MonsoonSIM
Performance Measurement (KPI), Business Intelligence and Score Metric

A part of MonsoonSIM Data Analytics Series

Applicable for Version 8 (OCT 2020)

- Able to understand measurement metric concept and apply to reality
- Able to use Data & Information in MonsoonSIM to evaluate and execute better
- Able to use Business Intelligence in next step

Paramintara Yaoyuenyong
MonsoonSIM Thailand

IMPORTANT NOTED

- The terms of **<u>Data Analytics in Data Science</u>** are slightly different in Predictive Analytic & Prescriptive Analytics in this and these documents (MSIMTH Business Data Analytics Series), the same 'Wording' which happened in MSIMTH Business Data Analytics are **for explanation in MonsoonSIM and Businesses explanation for Business experiential learning.**
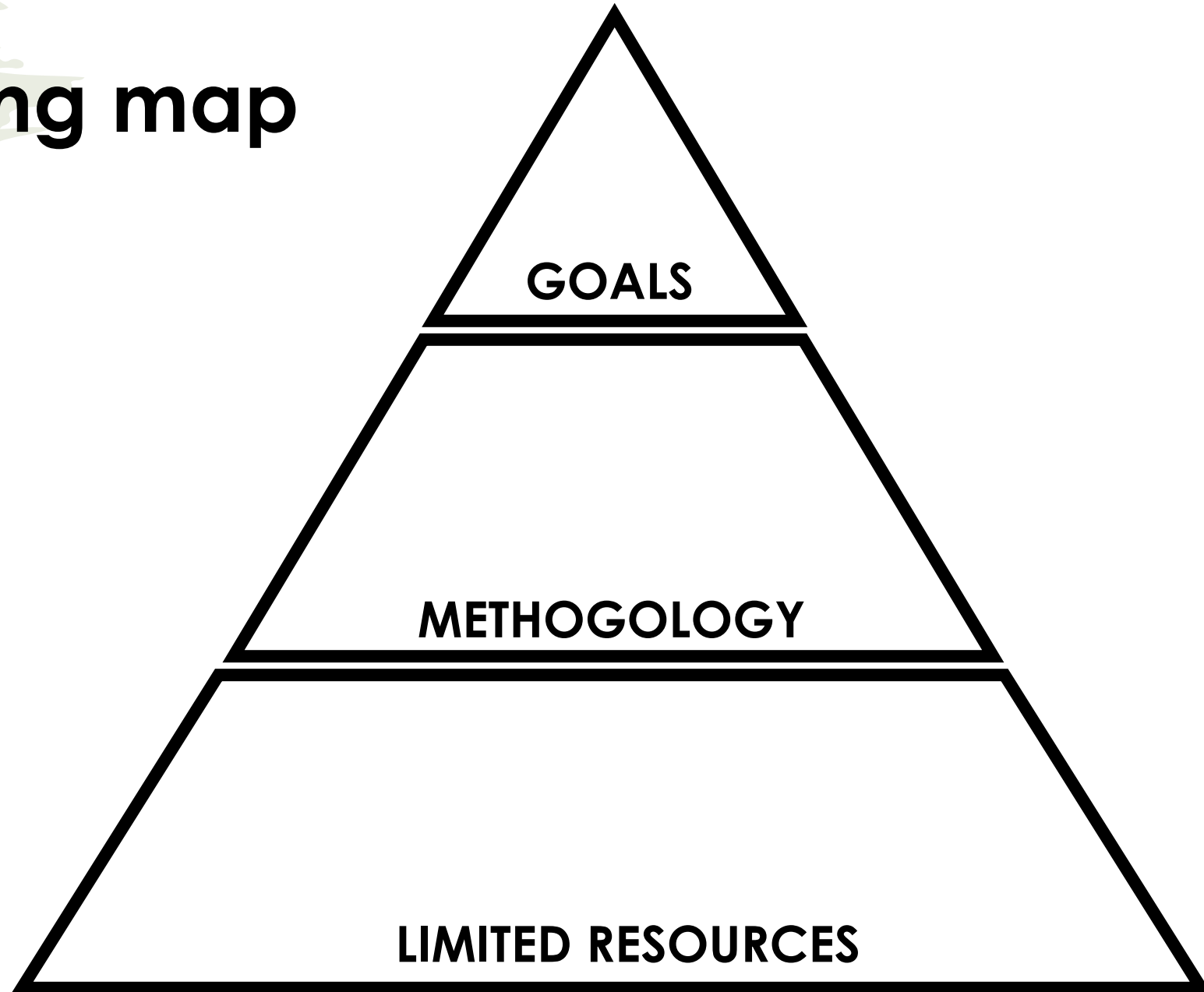
What gets measured,
gets managed.

PETER DRUCKER
American management guru (1909-2005)
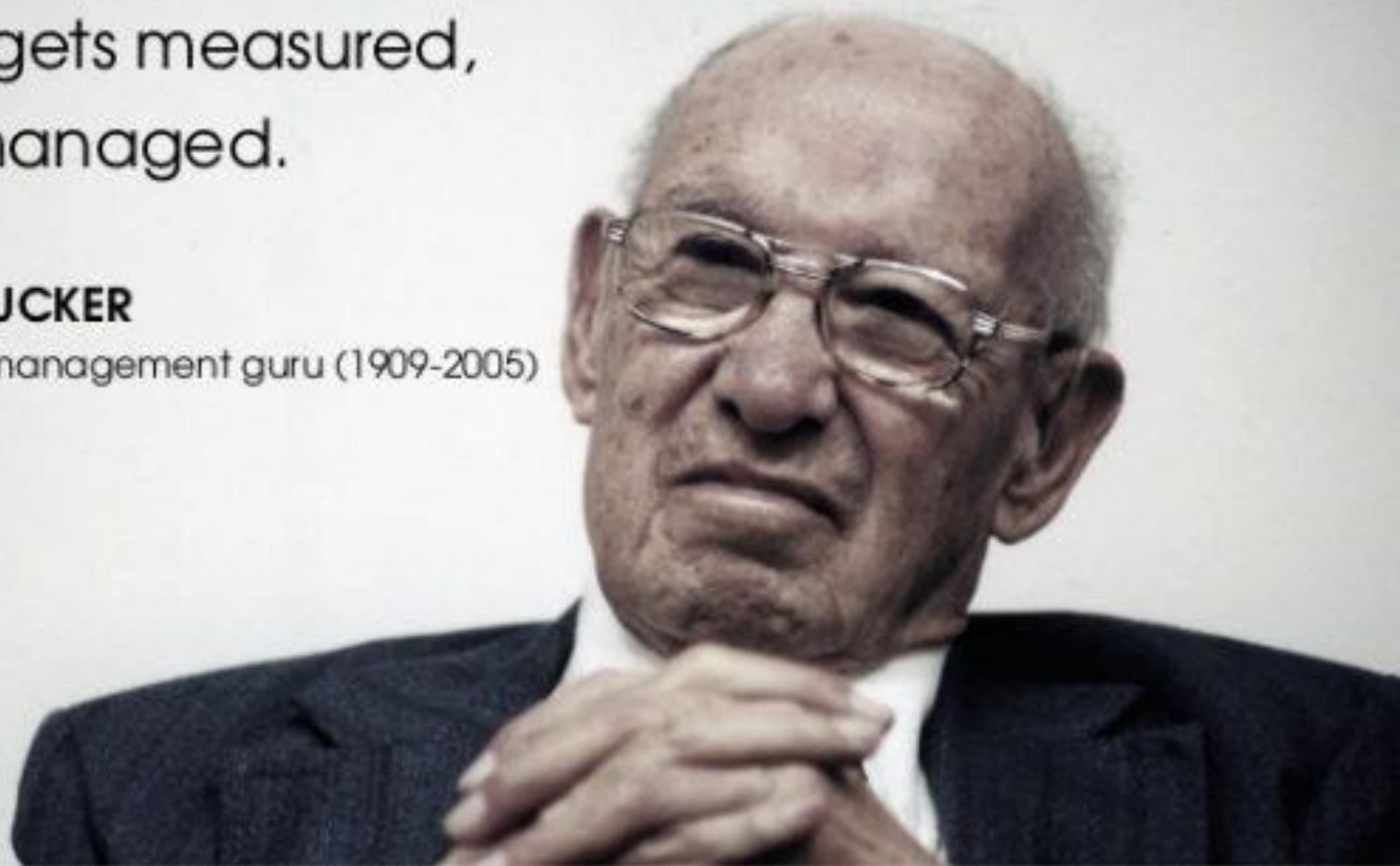
"Measurement is the first step that leads to control and eventually to improvement"

H. JAMES HARRINGTON

Planning map

GOALS

METHOGOLOGY

LIMITED RESOURCES

Paramintara Yaoyuenyong (2019)

What is Performance measurement?

Performance refers to *output results and their outcomes* obtained from processes, products, and services *that permit evaluation and comparison relative to goals, standards, past results*, and other organizations.
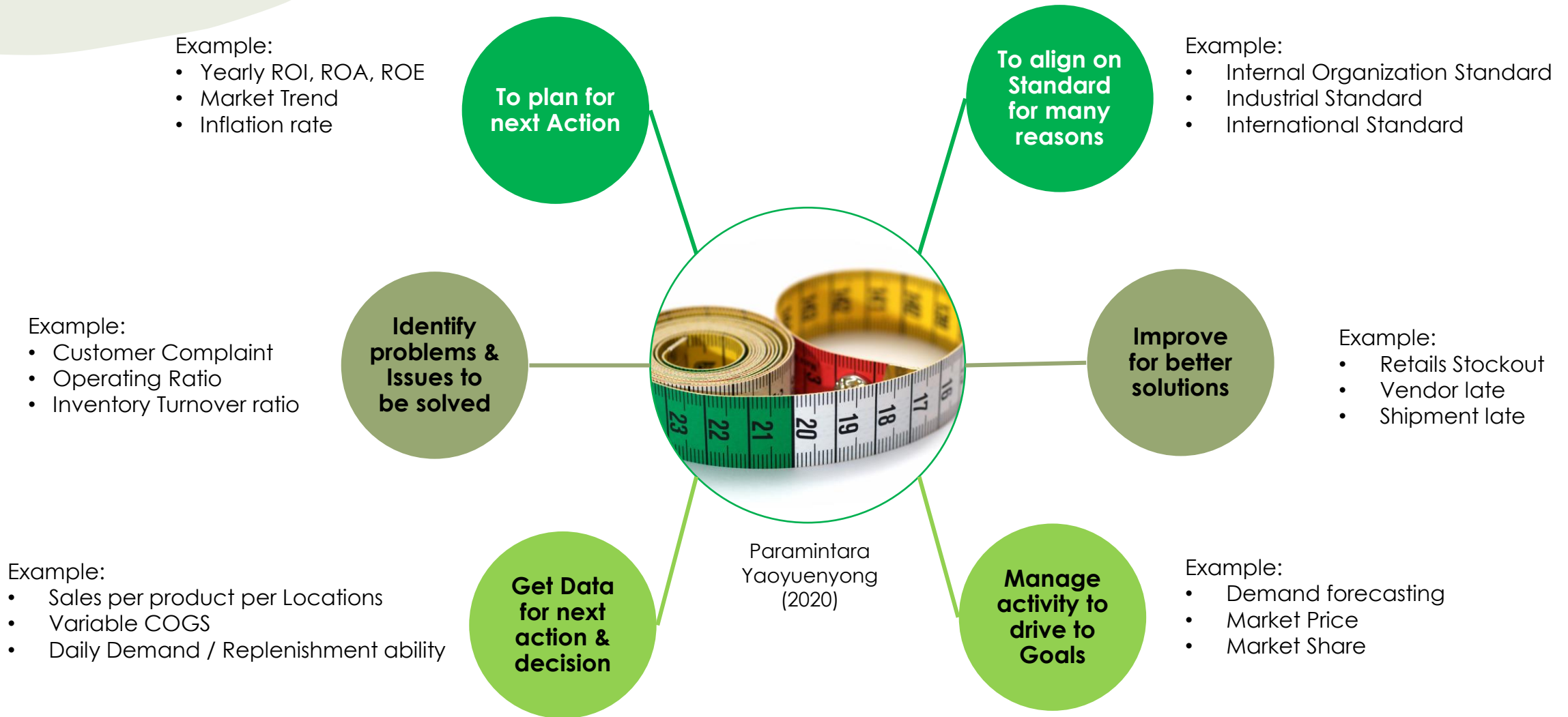
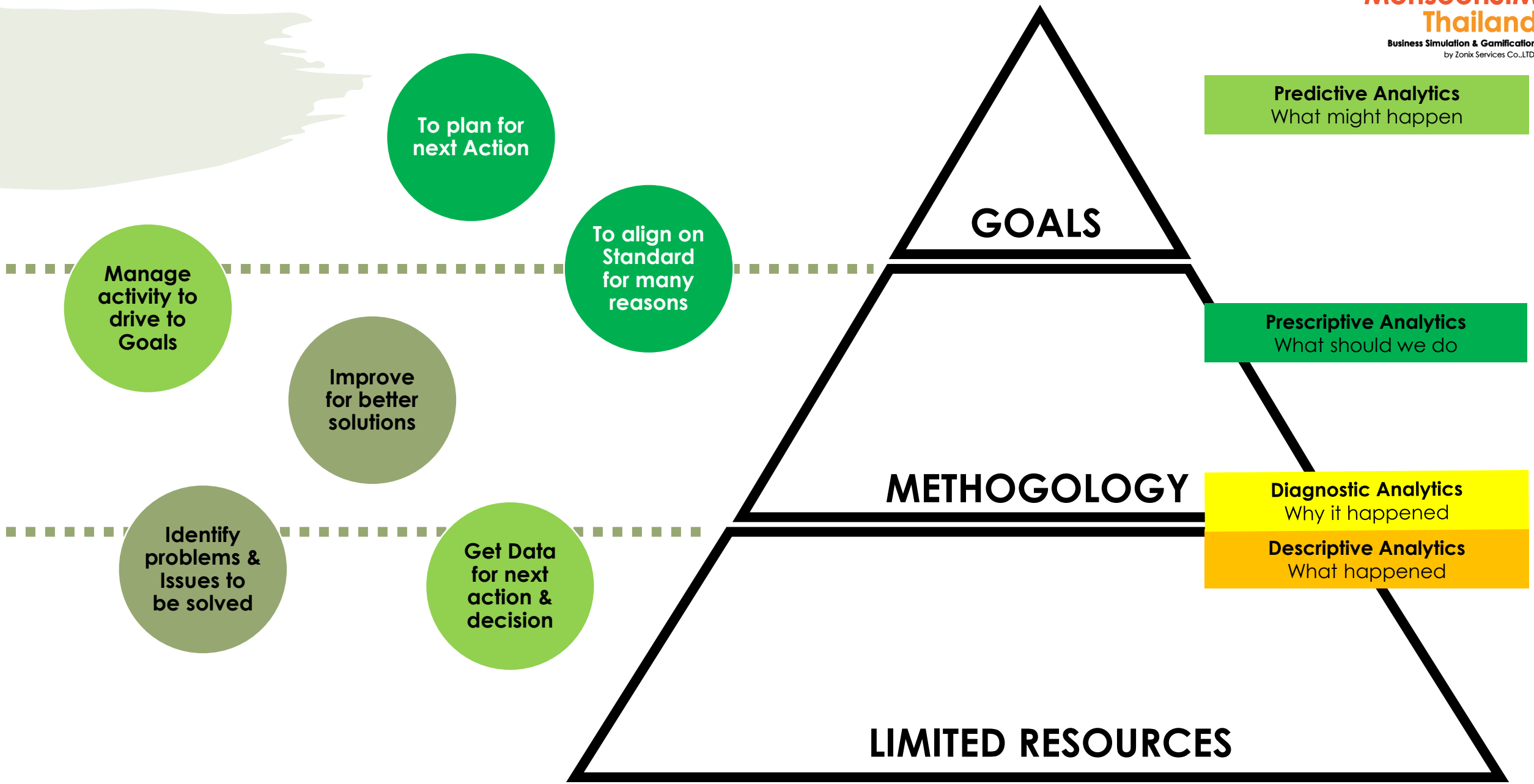Performance can be expressed in non-financial and financial terms.

