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Enterprise Viability & Sustainability Diagnostic Toolkit

Preliminary Research | Enterprise Mapping

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Enterprise Viability & Sustainability Diagnostic Toolkit Modules

1. **Preliminary research**
2. **Understand current performance**
3. **Identify factors to improve viability**
4. **Assess sustainability**

Analytical activities

Enterprise Mapping

Select diverse enterprises based on their market context and sales performance for in-depth research

Exploratory Research

Understand enterprises' contexts and operations to customize tools and research questionnaires

Profit & Loss Statement Preparation

Prepare profit & loss (P&L) statements with revenues, costs, and resulting profits to support analyses

Profit & Loss Statement Analysis

Analyze P&L statements using financial ratios to enable inter-enterprise comparisons

Enterprise Classification

Categorize enterprise based on revenue and profit

Gross Margin Variance analysis

Identify the profit drivers that differentiate performance among enterprise categories

Strategy Identification

Identify the strategies that improve profit of enterprises in different contexts

Financial Independence Assessment

Assess enterprises' ability to meet recurring future financial investments independently

Operational Independence Assessment

Assess enterprises' ability to operate independently in future market conditions

Return on Capital Employed Analysis

Compute returns from sanitation relative to other opportunities available to the entrepreneur

Focus of this document

Table of Contents

- Introduction
- Mapping based on types of markets
- Mapping based on sales performance
- Selecting enterprises for research

Objective of this document

Intended outcomes

This document is intended to help MBS programs select a sample of enterprises for in-depth research and analyses related to other modules in the toolkit. The selection is especially warranted if the number of partner enterprise is large and/or programs have limited resources. The selection approach described in this document:

- Categorizes the location characteristics of markets where enterprises operate using a 2 x 2 matrix
- Categorizes enterprises based on their sales performance using a performance matrix

Value for MBS programs

- **Guides selection of a sub-group of enterprises for in-depth research,** by providing an approach to ensure adequate representation of different contexts and performance levels within the selection
- **Helps identify enterprises for specific objectives,** such as understanding best practices of top performing enterprises or supporting enterprises operating in challenging geographies
- **Provides a cost-effective approach** for differentiating enterprises, because it relies **primarily on secondary data**, enterprises' sales data tracked by MBS programs, and does **not require field research**

Additional reference material

This document is meant to be used alongside the Microsoft Excel document *Enterprise Mapping Example* that is also part of the *Prepare for In-Depth Research* module. This document will refer to the example document to explain certain concepts of enterprise mapping.

Note: The methods in this document are intended to offer practitioners with guidance rather than a strict model to follow. Practitioners are encouraged to adapt the methods or consider other approaches for their contexts.

Applicability for MBS programs

The "enterprise mapping" activity as described in this document may require MBS programs to invest significant staff capacity and time. Further, it requires that the data available on enterprise sales and/or enterprise locations (obtained either through publically available resources or through the MBS program's internal database) is **accurate** and **reflects ground-reality**.

In the absence of either of the above, MBS programs can still select a sufficiently diverse sub-group of enterprises for in-depth research by following a **scaled-back version of the "enterprise mapping" activity**. This will involve the following:

- Selecting both "high-performing" and "low-performing" enterprises based on the **qualitative judgement of program staff** on the ground
- Selecting enterprises across **different locations** (such as districts or other administrative units)

Enterprise Mapping – Introduction

Enterprise Mapping

Enterprises can be selected for in-depth research based on diversity in 2 dimensions

Types of markets

Sales performance

Table of Contents

- Introduction
- Mapping based on types of markets
- Mapping based on sales performance
- Selecting enterprises for research

Mapping based on types of markets

Enterprises' markets can be categorized using a combination of two factors that characterize its location (such as its district or other administrative unit) – the "market attractiveness" and the "ease of market capture" from the perspective of an enterprise.

Mapping based on types of markets

Market attractiveness

Indicates the potential market size for sanitation in a location

Ease of market capture

Indicates the relative ease for an enterprise to run its business operations and serve its market

Measuring "attractiveness of market"

"Market attractiveness" can be measured using the market size for sanitation, which is a function of the number of households without sanitation that have a desire for toilets and can afford one.

Increase in any of these 3 factors increases market size, and consequentially, market attractiveness

Indicators for measuring "attractiveness of market"

The 3 factors that determine market size can be measured by using data for enterprises' location (such as its district or other administrative unit) as indicators.

