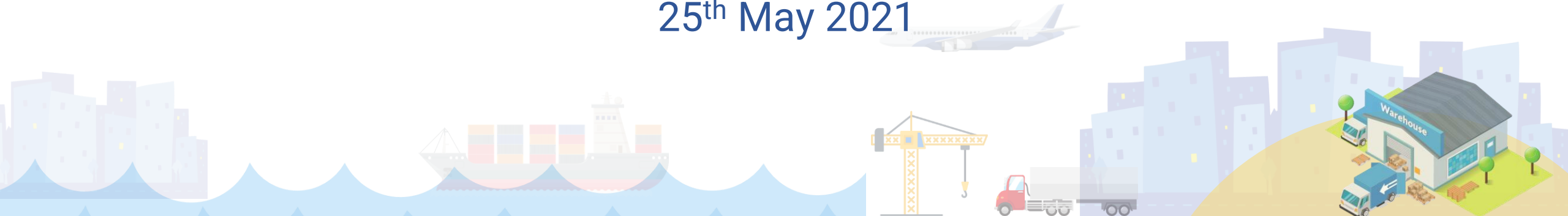# LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020, PHILIPPINES

25th May 2021

1. BACKGROUND OF THE STUDY

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020
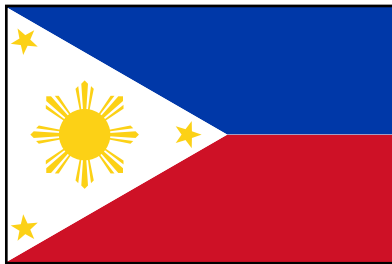
BACKGROUND OF THE STUDY

The logistics cost in the Philippines remains the most expensive as compared to its neighboring Southeast Asian countries (Arvis, et al., 2018).

BACKGROUND OF THE STUDY

The 2017 survey results reveal that the country's logistics cost relative to sales is higher compared with other ASEAN countries.

Philippines
27.16%

Indonesia
21.4%

Vietnam
16.3%

Thailand
11.11%

OBJECTIVES OF THE STUDY

The primary objectives of the current survey are to review and update information about the logistics practices of manufacturers as of 2020 and evaluate these practices' impact on logistics cost.
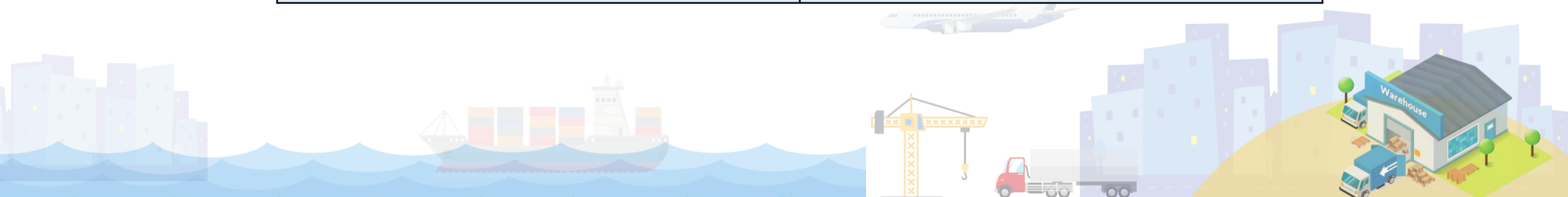
2. RESEARCH APPROACH

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

RESEARCH APPROACH: 2017 AS BASELINE

2017	2020
SAME QUESTIONNAIRE SAME REGIONS SAME INDUSTRY SECTORS	

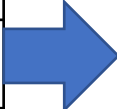| 2017	2020
SELF ADMINISTERED CENTRAL LOCATION SURVEY 159 RESPONDENTS	TELEPHONE/ONLINE INTERVIEWS ONE-ON-ONE 300 RESPONDENTS

SURVEY PERIOD & DATABASE

Survey Period – March 1, 2021 to April 30, 2021

Database

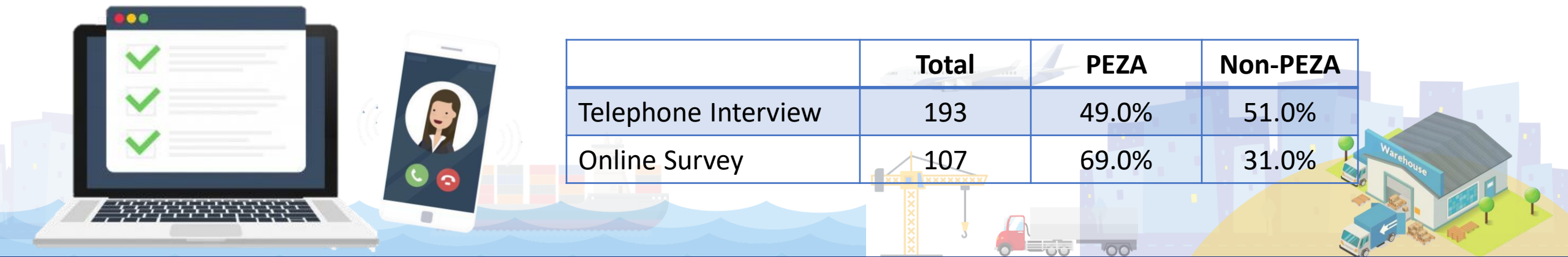| Sources	Frequency
DTI	3,230
STRAND-Asia	4,418
TOTAL	7,648

Drawn from DTI's database including listings from the Bureau of Small and Medium Enterprise Development (DTI-BSMED), Bureau of Domestic Trade Promotion (DTI-BDTP), Export Marketing Bureau (DTI-EMB), Center for International Trade Expositions and Missions (DTI-Citem), Philippine Trade Training Center (DTI-PTTC), Board of Investment (DTI-BOI), Philippine Economic Zone Authority (PEZA), and Philippine Exporters Confederation Inc. (Philexport).

RESEARCH APPROACH: DATA COLLECTION

The research agency conducted the interviews through telephone using tablets and QuestionPro (a software designed for surveys and data collection) and through an online application through a link provided to them for those who prefer to respond to the survey without assistance from interviewers.

	Total	PEZA	Non-PEZA
Telephone Interview	193	49.0%	51.0%
Online Survey	107	69.0%	31.0%

3. RESPONDENT PROFILE

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

PROFILE OF RESPONDENT-MANUFACTURING FIRMS
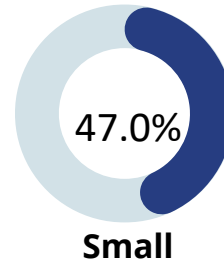
Base: 300 respondents

YEARS IN BUSINESS
19 Years

GROSS SALES
36.3%
Have Php 15M to Php 100M Gross Sales

EMPLOYEES
243 Average Number

TYPE OF BUSINESS
91.3%
Corporation

ASSET SIZE
47.0%
Small

FOREIGN EQUITY
57.3%
None
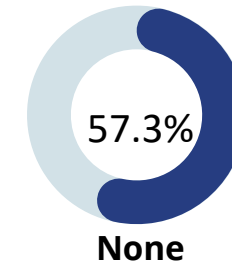
M1a. Year firm established
M1b. Check type of establishment
M1c. Check Size of Business (capitalization)
Note: Single answer.

M1d. Foreign Equity Participation
M20. Please indicate the gross sales of your firm for 2020 (in Peso).
M1e. Check number of full-time employees in the firm.
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Number of Years in Operation

Base: 300 respondents

18.9

Average Number of Years
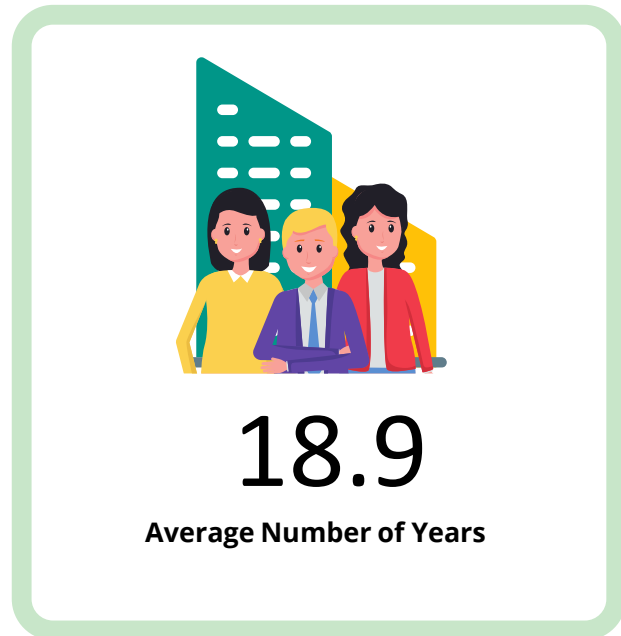
More than 25 years	26.7%
21 to 25 years	11.3%
16 to 20 years	11.3%
11 to 15 years	10.3%
6 to 10 years	22.7%
5 years and below	17.7%
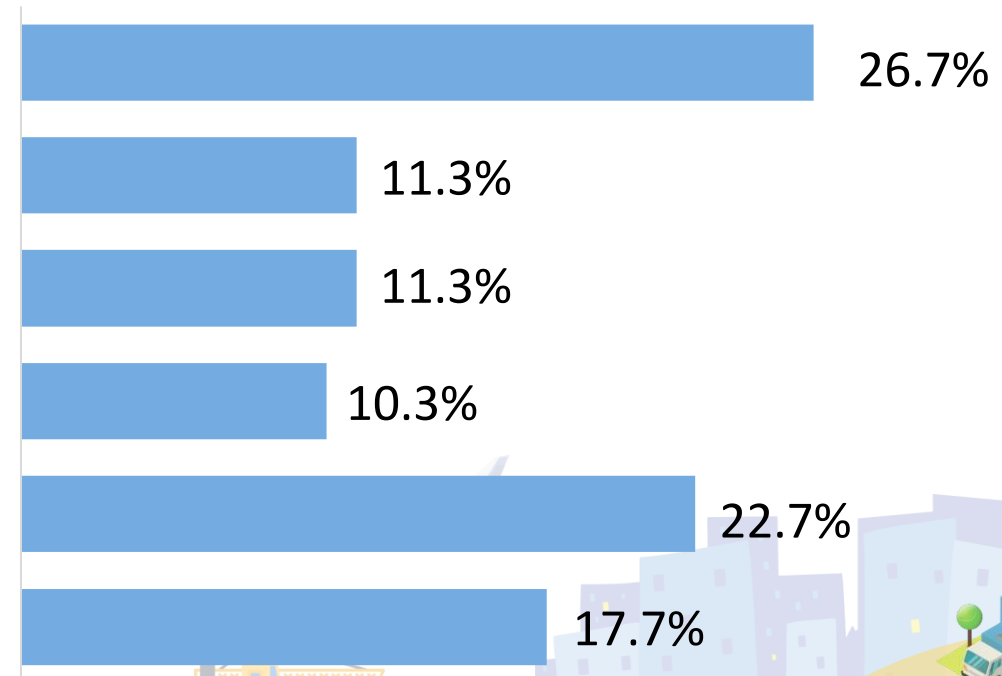
M1a. Year firm established
Note: Single answer.
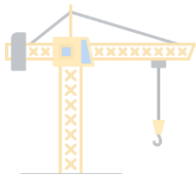
PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Gross Sales in 2020

Base: 300 respondents

Category	Percentage
Less than P3 Million	12.3%
Php3 Million up to Php15 Million	25.3%
Php15 Million up to Php100 Million	36.3%
More than Php 100 Million	26.0%
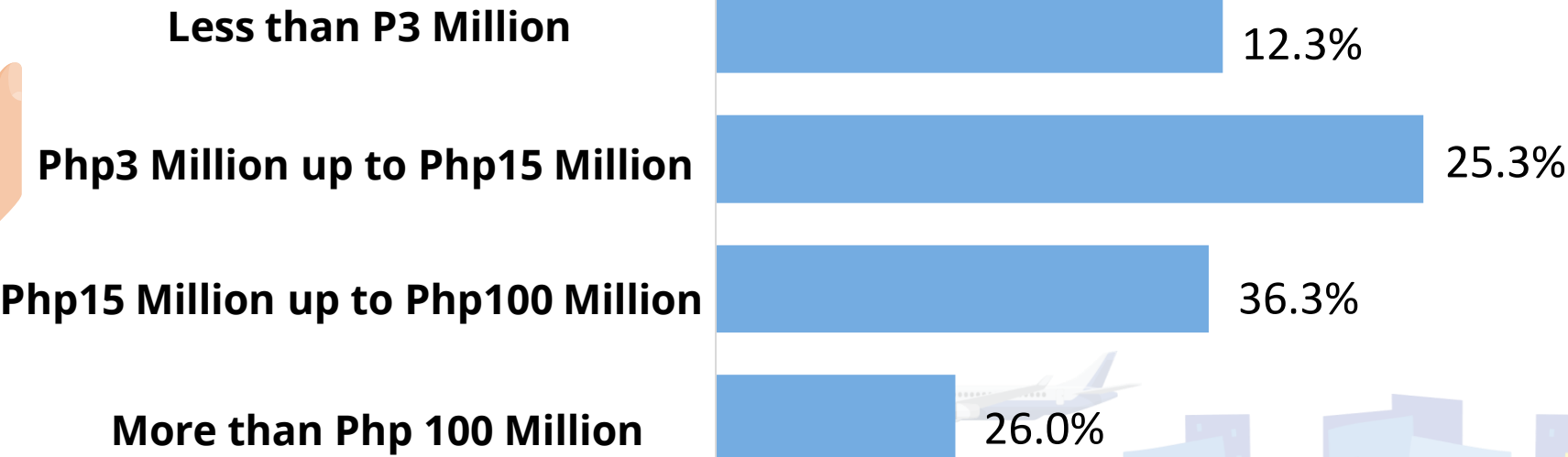
M20. Please indicate the gross sales of your firm for 2020 (in Peso).
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Number of Full-time Employees

Base: 300 respondents
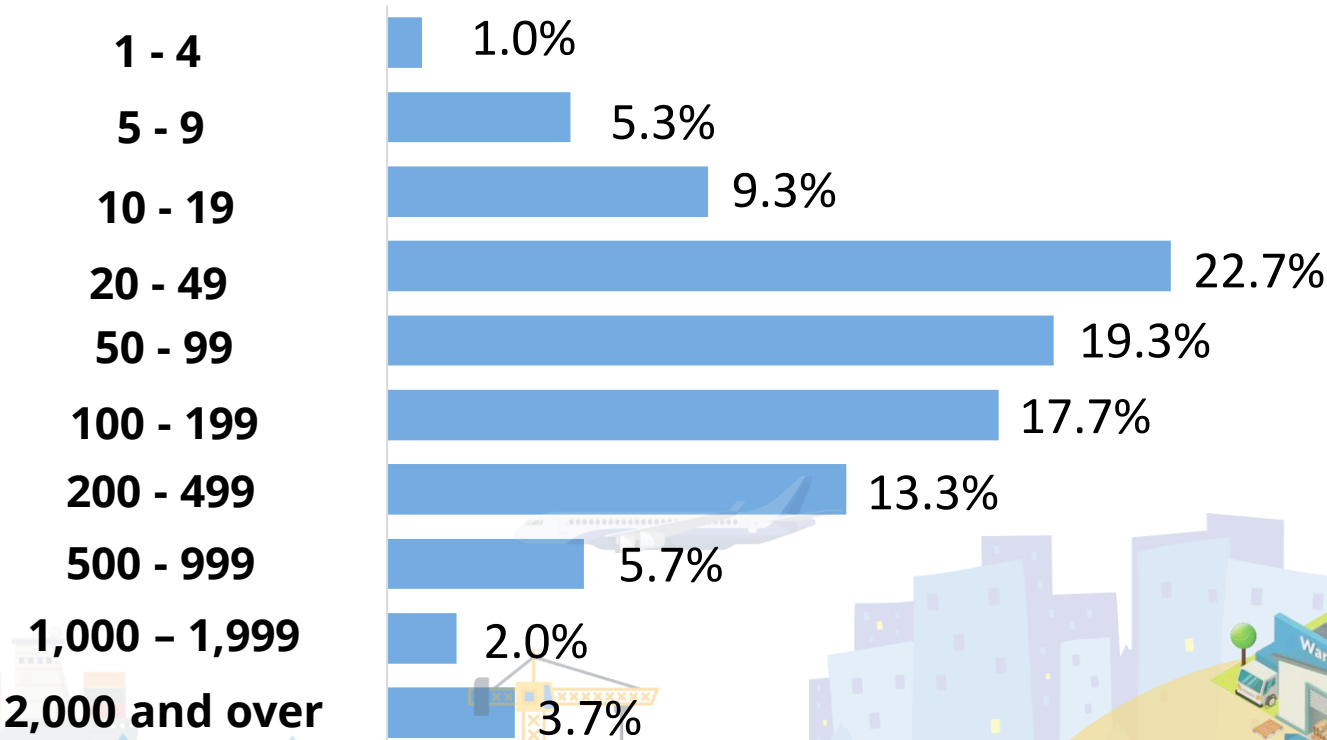
243

Average Number of Employees

Number of Full-time Employees	Percentage
1 - 4	1.0%
5 - 9	5.3%
10 - 19	9.3%
20 - 49	22.7%
50 - 99	19.3%
100 - 199	17.7%
200 - 499	13.3%
500 - 999	5.7%
1,000 – 1,999	2.0%
2,000 and over	3.7%

M1e. Check number of full-time employees in the firm.
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Regional Location of the Main Operations

Base: 300 respondents

Region	Percentage
Region IV-A	57.3%
Region VII	15.3%
NCR	12.3%
Region III	6.3%
Region XI	3.3%
Region X	2.3%
Region XII	1.3%
Region VI	1.0%
Region IX	0.7%
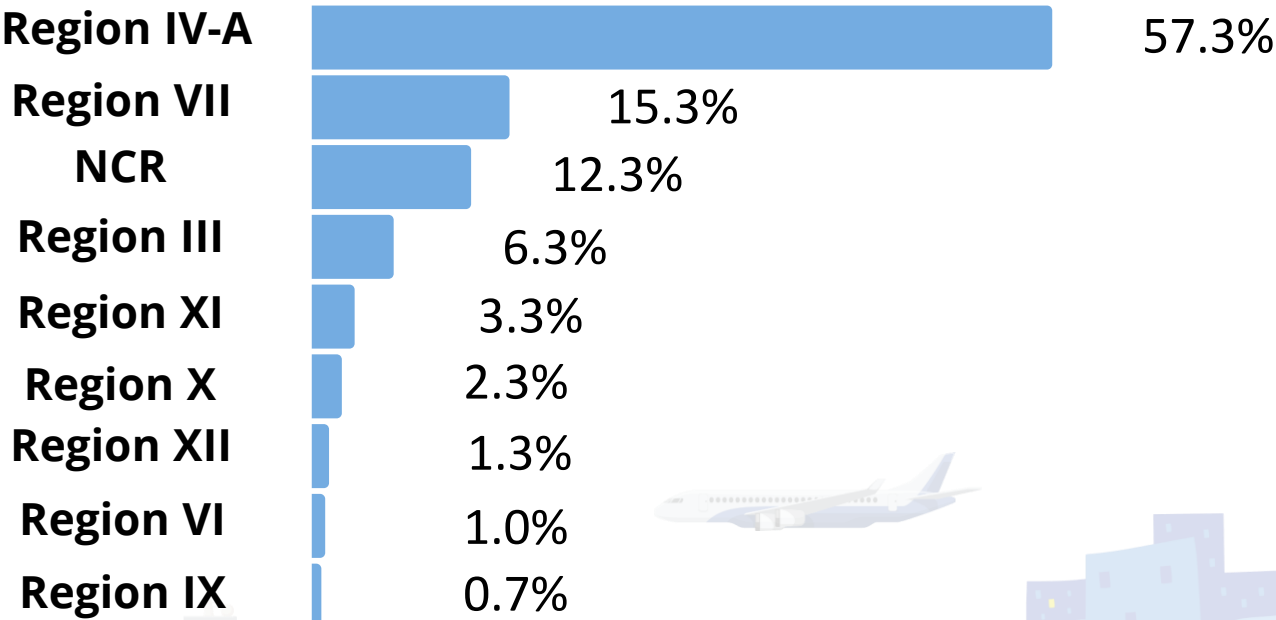
M2a.1. Please indicate in which city/municipality/province your main activity/operations are located (Region).
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Provincial Location of the Main Operations