Measurement refers to *numerical information that quantifies* input, output, and performance dimensions of processes, products, services, and the overall organization *(outcomes).*

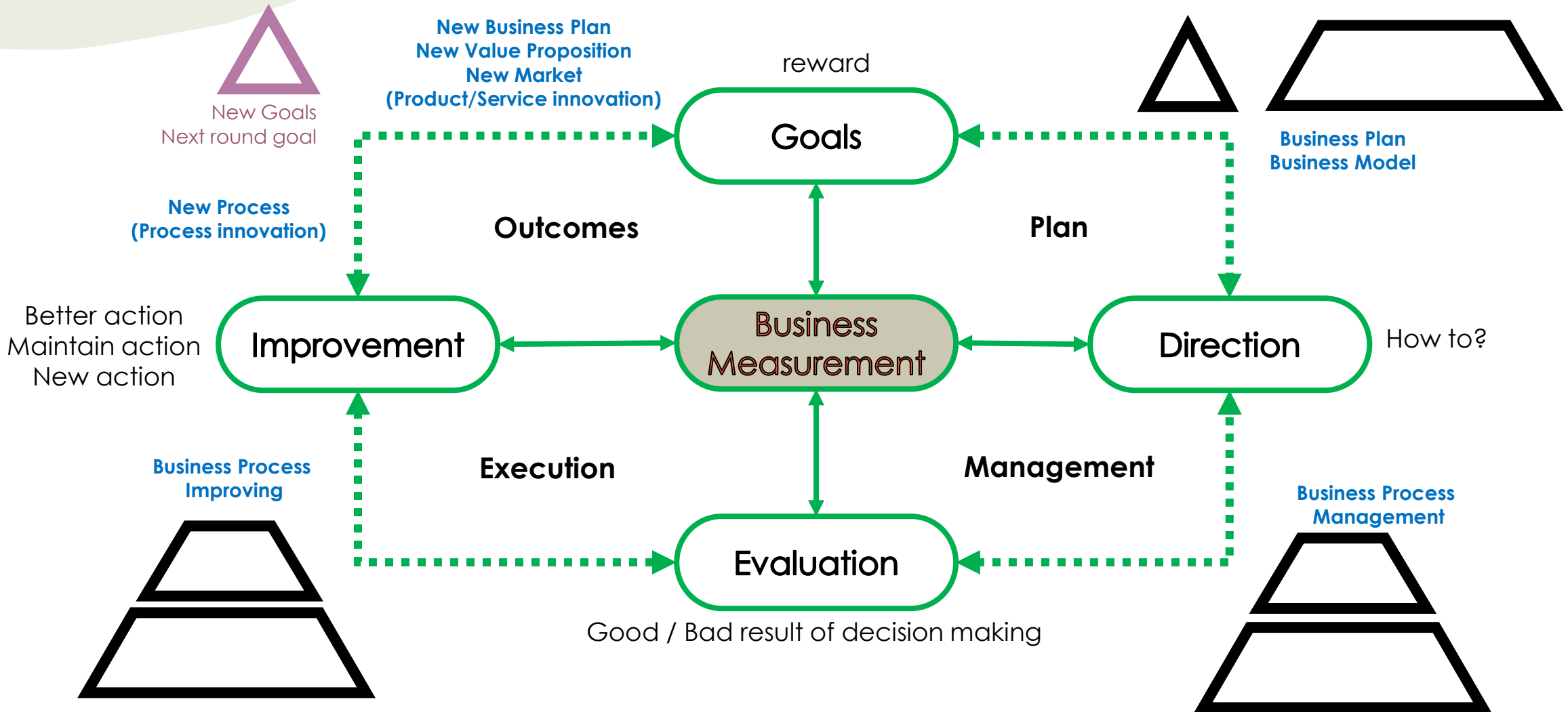Performance measures might be simple (derived from one measurement) or composite.

Why we measure our business action/decision ?

Why we measure business action/decision?

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Example:
- Yearly ROI, ROA, ROE
- Market Trend
- Inflation rate

To plan for next Action

To align on Standard for many reasons

Example:
- Internal Organization Standard
- Industrial Standard
- International Standard

Example:
- Customer Complaint
- Operating Ratio
- Inventory Turnover ratio

Identify problems & Issues to be solved

Improve for better solutions

Example:
- Retails Stockout
- Vendor late
- Shipment late

Paramintara Yaoyuenyong (2020)

Example:
- Sales per product per Locations
- Variable COGS
- Daily Demand / Replenishment ability

Get Data for next action & decision

Manage activity to drive to Goals

Example:
- Demand forecasting
- Market Price
- Market Share

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Predictive Analytics
What might happen

Prescriptive Analytics
What should we do

Diagnostic Analytics
Why it happened

Descriptive Analytics
What happened

To plan for next Action

To align on Standard for many reasons

Manage activity to drive to Goals

Improve for better solutions

Identify problems & Issues to be solved

Get Data for next action & decision

GOALS

METHOGOLOGY

LIMITED RESOURCES

Paramintara Yaoyuenyong (2019)

Why *Business measurement* ?

New Business Plan
New Value Proposition
New Market
(Product/Service innovation)

reward

New Goals
Next round goal

Goals

New Process
(Process innovation)

Outcomes

Plan

Business Plan
Business Model

Better action
Maintain action
New action

Improvement

Business Measurement

Direction

How to?

Business Process
Improving

Execution

Management

Business Process
Management

Evaluation

Good / Bad result of decision making

Paramintara Yaoyuenyong (2020)

Kaizen 改善

Kaizen is a Japanese term meaning "change for the better" or "continuous improvement." It is a Japanese business philosophy regarding the processes that continuously improve operations and involve all employees. Kaizen sees improvement in productivity as a gradual and methodical process.

https://www.investopedia.com/terms/k/kaizen.asp

https://greedisgoods.com/kaizen-%E0%B8%84%E0%B8%B7%E0%B8%AD/

KPI; Key Performance Indicator

A Key Performance Indicator (KPI) is ==_a measurable value that demonstrates how effectively a company is achieving key business objectives_==.

https://www.klipfolio.com/blog/kpi-metric-measure

Key Performance Indicators (KPIs) are ==_the critical (key) indicators of progress toward an intended result._== KPIs provides a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most. As Peter Drucker famously said, "What gets measured gets done."
https://kpi.org/KPI-Basics

Key performance indicators (KPIs) refer to ==_a set of quantifiable measurements used to gauge a company's overall long-term performance_==. KPIs specifically help determine a company's strategic, financial, and operational achievements, especially compared to those of other businesses within the same sector.
https://www.investopedia.com/terms/k/kpi.asp

Key Performance Indicators
Definition and Examples

A quantifiable measure a company uses to determine how well it's meeting its operational and strategic goals.

A sales team might track **new revenue**

A customer support team might measure the **average on-hold time** for customers

A marketing group will look at the contribution of **marketing generated sales leads**

Human resources will look at **employee engagement**

Other areas of the business will look at the **efficiency of processes**

the balance

Measurement & Metric

Definition

Metrics

Provides measuring units to depict values, thresholds, constraints, scope, duration, maximums and minimums, averages, etc.

Measures

Represent information used to establish a common understanding of status, condition, and position of something

A **"measure"** is a number that is derived from taking a measurement. Your height, weight or temperature would all be measures. ... In contrast,

a **"metric"** is a calculation between two measures. Typically, the calculation is a form of division

https://www.slideshare.net/anandsubramaniam/project-metrics-measures

DIKW & Business Data Analytics

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Prescriptive Analytics
What should we do

Predictive Analytics
What might happen

Diagnostic Analytics
Why it happened

Descriptive Analytics
What happened

focus — wisdom

adjust — knowledge

compare — information

sample — data

observe — facts

measurements

Metric/KPI

Measure

https://www.conceptdraw.com/How-To-Guide/dikw-pyramid

"Whatever have been measured, That needs to be planned and done"

Paramintara Y.

Type of KPIs in Process/Project Management

https://kpi.org/KPI-Basics

Input

measure attributes (amount, type, quality) of resources consumed in processes that produce outputs

Process

activity measures focus on how the efficiency, quality, or consistency of specific processes used to produce a specific output;, such as the tools/equipment used or process training

Output

result measures that indicate how much work is done and define what is produced

Outcomes

focus on **accomplishments or impacts,** and are classified as Intermediate Outcomes

Project/Plan

measures answer questions about the status of deliverables and milestone progress related to important projects or initiatives

When should we measure?