Households without sanitation	Households with a desire for toilets	Households who can afford toilets
Data that measures the number of households without toilets	*Data that indicates awareness of and propensity to purchase toilets*	*Data that indicates the affluence of households*

Example indicators with potential considerations

- Absolute number of households without any toilets
- Population density (though it does not directly measure households without sanitation)

- Proximity to urban/peri-urban communities where use of toilets is a norm
- Exposure to sanitation demand generation campaigns
- Presence of early adopters of toilets

- Households with improved housing structures or ownership of consumer durables, indicating capacity to invest and possible higher priority accorded to sanitation
- Household income levels (accuracy of data varies), expenditure levels, wealth quintiles, distribution as per poverty classification systems (e.g., IDPoor in Cambodia)

Indicators for measuring "attractiveness of market" – Examples

Households without sanitation

Number of households without toilets

Type of data: Numerical
Rationale: Measures the absolute number of households without any toilets
Source: Census surveys, WHO-UNICEF JMP

Households with a desire for toilets

Distance from major urban center

Type of data: Numerical
Rationale: Indicates influence of urban preference to have improved toilet
Source: Google Maps

Historical presence of demand generation campaign

Type of data: Discrete (yes/no)
Rationale: Indicates greater awareness of toilets
Source: Government sanitation program data

Households who can afford toilets

% of households with permanent structures

Type of data: Percentage
Rationale: Indicates capacity to invest in toilets, or higher priority accorded to sanitation
Source: Census surveys, National household surveys

Household consumption levels

Type of data: Numerical
Rationale: Indicates capacity to invest in toilets
Source: National household surveys

Example data to serve as indicator

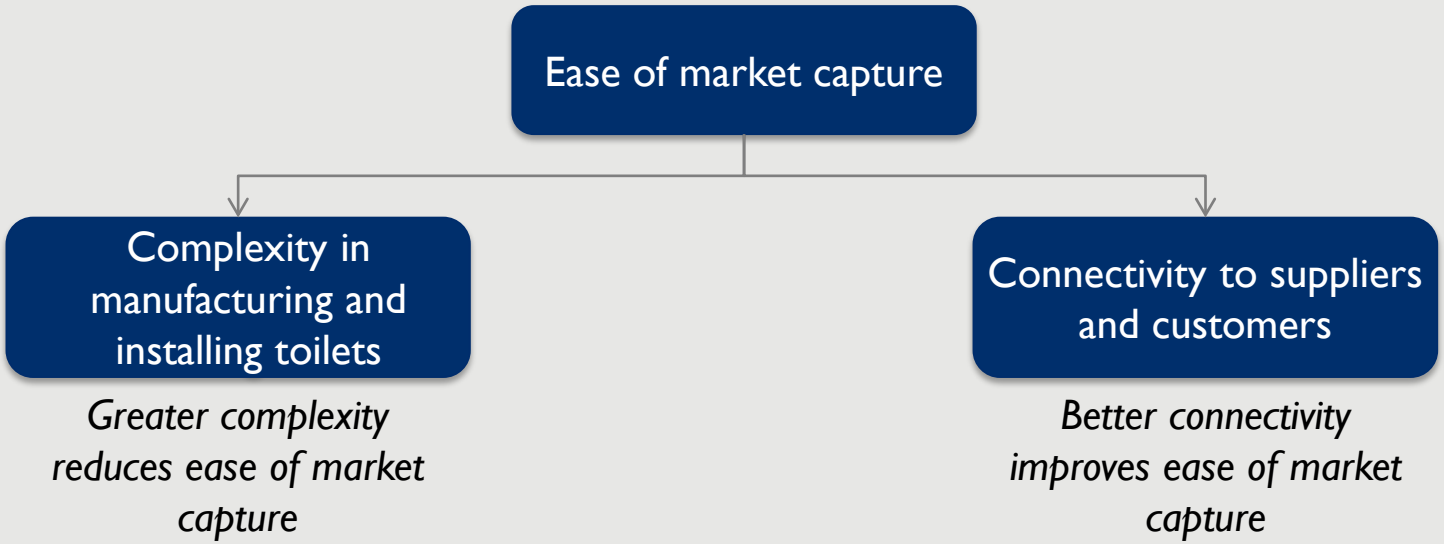
Tip

- Refer to slides 15-16 for a further description of different types of data.
- The above indicators are meant to serve as examples. MBS programs can choose any 2-3 indicators for which data is available in their contexts, and which are likely to impact market size.

Measuring "ease of market capture"

"Ease of market capture" can be measured using two factors that determine the ease with which enterprises can run their operations and serve their market:

- **Complexity in manufacturing and installing toilets**
- **Connectivity to suppliers and customers**



Indicators for measuring "ease of market capture"

The complexity in manufacturing and installing toilets can be measured by using geographic data for enterprises' location (such as its district or other administrative unit) as indicators.

The connectivity to suppliers and customers can be measured by using infrastructural data for enterprises' location as indicators.

