

# Firm Adoption of Technology Survey

The World Bank

2020

## INTRODUCTION

This survey is being conducted by \_\_\_\_\_ on behalf of \_\_\_\_\_.

The goal of this survey is to gather information about technologies adopted by firms in **[ADD NAME OF THE COUNTRY]**. The information gathered here will help the World Bank to develop new policies and programs that enhance employment, economic growth and shared prosperity.

The information obtained here will be anonymized. Neither your name nor the name of your business will be used in any document based on this survey.

**INTERVIEWER: WE DEFINE TECHNOLOGY AS MACHINERY, EQUIPMENT, SOFTWARE, OR PROCESS USED BY THE FIRM TO PRODUCE SOMETHING.**

Structure of the questionnaire

- A. GENERAL INFORMATION AND FIRM CHARACTERISTICS
- B. GENERAL BUSINESS FUNCTIONS
- C. SECTOR SPECIFIC TECHNOLOGIES
- D. DRIVERS AND BARRIERS FOR ADOPTION
- E. BALANCE SHEET AND PERFORMANCE

# Firm Adoption of Technology Survey

## The World Bank

Frame level

FIELDWORK SUPERVISORS AND MANAGEMENT ARE RESPONSIBLE FOR THE ACCURACY OF THIS SECTION.

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### INFORMATION ACQUIRED PRIOR TO SCREENING:

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<b>Sampling Information [CODES FROM WBG PROGRESS REPORT]</b>	
Sampling sector	<b>s1a</b>
Sampling size	<b>s1b</b>
Sampling location	<b>s1c</b>

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### COVER [TO BE COMPLETED FROM SCREENER BEFORE INTERVIEW]

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<b>Screener Information</b>	
Screener sector	<b>s6a</b>
Module	<b>s5</b>
Screener region	<b>s2e</b>
Name of City/town/village	<b>s2d</b>
Screener size	<b>s7</b>
Multi-establishment firm	<b>s4</b>
Language	<b>s2j</b>

**CAPI QUESTIONS BEGIN HERE**

**A. CONTROL AND GENERAL INFORMATION**

TO BE COMPLETED AT THE TIME OF THE INTERVIEW  
TO BE MERGED WITH THE SCREENING QUESTIONNAIRE

<b>GPS COORDINATES</b>	Degrees North (Latitude)	<b>lat</b>
	Degrees East (Longitude)	<b>lon</b>

**A.1 Time face-to-face interview begins:**

<b>Day (dd)</b>	<b>Month (mm)</b>	<b>Year (yyyy)</b>	<b>Hour (00 to 23)</b>	<b>Minutes (00 to 59)</b>
<b>a1a</b>	<b>a1b</b>	<b>a1c</b>	<b>a1d</b>	<b>a1e</b>

<b>A.2</b>	On which calendar date did the last completed fiscal year end?
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<b>Year</b>	<b>Month</b>	<b>Day</b>
<b>a2a</b>	<b>a2b</b>	<b>a2c</b>

**READ OUT THE FOLLOWING INTRODUCTORY SENTENCE ONLY IF s4= 1 (yes):**  
**The first few questions apply to the firm which this establishment is part of.**

**A.3 Ownership**

What percentage of this firm is owned by each of the following: SHOW CARD 1	<b>Share</b>	<b>DON'T KNOW (SPONTANEOUS)</b>
Private domestic individuals, companies or organizations	<b>a3a%</b>	<b>-9</b>
Private foreign individuals, companies or organizations	<b>a3b%</b>	<b>-9</b>
Government or state	<b>a3c%</b>	<b>-9</b>
Other	<b>a3d%</b>	<b>-9</b>
	<b>100%</b>	

INTERVIEWER: CHECK THAT TOTAL SUMS TO 100% (UNLESS DON'T KNOW)

Question	Variable	Answer
Is this a shareholding company with shares publicly traded in the stock market? <b>SKIP: IF a4a =1 GO TO a4c</b>	<b>a4a</b>	1 = Yes 2 = No -9 = Don't know
Is this firm owned by the founder or someone of her/his family?	<b>a4b</b>	1 = Yes. By the founder. 2 = Yes. By the founder's family (2nd generation or more) 3 = No -9 = Don't know -7 = Not applicable

Is the founder or her/his family member also the top manager?	<b>a4c</b>	1 = Yes. The founder. 2 = Yes. A founder's family member (2nd generation or more) 3 = No -9 = Don't know -7 = Not applicable
Is the largest owner of the firm also the top manager?	<b>a4d</b>	1 = Yes 2 = No -9 = Don't know
Amongst the owners of the firm, are there any females?	<b>a4e</b>	1 = Yes 2 = No -9 = Don't know
What percentage of the firm is owned by females? <b>CONDITION: ASK ONLY IF a4e=1</b>	<b>a4f</b>	(share) Percentage of female ownership -9 = Don't know

**READ ONLY IF s4=1 (yes)**  
**I want to proceed by asking you about this establishment only.**

<b>A5</b>	Over the year [2019], please tell me what type of product or service represents this establishment's greatest share of annual sales?  INTERVIEWER: PLEASE RECORD THE DESCRIPTION OF THE ACTIVITY AND PRODUCT IN DETAIL, FOR EXAMPLE, "RETAIL SALE OF WOMEN'S OUTDOOR CLOTHING" NOT JUST "CLOTHING".
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	<b>a5a</b>	<b>DETAILED DESCRIPTION OF MAIN ACTIVITY AND PRODUCT</b>	<b>a5c</b> What sector specific questionnaire should be used ?  <b>IF a5c IS DIFFERENT FROM s6b, PLEASE DOUBLE CHECK THE INFORMATION.</b>  <b>CONDITION: IF a5c=0 SKIP SECTION C.</b>
Agriculture (except Livestock)	1	<b>a5b</b>	1
Livestock	2		2
Food Processing	3		3
Wearing apparel	4		4
Pharmaceuticals	5		5
Motor vehicles	6		6
Wholesale or retail	7		7
Financial services	8		8
Land transport	9		9

