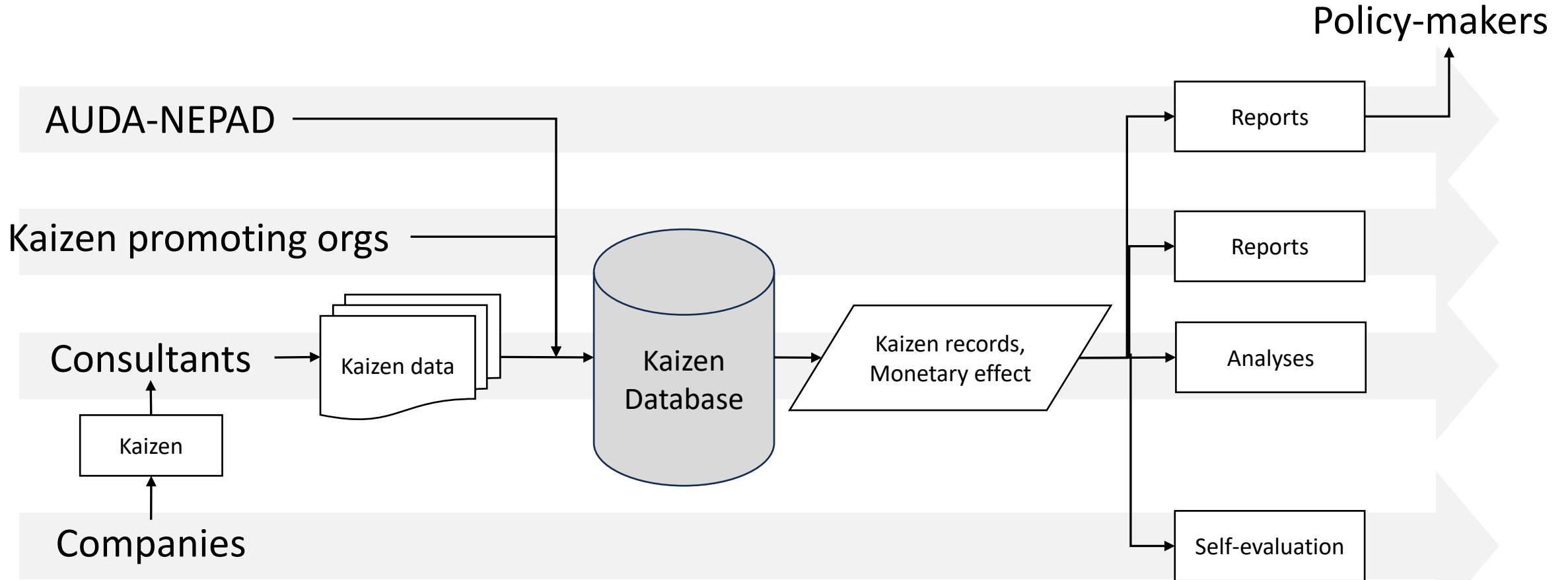
WG III (Kaizen Common KPIs)

Objectives of WG III expressed in the initial ToR

- Studying the current situations (components) of Kaizen KPIs in each country
- Identify the difficulties/existing problem and future challenges to apply common KPIs in each country;
- Agree about the pilot country as well as the contents of the pilot activities within the framework of the survey
- Produce the draft of the implementation plan to establish the common KPIs in each country

Expected output of WG III

KPI's Monitoring In order to figure out promotion of understanding by policy makers and Kaizen effects at macro level.