Complexity in manufacturing and installing toilets

Geographic data on factors that require expensive product innovation or impede the installation or use of toilets

Connectivity to suppliers and customers

Infrastructural data that indicates the quality of transportation networks

Example indicators with potential considerations

- Soil conditions or terrain that cause toilets to collapse or make pit digging difficult
- Propensity of flooding or presence of high water tables, requiring product innovations
- Availability of water required to produce and use toilets

- Access to and quality of roads, indicating the ease and speed of transporting goods without breakage
- Distance from urban centers or markets, indicating ease or flexibility in procuring raw materials

Indicators for measuring "ease of market capture" – Examples

Complexity in manufacturing and installing toilets

Plain or hilly terrain within 5 kilometers of location

Type of data: Discrete (yes/no)
Rationale: Hilly terrain indicates difficulty in installing toilets
Source: Google Maps

Location classified as flood prone or not

Type of data: Discrete (yes/no)
Rationale: Tendency to flood requires product innovations
Source: Local weather department data

Connectivity to suppliers and customers

At least 1 highway within 5 kilometers of location

Type of data: Discrete (yes/no)
Rationale: Presence of highway indicates ability to serve or procure from a larger geographic area
Source: Google Maps

% of villages with all-weather roads

Type of data: Percentage
Rationale: Presence of all-weather roads indicates good connections with customers and suppliers
Source: Census surveys

Example data to serve as indicator

Tip

- Refer to slides 15-16 for a further description of different types of data.
- The above indicators are meant to serve as examples. MBS programs can choose any 2-3 indicators for which data is available in their contexts, and which are likely to impact ease of market capture.

Ranking markets

Enterprises' markets can be subjectively ranked as "high" or "low" on a factor by assigning a value for each indicator, calculating a total score for the factor, and then determining appropriate segmentation values for ranking markets as "high" and "low."

Assign value for indicators

Assign a value between 0 to 1 for each indicator, with a higher value indicating a more favorable score for the factor

Calculate total score for factor

Weigh each indicator to determine a total score for the factor between 0 to 1

Determine segmentation value

Take the median of the total scores to determine the segmentation value

Assigning value for indicators

Values for indicators can come in the form of 3 types of data:

- **Percentage data, which holds percentage values between 0-100%**
- **Numerical data, which holds whole number or positive decimal values with no upper limit**
- **Discrete data, which holds a finite set of discrete values**

Assign value for indicators → **Calculate total score for factors** → **Determine segmentation value**

Percentage data	Numerical data	Discrete data

Examples

% of households with permanent structures	*Number of households without toilets*	*Flooding tendency on a scale of 0-5*

Assigning value for indicators

Indicators are assigned values differently depending on the types of data available for the indicator. The assigned value for each indicator is between 0 and 1.

Assign value for indicators → **Calculate total score for factors** → **Determine segmentation value**

Percentage data	Numerical data	Discrete data
Convert percentage to decimal	*Score the highest value in the dataset a 1; the other values as a proportion of the highest value*	*Create categories with favorable category as 1; remaining categories relatively scored between 0-1*

Examples

Original dataset	***Original dataset***	***Original dataset***
50%, 75%	*10, 15, 20*	*Plain terrain, hilly terrain*
Assigned value	***Assigned value***	***Assigned value***
0.5, 0.75	*0.5, 0.75, 1*	*1, 0*

Tip

MBS programs should limit the scores assigned for discrete data to 3-4 categories as the practical difference between categories reduces as the number of categories increase. For example, if locations are ranked between 1-10 on their tendency to flood, 3 categories can be created: 0 (for 6-10), 0.5 (for 3-6), and 1 (for 1-2) in decreasing order of tendency to flood.

Assigning value for indicators – Example

Assign value for indicators → Calculate total score for factors → Determine segmentation value

Assigning values for "Ease of Market Capture" indicators in *Enterprise Mapping Example.xlsx*

"Plain" terrain assigned value of 1; "hilly" terrain assigned value of 0

A	B	C	D	E
Enterprise Name	"Ease of market capture" data		"Ease of market capture" assigned values (0-1)	
	% of villages with all-weather roads	Terrain within 5 kms of location centre	% of villages with all-weather roads	Terrain within 5 kms of location centre
Enterprise 1	80%	Plain	0.80	1
Enterprise 2	60%	Hilly	0.60	0
Enterprise 3	50%	Hilly	0.50	0
Enterprise 4	60%	Plain	0.60	1
Enterprise 5	40%	Hilly	0.40	0
Enterprise 6	20%	Plain	0.20	1