Base: 300 respondents

Location	Percentage
Cavite	23.3%
Laguna	21.7%
Cebu	14.7%
Batangas	10.7%
Quezon City	4.0%
Bulacan Province	3.3%
Davao del Sur	3.0%
Paranaque City	2.0%
Others*	17.3%

*Others include 23 cities/ municipalities/ provinces
M2a.2. Please indicate in which city/municipality/province your main activity/operations are located (Province).
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS
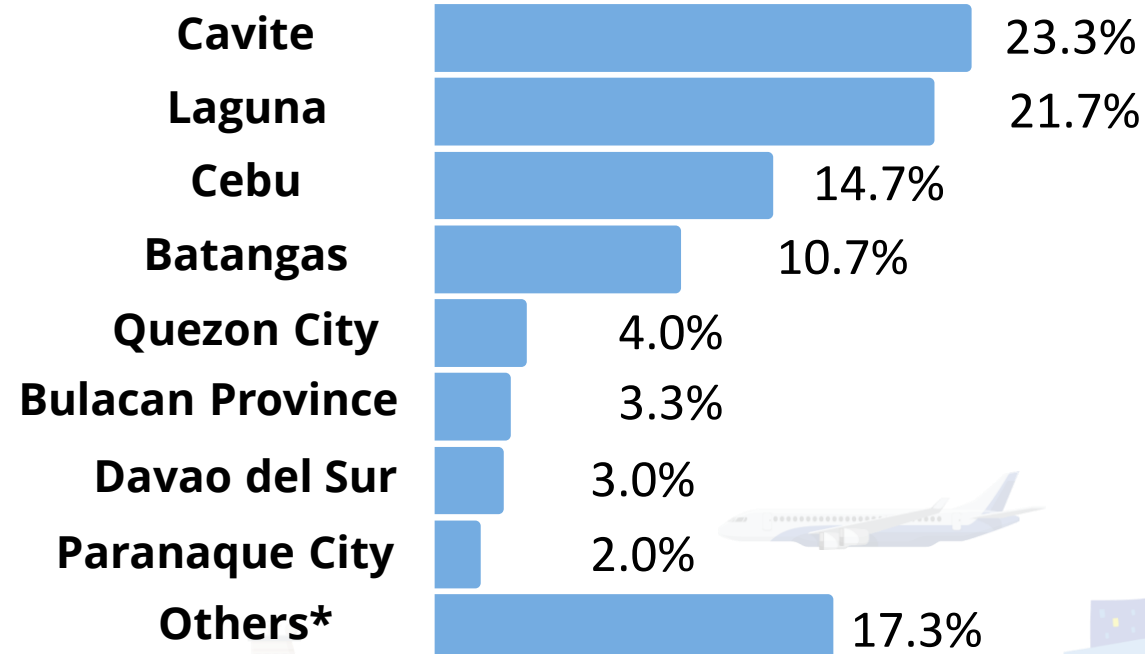
Respondents Profile: By Regional Location of the Main Corporate Office

Base: 300 respondents

Region	Percentage
Region IV-A	55.7%
NCR	17.7%
Region VII	15.3%
Region III	4.3%
Region XI	2.7%
Region X	2.0%
Region XII	1.3%
Region VI	1.0%

M.2.b. Please indicate in which city/municipality/province your main corporate office is located (Region).
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Provincial Location of the Main Operations

Base: 300 respondents

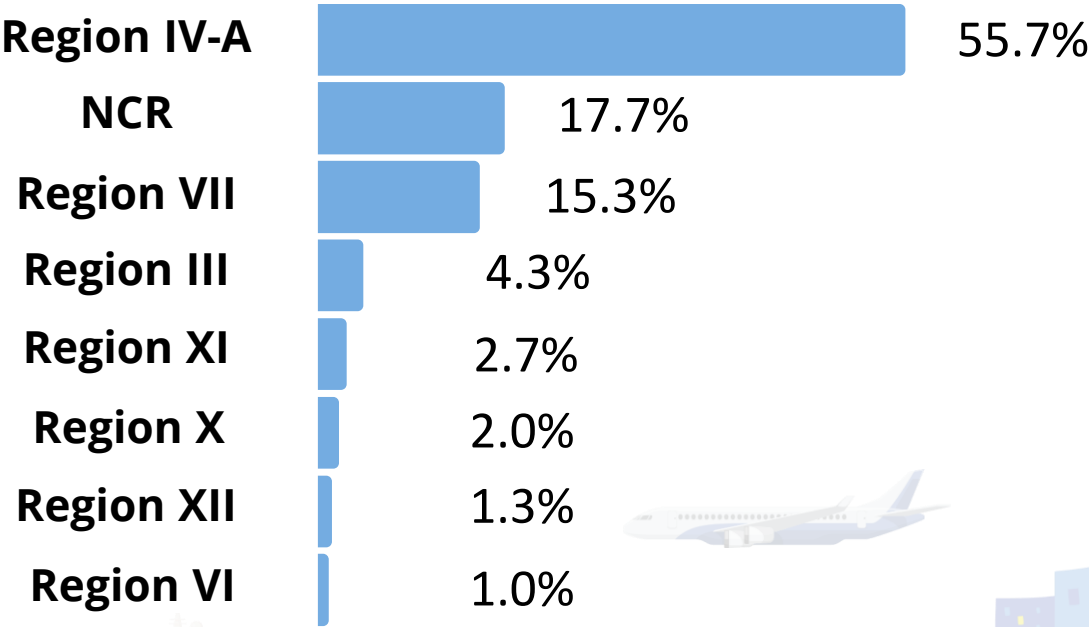| Location	Percentage
Cavite	22.7%
Laguna	21.0%
Cebu	14.7%
Batangas	10.3%
Quezon City	5.0%
Davao del Sur	2.3%
Paranaque	2.0%
Makati	2.0%
Others*	19.9%

*Others include 24 cities/ municipalities/ provinces
M.2.b. Please indicate in which city/municipality/province your main corporate office is located (Province)
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Base: 300 respondents

MAIN AREA OF OPERATIONS

Top 3 Regions
- **Region IV-A (57.3%)**
- **Region VII (15.3%)**
- **NCR (12.3%)**

Top 3 Provinces
- **Cavite (23.3%)**
- **Laguna (21.7%)**
- **Cebu (14.7%)**

MAIN CORPORATE OFFICE

Top 3 Regions
- **Region IV-A (55.7%)**
- **NCR (17.7%)**
- **Region VII (15.3%)**

Top 3 Provinces
- **Cavite (22.7%)**
- **Laguna (21.0%)**
- **Cebu (14.7%)**

M2a. Please indicate in which city/municipality/province your main activity/operations are located.
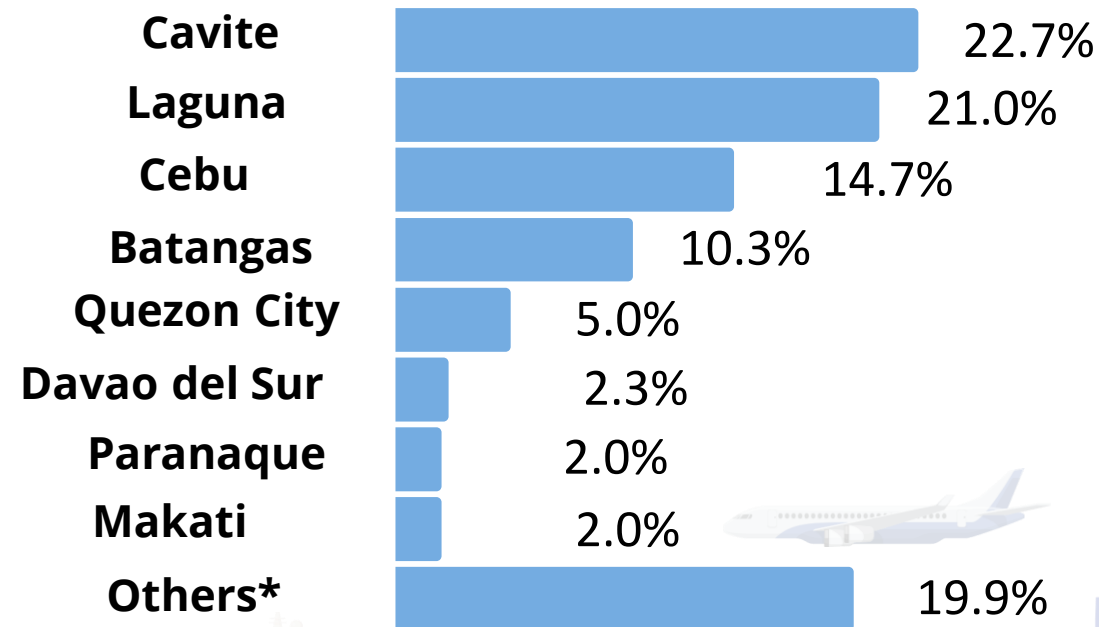M2b. Please indicate in which city/municipality/province your main corporate office is located.
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Main Industry Sectors

Base: 300 respondents
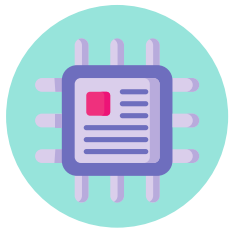
Electronics
27.3%

Auto and Auto Parts
15.7%

Chemicals
13.7%

Construction Materials
10.7%

Processed Food
10.3%

Garments & Textile
9.3%

Agribusiness
7.0%

Furniture
6.0%

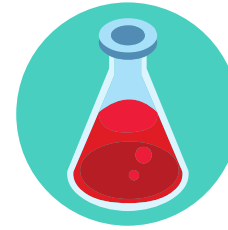M.3. Please indicate the main sector of your firm.
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Main Markets/Clients of the Firm

Base: 300 respondents

International 26.3%

Domestic 40.3%

Both Domestic & International 33.3%
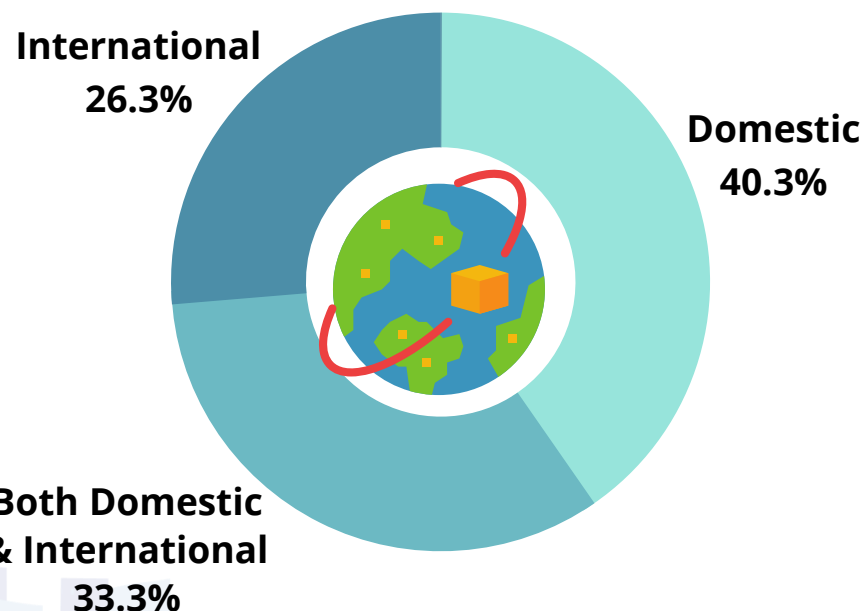
M.5. Please indicate your main market/ client
Note: Single answer.

Domestic and International Markets Being Served by the Firms

Domestic
Base: 221 respondents

Top 3 Regions

- **Region IV-A (60.6%)**
- **NCR (36.2%)**
- **Region VII (17.6%)**
- **Region III (17.6%)**

International
Base: 179 respondents

Top 3 Continents

- **Asia (80.4%)**
- **North America (34.1%)**
- **Europe (26.3%)**

M5a. Please indicate, for domestic, the markets you serve.
M5b. Please indicate, for international, the markets you serve.
Note: Multiple response allowed.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Main Markets

Base: 300 respondents

Domestic Only — 40.3%

International Only — 26.3%

Both Domestic and International — 33.3%
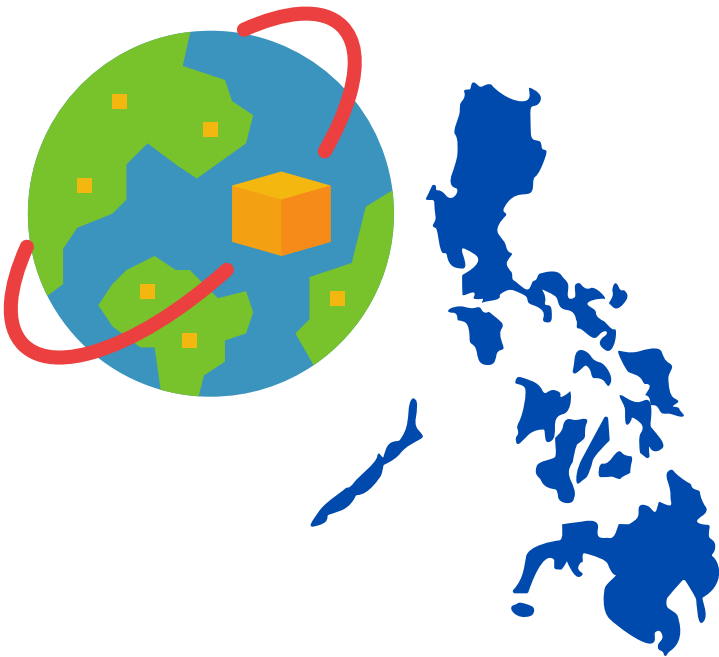
M.5. Please indicate your main market/ client
Note: Single answer.

PROFILE OF RESPONDENT-MANUFACTURING FIRMS

Respondents Profile: By Domestic and International Markets Served

	Domestic
Base: Respondent-manufacturing firms who serve domestic markets	221
Region IV-A	60.6%
NCR	36.2%
Region III	17.6%
Region VII	17.6%
Region XI	13.1%
Entire Philippines	12.2%
Others*	59.9%

	International
Base: Respondent-manufacturing firms who serve international markets	179
Asia	80.4%
North America	34.1%
Europe (including Russia)	26.3%
Australia/ Oceania	10.6%
South America	10.6%
Middle East	7.8%
All Regions	4.5%
Africa	0.6%
Refused	0.6%

*Others include 11 regions
M.5a1. Please indicate, for domestic, the markets you serve
M.5a2. Please indicate, for international, the markets you serve
Note: Multiple response allowed.

LOGISTICS OPERATIONS OF RESPONDENT-MANUFACTURING FIRMS

Distribution Channels

Base: 300 respondents

Channel	Percentage
Export	42.5%
Direct to customer Site	21.4%
Industrial Customers	19.7%
Direct to Wholesalers & Distribution Centers	8.9%
Direct to Store or Retailer	7.2%
Walk-In Customers	0.3%
Company-Owned Stores/Branches	0.2%
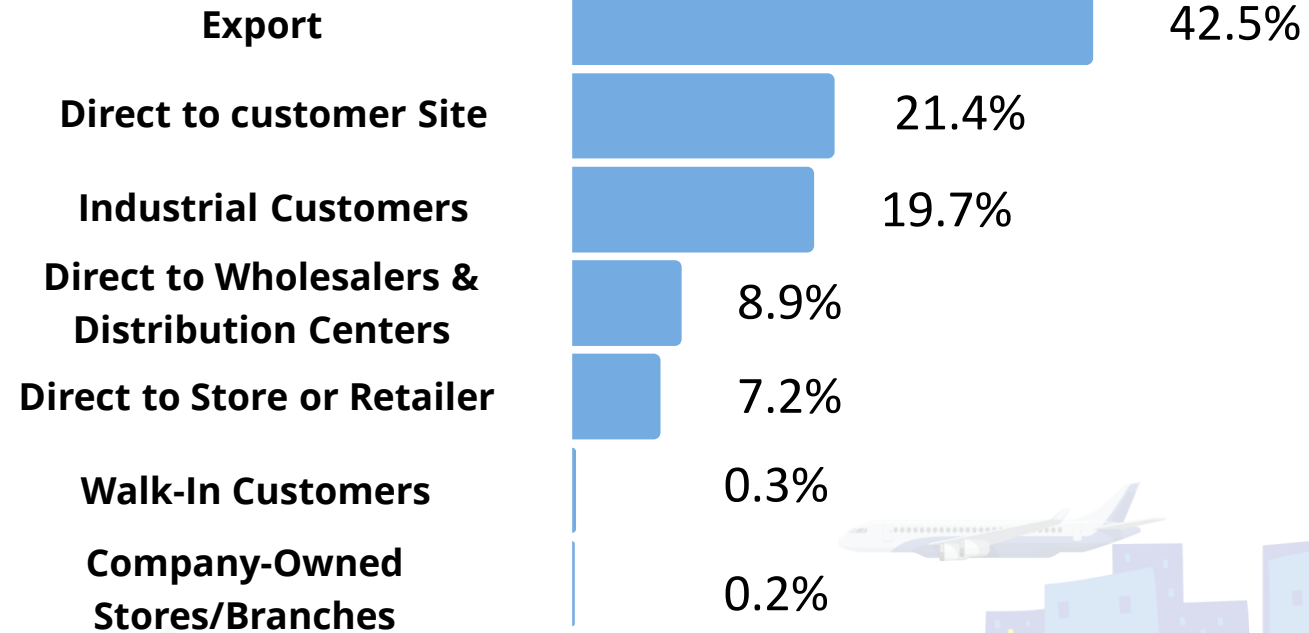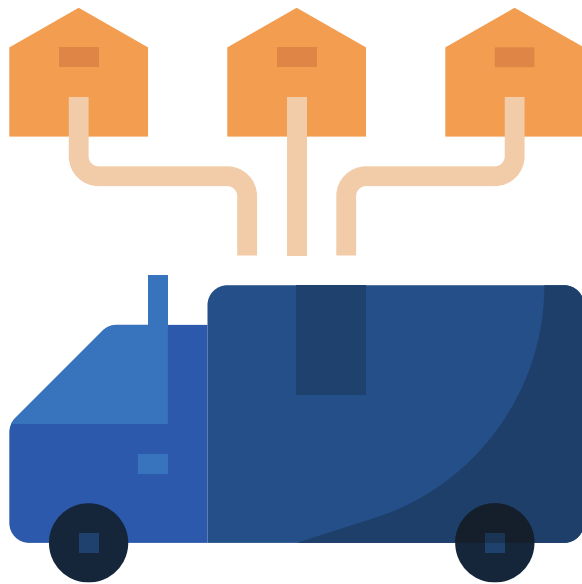
M.6. Please provide the percentage share of the distribution channels using volume of product distributed as basis.
Note: Multiple response allowed.