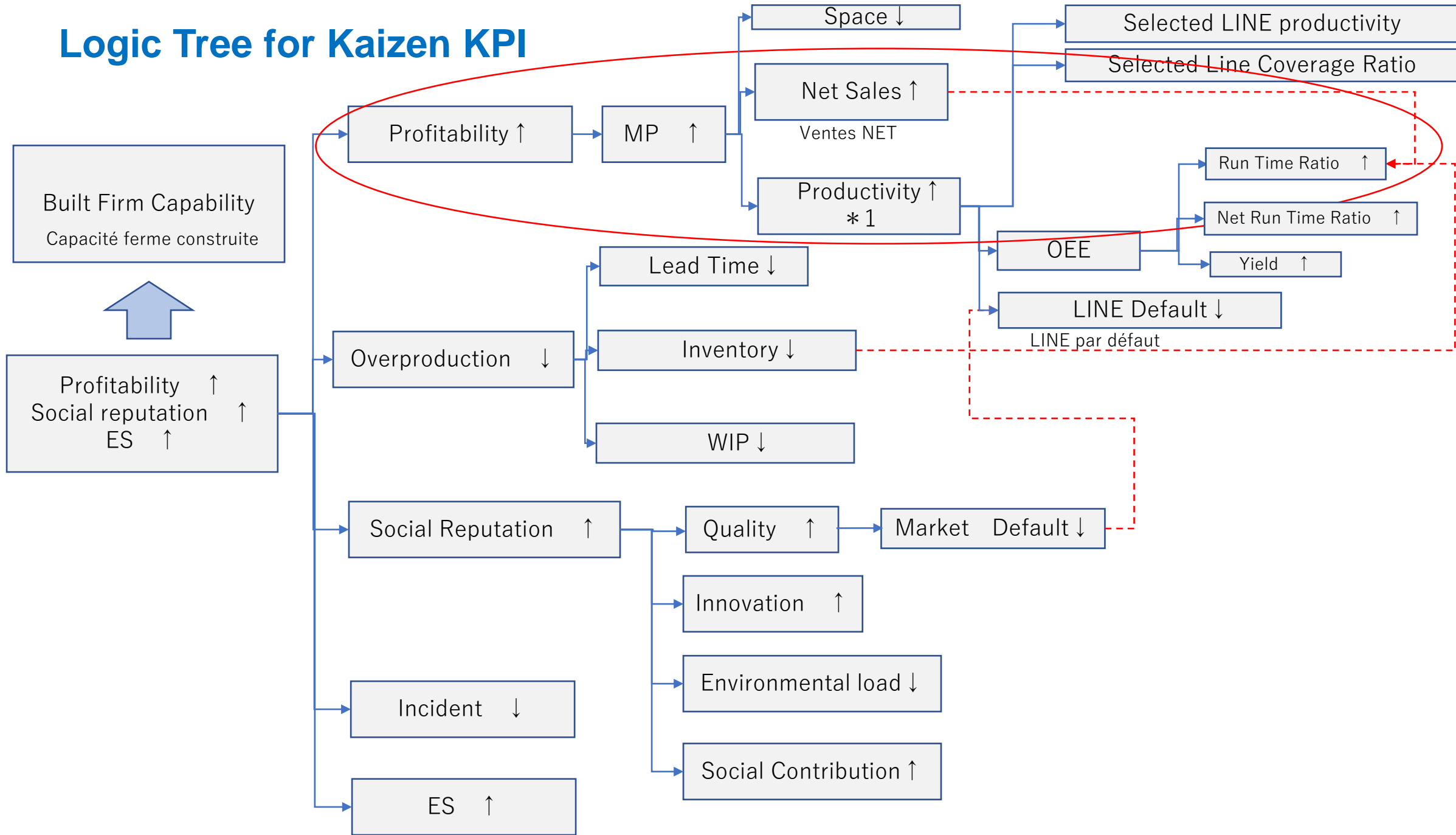


- To recognize output indicators and outcome indicators separately.
- “Output” refers to the short-term effects of Kaizen, while “outcome” is the long-term effects. Necessary to collect both indicators.
- To make KPIs as monetary based as possible