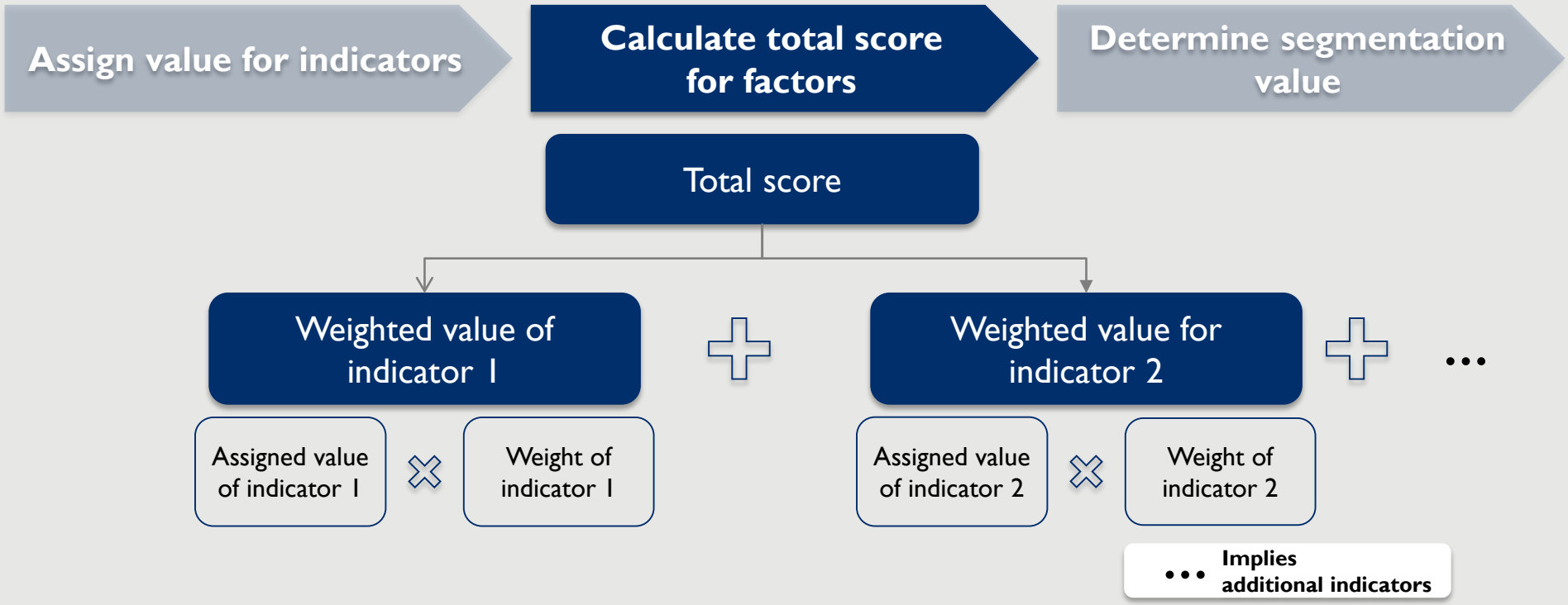
Percentage data

Discrete data

Percentage data converted to decimals and assigned values between 0-1

Calculating total score for factors

Each of the two factors is given a total score between 0-1. The total score is calculated by adding the weighted value of each indicator.



Tip

If MBS programs are unsure of the weights to assign each indicator, they can give each indicator an equal weight. For example, if there are 3 indicators, each indicator can be given a weight of 0.33.

Calculating total score for factors – Example

Assign value for indicators → **Calculate total score for factors** → **Determine segmentation value**

Calculating total score for "Ease of Market Capture" in *Enterprise Mapping Example.xlsx*