DEMING CYCLE

KPI Metrix is part of Deming Cycle
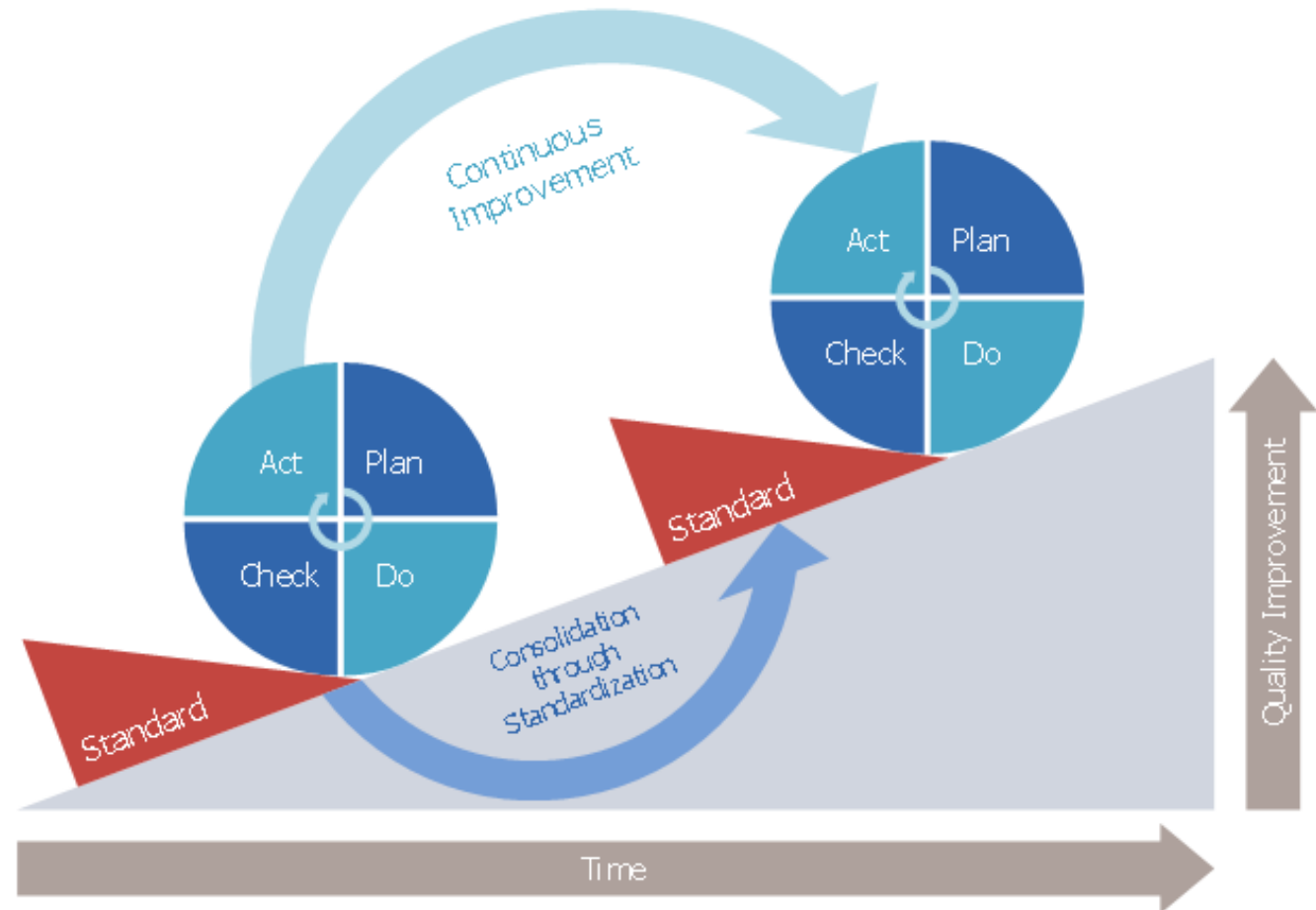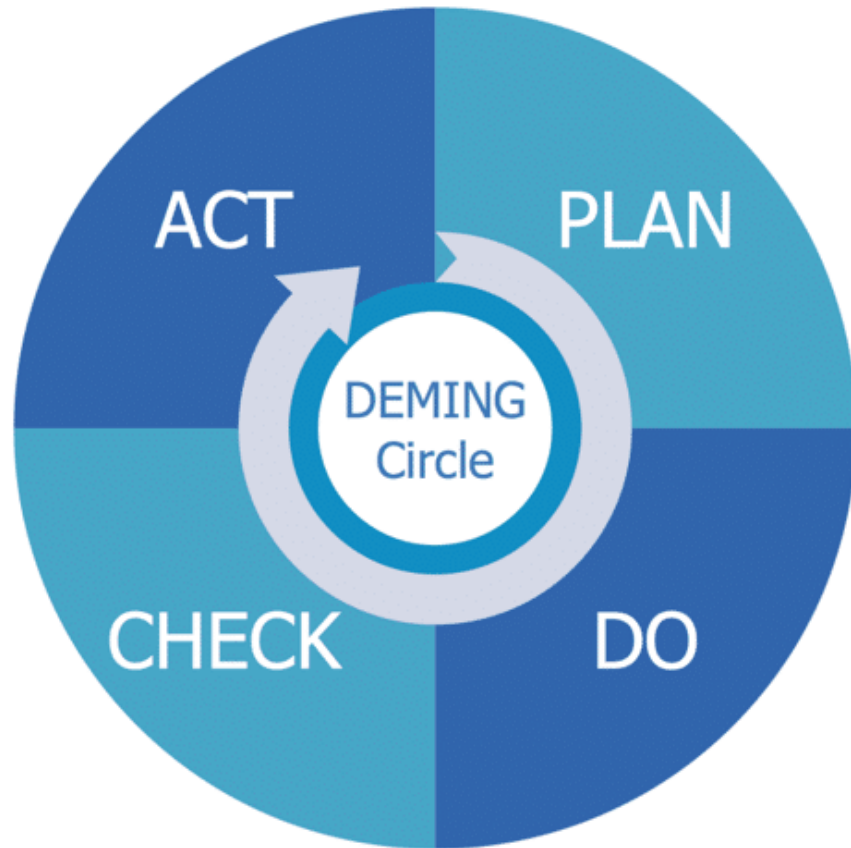
How to use *Deming Cycle* to improve your job/project/business ?

Prescriptive Analytics
What should we do

New PROCESS
New OUT PUT
When changing has been established

OUTCOMES and
PROJECT & PLAN

Diagnostic Analytics
Why it happened

Predictive Analytics
What might happen

INPUT
>> NEW INPUT

PROCESS / OUT PUT

Descriptive Analytics
What happened

ACT

PLAN

DEMING Circle

CHECK

DO
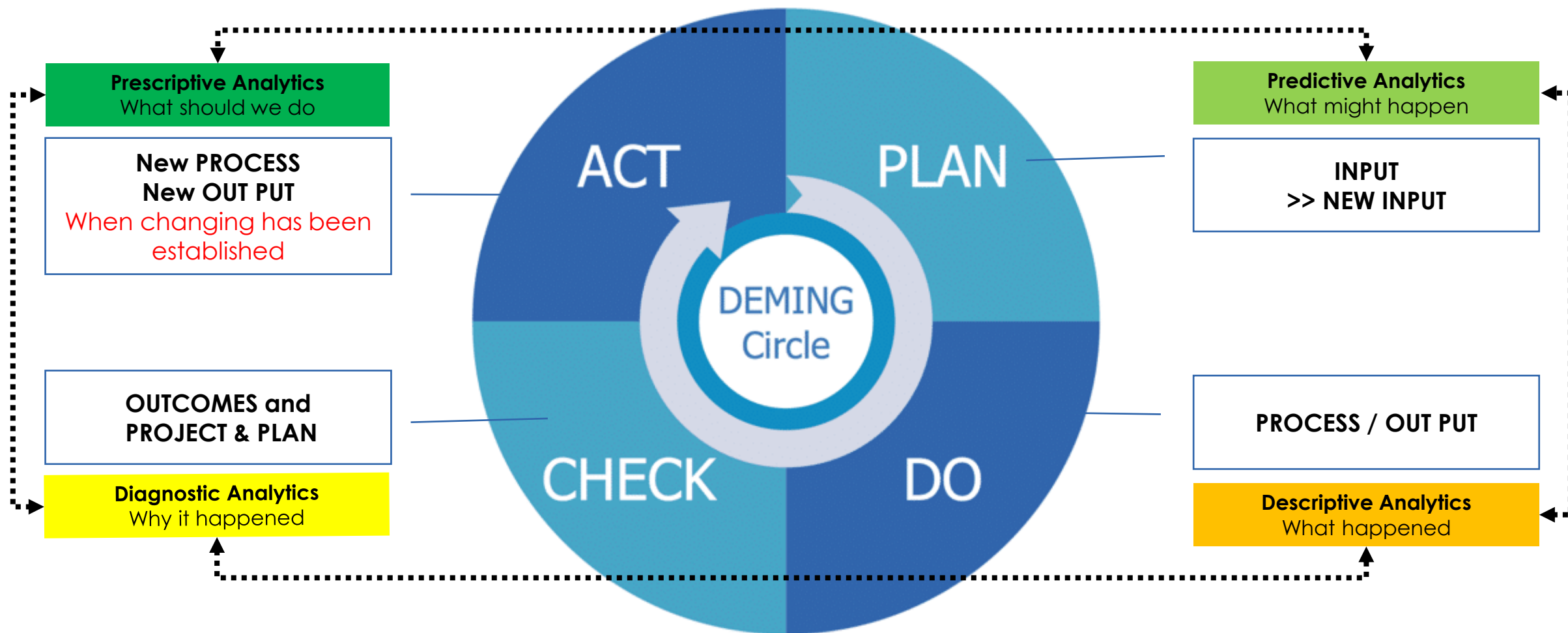
How to make use of PDCA Strategically

(as new input data to set for new goals/new KPIs)

Input Data

processing — no — **Valid & Ready** — yes — **PLAN** — Setting KPIs

DO *Processed* as planned

Each *outputs* of each process and department result

CHECK   CHECK

Align on settled KPI — no / yes — ACT

Define error and do with new approaches

Rethink & Resetting KPI — no — **Valid KPI** — yes

CHECK As *outcomes* result

(as organization's Goals)

Align on Organization Outcomes KPIs — yes — **ACT** / no

Define error and do with new approaches

CHECKING = Measurement is key.
How often have stakeholder/ department or organization check ?
Too often → Too Irritate and waste time
Too long → Higher risk
Each KPIs checking need to be strategized

Paramintara Yaoyuenyong (2020)