Health services	10		10
Other manufacturing	11		0
Other Services or Construction	12		0

Question	Variable	Answer
In what year did this establishment begin operations?	<b>a6</b>	(year) Year the establishment began operations -9 = Don't know

INTERVIEWER: PROVIDE FOUR DIGITS FOR YEAR

Question	Variable	Answer
How many years of experience working in this sector does the Top Manager have?	<b>a7a</b>	(Number of years) 1 = If less than a year -9 = Don't know
Is the Top Manager female?	<b>a7b</b>	1 = Yes 2 = No -9 = Don't know
What is the highest level of education of the Top Manager? SHOW CARD 2	<b>a7c</b>	1 = Primary school 2 = Secondary school 3 = Complete high-school 4 = College degree 5 = Post-Graduation (MBA, Master or PhD) 6 = Vocational training -9 = Don't know
Did the Top Manager study abroad for more than a month?	<b>a7d</b>	1 = Yes 2 = No -9 = Don't know

## B. GENERAL BUSINESS FUNCTIONS

### READ THE FOLLOWING TO THE RESPONDENT BEFORE PROCEEDING:

The next topic to be covered is about use of water, electricity, telecommunications, and internet for business purpose.

### TECHNOLOGY ENABLERS

Does this establishment have an electrical connection from the grid? [SKIP: IF <b>b1a</b> =2 OR <b>b1a</b> =-9, GO TO <b>b2a</b> ]	<b>b1a</b> 1 = Yes 2 = No -9 = Don't know	
Over the year [2019] did this establishment experience power outages? [SKIP: IF <b>b1b</b> =2, GO TO <b>b2a</b> ]	<b>b1b</b> 1 = Yes 2 = No	
In a typical month, over the year [2019], how many power outages did this establishment experience?	<b>b1c</b> (Number of power outages in a typical month) 1 = Less than one per month -9 = Don't know	
How many hours did these power outages last on average?	<b>b1d</b> (Hours) -9 = Don't know	<b>b1e</b> (Min) 1 = Less than one minute -9 = Don't know

### B.2 Use of generators

Over the year [2019], did this establishment own or share a generator? [SKIP: IF <b>b2a</b> =2 OR <b>b2a</b> =-9, GO TO <b>b2a</b> ]	<b>b2a</b> 1 = Yes 2 = No -9 = Don't know	
Over the year [2019], what percentage of this establishment's electricity came from a generator that the establishment owned or shared?	<b>b2b</b> (share %)	
What is the main source of energy used by this establishment owned or shared generator?  SHOW CARDS 3	<b>b2c</b> 1 = Solar power 2 = Fuel 3 = Grid or Battery-stored backup 4 = Wind power 5 = Other	

### B.3 Mobile phone coverage

How many telephone landline does this establishment use for business purpose? INTERVIEWER: IT INCLUDES EQUIVALENT NUMBER OF LANDLINE SUBSCRIPTION PLANS PAID	<b>b3a</b> (number of telephone lines) -9 = Don't know	
How many mobile phone lines does this establishment use for business purpose? INTERVIEWER: IT INCLUDES OWNED DEVICES AND COVERAGE PLANS PAID TO EMPLOYEES	<b>b3b</b> (number of cell phone lines) -9 = Don't know	

### B.4 Computer coverage

How many desktop or laptop computers does this establishment use for business purpose? <b>INTERVIEWER: IT INCLUDES OWNED OR RENTED COMPUTERS</b>	<b>b4a</b> (number of computers) -9 = Don't know
How many tablets or smartphones does this establishment use for business purpose? <b>INTERVIEWER: IT INCLUDES OWNED OR RENTED DEVICES</b>	<b>b4b</b> (number) -9 = Don't know

### B.5 Internet service and coverage

Does this establishment have an Internet connection?	<b>b5a</b> YES = 1, NO = 2	
What is the fastest type of Internet connection does this establishment has?  SHOW CARDS 4	<b>b5b</b> 1 = Dial up 2 = DSL or Fiber 3 = Wireless or Satellite 4 = BPL 5 = Other	
In a typical month, over fiscal year [2019], how many times was the Internet service down in this establishment? [SKIP: IF <b>b5c</b> =0 OR <b>b5c</b> =-9, GO TO <b>b5f</b> ]	<b>b5c</b> (number of times) 1 = Less than one -100 = To many to count -9 = Don't know	
How many hours did the Internet service down last on average?	<b>b5d</b> (Hours) -9 = Don't know	<b>b5e</b> (Min) 1 = Less than one minute -9 = Don't know
At the present time, does this establishment have its own website?	<b>b5f</b> YES = 1, NO = 2 -9 = Don't know	
At the present time, does this establishment use an account on an online social media for business purpose?	<b>b5g</b> YES = 1, NO = 2 -9 = Don't know	
Does this establishment use cloud computer services for business purpose?	<b>b5h</b> YES = 1, NO = 2 -9 = Don't know	

### B.6 Water

Does this establishment have water connection to the network?	<b>b6a</b> YES = 1, NO = 2 -9 = Don't know
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**READ THE FOLLOWING TO THE RESPONDENT BEFORE PROCEEDING:**  
Now, we turn to questions about methods and procedures to perform general business functions

## TECHNOLOGY ADOPTION

### B.7 Self-evaluation on this establishment level of adoption

Question	Answer
In a scale from 1 to 10, where 10 means that the establishment is using the most advanced production processes available in its sector, where do you think this establishment stands with respect to:	
other firms in [ADD COUNTRY NAME]?	<b>b7a</b> score (1-10)
most advanced firms in the world?	<b>b7b</b> score (1-10)