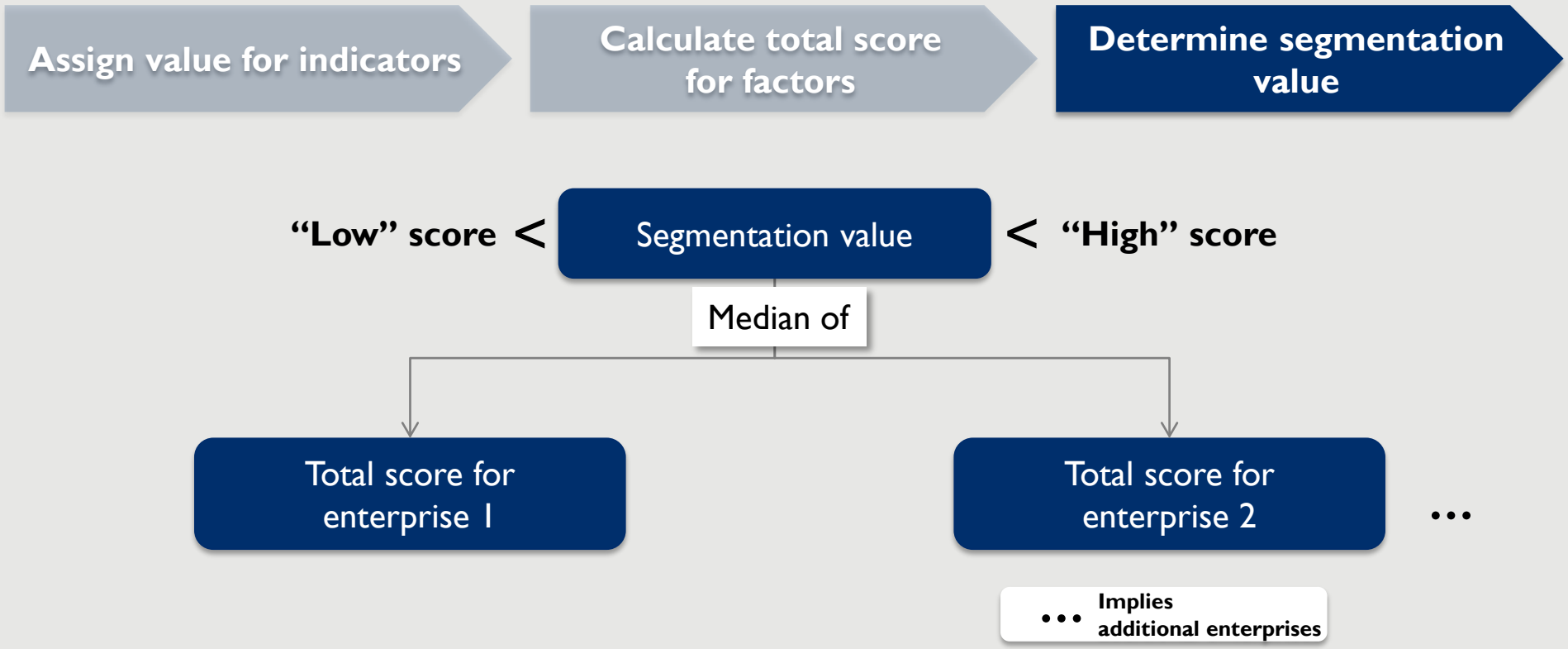
A	D	E	F	G	H
Enterprise Name	"Ease of market capture" assigned values (0-1)		Total score (ease of market capture)		
	% of villages with all-weather roads	Terrain within 5 kms of location centre	Weighted score for *% of villages with all-weather roads*	Weighted score for *terrain within 5 kms of location centre*	Total score
Enterprise 1	0.80	1	0.40	0.50	0.90
Enterprise 2	0.60	0	0.30	0.00	0.30
Enterprise 3	0.50	0	0.25	0.00	0.25
Enterprise 4	0.60	1	0.30	0.50	0.80
Enterprise 5	0.40	0	0.20	0.00	0.20
Enterprise 6	0.20	1	0.10	0.50	0.60

Weighing both indicators (columns D and E) equally by multiplying by 0.5

Total score calculated as sum of weighted scores (columns F and G)

Determining segmentation value

The segmentation value for categorizing markets of enterprises as "high" or "low" for a given factor is determined as the median of the total score for the factor. Enterprises with a score greater and less than the segmentation value are categorized as "high" and "low" respectively.



Determining segmentation value – Example

Assign value for indicators → **Calculate total score for factors** → **Determine segmentation value**

Determining segmentation value for "Ease of Market Capture" in *Enterprise Mapping Example.xlsx*

Rank based on whether total score (column H) is more or less than the segmentation value (column I)

A	F	G	H	I	
Enterprise Name	Total score (ease of market capture)			Ranking (ease of mark ture)	
	Weighted score for *% of villages with all-weather roads*	Weighted score for *terrain within 5 kms of location centre*	Total score	Segmentation value	Ranking (high or low)
Enterprise 1	0.40	0.50	0.90	0.45	High
Enterprise 2	0.30	0.00	0.30		Low
Enterprise 3	0.25	0.00	0.25		Low
Enterprise 4	0.30	0.50	0.80		High
Enterprise 5	0.20	0.00	0.20		Low
Enterprise 6	0.10	0.50	0.60		High

Segmentation value calculated as median of "Total score" (column H)

Tip

The *Enterprise Mapping Example.xlsx* also contains an example of ranking enterprises on "attractiveness of market." This can be found in columns K-S.

Defining 4 types of markets on a 2 by 2 matrix

By categorizing enterprises' markets as "high" or "low" on "market attractiveness" and "ease of market capture," MBS programs can map enterprises to 4 different types of markets.