How to monitor and explore data and measure in MonsoonSIM

Where to find data to be measured in MonsoonSIM

KPI Box of each department
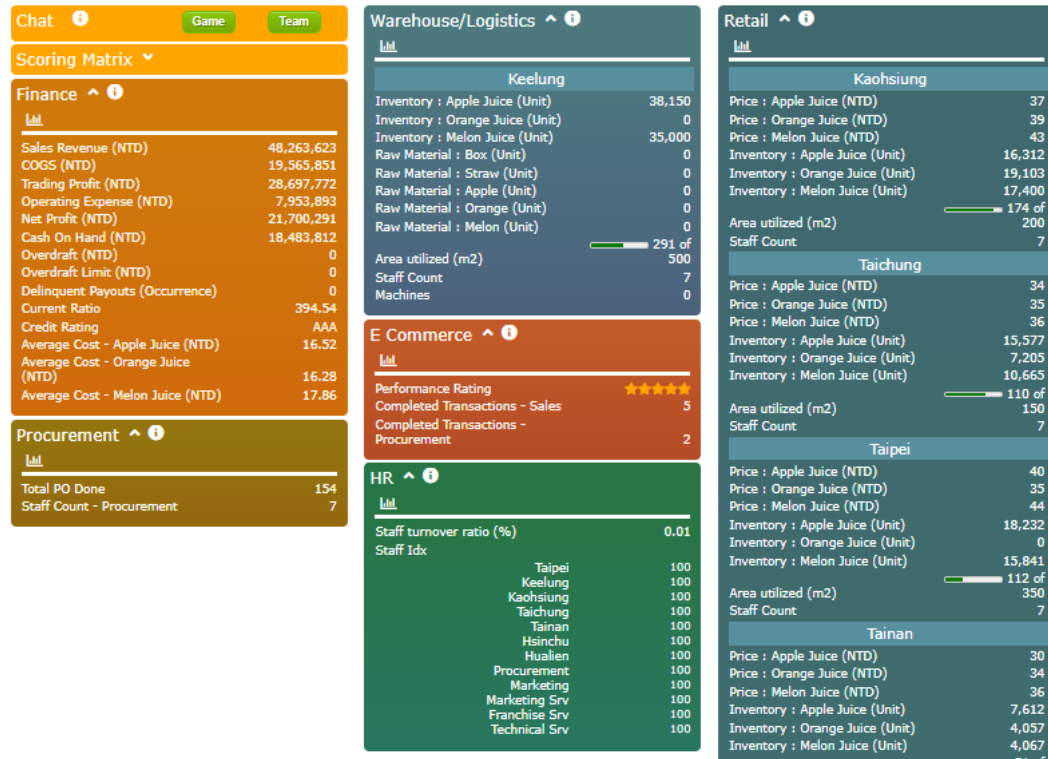
Micrograph of each department
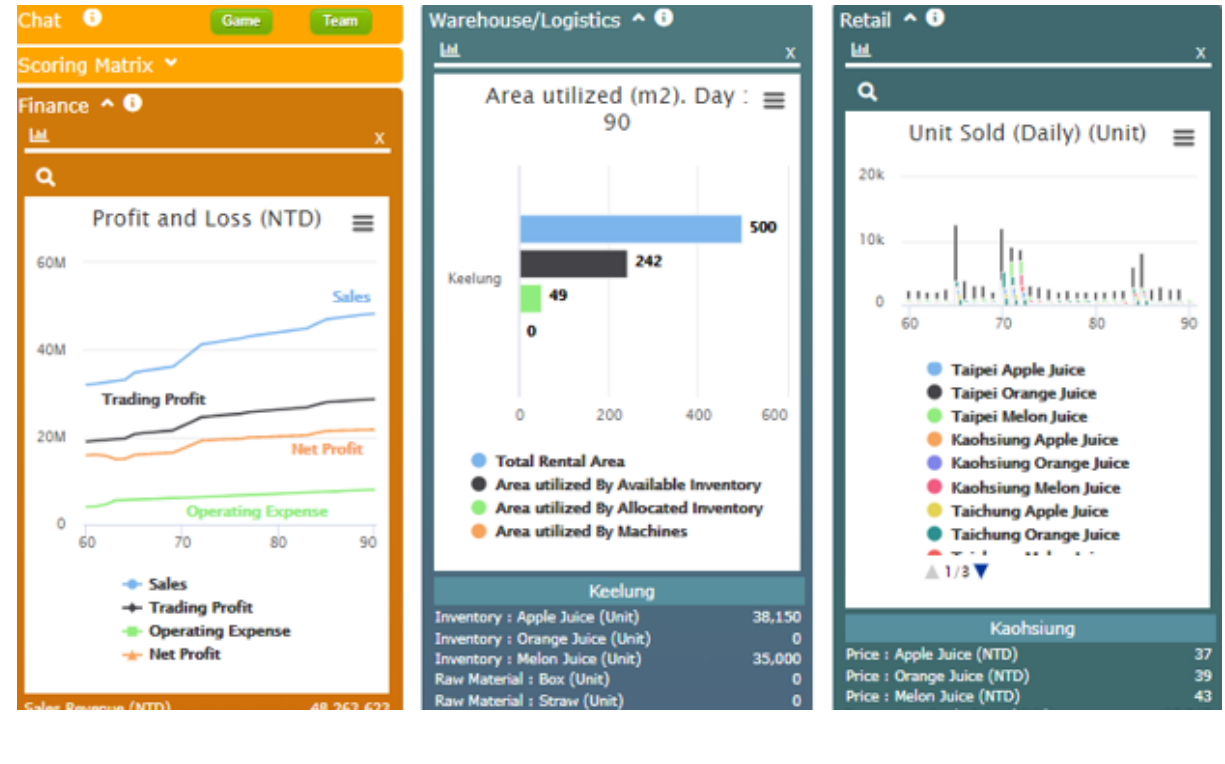
Where to find data to be measured in
MonsoonSIM

RAW Data in each Departments >>
Need to scrap or bring the data out, structured and model before use

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Where to find data to be measured in MonsoonSIM

<< Data which will be input to be planned and executed
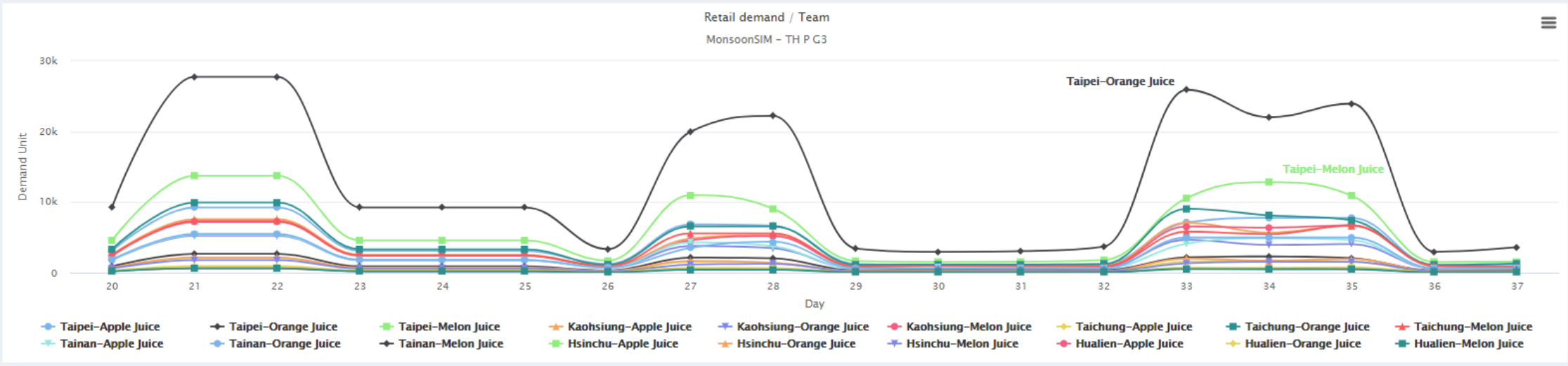
Where to find data to be measured in MonsoonSIM

<< **Another type of Data; Competitors data**

Where to find data to be measured in MonsoonSIM

Structured Data in each Departments >>

Able to download and use 3rd party BI software to analyze in others perspective which MSIM BI not support

<< Business Intelligence

Where to find data to be measured in MonsoonSIM
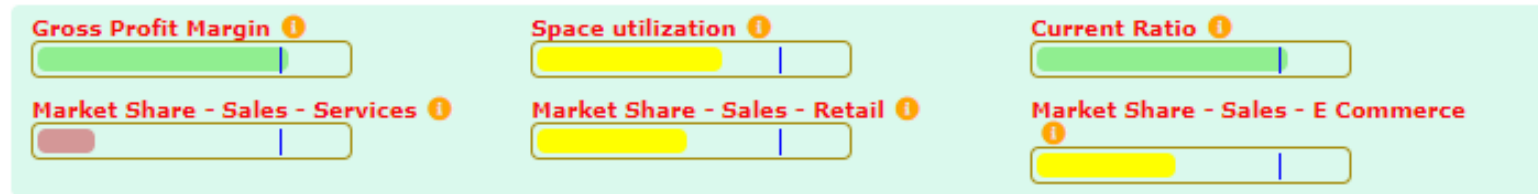
<< KPI Target
Some of target are each measurement, some are comparison to competitors

Measurable and availability metric in MonsoonSIM

Descriptive Analytics
What happened

- Data which relevant to the function
- Each functional data or relevant data from other function
- Each function dashboard **(Operation Dashboard)**- KPI BOX
- Some Micro graph in each function

Diagnostic Analytics
Why it happened

- Relevant output/ outcome data be synthesizing as information to understand, Identity the problems/issues to be solved or protected
- Competitor or deeply relevant information
- **Business Intelligent** / Basic Business Analytic

Predictive Analytics
What might happen

- Relevant output/ outcome data be synthesizing as information to prevent the RISKs happened and took effected to organization
- External information which will effected to normal operation and organization's goals

Prescriptive Analytics
What should we do

- Relevant internal information from passed three stages compared to organization visions
- Relevant internal information and External factors and use as SEM; Strategic Enterprise Management level.
- **Management Dashboard**

Part of **MonsoonSIM** Observer (Monitoring) & BI (Find the relation of Cause & Effect)

(Use for Evaluate your decision and action)

Key Delivery

- Meaning
- Activity that cause of results
- Able to identify XXX
- Output/Outcomes
  - If good >> Benefits
  - If Bad >> Risks

- Which Data <> Activity in supply chain that need to be monitored during execution that will show you
  - Same XXX happen again and getting worst
  - XXX gone or better output/outcomes
  - Next issue cause of executed planned

Understanding → **CHECKING** → **EXECUTING** → *Experiences & Learnability* → **STRATEGIZING**

- Which Data <> Action that cause of XXX
- Find the relevant action which cause of XXX
- Narrow down to Root of Causes
- Plan, how to manage XXX
- Simulate the Results that might happened, Get rid of RISKs and find proper action

- **Define sets of output which generated good outcomes**
- **Everything which well planned able to gain EXPECTED OUTCOMES**
- Able to simulate scenario by cater
  - Probability or chance/risks
  - Manageability Optional

Suggestion!!!

- Integrated MonsoonSIMTH circle of knowledge in related workflow to understand more

- Integrated Goals → Methodology → Resources

Meaning of Each Data/Information in MonsoonSIM ⓘ

BUSINESS INTELLIGENCE

Please Select Report. Maximum 6

| Costs | Finance | Human Resources | Incident - Complaint | Incident - Inventory |

| Inventory | Margins | Marketing | Price | Production | Sales | Unit Sold |

| Utilization |

Cash On Hand(Accumulated) ⓘ
Current Ratio(Accumulated) ⓘ
Debt to Asset Ratio(Accumulated) ⓘ
Debt to Equity Ratio(Accumulated) ⓘ
Delinquent Payouts(Accumulated) ⓘ
Fixed Asset(Accumulated) ⓘ
Loan Outstanding(Accumulated) ⓘ
Net Profit(Accumulated) ⓘ
Operating Expense(Accumulated) ⓘ
Operating Ratio(Accumulated) ⓘ
Other Income (Loss)(Accumulated) ⓘ
Overflow - Retail(Accumulated) ⓘ
Overflow - Warehouse(Accumulated) ⓘ
Penalty in B2B or Service(Accumulated) ⓘ
Return on Asset(Accumulated) ⓘ
Return on Equity(Accumulated) ⓘ
Trading Profit(Accumulated) ⓘ

ⓘ **<< Click me for meaning**

Use Same Scale

No ▾

Submit

MonsoonSIM Guide

This is an indicator of how profitable a company is relative to its total assets. It measures how efficient a company is at using its assets to generate earnings. Return on assets is displayed as a percentage and its calculated as:

ROA = Net Income / Total Assets

1/1   end

Costs ←→ COGS

The cost in BI represented only COGS; which part of Total Cost. Do not monitor only this factor alone.
The Total Cost = (COGS + OPEX + CAPEX)

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	Marketing	Price	Sales	Unit Sold	Utilization

Average Cost - Apple Juice(Daily) ℹ️
Average Cost - Melon Juice(Daily) ℹ️
Average Cost - Orange Juice(Daily) ℹ️
COGS(Accumulated) ℹ️

- Try to make it low as much as possible.
- Higher COST = Lesser MARGIN → PROFIT
- Ability to marketize

- effected to PROFIR MARGIN, ROA
- Market chance and Market Share

Meaning: COGS
Direct and indirect meaning

Direct: Cost of Good Sold (Product cost)
Indirect: Margin → Trading Profit → Net Profit

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: wider margin → Gain more profit
Indirect benefits: can use price to penetrate market and get rid off competitor

Direct Risk: swing COGS
indirect Risk: Customer Loyalty, competing ability, etc

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Procure Performance, Safety stock + procure condition which maintain COGS

Secondary action: Checking vendor exactly lead-time to manage, Cash liquidity; CCC, etc

Finance

Financial Status or some factors which related to your Financial Status. Some are Data Level 😀, Some are Information Level ✪
Financial perspective can help to measure quality of decision making, status of business. But need to understand the original of data/information which cause of meaning

Costs	**Finance**	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	Marketing	Price	Sales	Unit Sold	Utilization

😀 Cash On Hand(Accumulated) ℹ️
✪✪ Current Ratio(Accumulated) ℹ️
✪ Debt to Asset Ratio(Accumulated) ℹ️
✪ Debt to Equity Ratio(Accumulated) ℹ️
😣 Delinquent Payouts(Accumulated) ℹ️
😀 Fixed Asset(Accumulated) ℹ️
😀 Loan Outstanding(Accumulated) ℹ️
✪ Net Profit(Accumulated) ℹ️
✪ Operating Expense(Accumulated) ℹ️
✪✪ Operating Ratio(Accumulated) ℹ️
😀 Other Income (Loss)(Accumulated) ℹ️
😀 Overflow - Retail(Accumulated) ℹ️
😣 Overflow - Warehouse(Accumulated) ℹ️
✪✪ Return on Asset(Accumulated) ℹ️
✪✪ Return on Equity(Accumulated) ℹ️
✪ Trading Profit(Accumulated) ℹ️