### B.8 Business administration

Question: Does this establishment use any of the following methods for managing finance, accounting, and HR processes?	Variable	Answer	
Handwritten processes	<b>b8a1</b>	1 = Yes 2 = No	-9 = Don't know
Computers with standard software such as Excel or equivalent	<b>b8a2</b>	1 = Yes 2 = No	-9 = Don't know
Mobile Apps or digital platforms	<b>b8a3</b>	1 = Yes 2 = No	-9 = Don't know
Computers with specialized software	<b>b8a4</b>	1 = Yes 2 = No	-9 = Don't know
Enterprise Resource Planning (ERP) or equivalent software integrated with other back office functions	<b>b8a5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b8a6</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer
What is the method used more often by this establishment for managing finance, accounting, and HR processes?  [CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE <b>b8a</b> VARIABLES] SHOW CARDS 5	<b>b8b</b>	1 = Handwritten processes 2 = Computers with standard software 3 = Mobile Apps or digital platforms 4 = Computers with specialized software 5 = Enterprise Resource Planning (ERP) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using specialized or ERP software for managing HR processes, finance, and accounting? [CONDITION: ASK ONLY IF <b>b8a4=1</b> OR <b>b8a5=1</b> ]	<b>b8c</b>	(Number of years) 1= If less than a year -9 = Don't know

### B.9 Production or service operations planning

Question: Does this establishment use any of the following methods for production or service operations planning?	Variable	Answer	
Handwritten processes	<b>b9a1</b>	1 = Yes 2 = No	-9 = Don't know
Computers with standard software such as Excel or equivalent	<b>b9a2</b>	1 = Yes 2 = No	-9 = Don't know
Mobile Apps or digital platforms	<b>b9a3</b>	1 = Yes 2 = No	-9 = Don't know
Specialized software for production or service operations planning and demand forecast	<b>b9a4</b>	1 = Yes 2 = No	-9 = Don't know
Enterprise Resource Planning (ERP) software integrated with other administrative functions	<b>b9a5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b9a6</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer
<p>What is the method used more often by this establishment for production planning?</p> <p>[CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE <b>b9a</b> VARIABLES]</p> <p>SHOW CARDS 7</p>	<b>b9b</b>	<p>1 = Handwritten production planning</p> <p>2 = Computers with standard software such as Excel or equivalent</p> <p>3 = Mobile Apps or digital platforms</p> <p>4 = Specialized software for production planning and demand forecast</p> <p>5 = Enterprise Resource Planning (ERP) integrated with other administrative functions</p> <p>6 = Other</p> <p>-9 = Don't know</p>

Question	Variable	Answer
<p>For how many years has this establishment been using a specialized software for production planning?</p> <p>[CONDITION: ASK THIS QUESTION ONLY IF <b>b9a4=1</b> OR <b>b9a5=1</b>]</p>	<b>b9c</b>	<p>(Number of years)</p> <p>1 = If less than a year</p> <p>-9 = Don't know</p>

### B.10 Sourcing, Procurement, and Supply Chain Management

Question: Does this establishment use any of the following procedures to select and manage suppliers and purchase materials and services?	Variable	Answer

Manual search of suppliers, including personal visit or phone calls, without stored supplier's information in centralized database.	<b>b10a1</b>	1 = Yes 2 = No	-9 = Don't know
Management of supply chain information using PCs, manually updated (e.g. Microsoft Excel)	<b>b10a2</b>	1 = Yes 2 = No	-9 = Don't know
Online social media, specialized Apps or digital platforms	<b>b10a3</b>	1 = Yes 2 = No	-9 = Don't know
Supplier Relation Management (SRM) or other specialized software not integrated with production planning	<b>b10a4</b>	1 = Yes 2 = No	-9 = Don't know
Supplier Relation Management (SRM) integrated with production planning	<b>b10a5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>B10a6</b>	1 = Yes 2 = No	-9 = Don't know

Question	Variable	Answer
<p>What is the procedure used more often by this establishment to select and manage suppliers and purchase materials and services?</p> <p>SHOW CARDS 8</p>	<b>b10a</b>	<p>1 = Manual search of suppliers, including personal visit or phone calls, without stored supplier's information in centralized database.</p> <p>2= Management of supply chain information using PCs, manually updated (e.g. Microsoft Excel)</p> <p>3 = Online social media, specialized Apps or digital platforms</p> <p>4 = Supplier Relation Management (SRM) or other specialized software not integrated with production planning</p> <p>5 = Supplier Relation Management (SRM) integrated with production planning</p> <p>6 = Other</p> <p>-9 = Don't know</p>

Question	Variable	Answer
<p>For how many years has this establishment been using Supplier Relation Management (SRM) software for managing suppliers and purchasing materials and services?</p> <p>[CONDITION: ASK THIS QUESTION ONLY IF <b>b10a4=1</b> OR <b>b10a5=1</b>]</p>	<b>b10c</b>	<p>(Number of years)</p> <p>1= If less than a year 1</p> <p>-9 = Don't know</p>

What procedure does this establishment use most often when searching for new employees or collaborators?  SHOW CARDS 9	<b>b10b</b>	1 = Direct reference from employees and colleagues face-to-face or using phone, Whatsapp, SMS or email 2 = Job search announcements in newspapers or magazines 3 = Use of job search online networks (e.g. LinkedIn, Xing,..) or digital platforms (e.g. Facebook) 4 = Job search announcements in their own website 5 = Recruitment agencies 6 = Other -9 = Don't know
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### B.11 Marketing and product development