Expected Monitoring system of Common KPIs

| | In Companies | In Countries | Transcontinental |
|----------------------------|--|---|--|
| Actor | Kaizen consultants of each country | Kaizen promotion organization officers of each country | AUDA-NEPAD officers |
| Content of collected data | <ul style="list-style-type: none"> • Labor productivity (person-hours) in model area • Defective rate • Yield rate • On-time delivery rate • Waste reduction volume | Aggregates the raw data for the five indicators at left and Kaizen rates for each by sector | Aggregates the data in a format that is easy to use for AUDA-NEPAD advocacy such as by sector, by regional economic communities (RECS), by SDG theme, etc. |
| | <ul style="list-style-type: none"> • Monetary amounts directly linked to enhancing added value that can be converted into monetary value | Aggregates the data at left by sector | |
| Frequency | Sequentially after completion of each company's Kaizen implementation | Once every six months (discussions necessary in the same span) | Once every year (discussions necessary in the same span) |
| Method | Transition from submission of Excel files through individual emails to submission via a simple data base using G-Suite | | |
| Recording/reporting format | After compiling the Kaizen results sheets, enters data into Excel files for reporting (or into the database after its creation). | Aggregates and edits the Excel forms used for the reporting at left ⇒ Aggregates and edits through the database after its creation | Aggregates and edits the Excel forms used for each country's reporting ⇒ Aggregates and edits through the database after its creation |
| Feedback method | <u>Includes Kaizen results sheet in company reports</u> | <u>Creates annual Kaizen reports</u> | <u>Creates the African Kaizen White Paper</u> |

Logic Tree for Kaizen KPI



How to express the Kaizen effect by financial figure

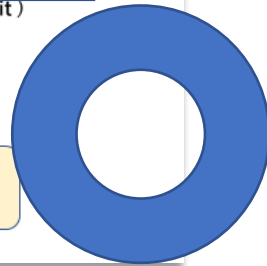
1st approach to see the Kaizen effect for the profit.
 - If we can know the Gross Profit, we can calculate the profit improvement -

Approach 1
 Productivity Improved ratio
 x Cover Ratio x GP

$$(Total\ impact\ to\ entire\ company) \times (Total\ GP) = (Total\ Improved\ Profit)$$

Point 3

Can we get Gross Profit of the company?
 Pouvons-nous obtenir le bénéfice brut de l'entreprise?



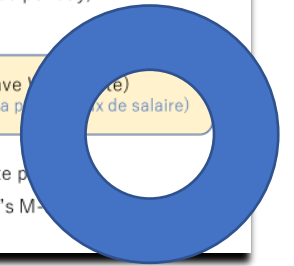
2nd approach to see the Kaizen effect for the profit.
 - If we can know the Wage Rate, we can simply calculate the profit improvement! -

Approach 2
 WAGE Rate

Point 4

It's difficult to get Wage Rate. (Usually, small company does not have it)
 Il est difficile d'obtenir le taux de salaire. (Habituellement, une petite entreprise n'a pas de taux de salaire)

Wage Rate: Added value amount that direct workers should create per hour
 Wage Rate = (Yearly Marginal Profit) / (Yearly total direct worker's M-H)
 (Marginal Profit : Net sales - variable cost)

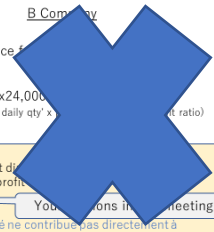


Approach 3
 Productivity Improved ratio x
 Unit Price

$$\$10.0 \times 1,200 \times 0.25 = \$3,000$$

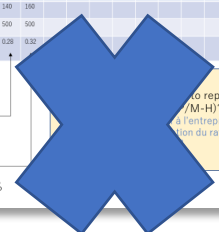
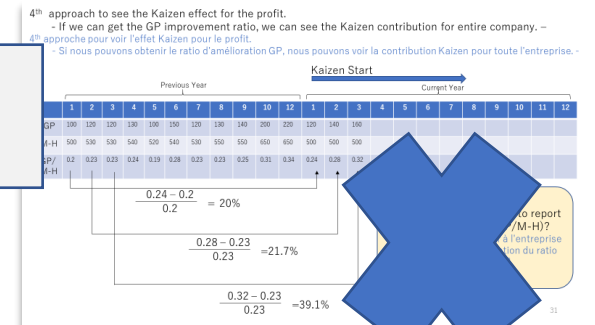
Point 5

1. Actually, there is a limit to demand, so productivity improvement does not directly contribute to sales improvement, it is far from the increase in profit.
2. Even if it contributes to sales improvement, it is far from the increase in profit.
3. Knowing the unit price is difficult.