LOGISTICS OPERATIONS OF RESPONDENT-MANUFACTURING FIRMS

Main Load Type When Delivering to Domestic and International Clients

	Domestic
Base: Firms' main market is domestic	221
Full Truck Load (FTL)	38.5%
Unitised Cargo, Less Than Container Load (LCL) and/or Less than Truck Load (LTL)	33.0%
Smaller Land Based Transportation	26.2%
Unitised Cargo, Full Container Load (FCL)	19.0%
Express Freight	13.6%
Break Bulk	11.3%
Others	5.9%

	International
Base: Firms' main market is international	179
Unitised Cargo, Full Container Load (FCL)	55.9%
Air Freight	43.0%
Unitised Cargo, Less Than Container Load (LCL) and/or Less than Truck Load (LTL)	34.6%
Express Freight	15.6%
Break Bulk	13.4%
Full Truck Load (FTL)	7.3%
Others	4.5%

M.7a. Please check your main load type when you deliver to your domestic client.
M.7b. Please check your main load type when you deliver to your international client.
Note: Multiple response allowed.

LOGISTICS OPERATIONS OF RESPONDENT-MANUFACTURING FIRMS

Perception on the Relative Importance of Time, Cost, and Reliability

Base: 300 respondents

30.8%
Time

35.8%
Reliability

33.4%
Cost
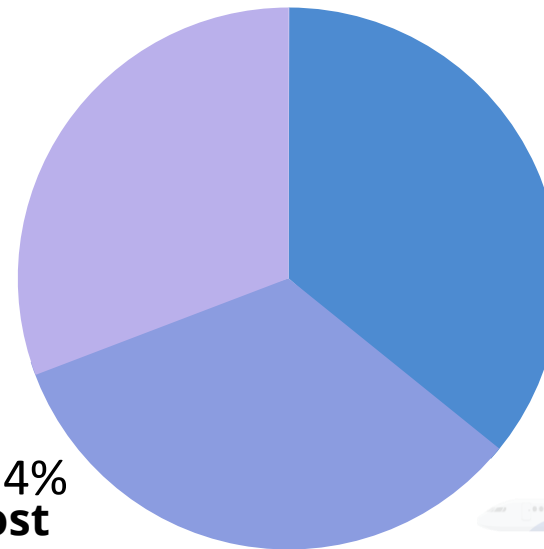
M8. Please indicate the relative importance of time, cost, and reliability.
Note: Single answer.

LOGISTICS OPERATIONS OF RESPONDENT-MANUFACTURING FIRMS

Logistics Operations Manufacturing Firms Outsource

	Outsourced Logistics Operations
Base: Total respondents	300
Customs Brokerage	49.7%
International Transportation	45.7%
Domestic Freight Forwarding	36.0%
Domestic Transportation	34.7%
Value Added Services	8.3%
Logistics IT System	6.0%
Warehouse & Inventory Management	5.0%
None	20.3%

M9. Please identify if the following logistics operations are outsourced.
Note: Multiple response allowed.

LOGISTICS OPERATIONS OF RESPONDENT-MANUFACTURING FIRMS

Logistics Operations Manufacturing Firms Outsource

	# of Firms Outsourcing = 100%	Percent with SLAs	Percent without SLAs
Total Outsourcing	239	53.1	46.9
Customs Brokerage	149	48.3	51.7
International Transportation	137	49.6	50.4
Domestic Freight Forwarding	108	39.8	60.2
Domestic Transportation	104	40.4	59.6
Value Added Services	25	28.0	72.0
Logistics IT Systems	18	27.8	72.2
Warehouse and Inventory Management	15	46.7	53.3

Note: Horizontal Reading of Percentages.

M.10. Among the following logistics operations managed by an external service provider, which of these you have service level agreements (contract only) with? Note: Multiple response allowed.
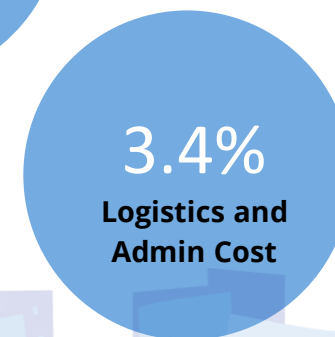
4. LOGISTICS COST AS A PERCENT OF TOTAL SALES

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

Logistics Cost as % of Total Sales in 2020

Base: 300 respondents

25.5%

Total Logistics Cost as % of Total Sales in 2020

7.6%
Transport and Cargo Handling Cost

6.7%
Inventory and Carrying Cost

4.3%
Other Logistics Costs*

3.5%
Warehousing

3.4%
Logistics and Admin Cost
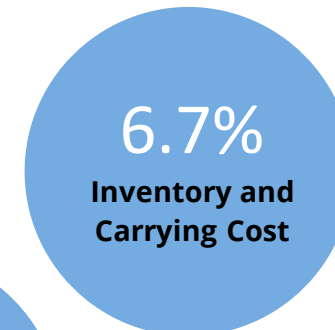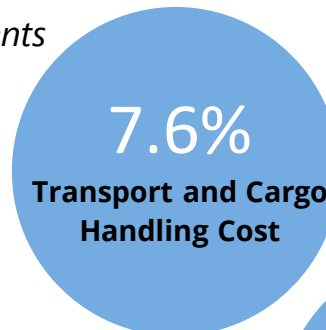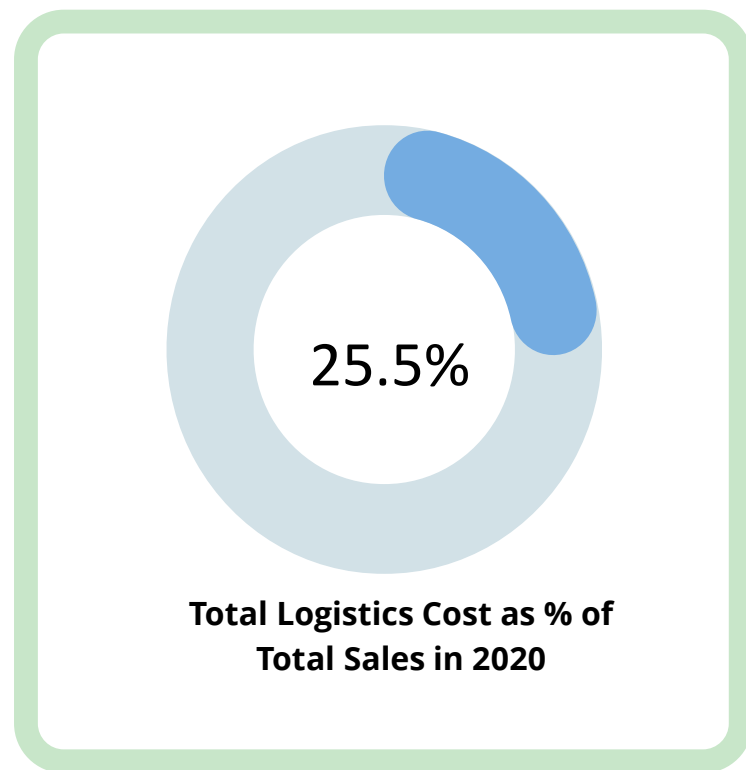
*Other logistics costs include processing and documentation cost, Broker/customs charge, Clearance and permits, PEZA and BOC expenses, Demurrage fee/stevedoring, Trainings and seminars, Repair and maintenance, and Miscellaneous (communications, ballpen, unexpected expenses)

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.

Comparison of Logistics Cost as % of Total Sales in 2017 and 2020

	2017	2020
Base: Total Respondents	159	300
Transport & Cargo Handling Cost	10.7%	7.6%
Warehousing	5.2%	3.5%
Inventory Carrying Cost	8.8%	6.7%
Logistics Administration	2.5%	3.4%
Other Logistics Costs	-	4.3%

TOTAL PERCENTAGE

27.2%

2017

25.5%
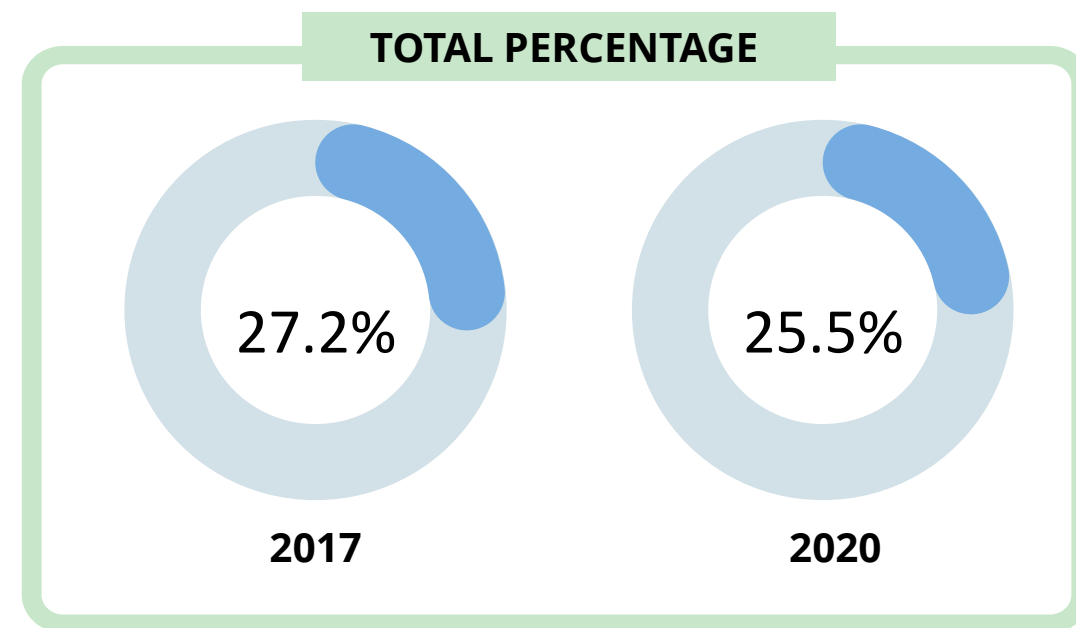
2020

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Region

25.5%

Logistics Cost over
Total Annual Sales in 2020

	Total Logistic Costs Over Annual Sales	NCR	Region 4A	Region 7	Others
Base: Total Respondents	300	37	172	46	45
Transport & Cargo Handling Cost	7.6%	6.2%	7.9%	7.2%	7.7%
Warehousing	3.5%	3.8%	3.5%	2.8%	3.7%
Inventory Carrying Cost	6.7%	8.3%	6.9%	5.4%	6.0%
Logistics Administration	3.4%	3.3%	3.3%	4.1%	2.8%
Other Logistics Costs	4.3%	3.8%	4.8%	2.5%	3.8%
Total Percentage	25.5%	25.4%	**26.4%**	22.1%	24.0%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Size of Business

25.5%

Logistics Cost over
Total Annual Sales in 2020

Total Logistic Costs Over Annual Sales	Large	Medium	Small
Base: Total Respondents 300	72	87	141
Transport & Cargo Handling Cost 7.6%	6.1%	7.5%	8.3%
Warehousing 3.5%	2.8%	3.0%	4.1%
Inventory Carrying Cost 6.7%	8.7%	6.3%	6.0%
Logistics Administration 3.4%	2.3%	3.5%	3.8%
Other Logistics Costs 4.3%	4.6%	4.0%	4.4%
Total Percentage 25.5%	24.4%	24.4%	**26.6%**

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Industry Sector

	Total Logistic Costs Over Annual Sales	Agribusiness	Auto and Auto Parts	Chemicals	Construction Materials	Electronics	Furniture	Garments & Textile	Processed Food
Base: Total Respondents	300	21	47	41	32	82	18	28	31
Transport & Cargo Handling Cost	7.6%	7.7%	7.5%	7.8%	5.5%	7.1%	10.3%	8.9%	7.5%
Warehousing	3.5%	3.9%	3.5%	3.4%	3.6%	2.6%	5.4%	3.8%	4.0%
Inventory Carrying Cost	6.7%	8.1%	7.5%	6.5%	6.9%	5.8%	7.7%	7.7%	5.5%
Logistics Administration	3.4%	3.5%	3.5%	2.9%	3.3%	3.0%	6.1%	3.6%	3.1%
Other Logistics Costs	4.3%	0.5%	4.2%	4.4%	3.4%	6.2%	3.0%	2.0%	4.0%
Total Percentage	25.5%	23.7%	26.3%	25.0%	22.7%	24.8%	**32.5%**	26.0%	24.1%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Gross Sales in 2020

25.5%

Logistics Cost over
Total Annual Sales in 2020

Total Logistic Costs Over Annual Sales	Less Than P15 Million	P15 Million up to P100 Million	More Than P100 Million
Base: Total Respondents	300	113	109	78
Transport & Cargo Handling Cost	7.6%	9.1%	7.7%	5.1%
Warehousing	3.5%	4.3%	3.1%	2.8%
Inventory Carrying Cost	6.7%	6.2%	6.1%	8.4%
Logistics Administration	3.4%	4.1%	3.3%	2.5%
Other Logistics Costs	4.3%	4.6%	4.3%	4.0%
Total Percentage	25.5%	**28.4%**	24.4%	22.7%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Main Market

25.5%

Logistics Cost over

Total Annual Sales in 2020

	Total Logistic Costs Over Annual Sales	Domestic Only	International Only	Domestic + International
Base: Total Respondents	300	121	79	100
Transport & Cargo Handling Cost	7.6%	7.8%	7.4%	7.3%
Warehousing	3.5%	3.4%	3.3%	3.7%
Inventory Carrying Cost	6.7%	6.9%	6.8%	6.3%
Logistics Administration	3.4%	3.3%	3.0%	3.8%
Other Logistics Costs	4.3%	3.9%	6.1%	3.3%
Total Percentage	25.5%	25.3%	**26.6%**	24.5%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Years in Operation

25.5%

Logistics Cost over
Total Annual Sales in 2020

	Total Logistic Costs Over Annual Sales	10 years and below	11 to 20 years	More than 20 years
Base: Total Respondents	300	121	65	114
Transport & Cargo Handling Cost	7.6%	7.9%	7.5%	7.2%
Warehousing	3.5%	3.4%	3.7%	3.4%
Inventory Carrying Cost	6.7%	6.2%	5.4%	8.1%
Logistics Administration	3.4%	3.4%	3.5%	3.3%
Other Logistics Costs	4.3%	6.9%	3.0%	2.6%
Total Percentage	25.5%	**27.9%**	23.0%	24.6%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

Logistics Cost as % of Total Sales By Location of the Plant

25.5%

Logistics Cost over
Total Annual Sales in 2020

	Total Logistic Costs Over Annual Sales	PEZA	Non-PEZA
Base: Total Respondents	300	169	131
Transport & Cargo Handling Cost	7.6%	7.7%	7.3%
Warehousing	3.5%	3.3%	3.7%
Inventory Carrying Cost	6.7%	6.4%	7.1%
Logistics Administration	3.4%	3.2%	3.5%
Other Logistics Costs	4.3%	5.5%	2.5%
Total Percentage	25.5%	**26.1%**	24.2%

M.12. Please estimate the following logistics costs in your firm expressed as percentages of firms' annual sales in 2020.
Note: Multiple response allowed.

5. FACTORS AFFECTING LOGISTICS COST

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

Analytical Objective

- The modeling objective is to determine the firmographic attributes that have significant effect to total logistic cost and its components – namely, transport and cargo handling cost, warehousing cost, inventory carrying cost, and logistics administration cost.

Analytical Approach

Using IBM-SPSS Modeler, logistic regression model was utilized to build models for each cost component with high or low cost as the target categories, which were derived by comparing the actual cost value to the average.

Cost Component	High Category	Low Category
Total Logistic Cost	> 25.5%	<= 25.5%
Transport and Cargo Handling Cost	> 7.55%	<= 7.55%
Warehousing Cost	> 3.48%	<= 3.48%
Inventory Carrying Cost	> 6.71%	<= 6.71%
Logistics Administration Cost	> 3.38%	<= 3.38%

Attributes that Increase Total Logistic Cost

- If the company's main operation is in Region-4A (CALABARZON), the odds of having high cost increase by a factor of 1.71.

- Having load type of less than container load (LCL) for international clients increases the odds of having high cost by a factor of 3.27.

- Having load type of express freight for international clients decreases the odds of having high cost by a factor of 0.34.

- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 2.49.

- If the company's main sector is furniture, the odds of having high cost increase by a factor of 2.97.

- If the business size is small, the odds of having high cost increase by a factor of 1.92.

Attributes that Increase Transport and Cargo Handling Cost

- Having load type of less than container load (LCL) for domestic clients increases the odds of having high cost by a factor of 1.53.

- Having load type of air freight for international clients decreases the odds of having high cost by a factor of 0.31.

- If the company has service level agreement for domestic transportation, the odds of having high cost decrease by a factor of 0.22.

- If the company has service level agreement for customs brokerage, the odds of having high cost increase by a factor of 1.80.

- If the company's main sector is construction, the odds of having high cost decrease by a factor of 0.28.

- If the company's main sector is furniture, the odds of having high cost increase by a factor of 7.23.

- If the company's main sector is garments and textile, the odds of having high cost increase by a factor of 6.65.

Attributes that Increase Warehousing Cost

- If the company has service level agreement for domestic transportation, the odds of having high cost decrease by a factor of 0.41.

- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 5.93.

- If the company has service level agreement for international transportation, the odds of having high cost decrease by a factor of 0.15.

- If the company has service level agreement for customs brokerage, the odds of having high cost increase by a factor of 2.23.

- If the company's main sector is electronics, the odds of having high cost decrease by a factor of 0.19.

- If business size is small, the odds of having high cost increase by a factor of 3.61.

- If the company's main market is domestic, the odds of having high cost decrease by a factor of 0.33.
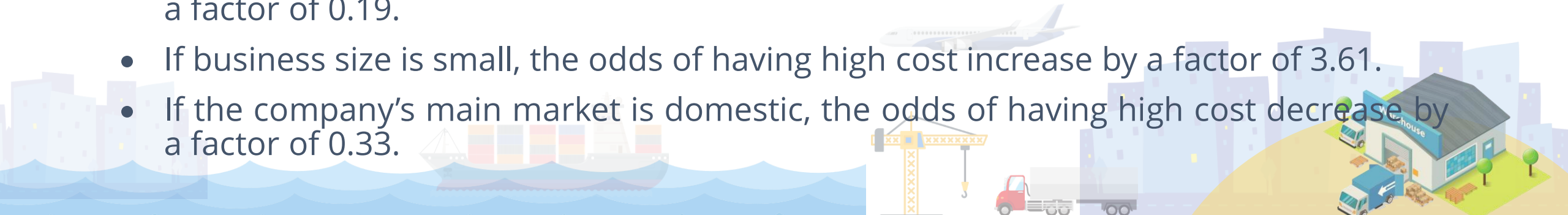
Attributes that Increase Inventory Carrying Cost

- An additional day of payables outstanding decreases the odds of having high cost by a factor of 0.99.

- If the company's main operation is entire PH, the odds of having high cost increase by a factor if 2.64.

- Having load type of full container load (FCL) for domestic clients decreases the odds of having high cost by a factor of 0.33.

- Having load type of less than container load (LCL) for international clients increases the odds of having high cost by a factor of 2.15.

- If the company's main sector is agri-business, the odds of having high cost increase by a factor of 3.01.

- If business size is small, the odds of having high cost decrease by a factor of 0.30.