Question: Does this establishment uses any of the following methods to collect and analyze information from customers for marketing purposes or product development?	Variable	Answer	
Face-to-face chat	<b>b11a1</b>	1 = Yes 2 = No	-9 = Don't know
Online chat (e.g. Whatsapp or Internet)	<b>b11a2</b>	1 = Yes 2 = No	-9 = Don't know
Structured surveys by phone, face-to-face, online, or focus groups	<b>b11a3</b>	1 = Yes 2 = No	-9 = Don't know
Customer Relationship Management software (CRM) or equivalent specialized software	<b>b11a4</b>	1 = Yes 2 = No	-9 = Don't know
Big data Analytics or Machine learning algorithms (Artificial Intelligence) with Big Data	<b>b11a5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b11a6</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer	
What is the method used more often by this establishment to collect and analyze information from customers?  [CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE <b>b11a</b> VARIABLES]	<b>b11b</b>	1 = Face-to-face chat 2 = Online chat (e.g. Whatsapp or Internet) 3 = Structured customer surveys by phone, face-to-face, online, or focus groups 4 = Customer Relationship Management software (CRM) or other equivalent specialized software 5 = Big data Analytics or Machine learning algorithms (Artificial Intelligence) with Big Data 6 = Other -9 = Don't know	

Question	Variable	Answer
For how many years has this establishment been using a specialized software to analyze customer information? [CONDITION: ASK THIS QUESTION ONLY IF <b>b11a4=1 OR b11a5= 1</b> ]	<b>b11c</b>	(Number of years) 1 = If less than a year -9 = Don't know

### B.12 Fabrication [MANUFACTURING ONLY]

[CONDITION: ASK B.12 QUESTIONS ONLY IF **a5a =3 OR a5a =4 OR a5a =5 OR a5a =6 OR a5a =11**]

Question: Does this establishemnt use any of the following processes for assembling and production? SHOW CARDS 10	Variable	Answer	
Manual processes	<b>b12a1</b>	1 = Yes 2 = No	-9 = Don't know
Machines controlled by operators without computers	<b>b12a2</b>	1 = Yes 2 = No	-9 = Don't know
Computer numerical controlled machine or other machines controlled by computers	<b>b12a3</b>	1 = Yes 2 = No	-9 = Don't know
Robots	<b>b12a4</b>	1 = Yes 2 = No	-9 = Don't know
Additive manufacturing including rapid prototyping and 3D printers	<b>b12a5</b>	1 = Yes 2 = No	-9 = Don't know
Other advanced manufacturing processes (e.g. as laser, plasma sputtering, high speed machine, E-beam, micromachining)	<b>b12a6</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b12a7</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer
What is the assembling and production process used more often by this establishment? [CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE <b>b12a</b> VARIABLES]	<b>b12b</b>	1 = Manual processes 2 = Machines controlled by operators without computers 3 = Computer numerical controlled machine or other machines controlled by computers 4 = Robot(s) 5 = Additive manufacturing/3D printers 6 = Other advanced manufacturing 7 = Other -9 = Don't know

Question	Variable	Answer
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For how many years has this establishment been using computer numerical controlled machine, robots, 3D printers, or other advanced manufacturing? [CONDITION: ASK THIS QUESTION ONLY IF b12a3=1 OR b12a4=1 OR b12a5=1 OR b12a6=1]	<b>b12c</b>	(Number of years) 1 = If less than a year -9 = Don't know
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### B.13 Sales methods

Question:	Variable	Answer	
Does this establishment sell some or all of its products directly to final consumers?	<b>b13a</b>	1 = Yes 2 = No	-9 = Don't know

Question: Does this establishment use any of the following sale methods? SHOW CARDS 11	Variable	Answer	
Sales at the establishment's premises	<b>b13b1</b>	1 = Yes 2 = No	-9 = Don't know
Sales by phone, email orders, or sales representatives	<b>b13b2</b>	1 = Yes 2 = No	-9 = Don't know
Sales through social media platforms or apps	<b>b13b3</b>	1 = Yes 2 = No	-9 = Don't know
Online sales using external digital platforms (ex. Amazon, eBay, Alibaba)	<b>b13b4</b>	1 = Yes 2 = No	-9 = Don't know
Online sales (e-commerce) using its own website	<b>b13b5</b>	1 = Yes 2 = No	-9 = Don't know
Electronic orders integrated to specialized supply chain management systems	<b>b13b6</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b13b7</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer
What is the sale method used more often by this establishment? [CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE b13b VARIABLES]	<b>b13c</b>	1 = Direct sales at the establishment's premises 2 = Direct sales by phone, email orders, or sales representatives 3 = Sales through social media platforms or apps 4 = On line sales using external digital platforms 5 = On line sales using using its own website

		6 = Electronic orders 7 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using online sales or electronic orders? [CONDITION: ASK THIS QUESTION ONLY IF <b>b13b4=1</b> <b>OR b13b5=1 OR b13b6=1</b> ]	<b>b13d</b>	(Number of years) 1 = If less than a year -9 = Don't know

Question: What is the share of sales of this establishment by this method?	Variable	Answer
Online sales using external digital platforms (ex. Amazon, eBay, Alibaba) [CONDITION: ASK THIS QUESTION ONLY IF <b>b13b4=1</b> ]	<b>b13e1</b>	(Share) -9 = Don't know
Online sales (e-commerce) using its own website [CONDITION: ASK THIS QUESTION ONLY IF <b>b13b5=1</b> ]	<b>b13e2</b>	(Share) -9 = Don't know
Electronic orders integrated to specialized supply chain management systems [CONDITION: ASK THIS QUESTION ONLY IF <b>b13b6=1</b> ]	<b>b13e3</b>	(Share) -9 = Don't know

#### B.14 Payment methods

Question: Does this establishment use any of the following payment methods? SHOW CARDS 12	Variable	Answer	
Exchange of goods	<b>b14a1</b>	1 = Yes 2 = No	-9 = Don't know
Cash	<b>b14a2</b>	1 = Yes 2 = No	-9 = Don't know
Cheque, voucher, or bank wire at the branch	<b>b14a3</b>	1 = Yes 2 = No	-9 = Don't know
Prepaid card, Debit card, or Credit card	<b>b14a4</b>	1 = Yes 2 = No	-9 = Don't know
Online or electronic payment through a bank wire	<b>b14a5</b>	1 = Yes 2 = No	-9 = Don't know
Online payment through platform (including mobile money, mobile wallet,	<b>b14a6</b>	1 = Yes 2 = No	-9 = Don't know