It's difficult to obtain required unit price

Approach 4
 GP/M-H



There are factors other than Kaizen effect

Format to calculate automatically into the Kaizen effect by financial figure

| Company Information | | | | | | |
|------------------------------|--------------------------------------|---|---|------------------------|-------------------|--------------------|
| | Name | CODE | | | | |
| Country | Republic of Tunisia | 33 | | | | |
| Company | AAA company | 33-00001 | | | | |
| Sector code | Manufacturing | 1 | | | | |
| Manufacturing Subsector Code | Electronics | 16 | | | | |
| Service Subsector Code | Service Subsector Code | Code | | | | |
| | | | | | | |
| | Item | Defintion | | | | |
| Basic Condition | Minumum Wage/Hour | legal minimum wage | 100 | TND | | |
| | | | 3,934.00 | JPY | | |
| | Pilot Line coverage ratio | Gross profit base or Sales base | 30% | | | |
| | Yearly Gross Profit | last year actual | 1,000,000 | TND | | |
| | | | | | | |
| Field | Item | Defintion | Condition Before Kaizen | Condition After Kaizen | Improvement ratio | Output/Input Units |
| Key Indicators of Pilot Line | Output | Qty',Number of Customer,CS,Sales etc. | 800 | 1,200 | | Daily |
| | Input (M-H) | Man-Hour(M-H) | 200 | 180 | | Daily |
| | Productivity(Output/M-H) | | 4.000 | 6.667 | 66.7% | |
| | Defect(%) | (Number of defect product/ Products Quantity) | 5.50% | 1.40% | -74.55% | |
| | | | | | | |
| Sub indicaor of Pilot Line | Used Space | M ² | 300 | 250 | -50 | |
| | Space-Productivity | | 2.67 | 4.00 | 133.3% | |
| | | | | | | Time unit |
| | Lead Time(Factory-in to Factory-out) | Second,Minute,Hour,Day | 7.200 | 2.880 | 60% | PLS INPUT |
| | Lead Time(Line-in to Line-out) | Second,Minute,Hour,Day | 80 | 35 | 56% | PLS INPUT |
| | | | | | | |
| | WIP(Qty') | The average number in the line | 100 | 50 | 50% | |
| | | | | | | |
| | 7200 | OEE | AvilabilityxPerformance xQuality | 68.00% | 83.00% | 22.06% |
| Company -wise Sub indicators | | Inventory (from B/S) | Inventory Amount in B/S | 500,000 | 230,000 | |
| | | Yearly Net Sales | Net sales | 2,000,000 | 2,000,000 | |
| | | Inventory Turnover(D/S) | | 91.3 | 42.0 | 54.0% |
| | | | | | | |
| | | Return ratio(%) | The number of return product/shipped Qty' | 8.50% | 2.30% | 72.94% |
| | | ES score(point) | | 45 | 65 | 44.4% |
| | Yearly Incident | The number of insident in work site | 10 | 2 | 80% | |

GEMBA KPI

Pilot implementation undergoing for more improvements

| KPI & Sub Indicator list | | | | |
|------------------------------|--------------------------------------|-----------|-------------------|----------------|
| | name | Code | Sector Code | Subsector Code |
| Country | Republic of Tunisia | | 33 | |
| Company | AAA company | 33-00001 | | 1 16 |
| | | | | |
| Category | Item | Figure | | |
| KPI A-1 | Financial Improvement by Kaizen | 472,080 | JPY | |
| KPI A-2 | Financial Improvement by Kaizen | 7,868,000 | JPY | |
| | | | Improvement ratio | |
| Key Indicator of Pilot Line | Productivity Improvemen(per M-H) | 66.7% | | |
| | Defect ratio improvement | 74.5% | | |
| Sub indicaor of Pilot Line | Productivity improvement(per Sapce) | 60.0% | | |
| | Lead time Reduction-1(F-in to F-out) | 56.3% | | |
| | Lead time Reduction-2(L-in to L-out) | 50.0% | | |
| | WIP Reduction | | | |
| | OEE improvement | 22.1% | | |
| | | | | |
| Company -wise Sub indicators | Inventry Reduction | 54.0% | | |
| | Return Ratio | 72.9% | | |
| | Employee Satisfaction | 44.4% | | |
| | Incident(safety) | 80.0% | | |