Ease of market capture: High	Ease of market capture: Low
"Opportunistic play" market *Infrequent and low sales, but a potential opportunity to capture the market due to ease of operating a sanitation enterprise*	***Easy market*** *Easy to operate sanitation enterprise, with frequent and high sales*
Hard market *Challenging to operate a sanitation enterprise, with infrequent and low sales*	***"Attractive, yet difficult to serve" market*** *Frequent and high sales, but difficult to capture the market due to challenges of operating a sanitation enterprise*

Low ← **Attractiveness of the market** → High

Defining 4 types of markets on a 2 by 2 matrix – Example

Mapping enterprises on a 2 by 2 matrix from *Enterprise Mapping Example.xlsx*

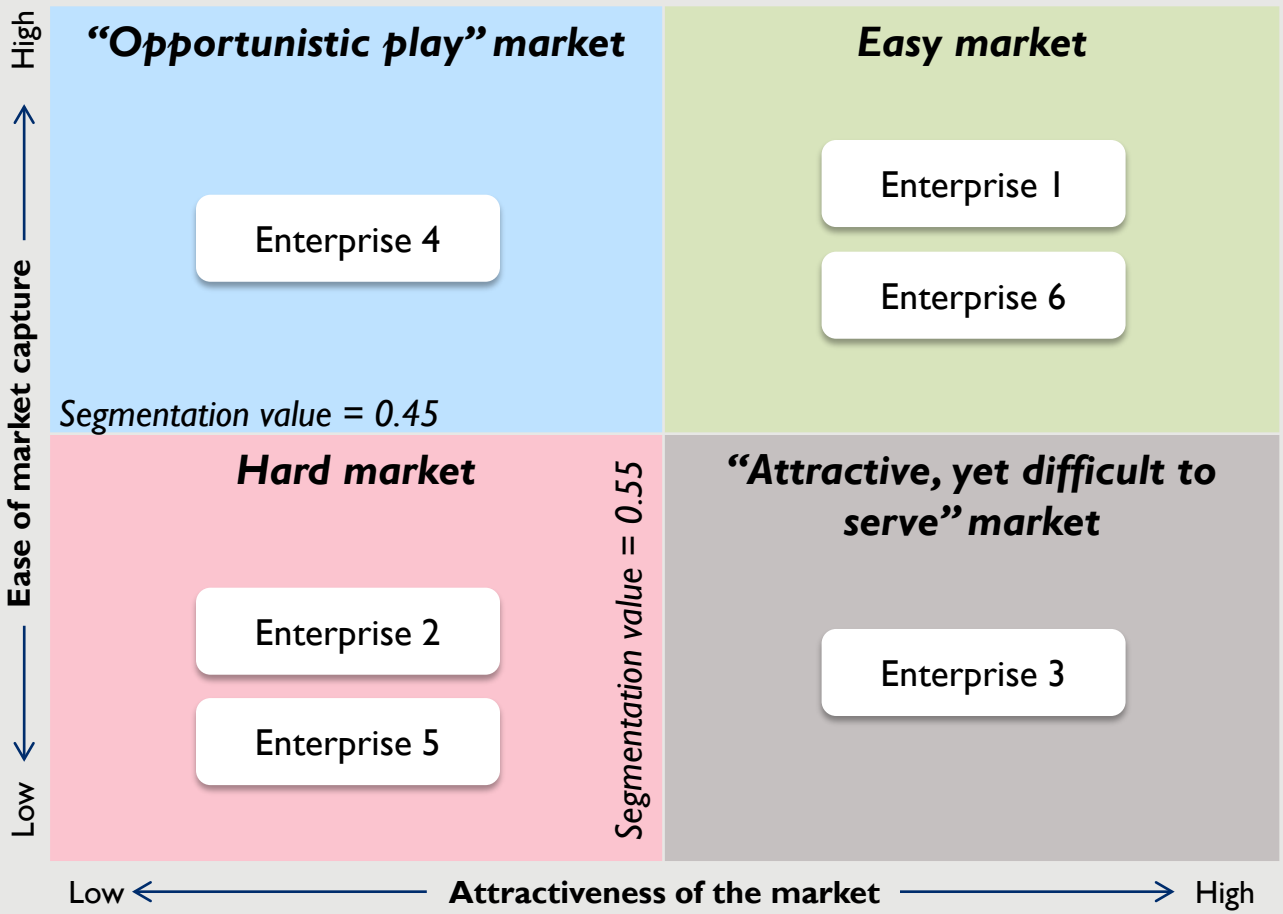
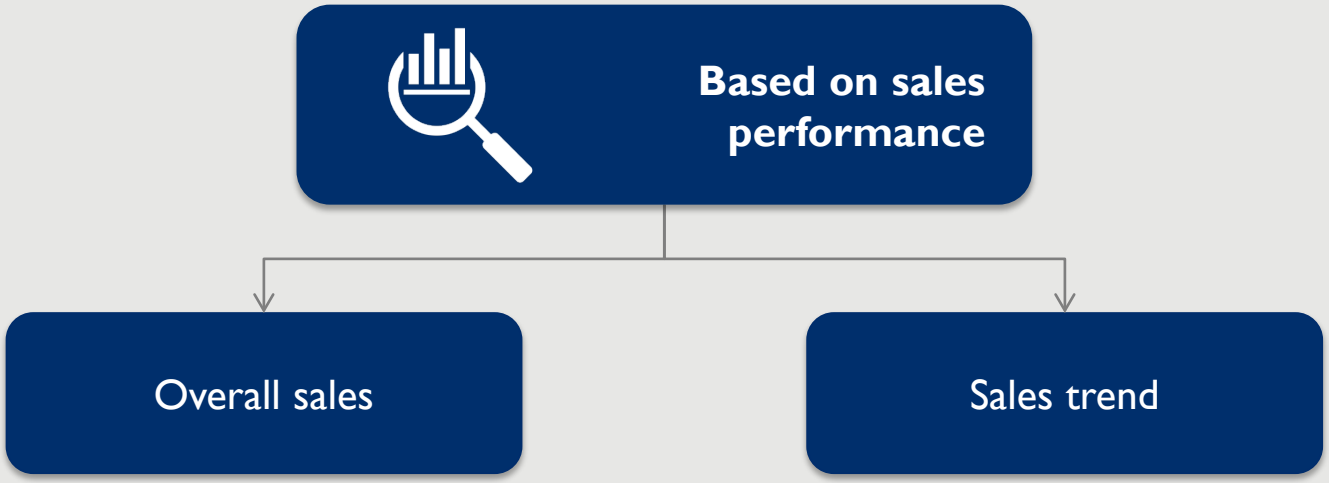