PayPal or similar App-based payment service)			
Virtual or Cryptocurrency (e.g. Bitcoin, Ether, or others)	<b>b14a7</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>b14a8</b>	1 = Yes 2 = No	-9 = Don't know

Question:	Variable	Answer
What is the payment method used more often by this establishment?  <b>[CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE b14a VARIABLES]</b>	<b>b14b</b>	1 = Exchange of goods 2 = Cash 3 = Cheque, voucher, or bank wire at the branch 4 = Prepaid card, Debit card, or Credit card 5 = Online or electronic payment through a bank wire 6 = Online payment through platform 7 = Virtual or Cryptocurrency 8 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using online or electronic payment methods?  <b>[CONDITION: ASK THIS QUESTION ONLY IF b14a5=1 OR b14a6=1]</b>	<b>b14c</b>	(Number of years) 1 = If less than a year -9 = Don't know

### B.15 Quality control inspection

Question: Does this establishment use any of the following quality control inspection methods? SHOW CARDS 13	Variable	Answer
Manual, visual, or written processes	<b>b15a1</b>	1 = Yes 2 = No -9 = Don't know
Human inspection with the support of computers or phones	<b>b15a2</b>	1 = Yes 2 = No -9 = Don't know
Statistical process control with software monitoring and data management	<b>b15a3</b>	1 = Yes 2 = No -9 = Don't know
Automated systems for inspection such as laser-based, sensor-based, voice-control	<b>b15a4</b>	1 = Yes 2 = No -9 = Don't know
Other	<b>b15a5</b>	1 = Yes 2 = No -9 = Don't know

Question:	Variable	Answer
What is the quality control method used more often by this establishment?  [CONDITION: ASK ONLY IF THE ANSWER IS YES FOR MORE THAN ONE OF THE <b>b15a</b> VARIABLES]	<b>b15b</b>	1 = Manual, visual, or written processes 2 = Human inspection with the support of computers or phones 3 = Statistical process control 4 = Automated systems for inspection 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using statistical process control with software monitoring and data management or automated systems for inspection as a quality control method?  [CONDITION: ASK THIS QUESTION ONLY IF <b>b15a4=1</b> OR <b>b15a5=1</b> ]	<b>b15c</b>	(Number of years) 1= If less than a year -9 = Don't know

Question: Does this establishment use any of the following quality management practices?	Variable	Answer	
Business certification – ISO 9000 or other equivalent	<b>b15c1</b>	1 = Yes 2 = No	-9 = Don't know
Six sigma	<b>b15c2</b>	1 = Yes 2 = No	-9 = Don't know
Total Quality Management (TQM)	<b>b15c3</b>	1 = Yes 2 = No	-9 = Don't know
Lean manufacturing, Just-in-Time, or Kaizen method	<b>b15c4</b>	1 = Yes 2 = No	-9 = Don't know

## C. SECTOR SPECIFIC TECHNOLOGIES

### **READ THE FOLLOWING TO THE RESPONDENT BEFORE PROCEEDING:**

**Now, we turn to questions about methods and procedures to perform sector specific business functions**

ADD SECTOR SPECIFIC QUESTIONNAIRE – SEPARATED DOCUMENT

INTERVIEWER: ASK THESE QUESTIONS ONLY FOR FIRMS THAT BELONG

TO THE SECTORS FOR WHICH SECTOR SPECIFIC QUESTIONS ARE AVAILABLE.

IF THE FIRM DO NOT BELONG TO THOSE, SKIP THIS SECTION AND GO TO SECTION D.

Agriculture (except Livestock)	C1
Livestock	C2
Food Processing	C3
Wearing apparel	C4
Pharmaceuticals	C5
Motor vehicles	C6
Wholesale or retail	C7
Financial services	C8
Land transport	C9
Health services	C10

## D. DRIVERS OF TECHNOLOGY ADOPTION

INTERVIEWER: The next questions aim to understand the main drivers of technology adoption.

### D.1 Acquisition of machines, equipments, and software

Question: Over the years [2017, 2018, and 2019], did this establishment: READ OUT	Answer
Purchase or lease new or second-hand equipment or machines?	<b>d1a</b> 1 = Yes, new 2 = Yes, second hand 3 = Yes, both (new and second hand) 4 = No -9 = Don't know
Purchase or lease licence for software?	<b>d1b</b> 1 = Yes 2 = No -9 = Don't know
Develop, customize, or significantly modify any equipment, machine, or software?	<b>d1c</b> 1 = Yes 2 = No -9 = Don't know
Was the development, customizaiton, or modification of equipments, machine, or software done in partnership with other institutions or with other firms? [CONDITION: ASK ONLY IF <b>d1c=1</b> ]	<b>d1d</b> 1 = Yes 2 = No -9 = Don't know
Which one was the partner that contributed the most in developping, customizing, or significantly modifying any equipment, machine, or software? SHOW CARD 14 [CONDITION: ASK ONLY IF <b>d1d=1</b> ]	<b>d1e</b> 1 = Academic or research organization 2 = Other enterprises 3 = Both -9 = Don't know