Financial effect of Kaizen

| | | | |
|-------------------------------|---|-------------------------|-----------------------|
| Kaizen Monetary Effect report | | Evaluation Id | E51-9 |
| COMPANY | SOMEF-3 | Country | Tunisia |
| | Country CODE: | 51 | |
| 1-productivity-A | When you don't have any financial figure, we will try to calculate monetary effect of M-H saving by following logic | | |
| | IN/OUT Data: OK | Wage Rate Data: OK | |
| | 1. Calculate the figure of saved M-H by each activity with the number of reduced M-H and improved output quantity $\{(inputted\ M-H/output\ Qty)_{before\ Kaizen} - (inputted\ M-H/output\ Qty)_A\} = (A)_n$ | | |
| | | | |
| | 2. Calculate accumulated saved M-H $A_1 + A_2 + A_3 + \dots + A_n = SUM(A)_n$ | | |
| | | 14.17 | M-H |
| | 3. Calculate total effective money from saved M-H a SUM(A)_n x Minimum Wage of each country = Effective profit by productivity improve | | |
| | | US\$16.00 | Daily |
| 1-productivity-B | If you have data of Gross Profit from financial data, you can estimate GP improvement from productivity improvement ratio. | | |
| | GP Data: No Data | | |
| | 1. Cumulative productivity improve ratio with each weight | | |
| | | 0.00 | % |
| | 2. Calculate impact to improve gross profit = Effective profit by productivity improve | | |
| | | US\$0.00 | Yearly |
| | If you have data both A and B, depend on the utilization of the additional man-hour, you can choose A or B as monetary effect of the productivity improvement | | |
| 2-Inventory reduction | If we have data about gross profit and inventory amount, we can calculate the monetary effect of inventory reduction by following Logic | | |
| | Sales Data: OK | Inventory Data: No Data | GP Data: No Data |
| | 1. Reduced turnover (D/S: Daily Supply) $(Inventory\ Amount/Net\ sales)_{previous\ year\ end} - (Inventory\ amount)/ = (A)$ | | |
| | | 0.00 | D/S |
| | 2. Calculate the profit that minimal amount of the currency of inventory earns in $Gross\ Profit / Inventory\ amount / 365 = (B)$ | | |
| | | 0.0000 | TND |
| | 3. Calculate the effective profit which was made by inventory reduction activities (A) X (B) X Inventory Amount = Effective profit by inventory reduction | | |
| | | No Impact | |
| 3-Space Saving | If we have data about gross profit and floor space (square meter), we can calculate monetary effect of space saving by following logic | | |
| | Floor Spac Data: OK | GP Data: No Data | Space Saving Data: OK |
| | 1. Calculate the saved space by each activity $= (A)_n$ | | |
| | | | |
| | 2. Calculate accumulated saved space $A_1 + A_2 + A_3 + \dots + A_n = SUM(A)_n$ | | |
| | | 170.2 | m ² |
| | 3. Calculate the profit earned per square meter in last year $(Gross\ Profit)_{previous\ year} / Floor\ square\ meter = (S)$ | | |
| | | 0.00 | TND |
| | 3. Calculate profit of using the saved space for other valuable job SUM(A)_n X (B) = Effective profit by space saving activities | | |
| | | US\$0.00 | Yearly |
| 4-Material Cost reduction | If we have data of material cost reduction amount per unit, we can calculate monetary effect of material cost down by following logic | | |
| | Material Cost Data: OK | | |
| | 1. Calculate reduced amount of material cost by multiplying each cost down amount $(cost\ down\ amount\ per\ unit) \times (putup\ unit\ after\ Kaizen) = (A)_n$ | | |
| | | | |
| | 2. pick up the output quantity after kaizen $A_1 + A_2 + A_3 + \dots + A_n = SUM(A)_n$ | | |
| | | 0 | TND |
| | SUM(A)_n = Total material cost reduction amount | | |
| | | No Impact | Monthly |

KAIZEN Performance Report

| | | | |
|---------------|------------------------------|--------------|----------|
| Company Name: | SOMEF-3 | | |
| Country: | Tunisia | Code: | 51 |
| Sector: | Manufacturing | Editor: | Kakiuchi |
| Sub Sector: | Electrical Product/Equipment | Create date: | 2022/7/8 |