Attributes that Increase Logistics Administration Cost

- Business size is small
- The higher the number of employees, the higher the logistics admin cost
- With service level agreement for customs brokerage
- Having load type of air freight for international clients
- Main sector is furniture
- With service level agreement for domestic freight forwarding
- The higher the percent damaged shipments, the higher the logistics admin cost
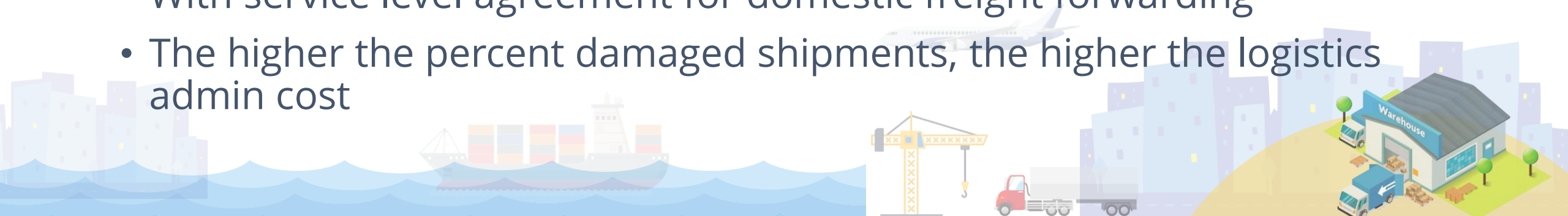
6. KEY PERFORMANCE INDICATORS

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

- **Order Cycle Time (OCT)** - Average lead time (measured in days) from the moment the company gets the order from main customer to the delivery of service.

- **Transportation Lead Time (TLT)** - average lead time (measured in days) when transporting products to main customer

- **Cash Conversion Cycle (C2C)[1]** - average number of days it takes for a company to convert its investments in inventory and other resources into cash flows from sales.

- **Delivery in Full On Time (DIFOT)[2]** - measures how often the customers gets what they ordered when they want to receive it (in percent).

[1]https://www.investopedia.com/terms/c/cashconversioncycle.asp#:~:text=The%20cash%20conversion%20cycle%20(CCC)%20is%20a%20metric%20that%20expresses,into%20cash%20flows%20from%20sales.

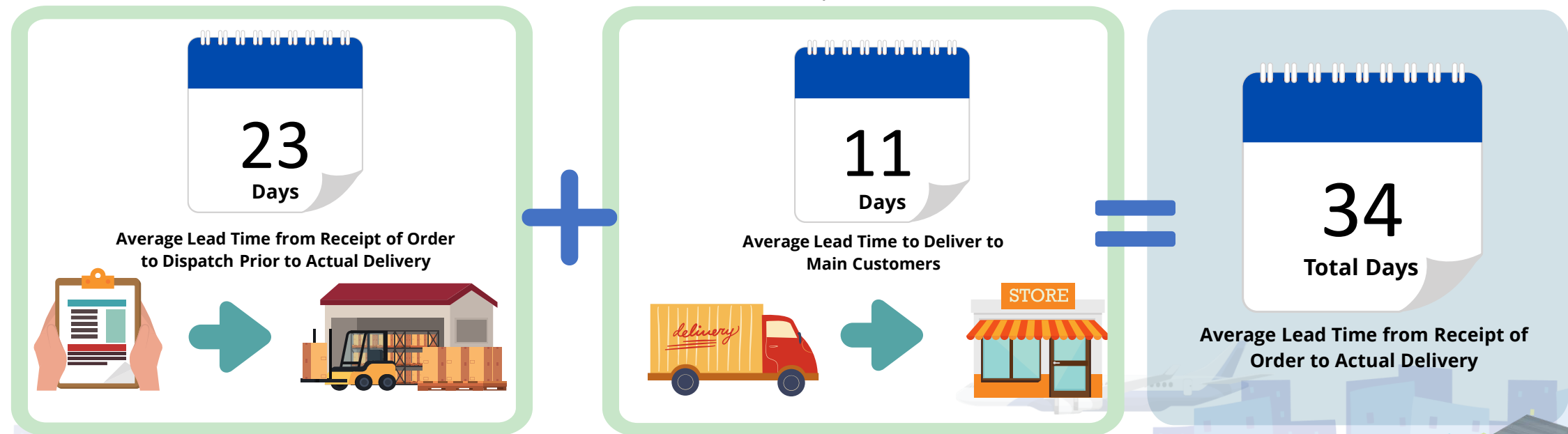[2]https://study.com/academy/lesson/delivery-in-full-on-time-difot-rate-definition-measurement.html

- **Damage Rate** - percentage of shipments per month that arrives damaged to main customer

- **Customer Complaint Rate** - percent of customer complaint

- **Forecast Accuracy** - percent accuracy of forecasts made regarding customer demand for main product

- **Return** - ratio of returns for main product

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

Firms' Average Lead Time from Ordering to Delivery to the Main Customers (in # of Days)

Base: 300 respondents

23 Days

Average Lead Time from Receipt of Order to Dispatch Prior to Actual Delivery

+

11 Days

Average Lead Time to Deliver to Main Customers

=

34 Total Days

Average Lead Time from Receipt of Order to Actual Delivery

M.11.a. What is your average lead time from the moment your company gets the order from your main customer to the delivery of your service?
M.11.b. What is your average lead time when transporting products to your main customer?
Note: Single Answer

COMPANY OPERATIONS - AS A WHOLE

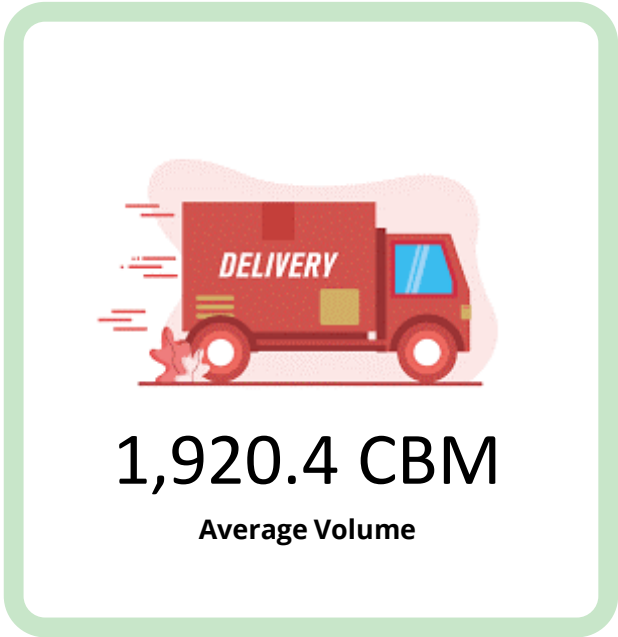### Types of Shipments Respondent-Firms are Using

Base: 300 respondents
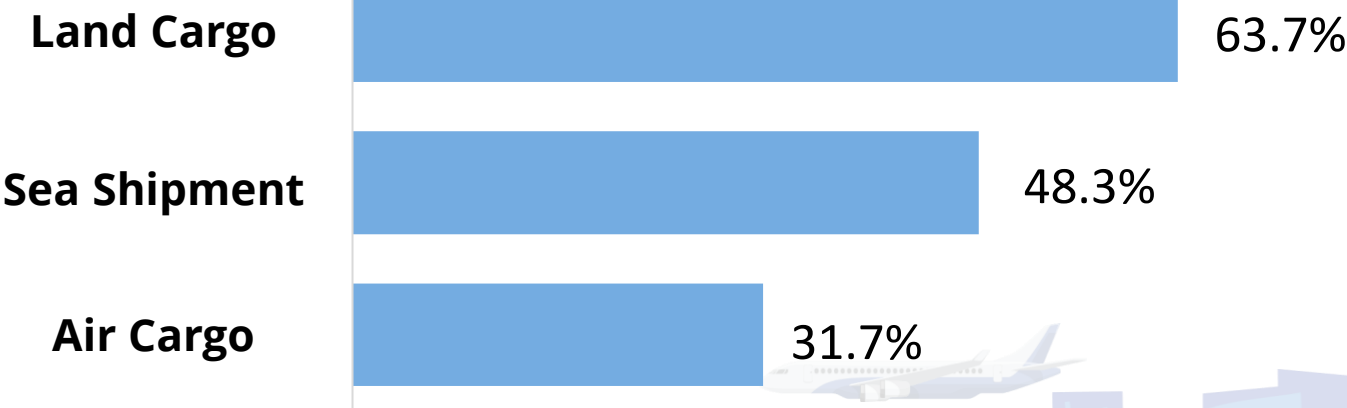
Type	Percentage
Land Cargo	63.7%
Sea Shipment	48.3%
Air Cargo	31.7%

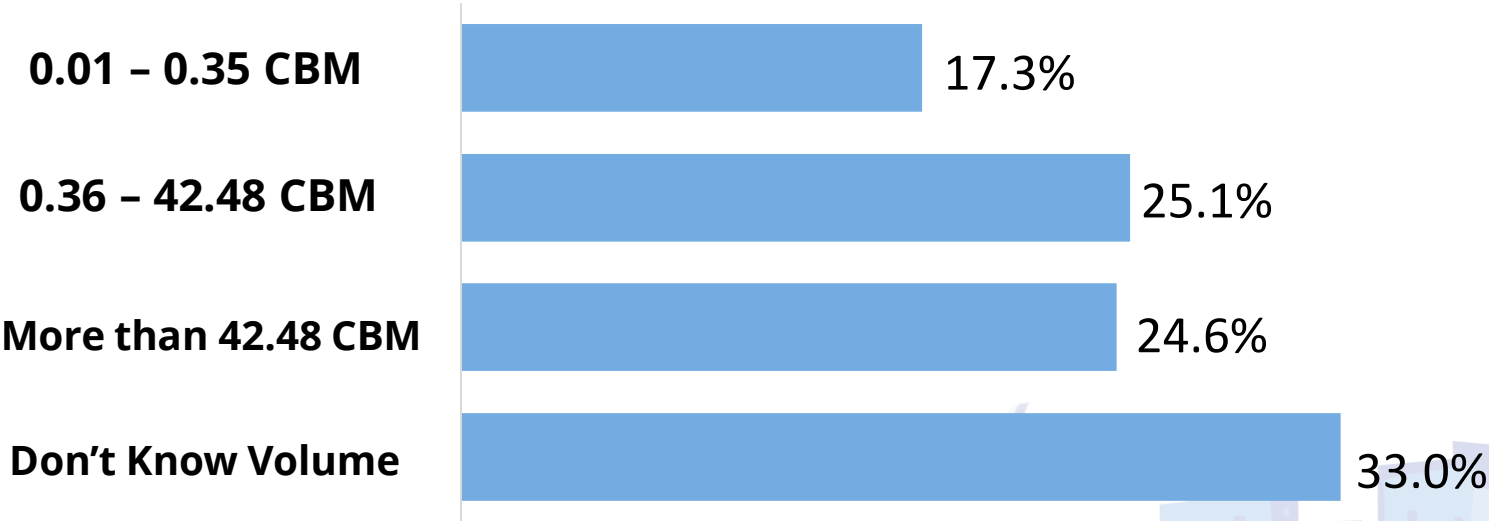M.11c. What was the total volume of shipment per month made to your main customer?

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

Volume of Shipment Per Month
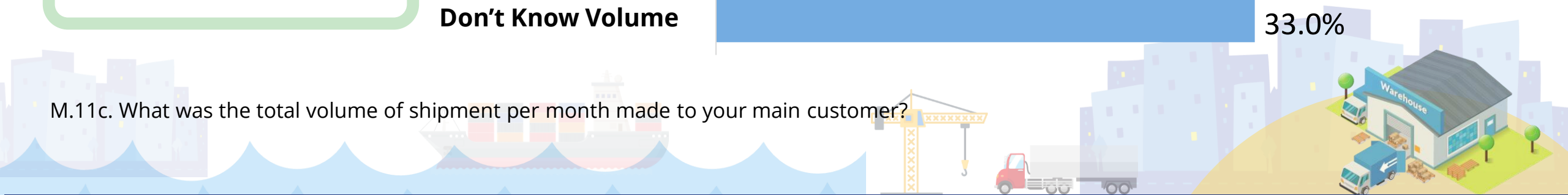### To Main Customer (Land Cargo in CBM)

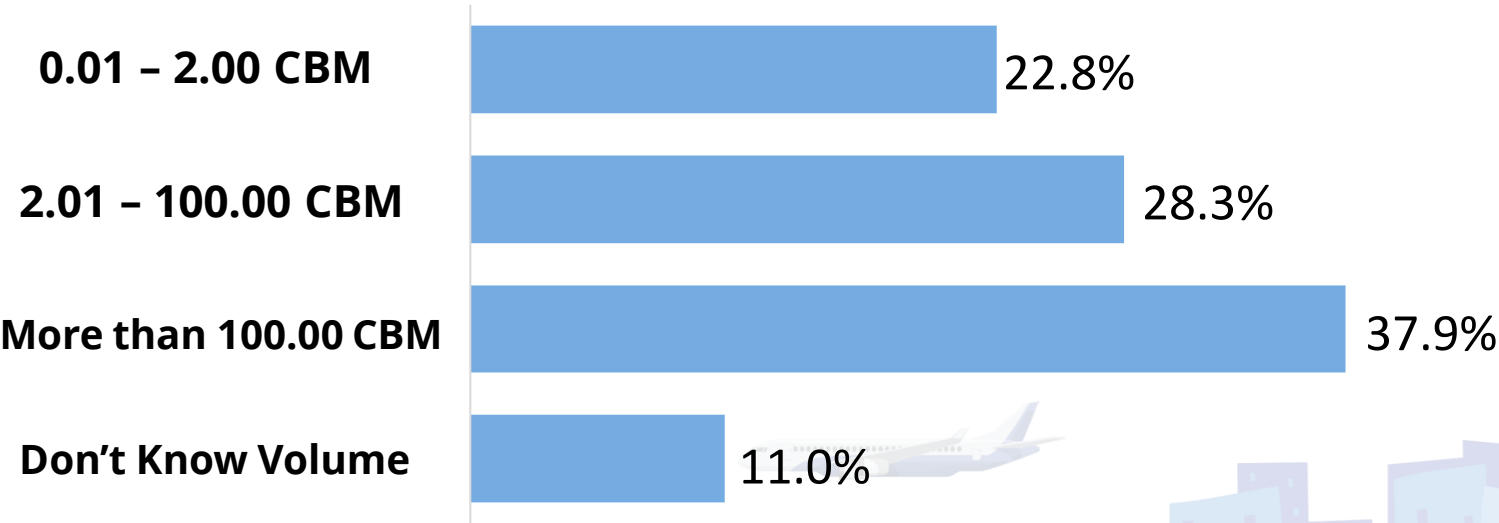*Base: 191 respondents who deliver their products using land cargo*

1,920.4 CBM
Average Volume

Category	Percentage
0.01 – 0.35 CBM	17.3%
0.36 – 42.48 CBM	25.1%
More than 42.48 CBM	24.6%
Don't Know Volume	33.0%

M.11c. What was the total volume of shipment per month made to your main customer?
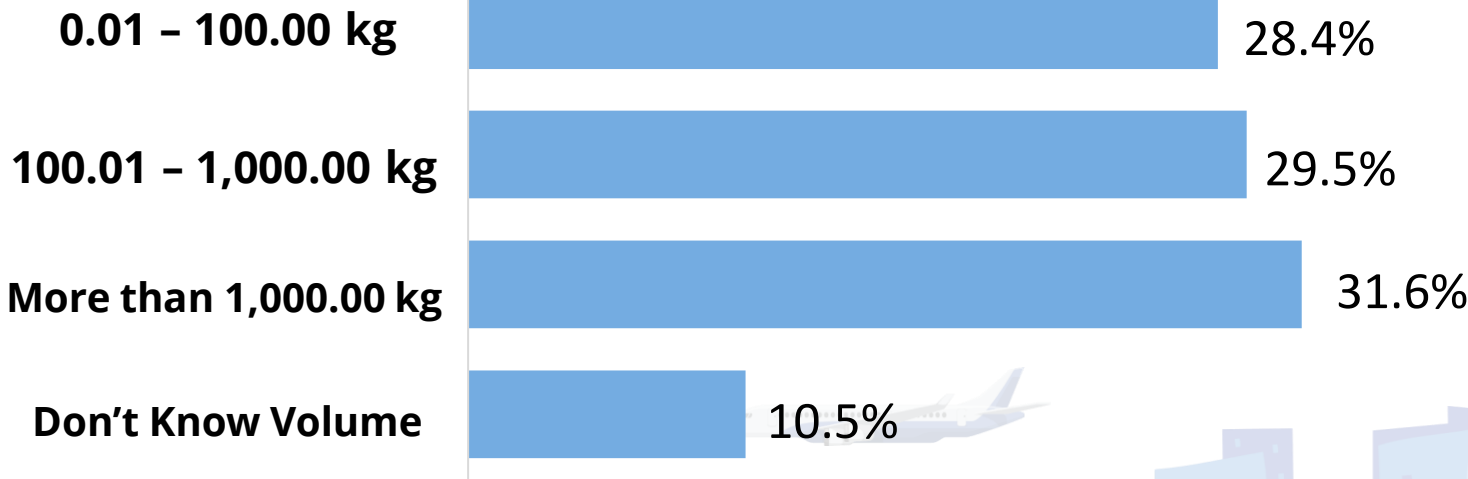
COMPANY OPERATIONS IN 2020 – MAIN CLIENT

Total Volume of Monthly Sea Shipment (in CBM)

Base: 145 respondents who deliver their products using sea shipment

2,260.1 CBM
Average Volume

0.01 – 2.00 CBM	22.8%
2.01 – 100.00 CBM	28.3%
More than 100.00 CBM	37.9%
Don't Know Volume	11.0%

M.11c. What was the total volume of shipment per month made to your main customer?

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

Total Volume of Monthly Air Cargo (in Kg)

Base: 95 respondents who deliver their products using air cargo

29,734.8 kg
Average Volume

Category	Percentage
0.01 – 100.00 kg	28.4%
100.01 – 1,000.00 kg	29.5%
More than 1,000.00 kg	31.6%
Don't Know Volume	10.5%

M.11c. What was the total volume of shipment per month made to your main customer?