Table of Contents

- Introduction
- Mapping based on types of markets
- Mapping based on sales performance
- Selecting enterprises for research

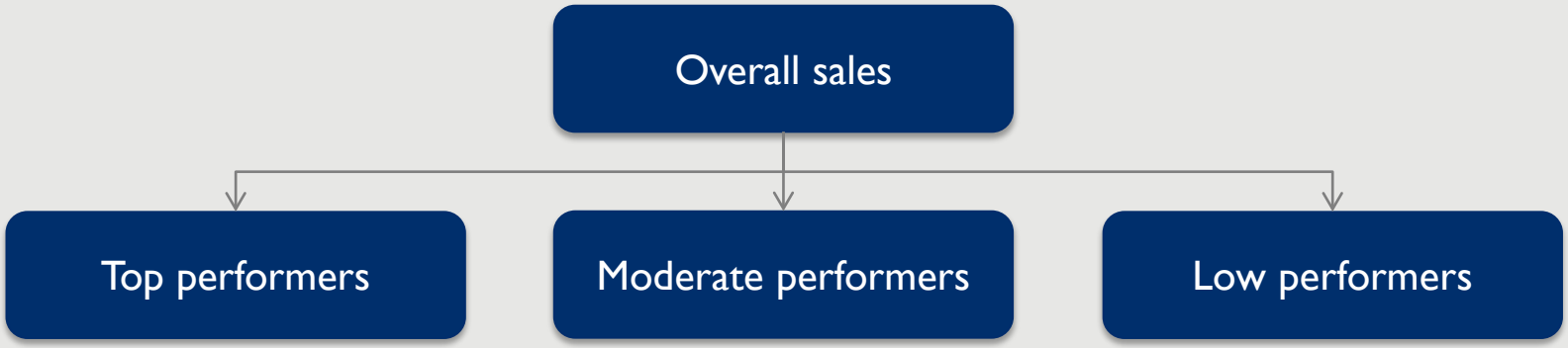
Mapping based on sales performance

The sales performance of enterprises can be analyzed based on their overall sales and their sales trend, i.e., the change in sales over time.



Categorization based on overall sales

Enterprises can be ranked into different performance categories based on their overall sales. The categorization can be based on either a) percentiles for the sales volumes, or b) subjective cut-offs determined by the MBS program.