Total Company Kaizen Result

| | Before Kaizen | After Kaizen | Improvement ratio | Dif. |
|--|---------------|--------------|-------------------|------|
| Gross Profit (each county's currency) | | | | |
| Inventory Turnover(D/S) | | | | |
| Return Ratio (%) | | | | |
| Incident(Number of Case) | | | | |
| Employee Satisfaction (ES Survey Score etc.) | | | | |

Pilot Line/Model Kaizen Result

| Pilot Produt/Line | Kaizen Item | Before Kaizen | Afetr Kaizen | Kaizen Ratio | Output Qty' after kaizen | Sub Total M-H saving | Sub Total Space Saving | Sub Total Mat. Cost Reduction | Productivity improvement Impact | Scope Ratio (Productivity) | Perid (Productivity) |
|-------------------|---------------|---------------|--------------|--------------|--------------------------|----------------------|------------------------|-------------------------------|---------------------------------|----------------------------|----------------------|
| No.1 | Productivity | 95.02 % | 97.57 % | 2.69 % | 976 | 0.27 | | | 0 | | Daily |
| No.1 | Space Saving | 401.80 | 276.80 | ▲ 31.11 % | 976 | | 125.00 | | 0 | | |
| No.1 | WIP Reduction | 350.00 | 150.00 | ▲ 57.14 % | | | | | 0 | | |
| No.2 | Productivity | 0.80 % | 0.88 % | 9.93 % | 123 | 13.90 | | | 0 | | Daily |
| No.2 | Space Saving | 70.70 | 49.00 | ▲ 30.69 % | 123 | | 21.70 | | 0 | | |
| No.2 | WIP Reduction | 200.00 | 90.00 | ▲ 55.00 % | | | | | 0 | | |
| no.3 | Productivity | 1.31 % | 1.31 % | 0.00 % | 144 | 0.00 | | | 0 | | Daily |
| no.3 | Space Saving | 70.00 | 46.50 | ▲ 33.57 % | 144 | | 23.50 | | 0 | | |
| no.3 | WIP Reduction | 150.00 | 60.00 | ▲ 60.00 % | | | | | 0 | | |

| | | | |
|---------------------------------------|-------|----------------|-------|
| Total M-H Saving | 14.17 | M-H | Daily |
| Total Space Saving | 170 | m ² | |
| Total Mat.Cost Saving | 0 | TND | |
| Total Productivity improvement Impact | 0 | % | |

Design for Pilot Program for WG 3

| | |
|-------------------|---|
| Activities | <ul style="list-style-type: none">The survey team is visiting the recommended companies in the selected countries (Kenya, South Africa, Mauritius) to check the KPI sheet will be properly used and check the accuracy of the sheet. |
| Duration | <ul style="list-style-type: none">3 weeks x 3 times by JICA survey team until October 2023 |
| Evaluation | <ul style="list-style-type: none">The survey team will check the availability & accuracy of the current “semi-finalized” KPI sheet and finalize it based on the pilot activities |
| Input | <ul style="list-style-type: none">Dispatching JICA survey teamRecommendation of the companies to be visited from the selected countriesThe selected pilot countries are kindly required to make the trial of the KPI sheet before the survey team visits. |
| Output | <ul style="list-style-type: none">Finalized version of KPI formatFinalized version will be converted into the cloud data base style for the easy usage if the survey budget allows.Summarized data will be used for Africa Kaizen White Paper |

Summary of Visit in the selected countries (Kenya, South Africa, Mauritius)

- First visit: February – March 2023
- Second visit: July – August 2023
- Mainly, approach 1 and 2 were prepared.
- A total of 25 companies: 17 manufacturing, and 8 service sector