### D.2 Awareness and information

What was the source of information more often used by this establishment to make decisions about the acquisition of new machines, equipments, or software?  SHOW CARDS 15	<b>d2a</b> 1 = Other firms in the sector 2 = Other firms in the locality, but different sector 3 = Suppliers or buyers 4 = Industrial or trade associations 5 = Public technolgy extension services 6 = Private consultants 7 = Fairs, events, and missions
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	8 = Other -9 = Don't know
Is there any firm with more than 50 employees in the range of 50 kilometers from this establishment producing similar products or offering similar services as this establishment?	<b>d2b</b> 1 = Yes 2 = No -9 = Don't know
Over the years [2017, 2018, and 2019], did this establishment have any business relationship, either as a supplier or as a buyer, with a firm with more than 50 employees in the range of 50 kilometers from this establishment.	<b>d2c</b> 1 = Yes 2 = No -9 = Don't know
Over the years [20162017, 20172018, and 20182019], did this establishment have business, as a supplier or a buyer, with a multinational firm?	<b>d2d</b> 1 = Yes 2 = No -9 = Don't know
Does the CEO or top manager of this establishment have previous experience working in a multinational or a national firm with more than 50 employees in the same sector?	<b>d2e</b> 1 = Yes 2 = No -9 = Don't know

### D.3 Access to finance

Over the years [2017, 2018, and 2019], has this establishment got a loan for purchasing machines, equipment, or licensing software or processes?	<b>d3a</b> 1 = Yes 2 = No -9 = Don't know
What was the interest rate faced by the establishment for this loan?  INTERVIEWER: IF MORE THAN ONE INTEREST RATE, PLEASE ADD THE HIGHEST AVERAGE. NOMINAL INTEREST RATE  [CONDITION: ASK ONLY IF <b>d3a=1</b> ]	<b>d3b</b> Interest rate (average annual rate) -9 = Don't know
Over the years [2017, 2018, and 2019], how many times this establishment needed to borrow money to expand production, but could not get it?	<b>d3c</b> Number of times

### D.4 Management

Question	Answers
Does this establishment provide formal incentives for workers in the form of money, gift, or recognition to suggest and/or use better ways to produce goods or provide services?	<b>d4a</b> 1 = Yes 2 = No -9 = Don't know

In the year [2019], how many key performance indicators were monitored at this establishment? Examples: Metrics on production, cost, waste, quality, inventory, energy, absenteeism and deliveries on time (mark one option): [SKIP: IF <b>d4b=4</b> GO TO <b>d4d</b> ]	<b>d4b</b> 1 = 1-2 key performance indicators 2 = 3-9 key performance indicators 3 = 10 or more key performance indicators 4 = No key performance indicators
In the year [2019], how frequently were the key performance indicators reviewed by managers at this establishment?	<b>d4c</b> 1 = Yearly 2 = Quarterly 3 = Monthly 4 = Weekly 5 = Daily 6 = Hourly or more frequently 7 = Never
In the year [2019], what best describes the time frame of production targets at this establishment? Examples of production targets are: production, quality, efficiency, waste, on-time delivery.  SHOW CARD 16	<b>d4d</b> 1 = Main focus was on short-term (less than one year) production targets 2 = Main focus was on long-term (more than one year) production targets 3 = Combination of short-term and long-term production targets 4 = No production targets

**D.5 Availability of human capital**

Question	Answers
Over the years [2017, 2018, and 2019], has this establishment hired or tried to hire engineers, computer programmers, or equivalent professionals?	<b>d5a</b> 1 = Yes. It hired. 2 = Yes. It tried it, but not hired. 3 = No -9 = Don't know
What was the main challenge faced by this establishment when hiring engineers, computer programmers, or equivalent professionals? [CONDITION: ASK ONLY IF <b>d5a=1</b> OR <b>d5a=2</b> ]  SHOW CARD 17	<b>d5b</b> 1 = No challenges 2 = Lack of availability of professionals 3 = Lack of availability of high-skills professionals 4 = High salaries required -9 = Don't know
Over the years [2017, 2018, and 2019], has this establishment used any external consultants or organizations to help select,	<b>d5c</b> 1 = Yes 2 = No

adapt, or use new machines, equipment, software, or production process?	-9 = Don't know
<p>What was the main source of external consultants or organizations used by this establishment?</p> <p>[CONDITION: ASK THIS QUESTION ONLY IF <b>d5c=1</b>]</p> <p>SHOW CARD 18</p>	<p><b>d5d</b></p> <p>1 = Universities  2 = Government agency  3 = Other local companies  4 = Foreign company  5 = Business associations  6 = Other sources  -9 = Don't know</p>
<p>Why did this establishment not use any consultants or organizations to help with adoption machines, equipment, software, or process?</p> <p>[CONDITION: ASK THIS QUESTION ONLY IF <b>d5c=2</b>]</p> <p>SHOW CARD 19</p>	<p><b>d5e</b></p> <p>1 = I don't know any consultant or organization  2 = Lack of trust in the quality of the services they provide  3 = Too costly or not convinced of the economic benefit  4 = There was no need  5 = Other  -9 = Don't know</p>
<p>How did this firm adjust labor when acquiring a new machine, equipment, or software?</p> <p>SHOW CARD 20</p>	<p><b>d5f</b></p> <p>0 = Did not do any changes to the number on workers  1 = Used same workers and offered some specialized training  2 = Fired some workers and did not replace them  3 = Hire more workers with same skills  4 = Hire more workers with more specialized skills  -9 = Don't know</p>

### D.6 Trade barriers and uncertainty of demand

Question	Answers
Over the years [2017, 2018, and 2019], did this establishment export?	<p><b>d6a</b></p> <p>1 = Exported (mostly) directly  2 = Exported (mostly) through trading firms  3 = Did not export  -9 = Don't know</p>
In the year [2019], what percentage of this establishment's sales were direct exports?	<p><b>d6b</b></p> <p>(Percent)</p>