- Sell value from every sources of income (B2B+B2C+ECM+SRV+Gain from Forex)

$$\text{ROA} = \text{Net income} / \text{Total Assets}$$

- Remain Inventory value in all locations + Machine Book Value)

Meaning: Return on Asset
Direct and indirect meaning

Direct: ROA = Net income / Total Assets
Indirect: Business not have progression, due to error in revenue generation or Asset as cost

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: measure the return value of asset

Indirect benefits: tells you which activity need to be improved or having an error in operation

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: improve performance in sell and more manage in inventory, production plan

Human Resources

Human Resource in MonsoonSIM reflect the concept of manage Staff Count + Competency + Personality. If HRM has drop will effected to that department performance and reflected to related business process/supply chain

Costs	Finance	**Human Resources**	Incident - Complaint	Incident - Inventory

Inventory	Margins	Marketing	Price	Production	Sales	Unit Sold

Utilization

Staff Count - B2B(Daily) ⓘ
Staff Count - Bangkok(Daily) ⓘ
Staff Count - Denpasar(Daily) ⓘ
Staff Count - Ho Chi Minh City(Daily) ⓘ
Staff Count - Jakarta(Daily) ⓘ
Staff Count - Kuala Lumpur(Daily) ⓘ
Staff Count - Maintenance(Daily) ⓘ
Staff Count - Manila(Daily) ⓘ
Staff Count - Marketing(Daily) ⓘ
Staff Count - Procurement(Daily) ⓘ
Staff Count - Production(Daily) ⓘ
Staff Count - Services - Franchise Srv(Daily) ⓘ
Staff Count - Services - Marketing Srv(Daily) ⓘ
Staff Count - Services - Technical Srv(Daily) ⓘ
Staff Count - Singapore(Daily) ⓘ
Staff Resigned(Accumulated) ⓘ
Staff turnover ratio(Accumulated) ⓘ

- If staff count less than Planned Staff., will cause of issue → effected to that department competency
  - E.g. need 4 staffs; each staff share 1st part of competency as 25%, if short of 1 staff, maximum competency will be 75%
- In case of, Personality and staff issue had been integrated. Less staff will pull the rest of competency as integrated factor

Meaning: STAFF TURNOVER RATIO
Direct and indirect meaning

Direct: Rate of staff turn over
Indirect: Less ability to manage HR or Recruit staff

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: Ability to secure good staff to work with organizations if we recruit, manage staff well.
Indirect benefits: Save cost in HRM, able to make progress than keep training the new staff
Direct Risk: Generation differentiate
indirect Risk: Staff will be stolen from competitor

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Choose the right competency and Personality
Secondary action: Consult them, Train them to fulfill their mentality need

Incident - Complaint

The number of complaint and mis-handled will effect to B2B in MonsoonSIM. Nowadays in reality, complaint will easily to spread-out due to social media. The effort of many years will be destroyed in less than a minutes if handle the case wrongly.

Costs	Finance	Human Resources	**Incident - Complaint**	Incident - Inventory
Inventory	Margins	Marketing	Price	Sales	Unit Sold	Utilization

Complaint handled(Accumulated) ⓘ
Complaint(Accumulated) ⓘ

In reality, the number of complaint will be one of measurement about quality of products/services

The handling process will vary option depends on case. Technically not only count the number of handled case, but count on results after handled

The purpose is to keep customer relationship and satisfaction :)

Meaning: COMPLAINT
Direct and indirect meaning

Direct: Customer dissatisfied to our product/service
Indirect: Chance that customer will switch to competition/ use equivalent optional to solve their problem not your products/services

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: Feed back from Customer to be solved an issue
Indirect benefits: sometime the complaint and comment will be source to develop products/services
Direct Risk: If not handles, will loose customers
indirect Risk: longtails effect and will expand to other products/service under same organization

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Sorry and listen, No objective no excuse

Incident - Inventory

In trading and manufacturing industry, Inventory is important key of success. These sample of incident-inventory measurement will tells you some error in operation in beginning part of supply chain.

Costs	Finance	Human Resources	Incident - Complaint	**Incident - Inventory**
Inventory	Margins	Marketing	Price	Sales	Unit Sold	Utilization

Late Shipment - Vendor - VRM1(Accumulated) ℹ️
Late Shipment - Vendor - VRM2(Accumulated) ℹ️
Late Shipment - Vendor - VFG1(Accumulated) ℹ️
Late Shipment - Vendor - VFG2(Accumulated) ℹ️
Late Shipment - Vendor - VendorX(Accumulated) ℹ️
Late Shipment - Vendor - VendorY(Accumulated) ℹ️
Late Shipment - Vendor(Accumulated) ℹ️
Retail Stockout(Accumulated) ℹ️

Vendor's behavior and on-time reliability are important part of KPI of Procurement. To make sure that you can get inventory on-time; Just-In-Time; JIT

To know the exactly lead-time of vendors can protect the Revenue, highly utilization of area, machine, staff. And WASTE REDUCTION or DOWNTIME

Meaning: RETAIL STOCKOUT
Direct and indirect meaning

Direct: No inventory to sell in Retail shop
Indirect: Loose of selling chance, Lack/Lower of Cash flow in

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: To adjust the safety stock and prevent losing possible incomes
Indirect benefits: Customer's satisfaction and loyalty
Direct Risk: Revenue reduction
indirect Risk: Continuity of stockout may cause of loose customer's loyalty

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: plan or forecast Demand to procure Goods/Raw material match to requirement, selling and Marketing plan, Seasonal Demand, etc

Inventory

Available Inventory = Convenience = Chane to sell, BUT = Cash liquidity, Possible waste from product expiry, loose in storing in improper environment, higher area rental, etc. **Everything has PROs and CONs. Considers and Balance your management vs Outcomes vs Risks**

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory

Inventory	Margins	Marketing	Price	Sales	Unit Sold	Utilization

Day Sales in Inventory(Average) ⓘ
Day Sales in Inventory(Daily) ⓘ
Inventory Turnover Ratio(Daily) ⓘ
Inventory Value(Daily) ⓘ

The average days sales of inventory (DSI). It indicates the **average** time in days that a company takes to turn its inventory, including goods that are a work in progress, into sales. Ex: DSI of 20 means it will take 20 days to totally sell out the current inventory

Note: If not average will become daily

The number of times inventory is sold in a time period. Also known as stock turnover. Higher inventory turnover indicates better performance and lower means inefficiency.

Inventory Turnover Ratio = Cost of goods sold (COGS) / Average Inventory *365
In MonsoonSIM, the period is a year, ie, 365

Ex: A value of 5 on Day 11 means that based on the sales performance of Day 11, within a year, we will be able to sell 5 times this current inventory

Meaning: Day Sales in Inventory
Direct and indirect meaning

Direct: How many day to sold out the remain Goods/Raw material compare to Selling rate.
Indirect: You are too high or too low in inventory

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: manage the inventory
Indirect benefits: not be a cause to effect other operation
Direct Risk: Less Cash on Hand, may need to use lower price = lower margin to get rid of inventory excess

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: If the number of DSI getting higher., Stop Procure, Sell more in B2B, B2C, Do marketing campaign.
Secondary action: Make sure that you procure Inventory match you demand.

Margins

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	**Margins**	Marketing	Price	Sales	Unit Sold	Utilization

Gross Profit Margin(Accumulated)
Retail - Gross Profit Margin - Apple Juice(Daily)
Retail - Gross Profit Margin - Hsinchu(Daily)
Retail - Gross Profit Margin - Hualien(Daily)
Retail - Gross Profit Margin - Kaohsiung(Daily)
Retail - Gross Profit Margin - Keelung(Daily)
Retail - Gross Profit Margin - Melon Juice(Daily)
Retail - Gross Profit Margin - Orange Juice(Daily)
Retail - Gross Profit Margin - Taichung(Daily)
Retail - Gross Profit Margin - Tainan(Daily)
Retail - Gross Profit Margin - Taipei(Daily)
Retail - Gross Profit Margin(Daily)

If monitored as Retails Branch, able to understand the profitability of each branch., and able to manage pricing and marketing.

In directly, will help to monitor utilization and operation (OPEX) which effected to net profit

Meaning: Gross Profit Margin
Direct and indirect meaning

Direct: Profit Margin = Total Net Profit / Total Sales
Indirect: Profitability and Profit efficiency

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: monitoring and changing the methodology by margin perspective
Indirect benefits: changing of Sell and Operation Plan
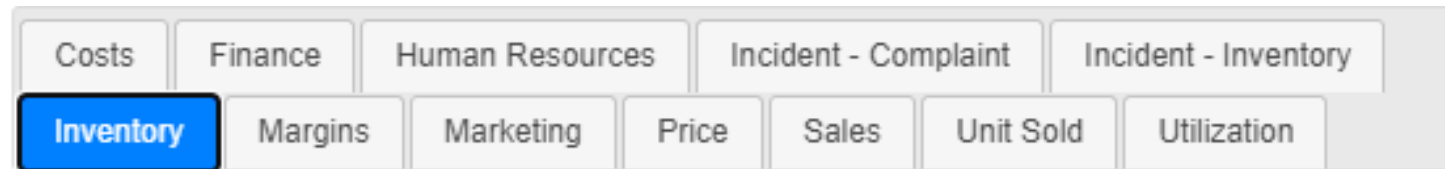**Direct Risk:** aware but didn't change the action
indirect Risk:

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Sell more, focused in Cost controlling and operation
Secondary action: Communicate this data to related operation/department

Marketing

Marketing is very wide in territory., In MonsoonSIM only provide one fundamental concept which Promotion by investing in media and get positive ROI. BTW, the indirect concept is integration in Marketing mix; Price, Process. And use of marketing data to analyze business/decision.

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	**Marketing**	Price	Sales	Unit Sold	Utilization

Marketing Daily(Daily) ⓘ

Meaning: Marketing Daily (Investment)
Direct and indirect meaning

Direct: Amount which invest in daily marketing
Indirect: Investment cost which need ROI or some expecting output

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: generate outcomes; revenue, perception, understanding, trust, etc.
Indirect benefits: hardly to define, depends on your objectives
Direct Risk:
indirect Risk:

Identify relate Action
Primary action (Cause) >> Primary result (Effect) →
Sync to next process/supply chain

Primary action:
Secondary action:

Price

Price considered data entry level, **DO NOT USE ONLY SINGLE DATA to make decision**. Price monitoring need to be integrated with related Data for analyze. (EG: Margin, Unit Sold, Marketing investment, Market share → Business Plan) Changing price is easy. **Please define objectives and make use of price changing**

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	Marketing	**Price**	Sales	Unit Sold	Utilization
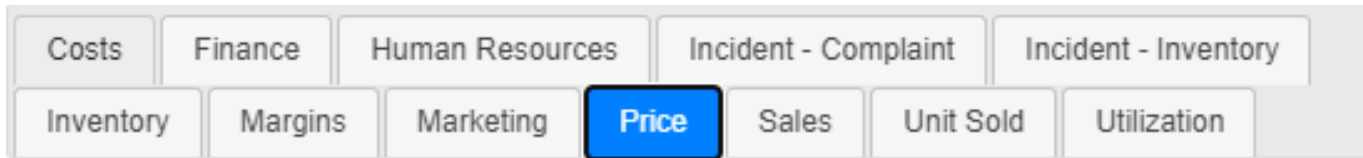
Hsinchu - Price - Apple Juice(Daily) ℹ️
Hsinchu - Price - Melon Juice(Daily) ℹ️
Hsinchu - Price - Orange Juice(Daily) ℹ️
Hualien - Price - Apple Juice(Daily) ℹ️
Hualien - Price - Melon Juice(Daily) ℹ️
Hualien - Price - Orange Juice(Daily) ℹ️
Kaohsiung - Price - Apple Juice(Daily) ℹ️
Kaohsiung - Price - Melon Juice(Daily) ℹ️
Kaohsiung - Price - Orange Juice(Daily) ℹ️
Keelung - Price - Apple Juice(Daily) ℹ️
Keelung - Price - Melon Juice(Daily) ℹ️
Keelung - Price - Orange Juice(Daily) ℹ️
Taichung - Price - Apple Juice(Daily) ℹ️
Taichung - Price - Melon Juice(Daily) ℹ️
Taichung - Price - Orange Juice(Daily) ℹ️
Tainan - Price - Apple Juice(Daily) ℹ️
Tainan - Price - Melon Juice(Daily) ℹ️
Tainan - Price - Orange Juice(Daily) ℹ️
Taipei - Price - Apple Juice(Daily) ℹ️
Taipei - Price - Melon Juice(Daily) ℹ️
Taipei - Price - Orange Juice(Daily) ℹ️