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

95.1%

Shipped Complete
Per Month on the Average

Percentage of Orders Shipped Complete to Main Customer Per Month

Base: 300 respondents

Category	Percentage
70% and below	6.7%
71% - 89%	8.3%
90% - 94%	5.7%
95% - 99%	8.0%
100% Shipped Complete	71.3%
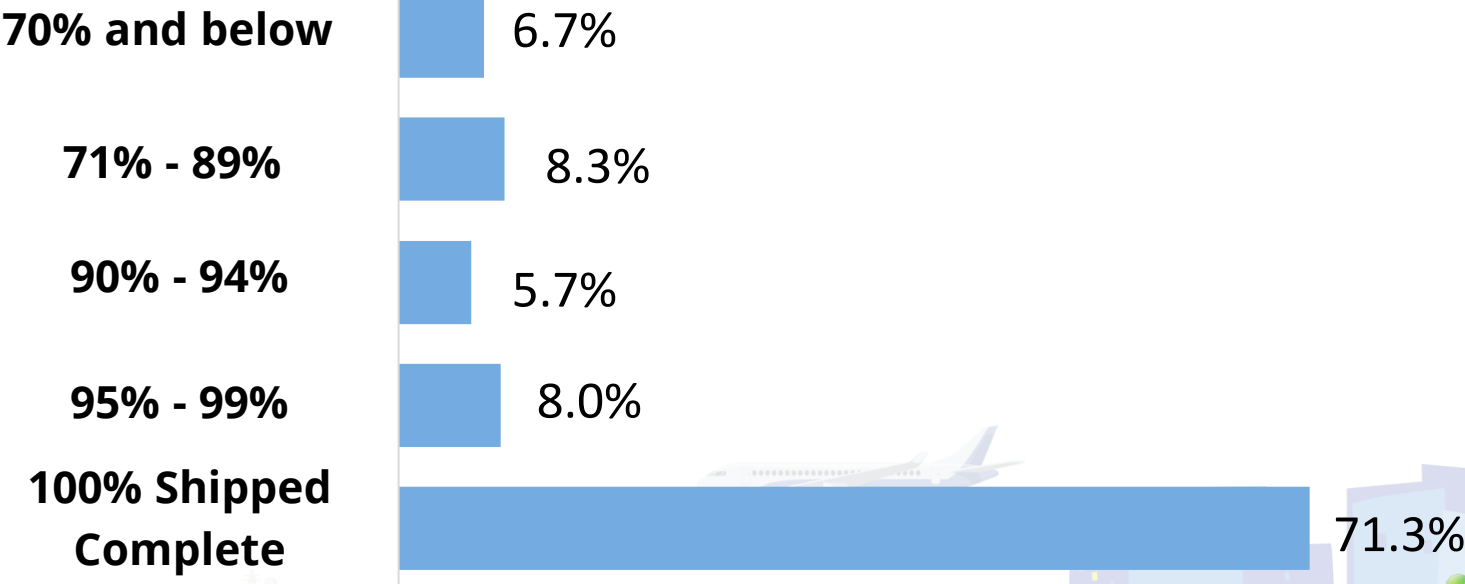
M.11.d. What was the percentage of products shipped complete per month to your main customer?
Note: Single Answer

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

91.8%

Shipped on Time
Per Month on the Average

Percent of Products Shipped On Time to Main Customer Per Month
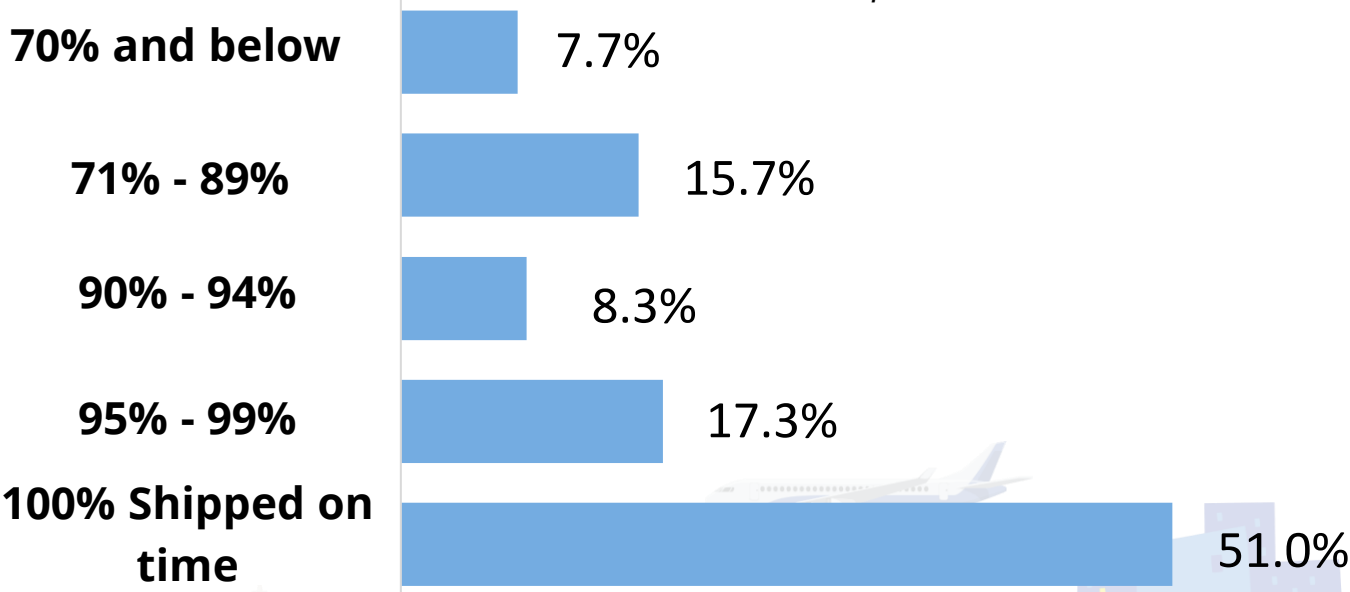
Base: 300 respondents

Category	Percent
70% and below	7.7%
71% - 89%	15.7%
90% - 94%	8.3%
95% - 99%	17.3%
100% Shipped on time	51.0%

M.11.e. What was the percentage of products shipped on time per month to your main customer?
Note: Single Answer

COMPANY OPERATIONS IN 2020 – MAIN CLIENT

Percent of Damaged Products Upon Arrival to the Main Customers Per Month

Base: 300 respondents

2.2%

Damaged Products Upon Receipt on the Average

- Up to 2.0% — 18.7%
- 2.01% to 5.0% — 10.0%
- More than 5.0% — 8.3%
- None — 63.0%

M.11.f. What was the percentage of shipments per month that arrives damaged to your main customer?
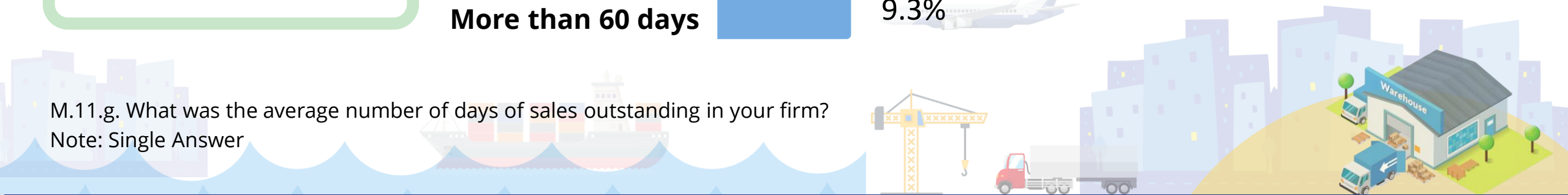Note: Single Answer

COMPANY OPERATIONS - AS A WHOLE

37
Days

Average Number of Days of Sales Outstanding

Firms' Average Number of Days of Sales Outstanding

Base: 300 respondents

Category	Percentage
Paid in Cash	7.0%
Up to 15 days	12.3%
16 - 30 days	47.7%
31 - 60 days	23.7%
More than 60 days	9.3%

M.11.g. What was the average number of days of sales outstanding in your firm?
Note: Single Answer

COMPANY OPERATIONS - AS A WHOLE

88.4%

Payments Made within Target Credit Terms on the Average

Percentage of Payments Made by Clients within the Firm's Credit Terms

Base: 300 respondents

Category	Percentage
None	0.7%
Up to 60%	10.3%
61% - 80%	17.7%
81% - 99%	17.0%
100% Paid	54.3%
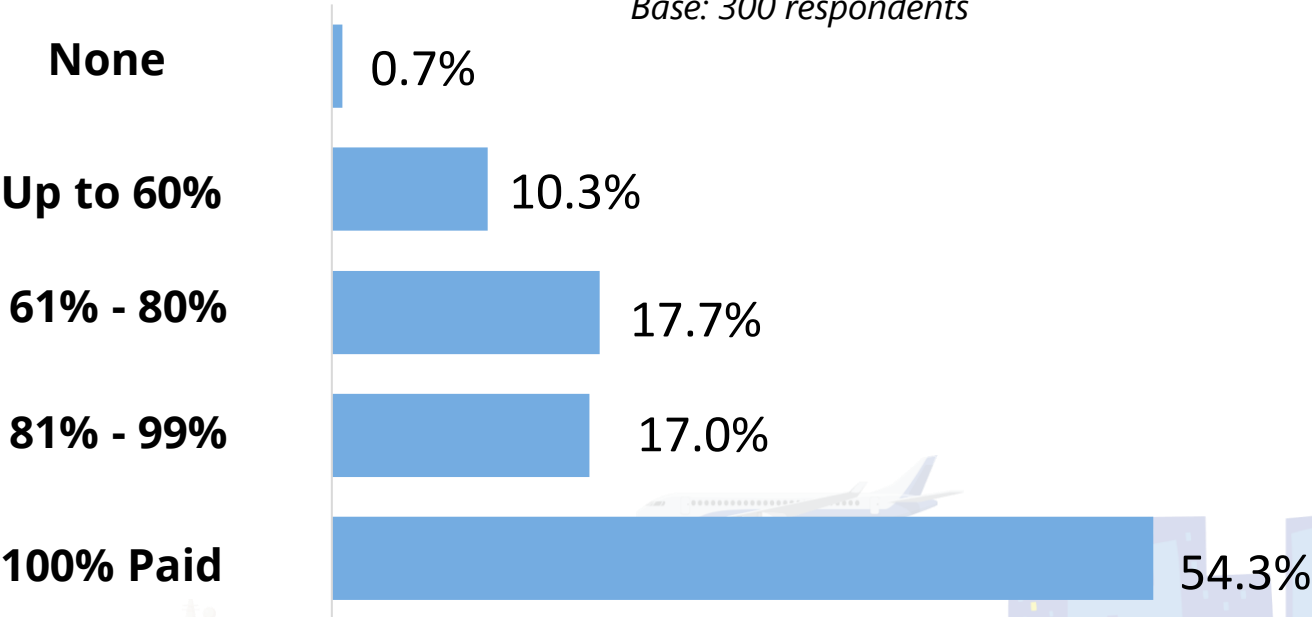
M.11.g.1. What was the percentage of the payments that are made within the target credit terms?
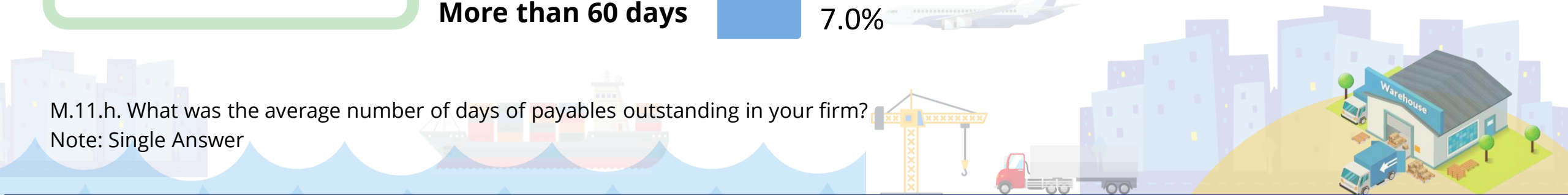Note: Single Answer
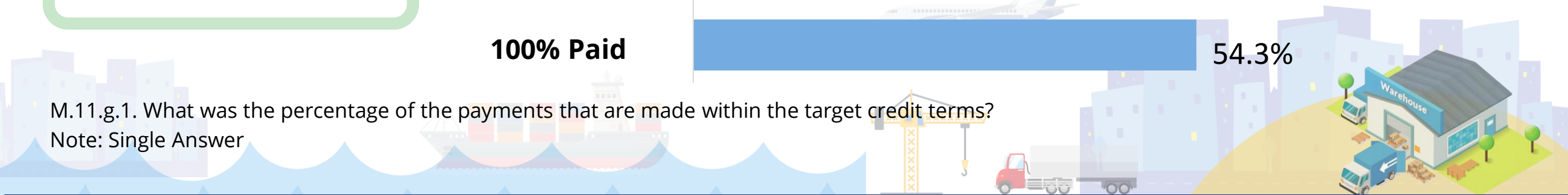
COMPANY OPERATIONS - AS A WHOLE

Firms' Average Number of Days of Payables Outstanding

Base: 300 respondents
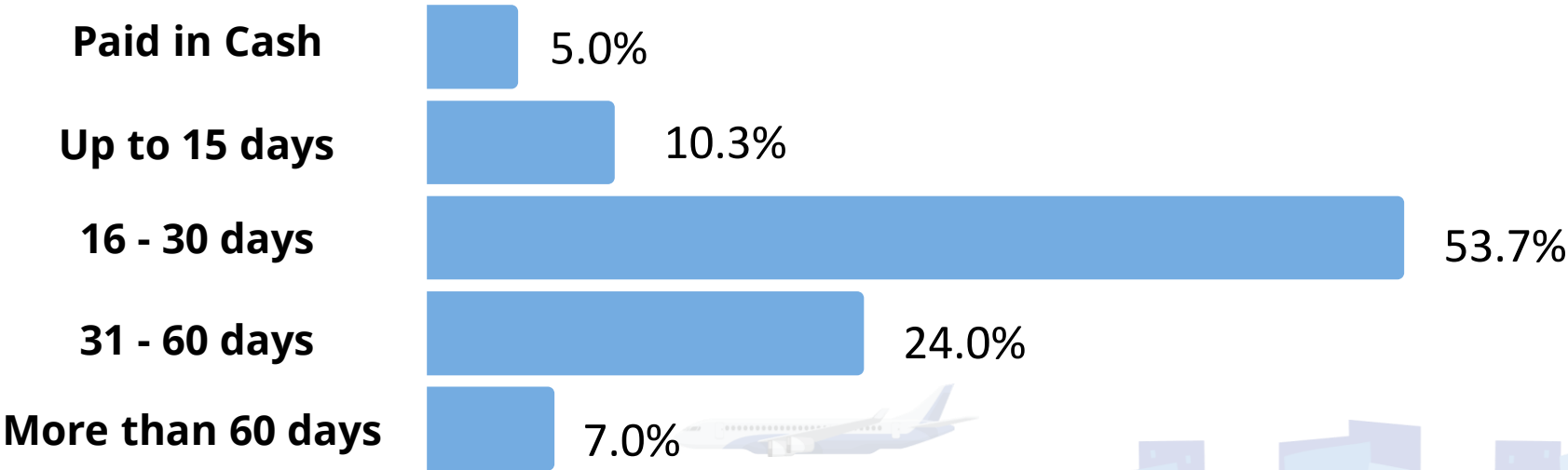
38 Days

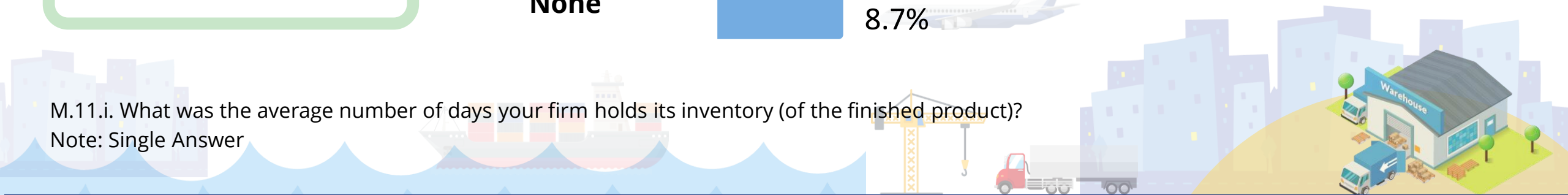**Average Number of Days of Payables Outstanding**

Category	Percentage
Paid in Cash	5.0%
Up to 15 days	10.3%
16 - 30 days	53.7%
31 - 60 days	24.0%
More than 60 days	7.0%

M.11.h. What was the average number of days of payables outstanding in your firm?
Note: Single Answer