[CONDITION: ASK THIS QUESTION ONLY IF <b>d6a=1</b> ]	
Over the years [2017, 2018, and 2019], has this establishment imported material inputs, machines, or equipment directly?	<b>d6c</b> 1 = Yes 2 = No -9 = Don't know
If the vendor price of an imported input, machines, or equipment is 100, what is the average final price paid for this establishment, including tariffs, tax, storage, and transportation cost?	<b>d6d</b> (Value above 100) -9 = Don't know
[CONDITION: ASK THIS QUESTION ONLY IF <b>d6c=1</b> ]	
How many days did it take on average from the time these goods arrived to their point of entry (e.g. port, airport) until the time these goods could be claimed from customs?	<b>d6e</b> (Number of days) -9 = Don't know
[CONDITION: ASK THIS QUESTION ONLY IF <b>d6c=1</b> ]	

### D.7 Government support

Are you aware of any government support program or subsidy in relation to the adoption of a new machines, equipment or software that could benefit this establishment?	<b>d7a</b> 1= Yes 2= No -9 = Don't know
Has this establishment benefited from any government support program or subsidy in relation to the adoption of a new machine, equipment, or software?	<b>d7b</b> 1 = Yes 2 = No -9 = Don't know
Which kind of government support in the adoption of a new technology has this establishment received?  [CONDITION: ASK ONLY IF <b>d7b=1</b> ]  SHOW CARD 21	<b>d7c</b> 1 = Information 2 = Technical assistance 3 = Tax incentive 4 = Grant 5 = Loan 6 = Other

### D.8 Obstacles and Drivers - ranking

Please select three of the major obstacles faced by this establishment to adopt new equipment,	<b>d8a</b> 1 <sup>st</sup> obstacle	<b>d8b</b> 2 <sup>nd</sup> obstacle	<b>d8c</b> 3 <sup>rd</sup> obstacle
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<p>machine, software, or process to improve its performance?</p> <p>SHOW CARDS 22</p> <p><b>CONDITION: SAME OPTION CANNOT BE REPEATED ACROSS VARIABLES</b></p>	<p>1 = Lack of information on what is available  2 = Uncertainty of demand  3 = Too costly or not convinced of the economic benefit  4 = Lack of technical skills required to support this equipment.  5 = Consumer preferences do not value quality of products  6 = Difficulty in obtaining financing  7 = Lack of knowledge on how to acquire it  8 = It is difficult or costly to comply with government regulations  9 = Electricity, water, or Internet connection are too expensive  10 = Other  -9 = Don't know</p>
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<p>Please select three of the major reasons for the acquisition of new equipment, machine, or software by this establishment to improve its performance?</p> <p>SHOW CARDS 23</p> <p><b>CONDITION: SAME OPTION CANNOT BE REPEATED ACROSS VARIABLES</b></p>	<p><b>d8d</b> 1<sup>st</sup> reason</p>	<p><b>d8e</b> 2<sup>nd</sup> reason</p>	<p><b>d8f</b> 3<sup>rd</sup> reason</p>
	<p>1 = Depreciation or replacement  2 = Competition in the domestic market  3 = Competition in the external market  4 = Other firms in the same sector adopted  5 = Other firms in the locality, from other sectors, adopted  6 = Produce new products  7 = Access new markets  8 = Produce similar products more efficiently  9 = Adjust to regulations  10 = Other  -9 = Don't know</p>		

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## E. LABOR, BALANCE SHEET AND PERFORMANCE

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### LABOR

<p><b>READ THE FOLLOWING TO THE RESPONDENT BEFORE PROCEEDING:</b>  Now I would like to ask you a few questions about this establishment's labor force and performance</p>
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<b>E.1</b>	<p>At the end of the year [2019], how many permanent full-time, permanent part-time, temporary (or seasonal) full-time, and temporary (or seasonal) part-time individuals worked in this establishment? Please include all employees and managers.</p> <p>(Permanent full-time employees are defined as all paid employees that are contracted for a term of one or more fiscal years and/or have a guaranteed renewal of their employment contract and that work a full shift)</p> <p>(Permanent part-time employees are defined as all paid employees that are contracted for a term of one or more fiscal years and/or have a guaranteed renewal of their employment contract and that work in part-time shift, usually less than 20 hours per week)</p> <p>(Temporary or seasonal, full-time workers are all short-term, that is for less than a year, workers with no guarantee of renewal of employment and work full-time.)</p> <p>(Temporary or seasonal, part-time workers are all short-term, that is for less than a year, workers with no guarantee of renewal of employment and work usually less than 20 hours per week.)</p> <p><b>(INTERVIEWER: INCLUDE INTERVIEWEE IF APPLICABLE).</b></p>
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	<b>Number</b>
Permanent workers, full-time, at the end of the year [2019]	<b>e1a</b>
Permanent workers, part-time, at the end of the year [2019]	<b>e1b</b>
Temporary or seasonal workers, full time, at the end of the year [2019]	<b>e1c</b>
Temporary or seasonal workers, part-time, at the end of the year [2019]	<b>e1d</b>
<b>DON'T KNOW (SPONTANEOUS)</b>	<b>-9</b>

	<b>Months</b>
What was the average length of employment of seasonal or temporary workers in the year [2019]?	<b>e1e</b> -9 = Don't know

What was the total share of female workers by the end of the year [2019]?	<b>e1f</b> (share) -9 = Don't know
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<b>E.2</b>	<p>At the end of the year [2017], how many permanent full-time, permanent part-time, temporary (or seasonal) full-time, and temporary (or seasonal) part-time individuals worked in this establishment? ? Please include all employees and managers <b>(INTERVIEWER: INCLUDE INTERVIEWEE IF APPLICABLE).</b></p>
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	<b>Number</b>
Permanent, full-time workers, at the end of the year [2017]	<b>e2a</b>
Permanent, Part-time, at the end of the year [2017]	<b>e2b</b>
Temporary or seasonal workers, full time, at the end of the year [2017]	<b>e2c</b>
Temporary or seasonal workers, part-time, at the end of the year [2017]	<b>e2d</b>
<b>IF ESTABLISHMENT WAS NOT IN BUSINESS THREE YEARS AGO</b>	<b>-7</b>
<b>DON'T KNOW (SPONTANEOUS)</b>	<b>-9</b>