Meaning: Price
Direct and indirect meaning

Direct: Price
Indirect: Trading between value and money from customer perspective

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: Revenue
Direct Risk: Changing of Margin → Net Profit after be deducted of all costs
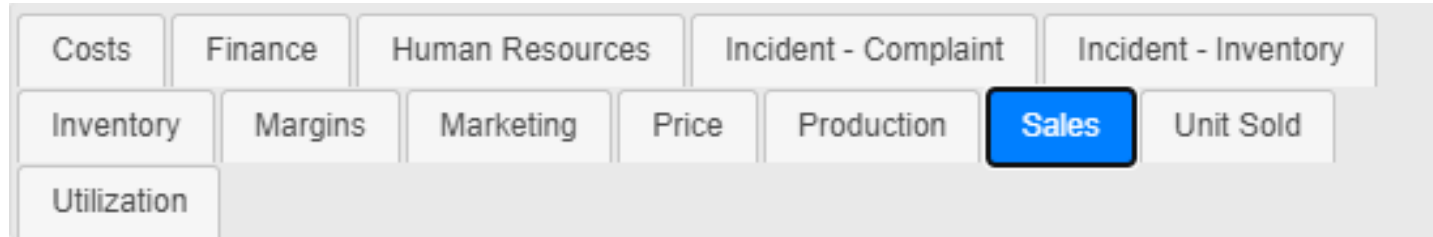
Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Set objectives before changing the price
Secondary action: Understand the effect when changing the price

Sales

Sales is Income & Revenue. But do not use only Sales in measurement. Sales need to be integrated with; Cost → Margin → Profit

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	Marketing	Price	Production	Sales	Unit Sold
Utilization				

Retail Sales(Accumulated) ⓘ
Sales E Commerce(Accumulated) ⓘ
Sales Revenue(Accumulated) ⓘ
Sales Services(Accumulated) ⓘ
Sales Wholesales - Apple Juice(Accumulated) ⓘ
Sales Wholesales - Melon Juice(Accumulated) ⓘ
Sales Wholesales - Orange Juice(Accumulated) ⓘ
Sales Wholesales(Accumulated) ⓘ
Services - Completed Transactions(Accumulated) ⓘ
Wholesales - Apple Juice(Daily) ⓘ
Wholesales - Melon Juice(Daily) ⓘ
Wholesales - Orange Juice(Daily) ⓘ

Meaning: SALES
Direct and indirect meaning

Direct: Income / Revenue while trading product/services with money

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: Revenue
Indirect benefits: Money to be expensed
Direct Risk: Low Sales → Less revenue

Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: define proper actions and environment to gain more sales and having margin
Secondary action: Collecting the data which able to use to analyze and plan

Unit Sold

Unit sold will be recorded wen inventory can be sold. If use with the Price, Marketing data and synthesis with margin and others related data. Unit sold can be use to plan as forecasting and able to compare with forecasting to find Gap and descriptive reason.

Costs	Finance	Human Resources		Incident - Complaint		Incident - Inventory
Inventory	Margins	Marketing	Price	Sales	**Unit Sold**	Utilization

Retail Unit Sold - Apple Juice(Accumulated) ⓘ
Retail Unit Sold - Melon Juice(Accumulated) ⓘ
Retail Unit Sold - Orange Juice(Accumulated) ⓘ
Retail Unit Sold(Accumulated) ⓘ

Meaning: RETAIL UNIT SOLD
Direct and indirect meaning

Direct: Number of unit that can be sold in retail

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: input data to procure finished goods to retails support to real requirement
Indirect benefits: Plan to distributed unwanted Finished goods to be sold in other channel/market
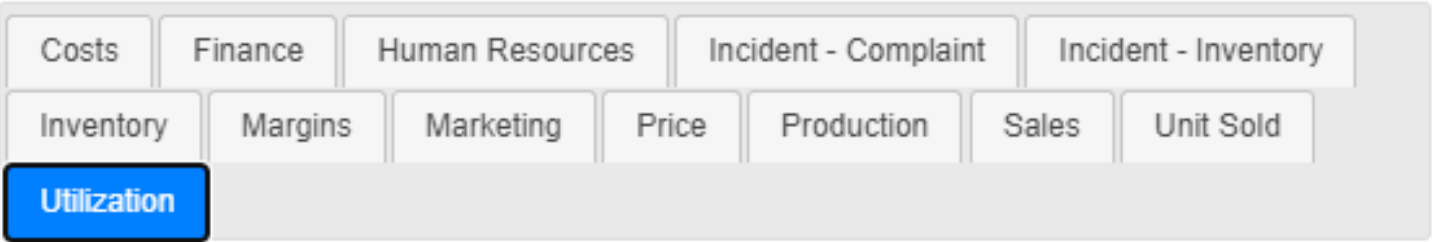
Identify relate Action
Primary action (Cause) >> Primary result (Effect) → Sync to next process/supply chain

Primary action: Procure that product based on unit sold

Utilization

Utilization is use to measure for ability/performance to manage the resources like; area, time, machine, money, staff etc. in the reality, some pf resources unable to raise up or lower down like the game. One of the business management always 'UILIZATION' and next for 'OPTIMIZATION'

Costs	Finance	Human Resources	Incident - Complaint	Incident - Inventory
Inventory	Margins	Marketing	Price	Production	Sales	Unit Sold
Utilization				

Average OEE(Accumulated) ⓘ
Space utilization(Accumulated) ⓘ
Utilization - Machine Capacity(Accumulated) ⓘ

Meaning: AVERAGE OEE
Direct and indirect meaning

Direct: The number of capacity of each machine
Indirect: The data which will convert to COGS and use for marketize plan

Benefits/Risks
Direct and indirect benefits/risks

Direct benefits: Monitoring the machine conditions and maintenance team ability
Indirect benefits: able to predict the number of finished goods which was produced,. And able to do selling plan with no delay and stockout
Direct Risk: Lower OEE is effected to number of production capacity
indirect Risk: COGS, committed deal to B2B customer and B2C selling

Identify relate Action
Primary action (Cause) >> Primary result (Effect) →
Sync to next process/supply chain

Primary action: Keep maintenance to OEE which less effect to COGS and Production capacity

Understanding & Using
MonsoonSIM
Business Intelligent (BI)

MonsoonSIM BI has allow maximum 6 different sets of data to be measured in one time.

If leaner download the data as CSV and use with 3rd party BI software, will be able to measured as much as set of data to be used.

How to use MonsoonSIM BI?

WHAT iF?

- Think about relevant data, same group od data which able to answer questions

- Understand the relationship and interpret data. Answer of question and call to action

interpret

- Ask the business questions/ what thing that you are need answer
- Maybe use Business measurement

- Do not worry if you are not keen on. Just practice, mistake and learn

- Select the relevant data to be compared in MonsoonSIM BI

CALL TO ACTION
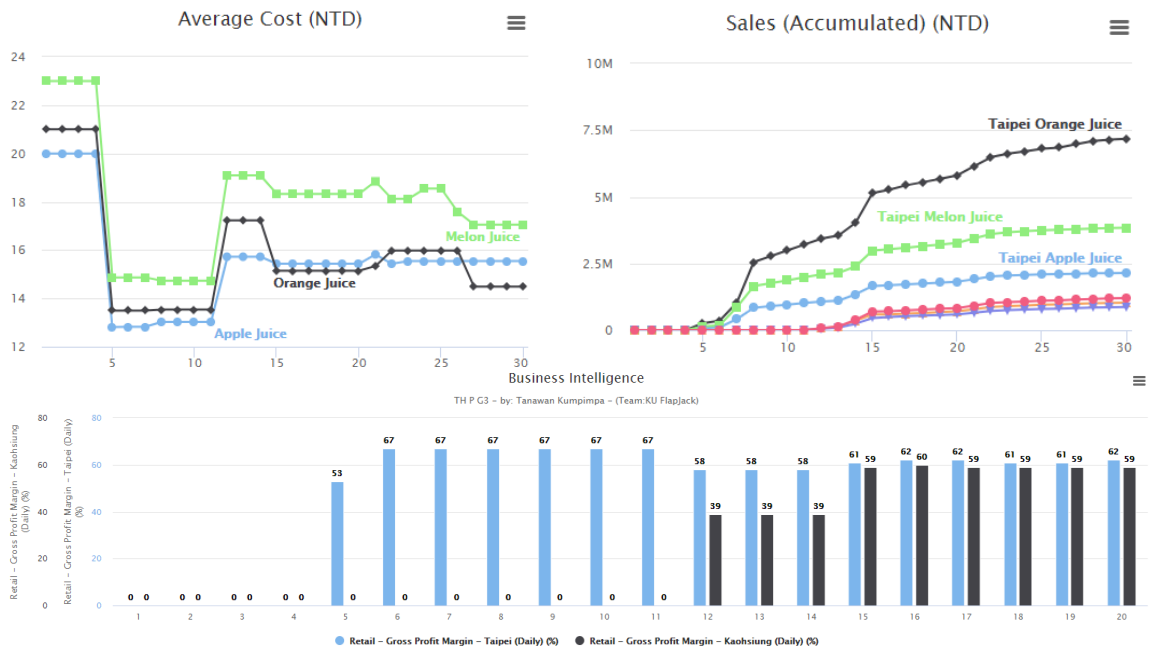
- BI can help to be used in Descriptive, Diagnostic, and Prescriptive Business Data analytics level

Practicing measurement case

Purpose	What if /Hypothesis/Issue	Relevant Data	Data which be measured (BI)	Answer and Action
Descriptive	Relation of Price, COGS and Margin	• Selling Price • Revenue • Average COGS • Purchased amount		• Changing selling price will effect to gross margin
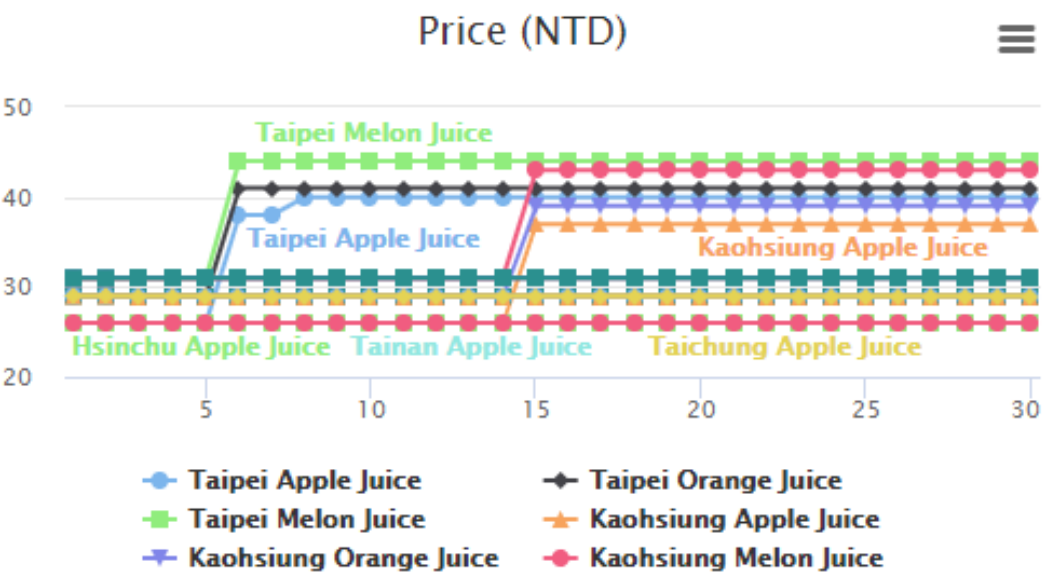
Understanding
MonsoonSIM KPIs
(Metric level)

Fundamental Concept

Highest Profit

Business Processes
Management &
Business Data Analytics; KPI & BPI

Paramintara Yaoyuenyong (2020)

Profitability
(Gain income)