First Batch

| No. | Contry | Sector | Sub Sector | main activities | OUTPUT | INPUT |
|-----|--------------|----------------|----------------------|--------------------------|---------------------|-------------|
| 1 | Kenya | Mannufacturing | polyethylene molding | 5S/Machine Efficiency | ton | daily M-H |
| 2 | Kenya | Mannufacturing | textile | Layout/Quality | Pcs | Yearly M-H |
| 3 | Kenya | Mannufacturing | food processing | 5S/QCC | kg | daily M-H |
| 4 | South Africa | Mannufacturing | Automobile Part | Line Balnacing | Pcs | daily M-H |
| 5 | South Africa | Mannufacturing | Interior goods | 5S/MUDA-DORI | Pcs | daily M-H |
| 6 | South Africa | Mannufacturing | Large resin molding | 5S | Pcs | daily M-H |
| 7 | South Africa | Mannufacturing | Automobile part | SMED | Pcs | daily M-H |
| 8 | Mouritius | Mannufacturing | Car maintenance | 5S | ? | ? |
| 9 | Mouritius | Health Service | Hospital | BPR(Process improvement) | Number of patients | daily M-H |
| 10 | Mouritius | Mannufacturing | Large resin molding | Material cost down | Pcs | Yearly M-H |
| 11 | Mouritius | Mannufacturing | Chemical goods | Quality& Process review | ton | Yearly M-H |
| 12 | Mouritius | Public Service | Public welfare fund | BPR(Process improvement) | Number of processed | Monthly M-H |

Second Batch

| No. | Contry | Sector | Sub Sector | main activities | OUTPUT | INPUT |
|-----|--------------|-----------------------|---|---------------------|-----------------------|------------|
| 1 | Kenya | Mannufacturing | food processing | 5S/Layout | Kg | daily M-H |
| 2 | Kenya | Mannufacturing | food processing | 5S?MUDA Dori | Pcs | daily M-H |
| 3 | Kenya | Mannufacturing | Plastic manufacturing | 5S | Ton | Yearly M-H |
| 4 | Kenya | Mannufacturing | Animal feed/supplement | 5S/Layout | Pcs | daily M-H |
| 5 | South Africa | Mannufacturing | Mobile part | 5S/Layout | Pcs | daily M-H |
| 6 | South Africa | Service | Laundry service | Visualization | # of finished product | daily M-H |
| 7 | South Africa | Service | Pharmaceuticals and medical equipment trading company | 5S | Quality(# of failure) | daily M-H |
| 8 | South Africa | Mannufacturing | clothing manufacturing | 5S/Layout/MUDA-Dori | Pcs | daily M-H |
| 9 | Mouritius | Consulting service | HR consulting | BPR& IT platform | # of documents | daily M-H |
| 10 | Mouritius | Engineering service | Engineering consultant | BPR& IT platform | # of invoices | daily M-H |
| 11 | Mouritius | Consulting service | Buiding facility consulting | BPR& IT platform | # of equipment | daily M-H |
| 12 | Mouritius | Food service | Food delivery | BPR& IT platform | task time reduction | Weekly M-H |
| 13 | Mouritius | Accommodation service | Hotel | Cost reduction | Task time reduction | Daily M-H |

Major challenges faced by the WG III

- Unfortunately, obtaining Gross Profit is more difficult than expected.
- Some countries do not specify Gross Profit in P&L. (GP is a mandatory explicit item in Japanese P&L)
- Financial data not easy to obtain; Many companies don't want their financial data to be disclosed.
- The knowledge level especially in the area of BDS (or financial management) differs country by country so that the calculation approach using the gross profit might be hard to be applied with good understanding by Kaizen trainers.

Counter measures taken by the WG 3

- “Excel format” to calculate automatically the monetary value of Kaizen effect.
- Calculation itself is not difficult, while the formula might be difficult to be understood, so that training material of the KPI calculation methodology were made.
- With regard to Approach 1, almost all companies were able to enter data without spending a lot of time, so we believe that the input method and calculation logic have feasibility.