Example 1: Categorization based on percentiles

Top 25% of sales volumes of the sample	*Middle 50% of sales volumes of the sample*	*Bottom 25% of sales volumes of the sample*

Example 2: Categorization based on cut-offs

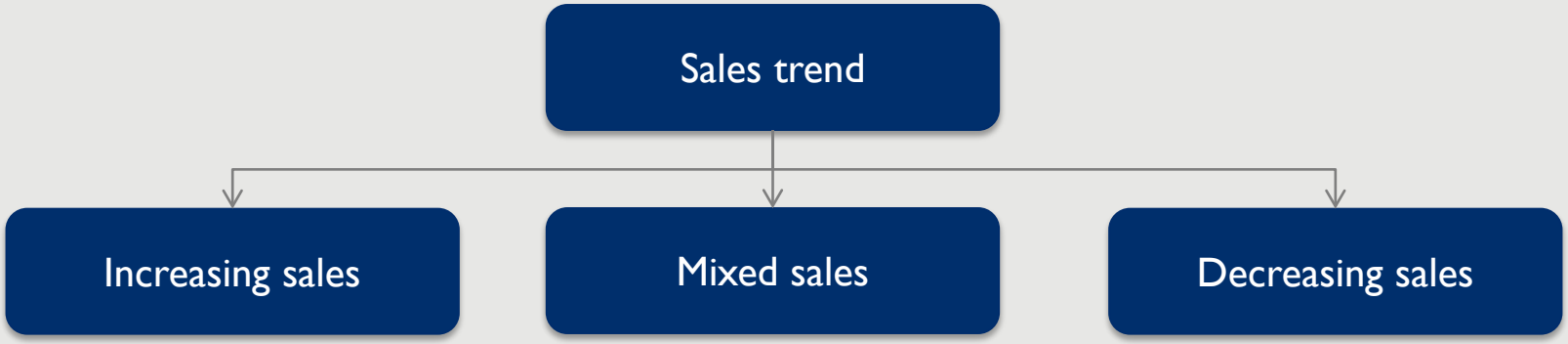
More than 300 toilets sold per year	*100-300 toilets sold per year*	*Less than 100 toilets sold per year*

Tip

- MBS programs should limit the categories to 3-4 since the practical difference between categories reduces as the number of categories increases.
- MBS programs can determine the cut-offs for categorizing overall sales volumes based on the number of toilets required to capture a significant portion of the market that enterprises are serving.

Categorization based on sales trend

Enterprises can also be categorized based on their sales trend. The sales trend is typically analyzed on an annual basis (to control for the effects of seasonality) with 3 possible categories – sales increasing every year, sales declining every year, or a mix of the two, i.e., sales increasing in some years and declining in other years.



Tip

- When analyzing the sales trend of sanitation enterprises, MBS programs may also encounter enterprises who have stopped selling toilets, i.e., exited the market. MBS programs can create an additional category for such enterprises.
- MBS programs at a nascent stage can skip this step if they do not have sufficient historical data

Categorizing enterprises on a performance matrix

By categorizing enterprises based on their overall sales and sales trend, MBS programs can place them into various categories on a performance matrix. The number of categories in the matrix will be the multiple of the number of categories each for overall sales and sales trend.

Example: Performance Matrix

Overall sales	Increasing sales volumes	Mixed sales volumes	Declining sales volumes
High sales (top 25%)	**Category 1**	**Category 2**	**Category 3**
Moderate sales (mid 50%)	**Category 4**	**Category 5**	**Category 6**
Low sales (bottom 25%)	**Category 7**	**Category 8**	**Category 9**

Annual sales trend

Tip

MBS programs can reduce the total number of categories in the performance matrix by combining categories where appropriate, such as when the performance of two categories are broadly similar. For example, Category 1 and Category 2 in the above matrix can be combined as "Top Performers," since enterprises in both categories will have high sales volumes .

Table of Contents

- Introduction
- Mapping based on types of markets
- Mapping based on sales performance
- Selecting enterprises for research

Selecting enterprises for research

MBS programs should select a sub-group of enterprises for in-depth research by ensuring adequate representation of different enterprise categories (based on sales performance) across the 4 types of markets. This ensures that the research will account for differences in both enterprises' performance and their contexts.

Example selection plan for 3 categories of enterprises

"Opportunistic play" market	***Easy market***
• "Category 1" enterprises – 3 • "Category 2" enterprises – 3 • "Category 3" enterprises – 3	• "Category 1" enterprises - 3 • "Category 2" enterprises - 3 • "Category 3" enterprises - 3
Hard market	***"Attractive, yet difficult to serve" market***
• "Category 1" enterprises - 3 • "Category 2" enterprises - 3 • "Category 3" enterprises - 3	• "Category 1" enterprises - 3 • "Category 2" enterprises - 3 • "Category 3" enterprises - 3

Tip

MBS programs will typically not have a perfectly equal distribution of enterprises across markets (for e.g., three enterprises from each category in every type of market). However, they should aim for an even distribution to the degree possible.