COMPANY OPERATIONS - AS A WHOLE

26
Days

Average Number of Days Firms Hold Their Inventories

Average Number of Days Firms Hold Their Inventory

Base: 300 respondents

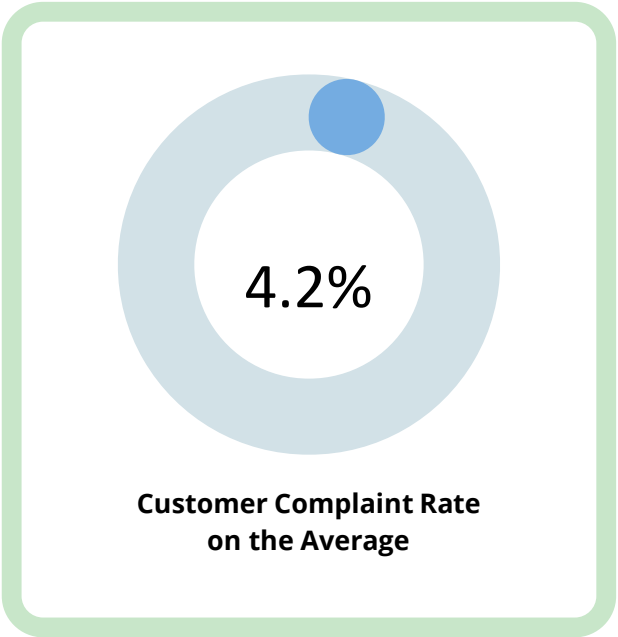| Category	Percentage
1 - 2 days	11.0%
3 - 7 days	22.3%
8 - 30 days	41.3%
More than 30 days	16.7%
None	8.7%
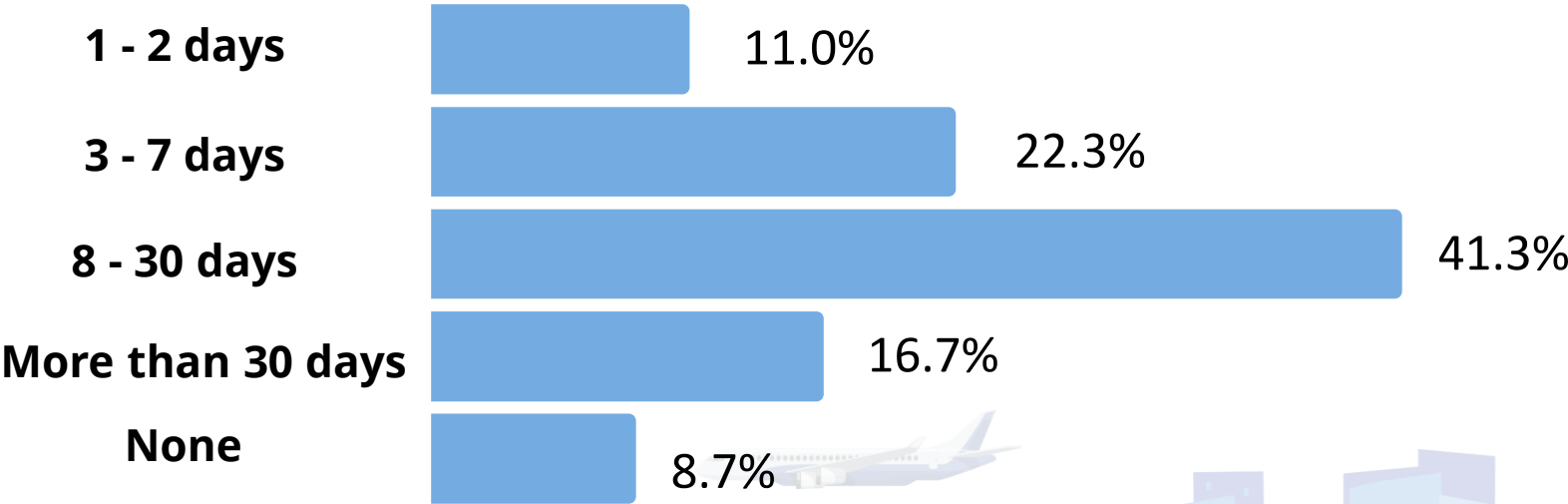
M.11.i. What was the average number of days your firm holds its inventory (of the finished product)?
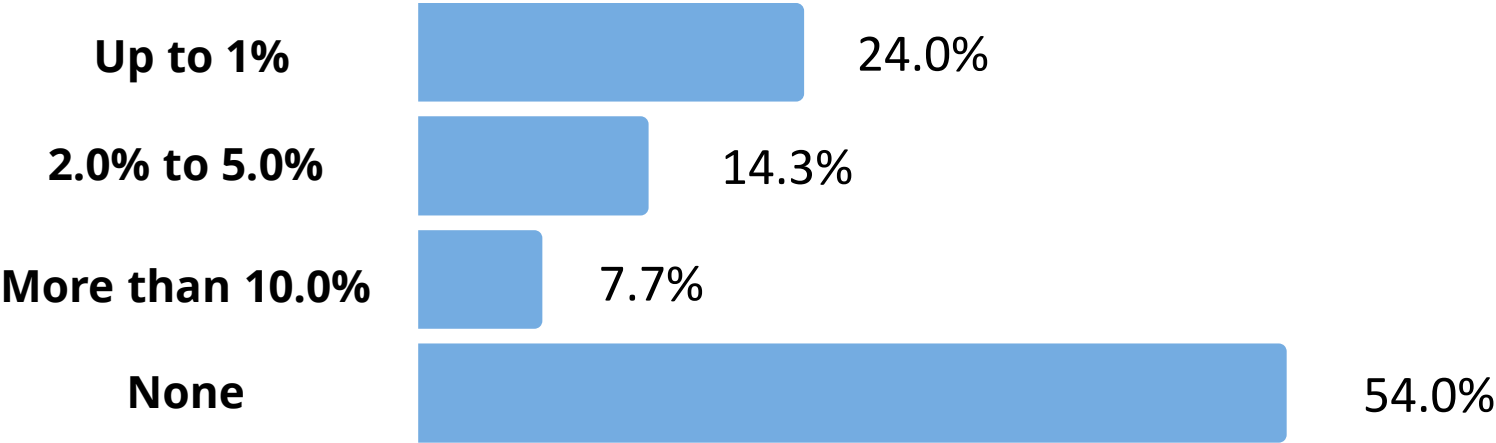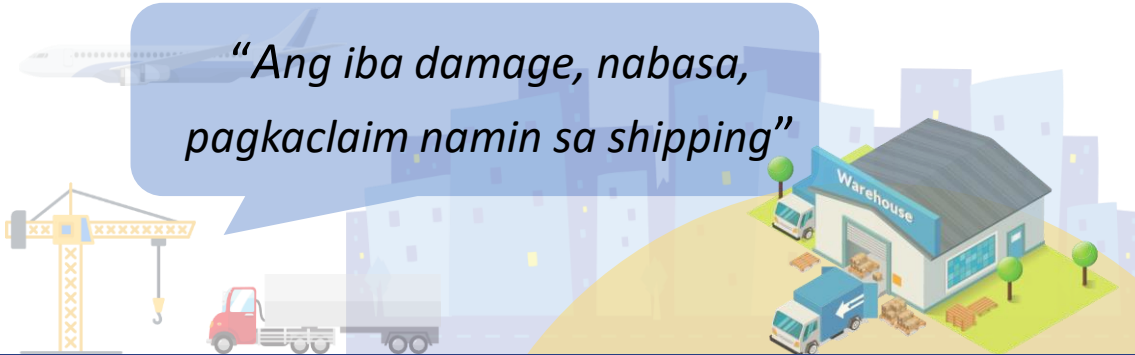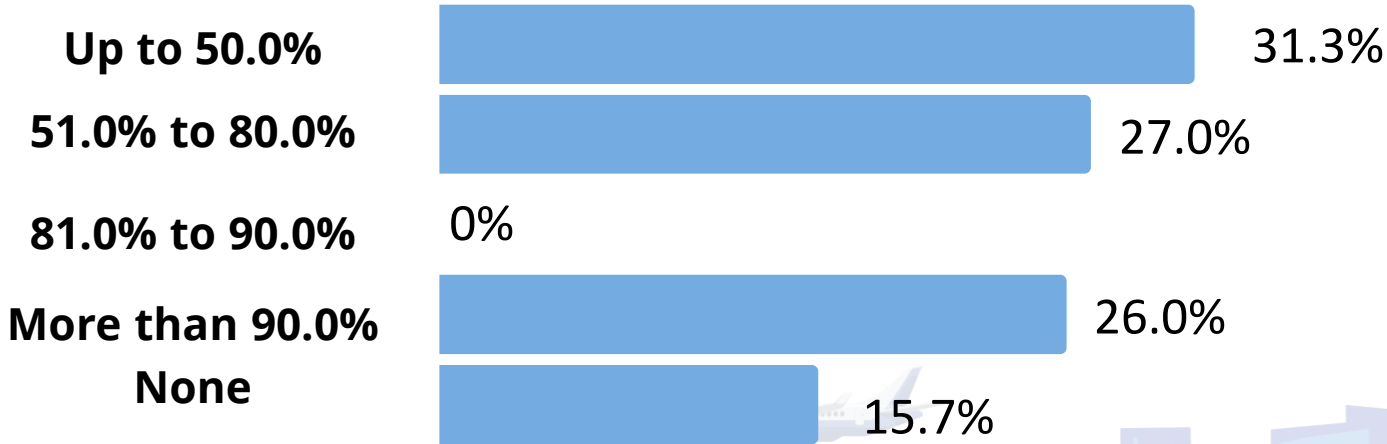Note: Single Answer

COMPANY OPERATIONS - AS A WHOLE

Accuracy of Forecast for Customer Demand on Main Product

Base: 300 respondents

77.5%

Average Accuracy of Forecast

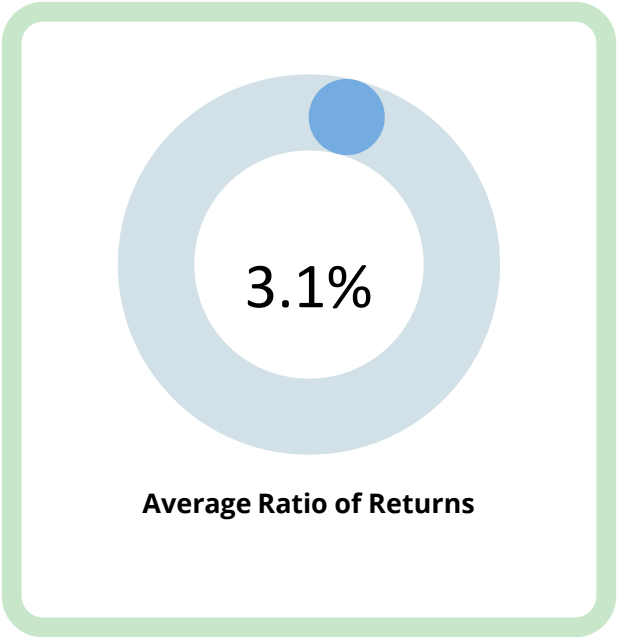|	
Up to 50.0%	31.3%
51.0% to 80.0%	27.0%
81.0% to 90.0%	0%
More than 90.0%	26.0%
None	15.7%

M.11.k. What was the accuracy of forecasts made regarding customer demand for your main product?
Note: Single Answer
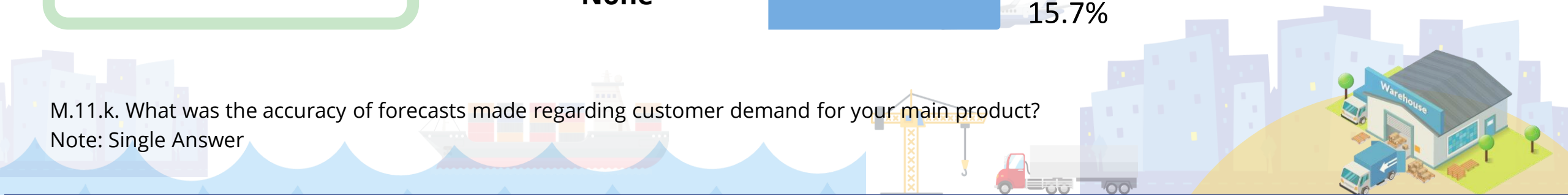
COMPANY OPERATIONS - AS A WHOLE

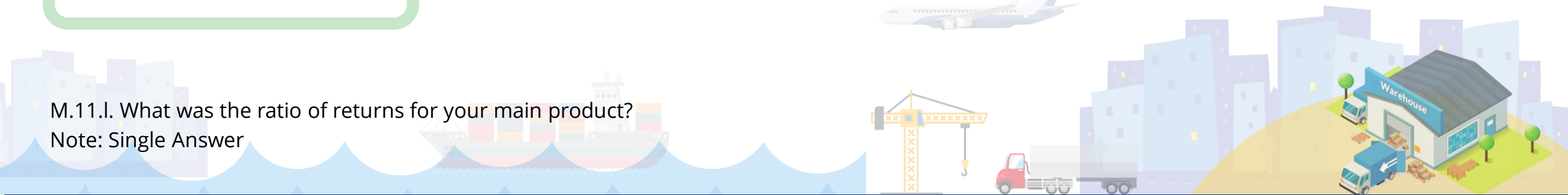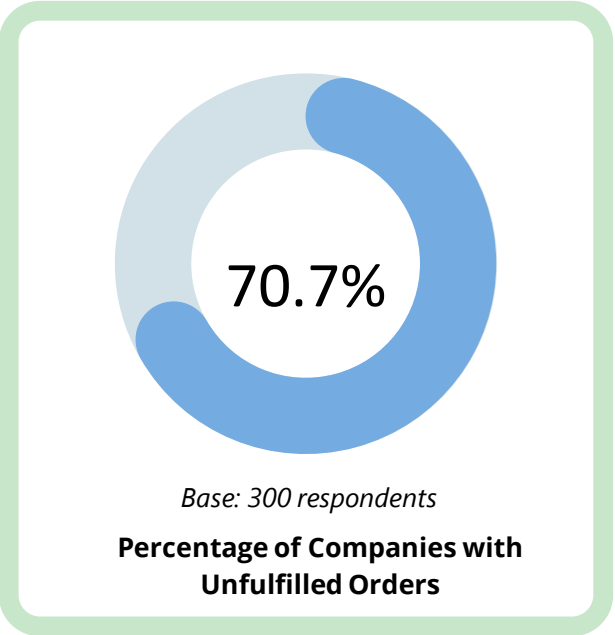### Ratio of Returns for Main Product

Base: 300 respondents
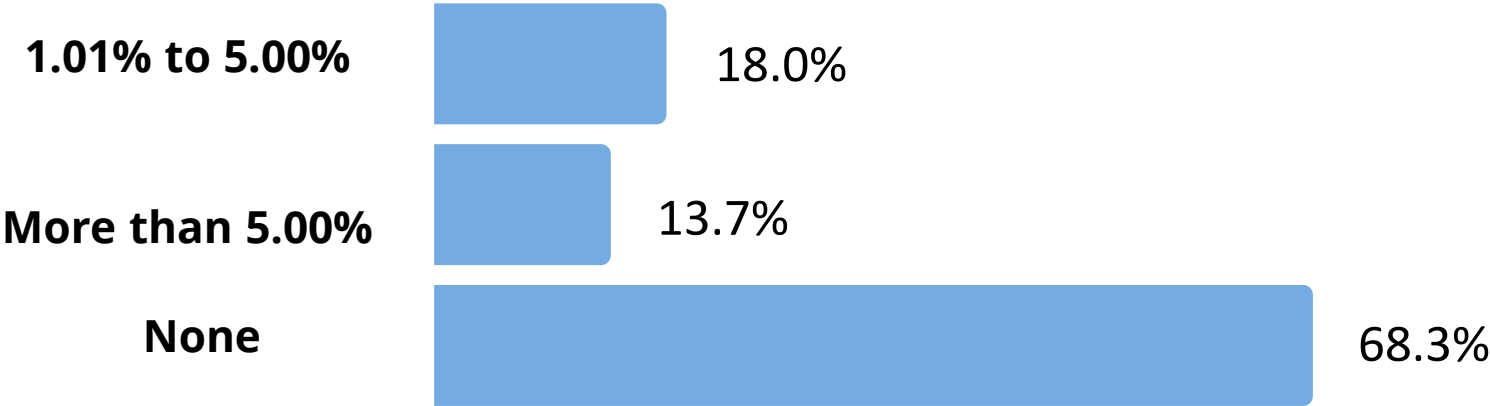
3.1%

Average Ratio of Returns

1.01% to 5.00% — 18.0%

More than 5.00% — 13.7%

None — 68.3%

M.11.l. What was the ratio of returns for your main product?
Note: Single Answer

COMPANY OPERATIONS AS A WHOLE

Top 5 Reasons for Not Fulfilling Orders

Base: 212 respondents who did not fulfill the orders of their clients

70.7%

Base: 300 respondents

Percentage of Companies with Unfulfilled Orders

Delays in Customs Process	35.4%
Congestion	35.4%
Delays in Receiving Cargo	32.1%
Weather	20.8%
Availability of Logistics Services/ Problems Coordinating Transport	17.9%
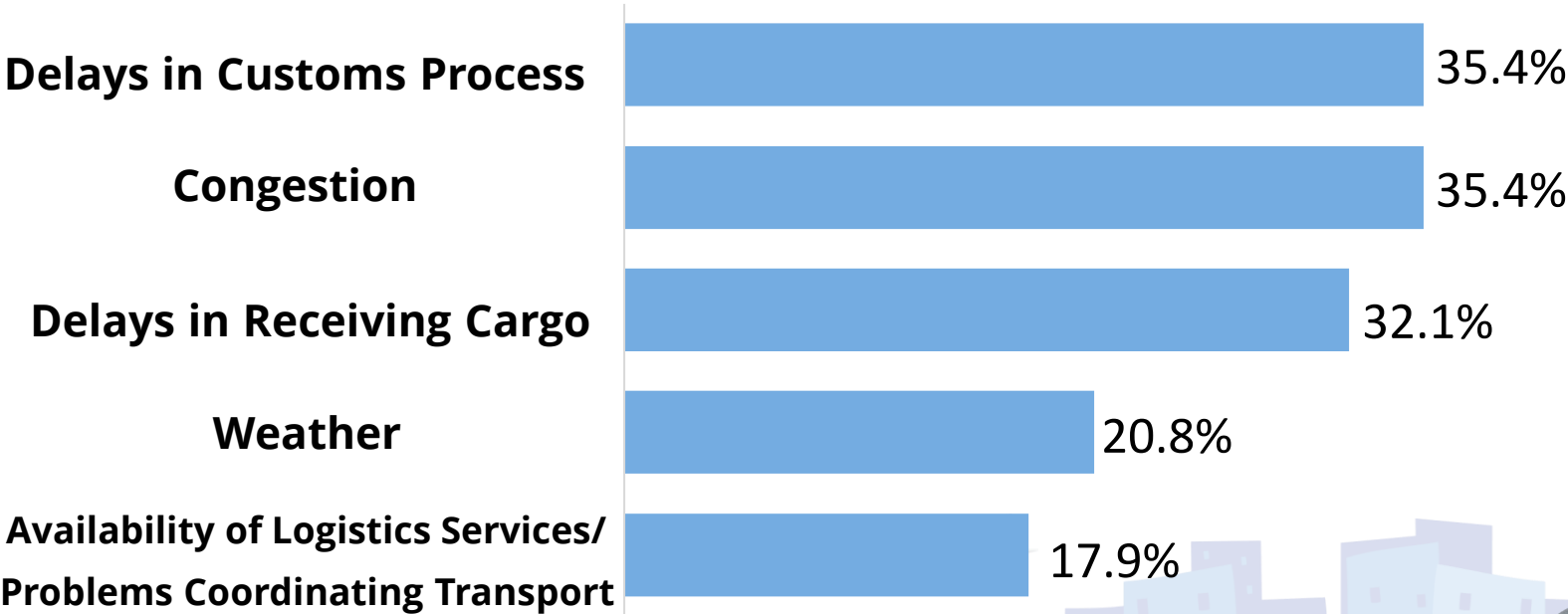
M.11.m. What were the main reasons you were not able to fulfill your orders?
Note: Multiple response allowed.
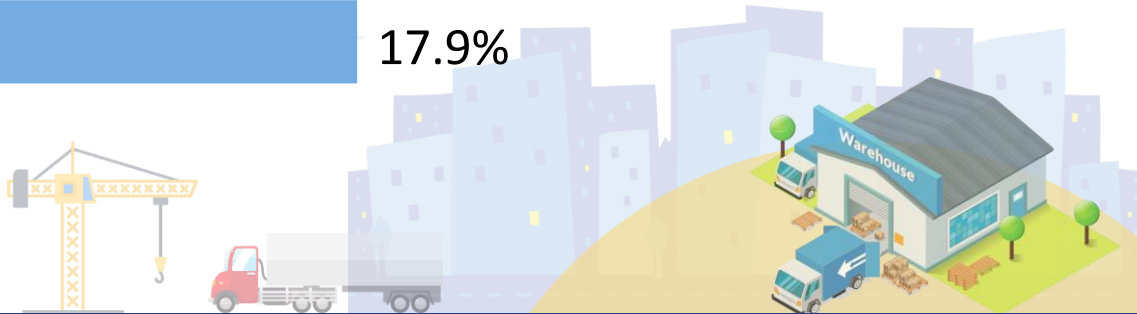
KEY PERFORMANCE INDICATORS (KPIs)

Time Performance KPIs (in Days)

		2020 Mean	2017 Mean
Order Cycle Time (OCT)	days	22.76	*No Data*
Transportation Lead Time (TLT)	days	10.83	*No Data*
Cash Conversion Cycle (C2C)*	days	**25.45**	21.77

*Cash Conversion Cycle (C2C) = M11g + M11i - M11h

M11a) What is your average lead time from the moment your company gets the order from your main customer to the delivery of your service?
M11b) What is your average lead time when transporting products to your main customer?
M11g) What was the average number of days of sales outstanding in your firm (i.e. average number of days between customer order delivery to receipt of customer payment?
M11h) What was the average number of days of payables outstanding in your firm (i.e. average number of days between supplier order receipt to order payment):
M11i) What was the average number of days your firm holds its inventory (of finished product)?

KEY PERFORMANCE INDICATORS (KPIs)

Reliability Performance KPIs (in %)

		2020 Mean	2017 Mean
Delivery in Full On Time (DIFOT)*	%	87.95	89.62
Damage Rate	%	2.22	3.70

* Delivery In Full On Time (DIFOT) = (M11d * M11e)/100

M11d) What was the percentage of products shipped complete2 per month to your main customer?
M11e) What was the percentage of products shipped on time per month to your main customer?
M11f) What was the percentage of shipments per month that arrives damaged to your main customer?

KEY PERFORMANCE INDICATORS (KPIs)

Reliability Performance KPIs (in %)

|		2020 *Mean*	2017 *Mean*
Customer Complaint Rate	%	4.15	5.97
Forecast Accuracy	%	**77.54**	80.15
Returns	%	3.07	5.15

M11j) What is your customer complaint rate?
M11k) What was the accuracy of forecasts made regarding customer demand for your main product?
M11l) What was the ratio of returns for your main product?