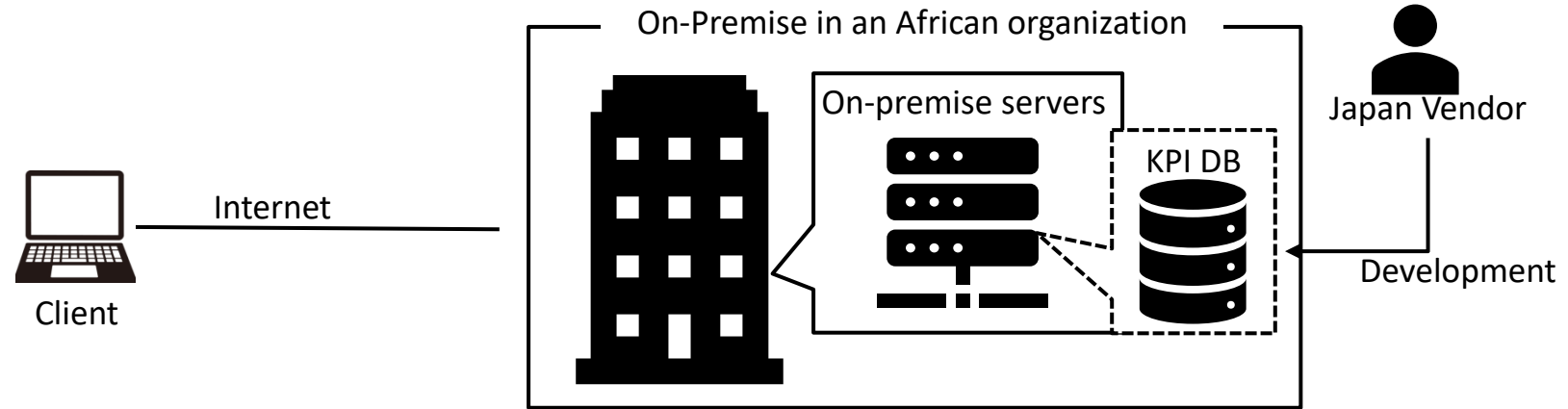
WG III self-evaluation

- Approximately 25 enterprises/organizations were piloted by the format and the format has been modified for improvement. In general, all the Kaizen results in piloted enterprises/organizations were successfully converted into monetary value.
- With regard to Approach 1, almost all companies were able to enter data without spending a lot of time, so we believe that the input method and calculation logic have feasibility.
- The establishment of the online database of KPI will be left up to the next project due to the budget limitations. However, these online database is a “must” to have the Africa Kaizen White Paper because we need to summarize/analyze the KPIs in each country.

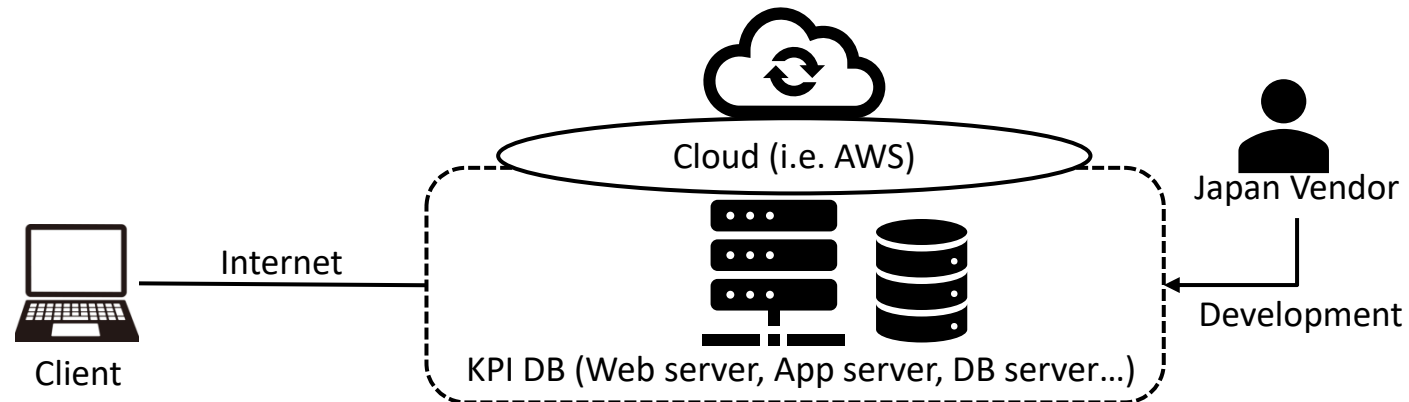
Recommendations

Plan of establishing the database instead of excel if budget allows for “Africa Kaizen White Paper” in the future

- Plan A – On-Premise



- Plan B – Cloud



Thank you so much for your attention !!