Manageability
(Cost Controlling)
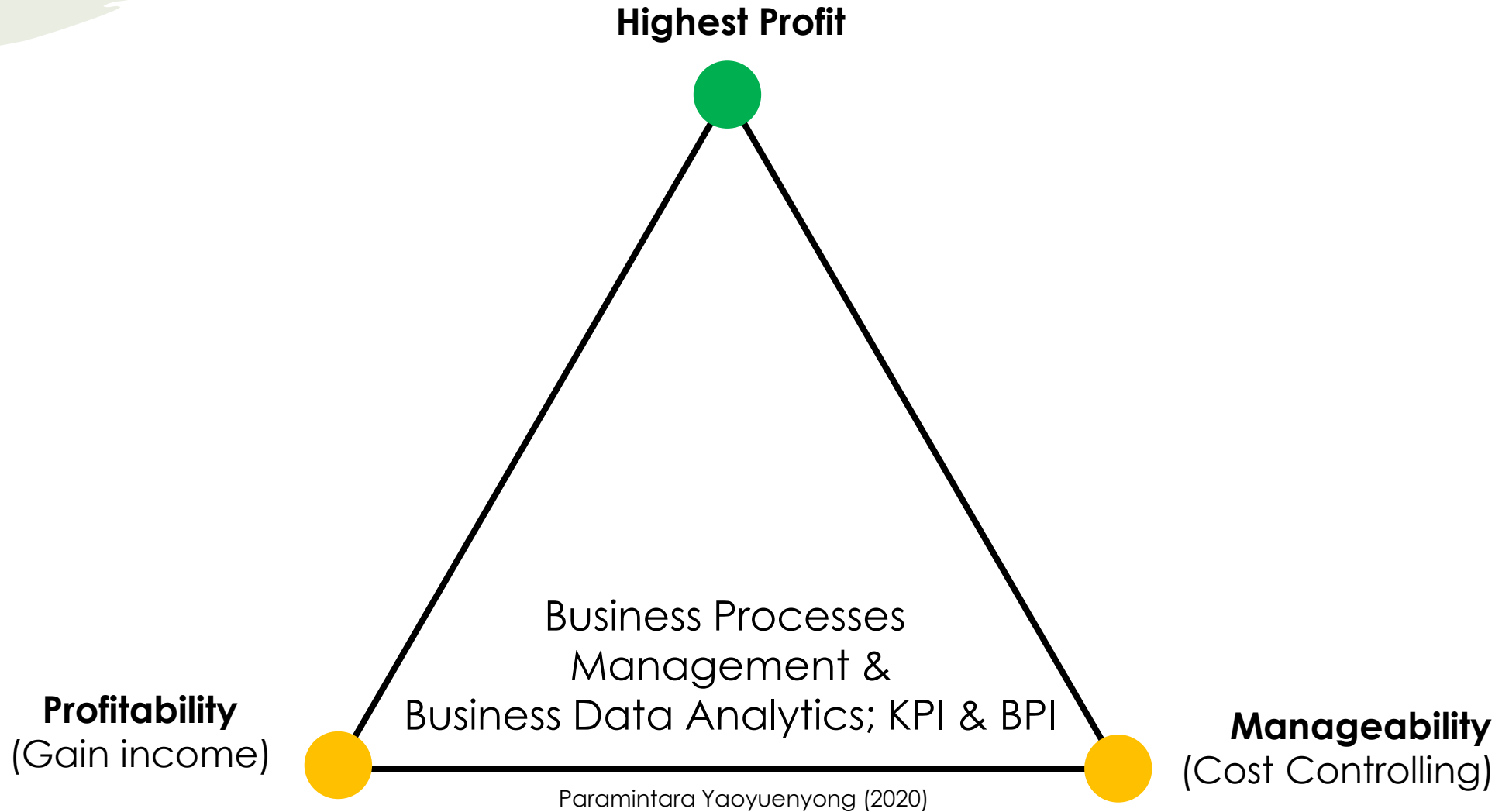
Grouping MonsoonSIM KPIs

General

Sales	Incident - Inventory	Finance	Margins	Utilization
Marketing	Inventory	**General**	Human Resources	Production
Incident - Complaint				
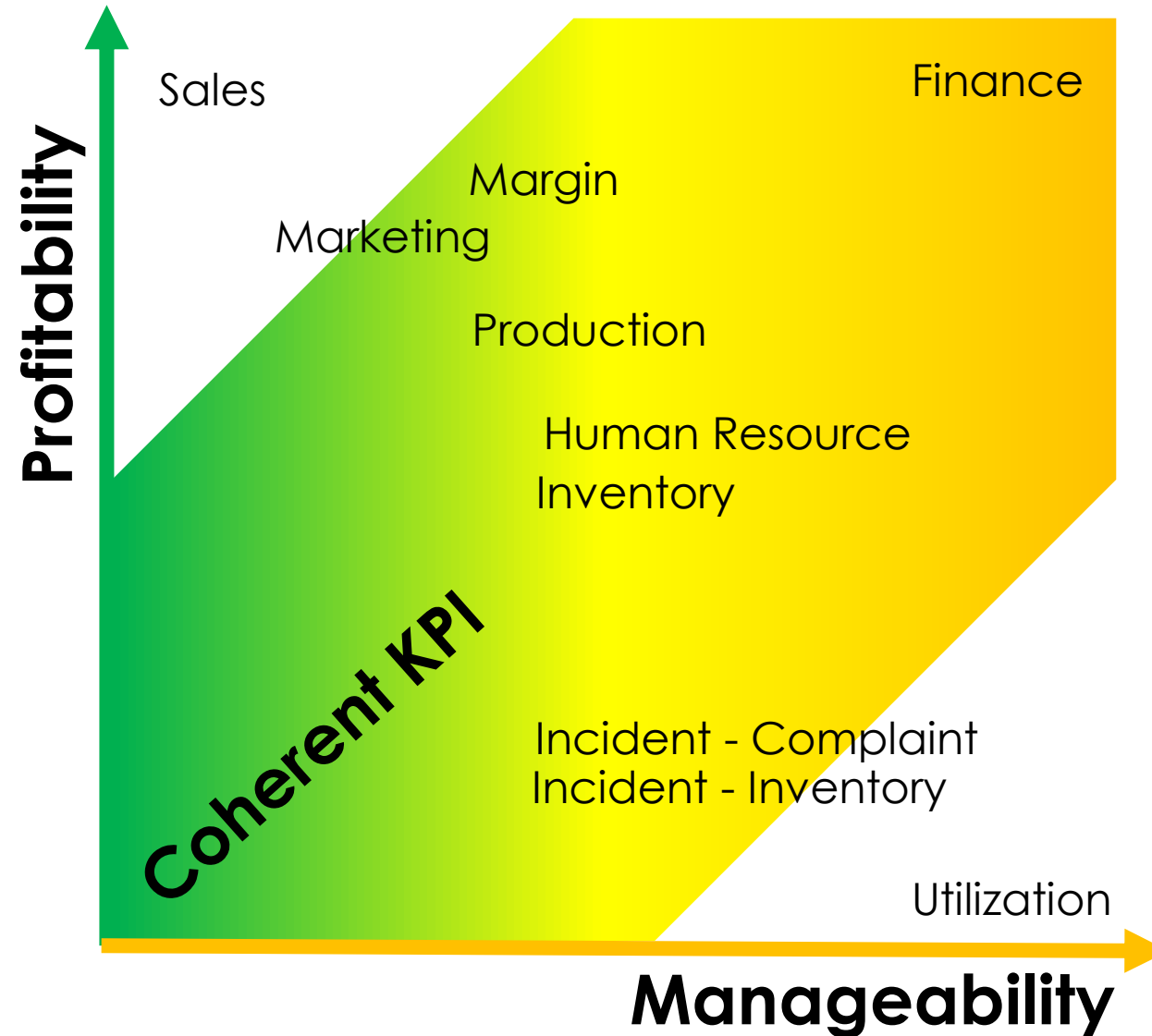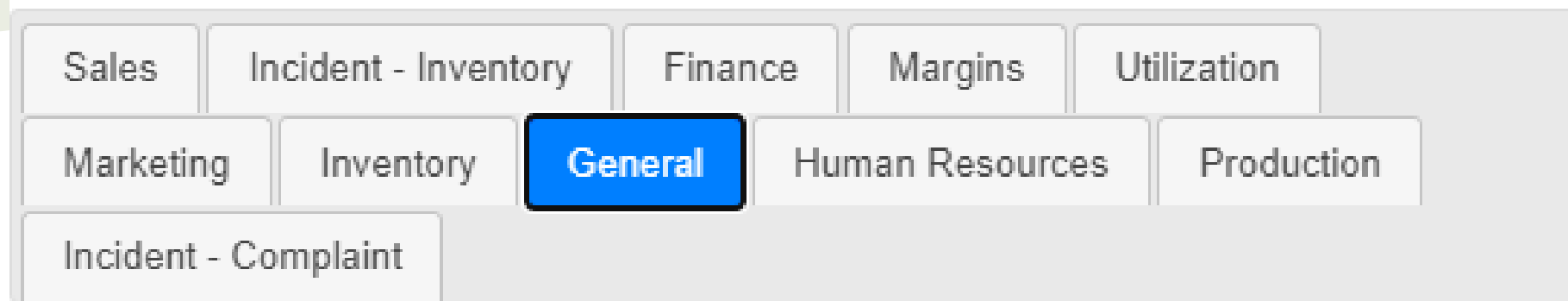
Judge Score - (Accumulated) ⓘ
KPI Target Score - (Accumulated) ⓘ
Manual Score - (Accumulated) ⓘ

Sales (revenue value in $)

Each Market Sales Revenue

Sales	Incident - Inventory	Finance	Margins	Utilization

Marketing	Inventory	General	Human Resources	Production

Incident - Complaint

Retail Sales - (Accumulated) ⓘ
Sales E Commerce - (Accumulated) ⓘ
Sales Revenue - (Accumulated) ⓘ
Sales Services - (Accumulated) ⓘ
Sales Wholesales - (Accumulated) ⓘ

Incident - Inventory

MonsoonSIM Thailand
Business Simulation & Gamification
by Zonix Services Co.,LTD.

| Sales	Incident - Inventory	Finance	Margins	Utilization
Marketing	Inventory	General	Human Resources	Production
Incident - Complaint				
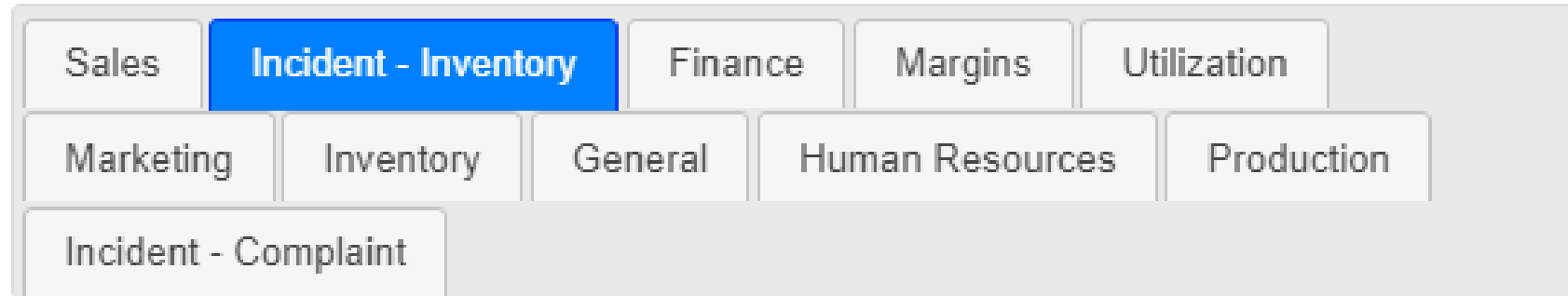
Late Shipment - B2B - (Accumulated) ⓘ

Late Shipment - Vendor - (Accumulated) ⓘ

Retail Stockout - (Accumulated) ⓘ

Total number of days we are late in fulfilling the B2B (wholesales) orders.

The number of late delivery occurrences (days) from all vendors or suppliers.

The total number of times we run out of stocks (stock-out) in all our retail stores.