KEY PERFORMANCE INDICATORS (KPIs)

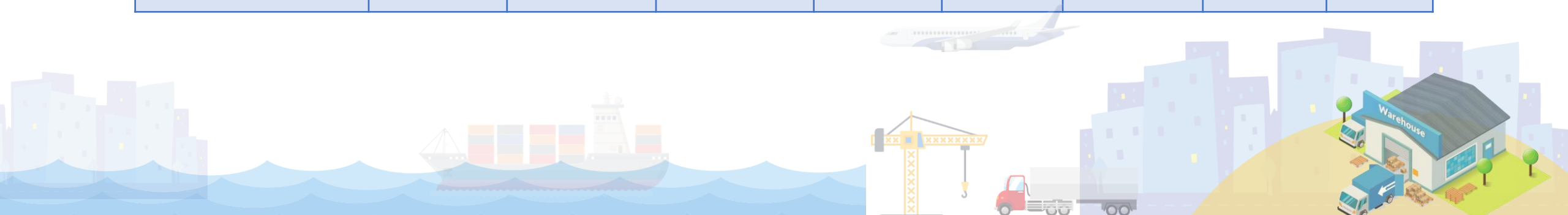|	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Agribusiness	10.38	10.29	30.38	87.05	0.82	2.33	77.57	3.48
Auto and auto parts	20.45	10.91	23.51	90.66	2.62	3.16	83.40	1.85
Chemicals	21.22	12.83	29.83	91.34	1.49	5.51	77.88	4.82
Construction materials	21.47	8.00	16.28	85.72	2.91	5.61	78.75	2.74
Electronics	27.32	8.63	24.57	87.95	1.77	4.32	81.83	2.37
Furniture	**39.06**	**17.11**	27.00	**78.44**	**7.94**	**7.17**	**61.94**	3.00
Garments and textile	27.64	16.54	**37.36**	88.98	1.29	2.71	75.14	1.50
Processed Food	12.06	8.39	19.39	86.90	1.50	2.71	66.77	**6.00**

KEY PERFORMANCE INDICATORS (KPIs)

	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
10 years and below	20.09	9.11	25.36	88.15	1.90	3.33	78.11	2.36
11 to 20 years	24.08	8.91	20.52	93.00	1.81	4.00	80.49	**4.08**
More than 20 years	**24.83**	**13.76**	**28.36**	**84.86**	**2.79**	**5.12**	**75.25**	3.25
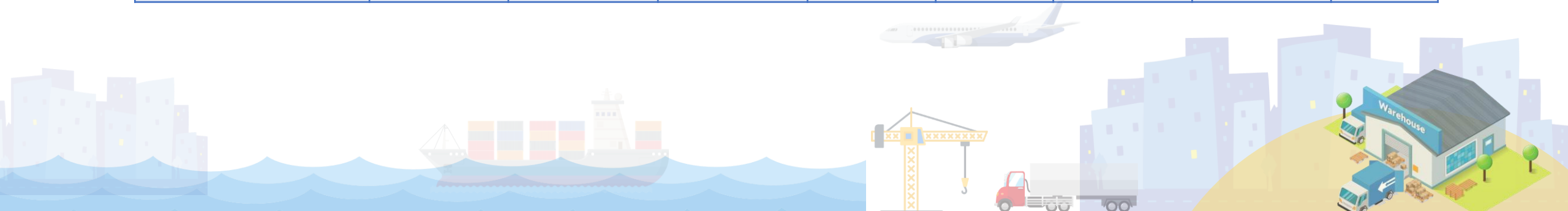
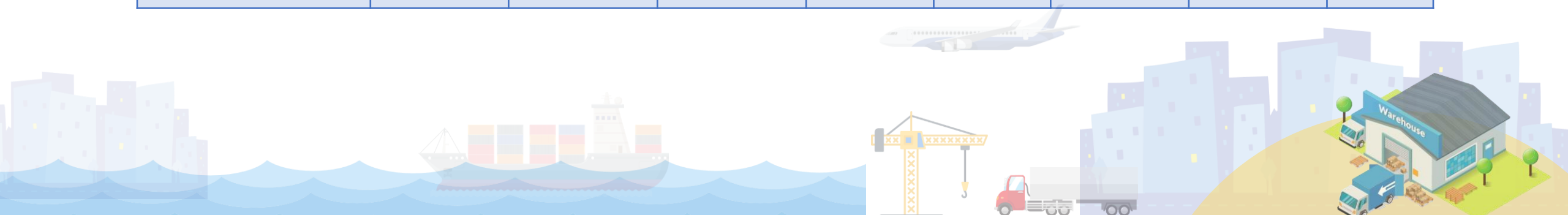# LOGISTICS COST & EFFICIENCY INDICATOR (LEI) SURVEY 2020, PHILIPPINES

KEY PERFORMANCE INDICATORS (KPIs)

	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Domestic	16.72	4.74	25.63	88.01	**2.47**	**4.25**	**75.74**	3.53
International	26.70	**16.24**	**30.13**	**86.91**	1.36	4.16	76.44	1.24
Both Domestic and International	**26.95**	13.93	21.54	88.71	2.59	4.03	80.57	**3.96**

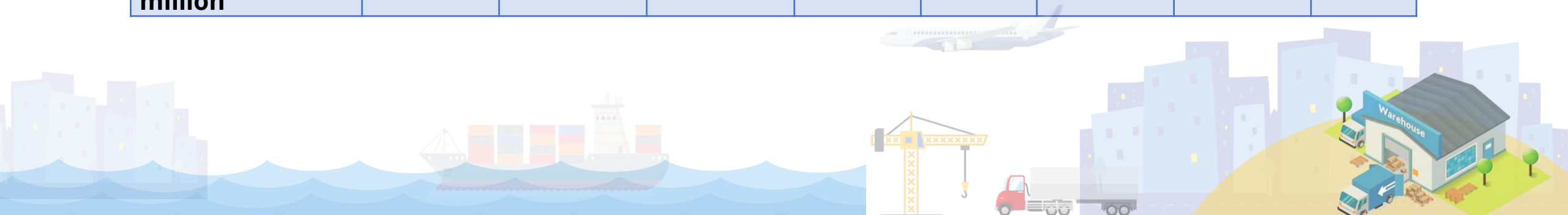# LOGISTICS COST & EFFICIENCY INDICATOR (LEI) SURVEY 2020, PHILIPPINES

KEY PERFORMANCE INDICATORS (KPIs)

	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Large	**24.97**	**13.11**	**33.00**	88.41	1.54	4.15	82.50	1.56
Medium	24.44	13.08	24.36	**85.88**	1.43	3.63	77.13	**3.62**
Small	20.59	8.28	22.27	89.00	**3.06**	**4.48**	**75.26**	3.50

KEY PERFORMANCE INDICATORS (KPIs)

	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
Less than P15 Million	22.27	9.17	26.55	**87.13**	**3.02**	4.12	**70.63**	3.28
P15 Million up to P100 Million	21.91	10.95	22.32	88.73	1.97	**4.31**	83.23	**3.68**
More than P100 million	**24.65**	**13.08**	**28.23**	88.06	1.41	3.98	79.59	1.91

KEY PERFORMANCE INDICATORS (KPIs)

	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
NCR	16.54	10.14	18.95	80.98	1.83	3.97	72.03	**5.75**
Region 4A	22.92	9.49	26.94	90.86	1.41	3.54	82.15	2.90
Region 7	**25.70**	**16.35**	**31.09**	**83.54**	**5.11**	**6.52**	**69.07**	2.24
Others	24.22	10.89	19.36	87.08	2.67	4.22	73.09	2.36

## KEY PERFORMANCE INDICATORS (KPIs)

|	Order Cycle Time (OCT)	Transportation Lead Time (TLT)	Cash Conversion Cycle (C2C)	Delivery In Full On Time (DIFOT)	Damage rate	Customer complaint rate	Forecast Accuracy	Return
PEZA	**25.05**	**11.48**	**30.36**	89.88	2.13	**4.17**	80.86	2.35
Non-PEZA	19.79	10.00	19.12	**85.47**	**2.33**	4.14	**73.25**	**4.00**

DOCUMENTED LOGISTICS PLAN

Proportion of Firms with Documented Logistics Plan
Base: 300 respondents

Yes
30.3%

No
69.7%
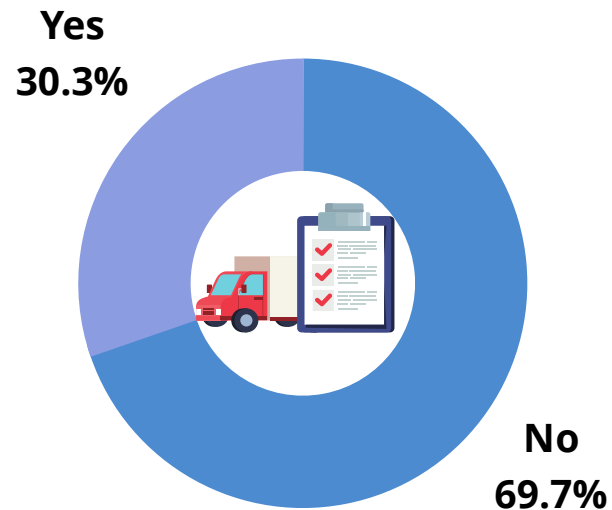
Proportion of Firms with Logistics Plan Linked to Corporate Plan
Base: 91 respondents who have documented logistics plan that is a subset of the corporate plan

No
8.8%

Yes
91.2%
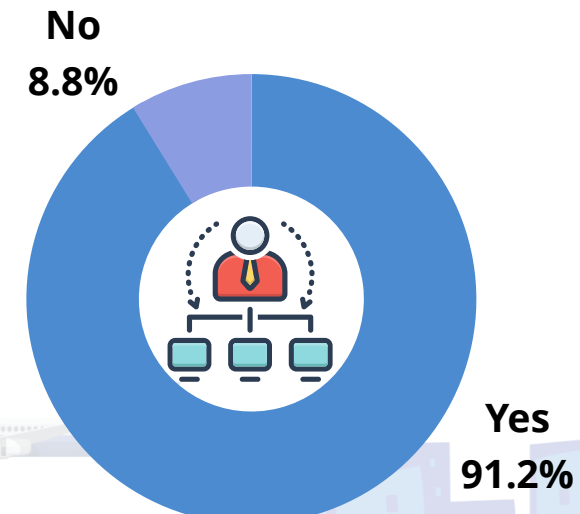
M.13. Do you have documented logistics plan that is a subset of the corporate plan and that details objectives and performance targets?
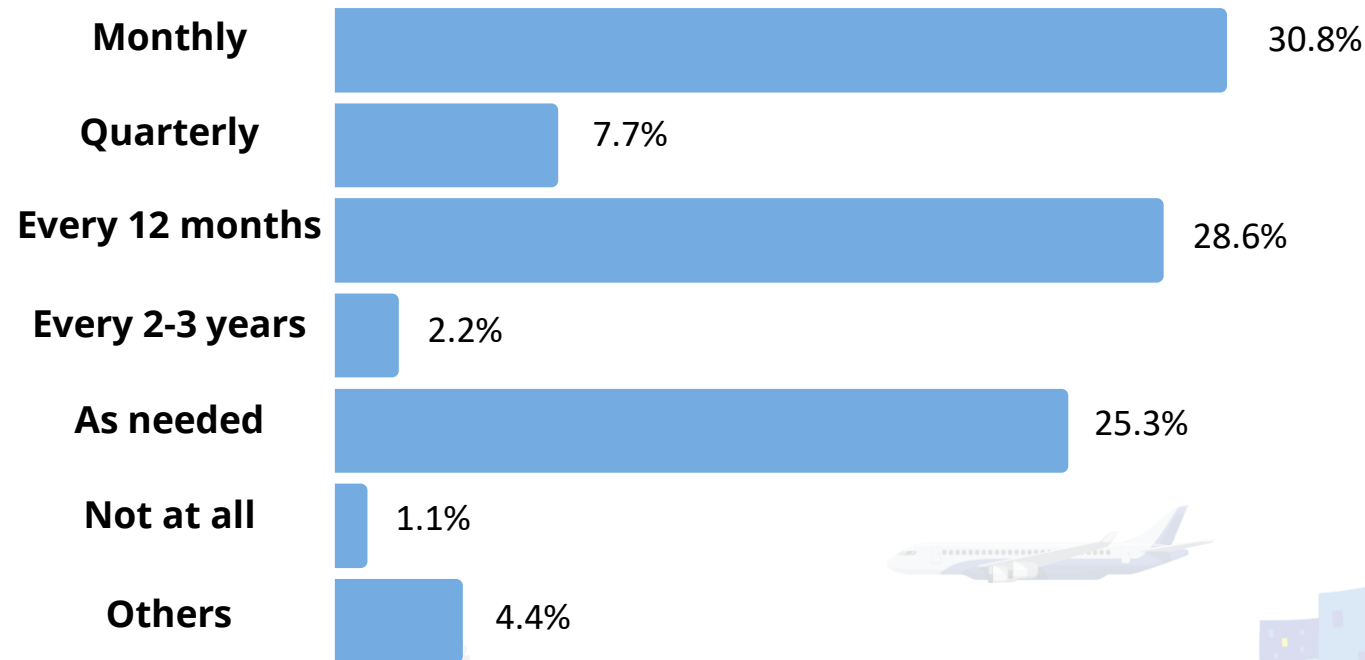M13a. If yes, is your logistics plan linked to corporate plan?
Note: Single answer.
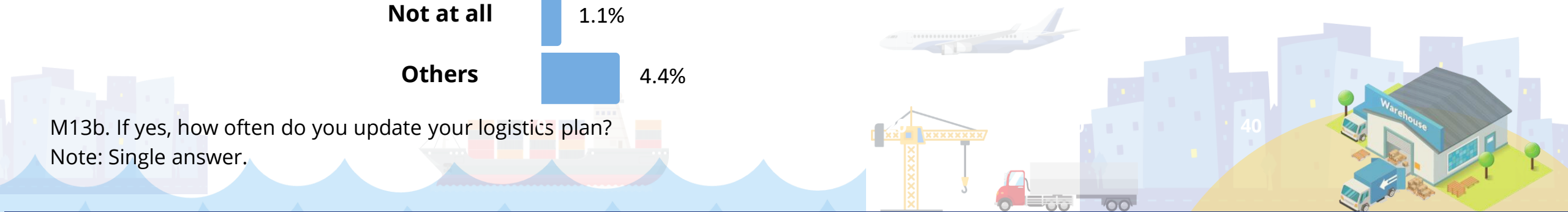
DOCUMENTED LOGISTICS PLAN

Proportion of Firms with Logistics Plan Linked Updating this Plan

Base: 91 respondents who have documented logistics plan that is a subset of the corporate plan

Category	Percentage
Monthly	30.8%
Quarterly	7.7%
Every 12 months	28.6%
Every 2-3 years	2.2%
As needed	25.3%
Not at all	1.1%
Others	4.4%

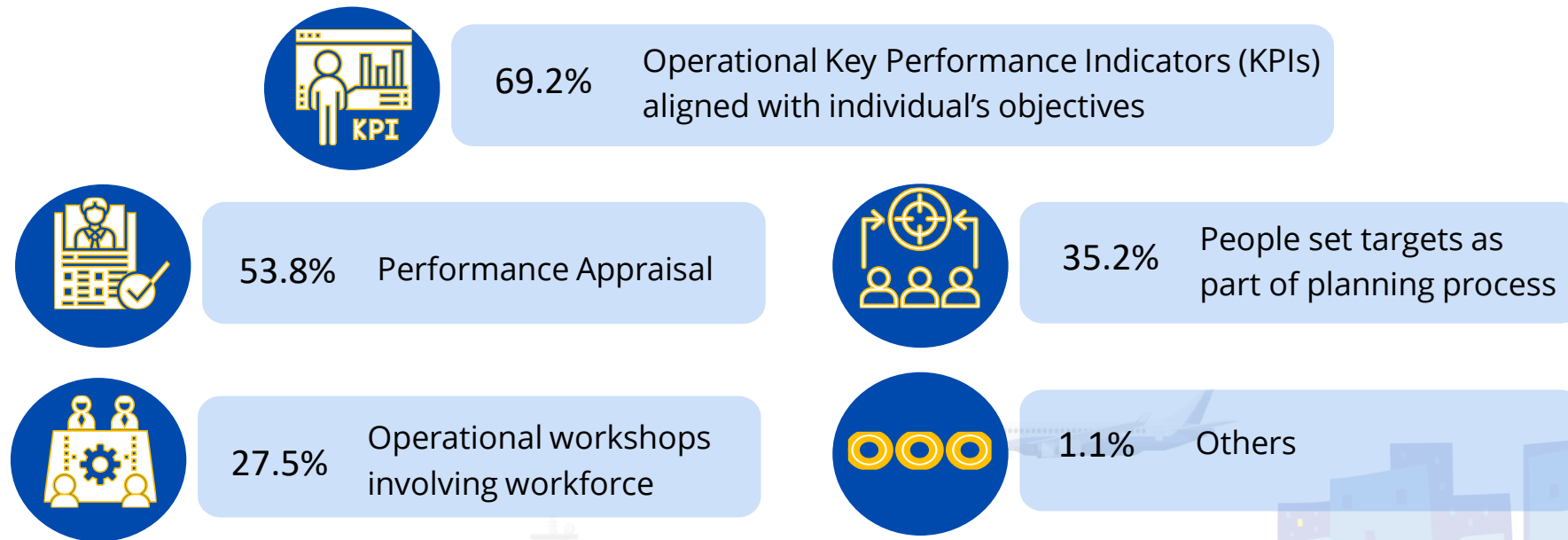M13b. If yes, how often do you update your logistics plan?
Note: Single answer.

DOCUMENTED LOGISTICS PLAN

Activities Occurred in the Development and Deployment of the Strategic Logistics Plan

Base: 91 respondents who have documented logistics plan that is a subset of the corporate plan

69.2% Operational Key Performance Indicators (KPIs) aligned with individual's objectives

53.8% Performance Appraisal

35.2% People set targets as part of planning process

27.5% Operational workshops involving workforce

1.1% Others

M14. What activities occur in the development and deployment of your strategic logistics plan
Note: Multiple response allowed.

AVAILABILITY OF SKILLED LOGISTICS-RELATED STAFF IN THE PHILIPPINES

Staff-Level
Base: 300 respondents

	Available	Not Available	Don't Know
Customs Brokerage	91.3%	4.3%	4.3%
Warehouse Operatives	89.7%	4.3%	6.0%
Truck Drivers	87.7%	6.0%	6.3%
Packing/Packaging Operatives	85.3%	8.0%	6.7%
Inventory Planner	81.7%	11.7%	6.7%

	Available	Not Available	Don't Know
Forklift Operator	78.0%	12.0%	10.0%
Logistics Planner	73.7%	15.0%	11.3%
Forecast Planner	71.7%	17.3%	11.0%
Logistics/Supply Chain Analyst	65.0%	23.7%	11.3%
Traffic/Transport/Load Planner	63.3%	22.7%	14.0%

M15a. Please describe the availability of skilled logistics-related staff in the Philippines
Note: Single answer.

AVAILABILITY OF SKILLED LOGISTICS-RELATED STAFF IN THE PHILIPPINES

Manager-Level
Base: 300 respondents

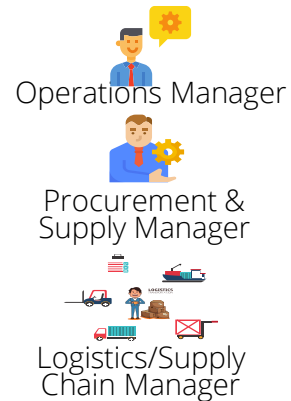|	Available	Not Available	Don't Know
Operations Manager	96.0%	2.3%	1.7%
Procurement & Supply Manager	84.3%	10.7%	5.0%
Logistics/Supply Chain Manager	77.7%	16.0%	6.3%

M15a. Please describe the availability of skilled logistics-related staff in the Philippines
Note: Single answer.