Finance
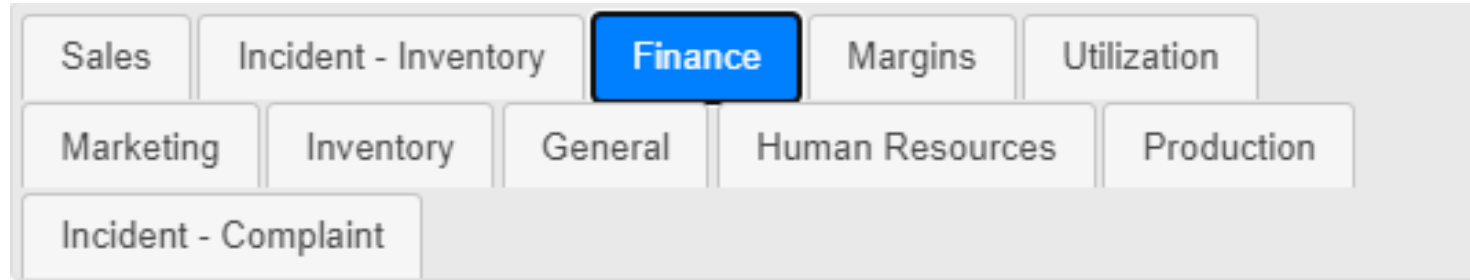
Current Ratio = Total Current Assets / Total Current Liabilities

Debt to asset ratio = Total liabilities / Total assets

Debt Equity Ratio = Total Liabilities / Total Shareholders' Equity

Intangible Assets outlines the accounting requirements for intangible assets, which are non-monetary assets which are without physical substance and identifiable (either being separable or arising from contractual or other legal rights).
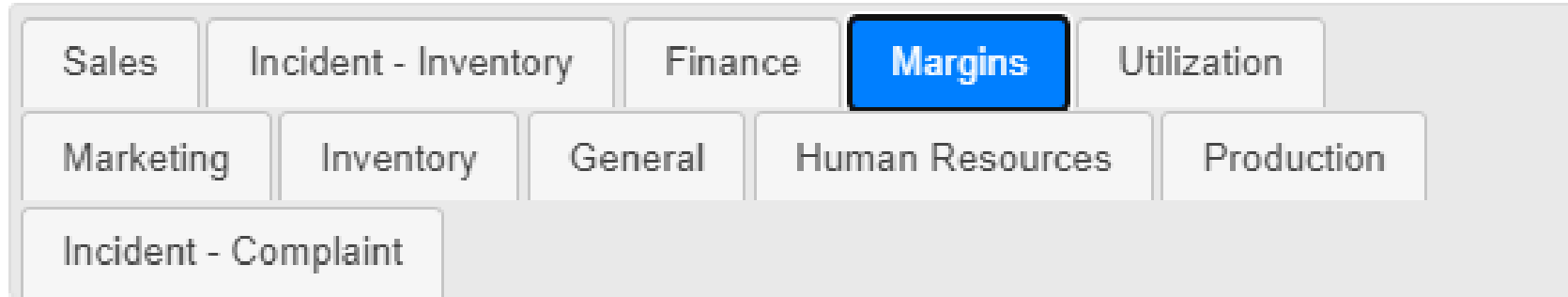
Cash On Hand - (Accumulated)
Current Ratio - (Accumulated)
Debt to Asset Ratio - (Accumulated)
Debt to Equity Ratio - (Accumulated)
Intangible - Development Asset - (Accumulated)
Net Profit - (Accumulated)
Operating Expense - (Accumulated)
Operating Ratio - (Accumulated)
Other Income (Loss) - (Accumulated)
Overdraft - (Accumulated)
Overflow - Retail - (Accumulated)
Overflow - Warehouse - (Accumulated)
Penalty in B2B or Service - (Accumulated)
Return on Asset - (Accumulated)
Return on Equity - (Accumulated)
Trading Profit - (Accumulated)

Operating ratio = (Operating Expense + Cost of Goods Sold) / Sales Revenue

ROA = Net Income / Total Assets

Return on Equity = Net Income / Shareholder's equity (%)

Margins

Sales	Incident - Inventory	Finance	**Margins**	Utilization
Marketing	Inventory	General	Human Resources	Production
Incident - Complaint				

Gross Profit Margin - (Accumulated) 🛈   **Profit Margin = Total Net Profit / Total Sales**

Utilization
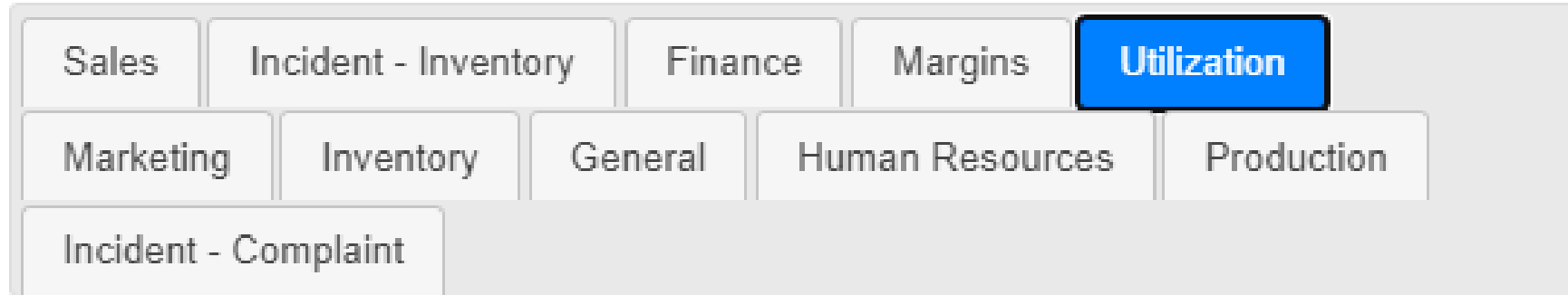
Sales	Incident - Inventory	Finance	Margins	**Utilization**
Marketing	Inventory	General	Human Resources	Production
Incident - Complaint				

Average OEE - (Accumulated) ⓘ
Space utilization - (Accumulated) ⓘ
Utilization - Machine Capacity - (Accumulated) ⓘ

Marketing

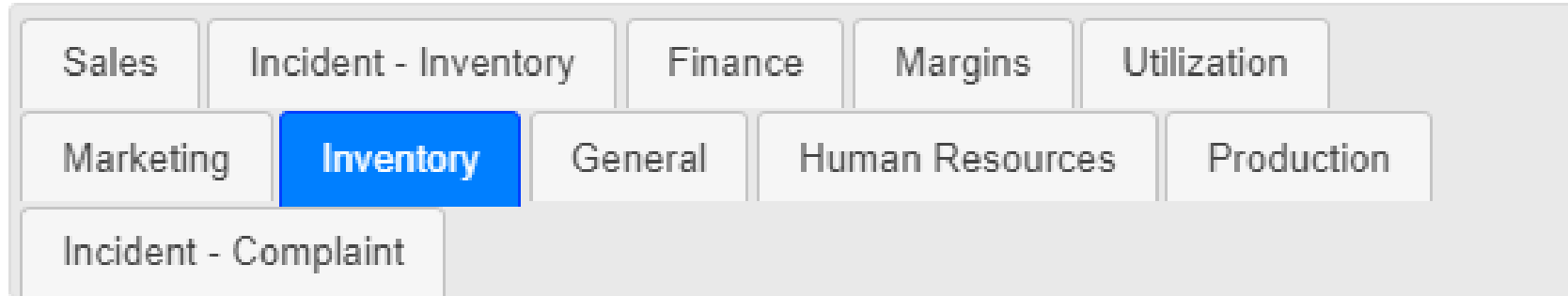| Sales | Incident - Inventory | Finance | Margins | Utilization |

| **Marketing** | Inventory | General | Human Resources | Production |

| Incident - Complaint |
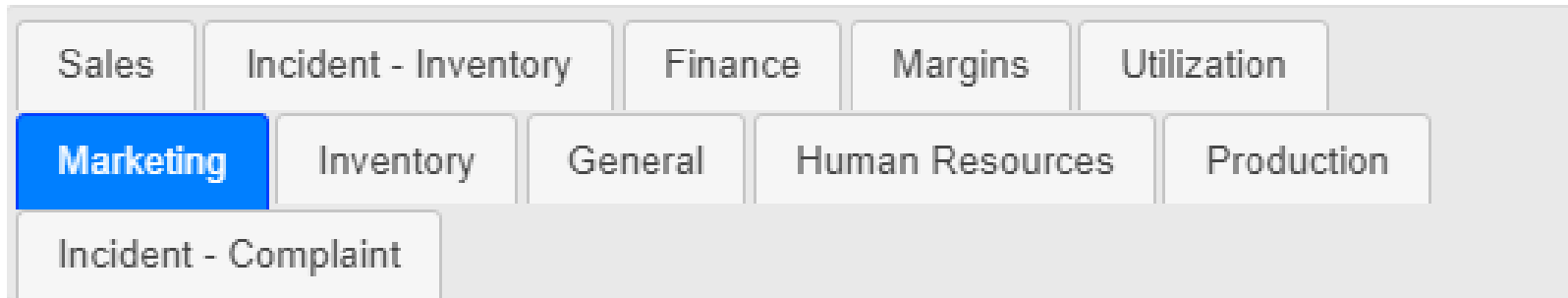
Market Share - Sales - All - (Accumulated) ℹ️
Market Share - Sales - B2B - (Accumulated) ℹ️
Market Share - Sales - E Commerce - (Accumulated) ℹ️   **Sales Revenue**
Market Share - Sales - Retail - (Accumulated) ℹ️
Market Share - Sales - Services - (Accumulated) ℹ️

Market Share - Unit Sold - All - (Accumulated) ℹ️
Market Share - Unit Sold - B2B - (Accumulated) ℹ️   **Unit Sold**
Market Share - Unit Sold - Retail - (Accumulated) ℹ️

Inventory

Sales | Incident - Inventory | Finance | Margins | Utilization

Marketing | **Inventory** | General | Human Resources | Production

Incident - Complaint

Day Sales in Inventory - (Average) ⓘ the average time in days that a company takes to turn its inventory

Human Resources

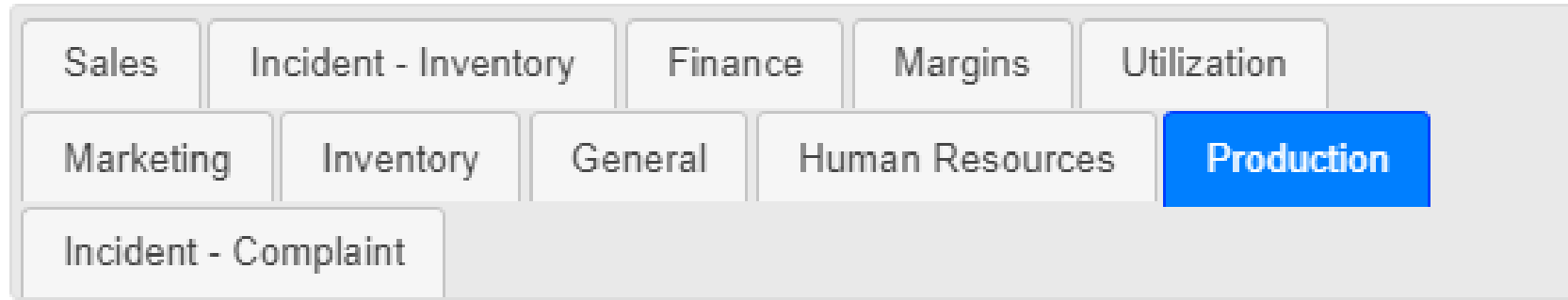| Sales	Incident - Inventory	Finance	Margins	Utilization
Marketing	Inventory	General	**Human Resources**	Production
Incident - Complaint				
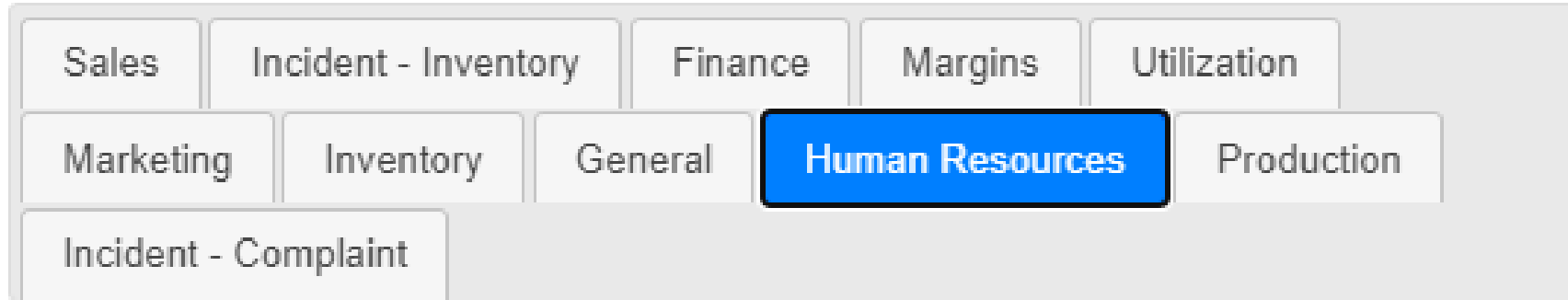
Staff Resigned - (Accumulated) ℹ️ The total number of staff resigned.

Staff turnover ratio - (Accumulated) ℹ️

Employee Turnover Ratio =
Total number of staff resigned / Total average number of staff

Production

| Sales | Incident - Inventory | Finance | Margins | Utilization |
| Marketing | Inventory | General | Human Resources | **Production** |
| Incident - Complaint |

Production - (Accumulated) 🛈 The total units of finished goods produced in-house.

Complaint

Sales	Incident - Inventory	Finance	Margins	Utilization
Marketing	Inventory	General	Human Resources	Production
Incident - Complaint				

Complaint - (Accumulated)