DEGREE OF IMPORTANCE OF SKILLED LOGISTICS-RELATED STAFF IN THE PHILIPPINES

Staff-Level
Base: 300 respondents

Truck Drivers	Customs Brokerage	Warehouse Operatives	Inventory Planner	Forklift Operator
4.5	4.4	4.3	4.3	4.2

Packing/Packaging Operatives	Forecast Planner	Logistics Planner	Logistics/Supply Chain Analyst	Traffic/Transport/ Load Planner
4.1	4.1	4.1	3.9	3.8
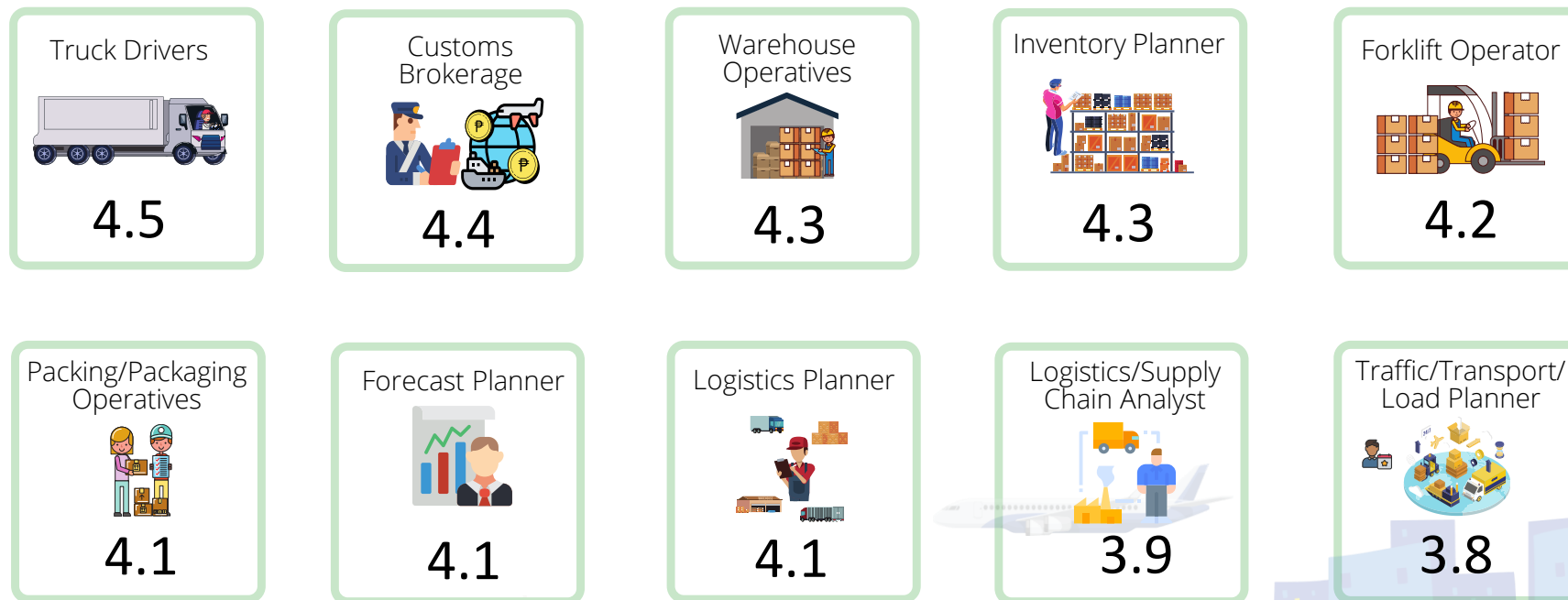
M15b. Degree of Importance
Note: Single answer.

DEGREE OF IMPORTANCE OF SKILLED LOGISTICS-RELATED STAFF IN THE PHILIPPINES

Manager-Level
Base: 300 respondents
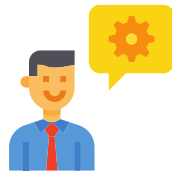
Operations Manager	Procurement & Supply Manager	Logistics/Supply Chain Manager
4.7	4.5	4.3

M15b. Degree of Importance
Note: Single answer.

AVERAGE LENGTH OF STAY IN THE FIRM

Operational Level Staff

Base: 300 respondents

9.7 Years

Management Level Staff

Base: 300 respondents

11.1 Years

M15c. On average how long does operational level staff stay in your firm?
M15d. On average how long does management level staff stay in your firm?
Note: Single answer.

EMPLOYMENT TYPE

Proportion of Regular and Contractual Staff in the Company

Base: 300 respondents

Regular Employees

1% - 50%	21.7%
51% - 80%	25.3%
81% - 95%	13.7%
96% - 100%	39.0%
Refused	0.3%
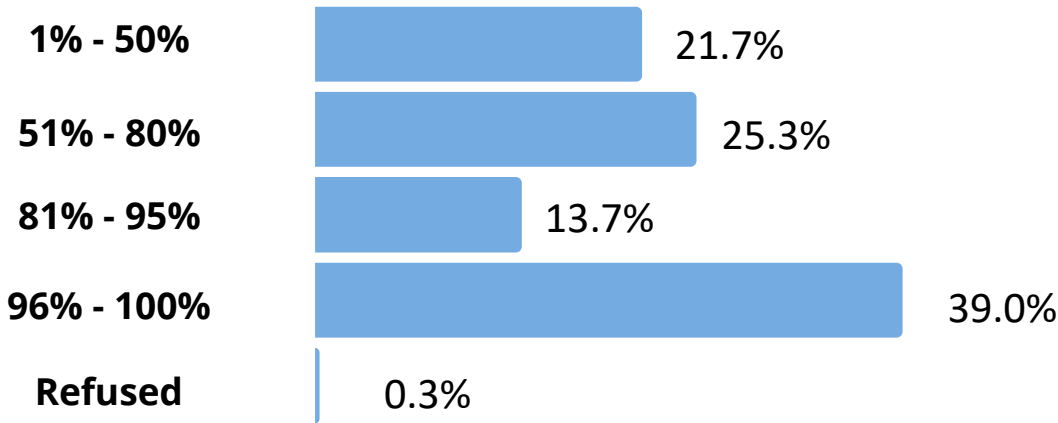
76.1% — Average Percent Share of Regular Employees

Contractual Employees

1% - 5%	10.3%
6% - 20%	17.3%
21% - 50%	22.3%
More than 50%	17.3%
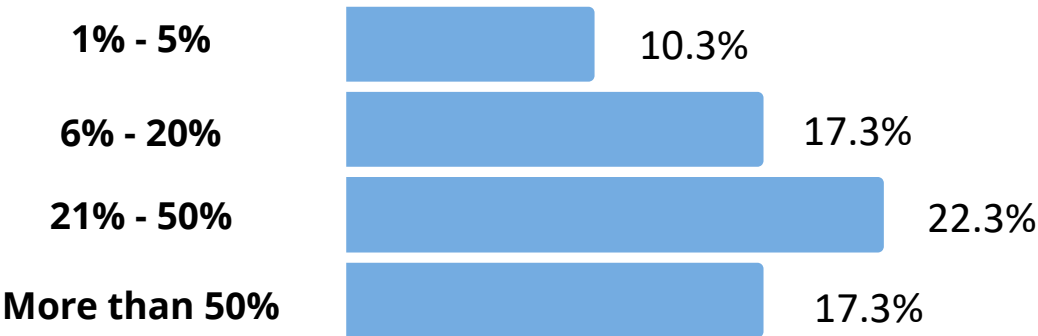
23.9% — Average Percent Share of Contractual Employees

M.16. Please indicate the percentage of permanent/contractual staff in your company?
Note: Single answer.

LOGISTICS SKILLS DEVELOPMENT

Firms' Human Resource Policies
Related to Logistics Skills Development

Base: 300 respondents

Human Resource Policy	Percentage
Internal development program with internal trainers	38.3%
External development programme (i.e. outside seminars or workshops)	38.0%
On the job training	28.0%
Internal development programme with external trainers	23.0%
Continuing professional development	23.0%
Others	1.3%
None, or not relevant	29.7%
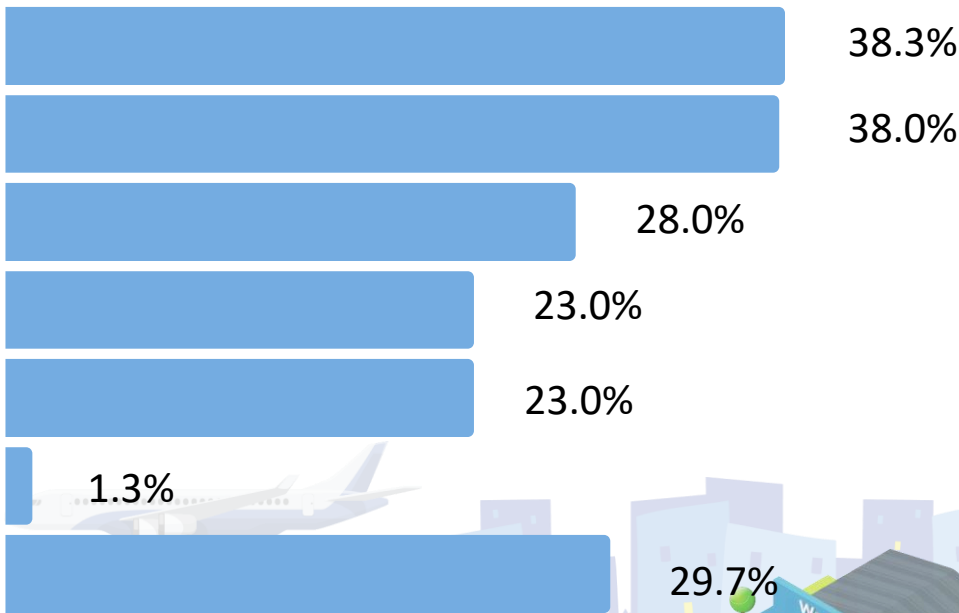
M.17. Please describe your firm's human resource policy related to logistics skills development.
Note: Multiple Answer

INTERNATIONAL LOGISTICS IN THE PHILIPPINES

Rating and Degree of Importance of International Logistics Functions in the Philippines

Base: 300 respondents

	Mean of Effectiveness (5 – Very Good)	Mean of Importance (5 – Highest)		Mean of Effectiveness (5 – Very Good)	Mean of Importance (5 – Highest)
Quality of Logistics Services And Competence of Service Providers	4.0	4.5	Probability of Shipments Arriving At The Promised Time	3.7	4.7
Quality of Airport Infrastructure	3.9	4.6	Quality of Transport And Telecommunications Infrastructure	3.7	4.5
Availability of Logistics Infrastructure (i.e.. Warehouse, Distribution Centres, Etc.)	3.9	4.5	Quality of Port Infrastructure	3.7	4.5
Availability of Reliable Transport Services	3.9	4.5	Quality of Road Infrastructure	3.7	4.6
Possibility To Track And Trace Shipments	3.9	4.6	Effectiveness of Customs And Other Authorities In Customs Services	3.6	4.4

M18. Please estimate the Degree of Importance of international logistics in the Philippines
Note: Single Answer

DOMESTIC LOGISTICS IN THE PHILIPPINES

Rating and Degree of Importance of Domestic Logistics Functions in the Philippines

Base: 300 respondents

	Mean of Effectiveness (5 – Very Good)	Mean of Importance (5 – Highest)
Availability of Reliable Transport Services	3.9	4.6
Availability of Domestic Shipping Services	3.9	4.6
Quality of Domestic Shipping Services	3.8	4.6
Quality of Logistics Services And Competence of Service Providers	3.8	4.5
Possibility To Track And Trace Shipments	3.8	4.6
Probability of Shipments Arriving At The Promised Time	3.8	4.6

	Mean of Effectiveness (5 – Very Good)	Mean of Importance (5 – Highest)
Availability of Logistics Infrastructure (i.e. Warehouse, Distribution Centres, Etc.)	3.8	4.6
Quality of Transport And Telecommunications Infrastructure	3.7	4.6
Quality of Port Infrastructure	3.7	4.6
Quality of Airport Infrastructure	3.7	4.6
Quality of Road Infrastructure	3.6	4.6

M19. Please estimate the functioning of domestic logistics in the Philippines
Note: Single Answer

7. CONCLUSIONS & RECOMMENDATIONS

LOGISTICS AND EFFICIENCY INDICATOR SURVEY 2020

CONCLUSIONS & RECOMMENDATIONS

- **Logistics Efficiency Indicator (LEI) improved from 27.2% in 2017 to 25.5% in 2020.**

- **LEI in 2020 is 1.7 percentage points lower than the LEI in 2017.**

- **Considering the conditions in 2020 that started in March and which disrupted the whole supply chain in the Philippines, the improvement may be considered significant.**
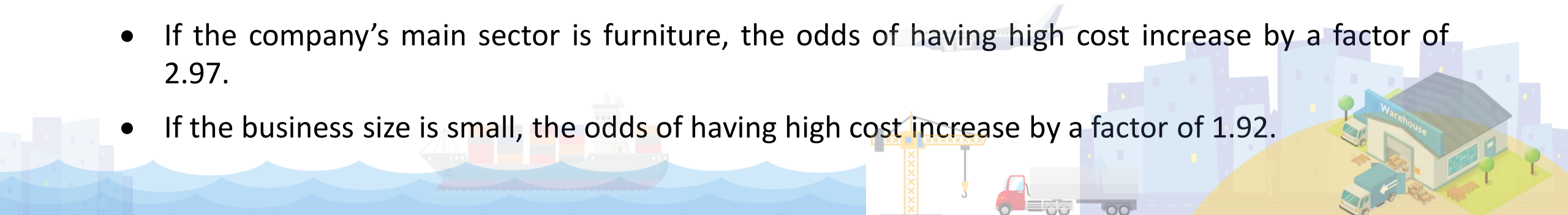
TOTAL PERCENTAGE

27.2%

25.5%

2017

2020
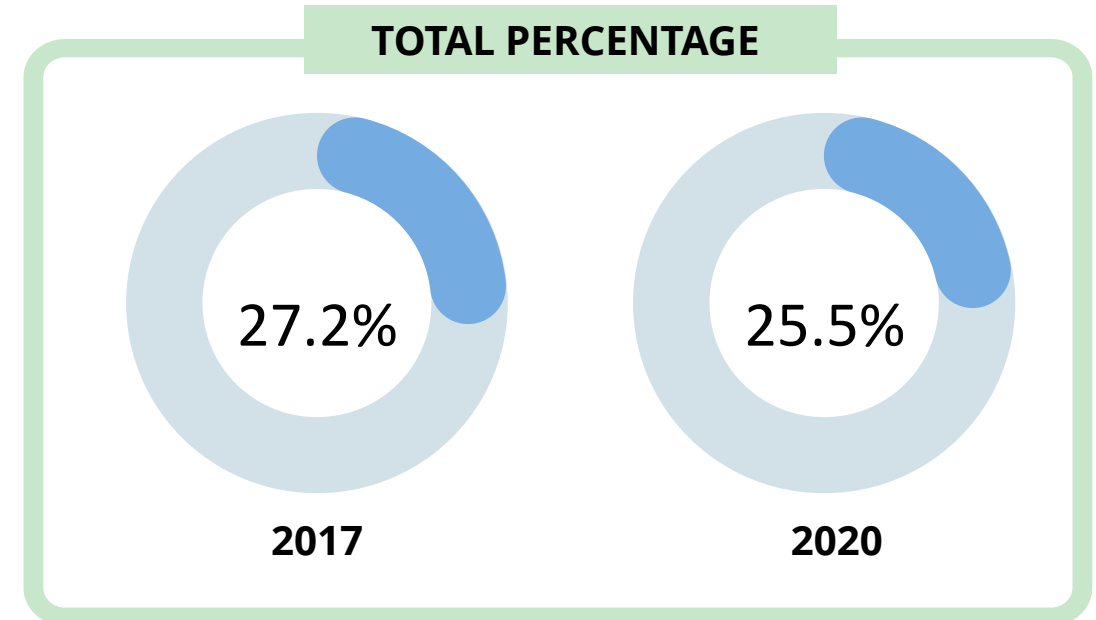
CONCLUSIONS & RECOMMENDATIONS

- **Logistics & cargo handling cost and Inventory carrying cost contributed highest to logistics cost at 14.3 percentage points. Combined cost for these two items in 2017 was 19.5 points or 5.2 points lower.**

- **Unanticipated (other) costs contributed 4.3 percentage points to total logistics cost in 2020** (WB confirmed that these items should be classified as others)

	2017	2020
Base: Total Respondents	159	300
Transport & Cargo Handling Cost	10.7%	7.6%
Warehousing	5.2%	3.5%
Inventory Carrying Cost	8.8%	6.7%
Logistics Administration	2.5%	3.4%
Other Logistics Costs	-	4.3%
TOTAL	**27.2%**	**25.5%**

Attributes that Increase Total Logistic Cost

- If company's main operation is in Region-4A (CALABARZON), the odds of having high cost increase by a factor of 1.71.

- Having load type of less than container load (LCL) for international clients increases the odds of having high cost by a factor of 3.27.

- Having load type of express freight for international clients decreases the odds of having high cost by a factor of 0.34.

- If the company has service level agreement for domestic freight forwarding, the odds of having high cost increase by a factor of 2.49.

- If the company's main sector is furniture, the odds of having high cost increase by a factor of 2.97.

- If the business size is small, the odds of having high cost increase by a factor of 1.92.

CONCLUSIONS & RECOMMENDATIONS

- **Overall, small companies are disadvantaged because of its size and lack of negotiating power to lower the cost. They need institutional assistance through government or through associations.**

CONCLUSIONS & RECOMMENDATIONS

- **Transport and Cargo Handling Cost combined account for more than one-half of total logistics cost (56 percentage points).**
  - Garment & Textile, Furniture and agribusiness companies contribute significantly to higher Transport and Cargo Handling Costs overall.
  - Less than a container load contribute significantly to these costs overall.
  - Longer lead time contribute significantly to these costs overall.
  - Presence of a Service Level Agreement for customs brokerage contribute significantly to a higher cost.
- **Interventions are needed to assist specific sectors through training and institutional negotiations to manage these costs.**

CONCLUSIONS & RECOMMENDATIONS

- **Unanticipated (other) costs should be disaggregated to determine how these contribute to total cost and determine which of the disaggregated costs can be avoided.**

CONCLUSIONS & RECOMMENDATIONS

- **Only 30% of respondent-manufacturing firms have a documented logistics plan. The other 70%, which are mostly the smaller companies in identified sectors, do not have any documented logistic plan.**

- **Interventions to equip them with the skills to craft a workable documented logistics plan is highly recommended.**

CONCLUSIONS & RECOMMENDATIONS

- Providing these small firms virtual training on and a self-help manual for developing a logistics plan would create significant ripple effects on these firms' ability to manage their logistics costs.

- There are logistics-related skills whose lack of availability may undermine small firms' ability to hire these skills and to manage logistics operations and cost.

- These skills include Forklift Operators, Logistics Planner, Forecast Planner, Logistics/Supply Chain Analyst, and Traffic/Transport/Load Planner.

- There is also a lack of Logistics/Supply Chain Manager as evaluated by respondent-firms.

CONCLUSIONS & RECOMMENDATIONS

- **Initiatives to train workers and managers that would augment the existing pool of workers where there is a shortage of such skill can have far reaching effect on the ability of manufacturing firms to manage logistics cost and resources.**

- **The training program can focus on very specific skills sets that will help improve key performance indicators such as order fill rate, contracts with customers and suppliers, customer expectations and demand forecasting.**

Thank you!