	<b>Months</b>
What was the average length of seasonal or temporary workers in the year [2017]?	
Average length of seasonal or temporary employment in the year [2017], in months	<b>e2e</b> -9 = Don't know

What was the share of female workers in the year [2017]? <b>(INTERVIEWER: INCLUDE FULL TIME AND PART TIME).</b>	<b>e2f</b> Percentage -9 = Don't know
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<b>E.3</b>	<p>At the end of the year [2019], how many individuals were working in this establishment according to their main occupation?</p> <p><b>(INTERVIEWER: READ EACH CATEGORY)</b></p> <p>Professionals are highly skilled workers with university degree working on their field, such as science and engineering, architecture, finance, IT, and law.</p> <p>Technicians are skilled workers with technical training working on their field associated with professionals, such as science and engineering or financial technicians.</p> <p>Other production employees are workers directly involved in the production process, excluding professionals and technicians.</p>
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	<b>Number</b>	<b>DON'T KNOW</b>
CEOs, Directors, and Managers	<b>e3a</b>	<b>-9</b>
Professionals	<b>e3b</b>	<b>-9</b>
Technicians	<b>e3c</b>	<b>-9</b>
Clerical support workers [e.g. administrative support]	<b>e3d</b>	<b>-9</b>
Production workers (directly involved in the production process)	<b>e3e</b>	<b>-9</b>
Service or sales workers	<b>e3f</b>	<b>-9</b>

**E.4** At the end of the year [2017], how many individuals were working in this establishment according to their main occupation: **(INTERVIEWER: READ EACH CATEGORY)**  
**[SKIP: IF e2a = -7 GO TO e5a]**

	Number	DON'T KNOW
CEOs and Managers	e4a	-9
Professionals	e4b	-9
Technicians	e4c	-9
Clerical support workers [e.g. administrative support]	e4d	-9
Production workers (directly involved in the production process)	e4e	-9
Service or sales workers	e4f	-9

**E.5** What is the percentage of workers who completed the following degrees as maximum level of schooling achievement?

	Share (%)	DON'T KNOW
Completed primary school (about 9 years of education)	e5a	-9
Completed secondary school (about 12 years of education)	e5b	-9
Vocational training (about 12 years of education)	e5c	-9
Completed college degree or more (15+ years of education)	e5d	-9

What is the number of workers with college degree in Engineering or applied science; and Master or Doctoral degrees?

	Number	DON'T KNOW
Engineering or applied science	e5e	-9
MBA, Master or Doctoral degree	e5f	-9

Does this establishment have workers exclusively dedicated to Research and Development activities?	e3g 1= Yes 2= No -9 = Don't know
How many workers are exclusively dedicated to Research and Development activities in this establishment? [CONDITION: ASK ONLY IF e3g=1]	e3h Numbers -9 = Don't know

## BALANCE SHEET

### READ THE FOLLOWING TO THE RESPONDENT BEFORE PROCEEDING:

Now, we would like to ask you a few questions about the financial results of this establishment. It is important that this information be as accurate as possible. The individual data are treated as confidential. The identity of this establishment will not be revealed at any point.

**E.6** What were this establishment's total annual sales for **ALL** products and services?

	LCUs
Complete year [2019] total sales	e6a
Complete year [2017] total sales [CONDITION: ASK ONLY IF e2a>0]	e6b
<b>DON'T KNOW (SPONTANEOUS)</b>	-9

**E.7** From this establishment's Income Statement or book records for the year [2019], please provide the following information:

	LCUs	DON'T KNOW
Total annual cost of labor including wages, salaries, bonuses, social security payments	e7a	-9
Total annual cost of raw materials and intermediate goods used in production or materials purchased to resell	e7b	-9
Total annual cost of electricity	e7c	-9
<b>TOTAL COST OF OF PRODUCTION SHOULD INCLUDE ALL ABOVE COSTS AND OTHER COSTS NOT LISTED ABOVE</b>		
Total cost of production or service operations (it also includes costs of marketing, distribution, and others not listed above)	e7d	-9

**E.8** Hypothetically, if this establishment were to purchase all the machinery, vehicles, equipment, and buildings it **uses now**, in their current condition and regardless of whether the establishment owns them or not, how much would they cost, independently of whether they are owned, rented or leased?

	LCUs	DON'T KNOW
Machinery, vehicles, and equipment	e8a	-9
Buildings	e8b	-9

**E.9** At the end of the year [2019], what was the average salary of individuals working in this establishment in the following categories?

	Monthly Salary (local currency)	DON'T KNOW
CEOs and Managers	e9a	-9
Professionals	e9b	-9
Technicians	e9c	-9
Clerical support workers [e.g. administrative support]	e9d	-9
Production workers (directly involved in the production process)	e9e	-9
Service or sales workers	e9f	-9

**E.10** Currently, with respect to the main product produced by this establishment?

	% (share)	DON'T KNOW
_____		

What is the share in total sales?	<b>e10a</b>	<b>-9</b>
What is the average markup (the percentage over total costs to derive the final price)?	<b>e10b</b>	<b>-9</b>

## CONTROL QUESTIONS

**INTERVIEWER READ AT THE END OF THE INTERVIEW:**

The survey ends here. I would like to gather a few final details. Thank you for your time and cooperation.

**A.8 Interviewer code** **a8**

**A.9 Time face-to-face interview ends:**

<b>Day (dd)</b>	<b>Month (mm)</b>	<b>Year (yyyy)</b>	<b>Hour (00 to 23)</b>	<b>Minutes (00 to 59)</b>
<b>a9d</b>	<b>a9m</b>	<b>a9y</b>	<b>a9h</b>	<b>a9min</b>

**A.10 Please indicate which option best describes the main respondents position:**

Owner	1
President, Executive Director, or CEO	2
Chief Financial, Chief Operational Officer (CFO/COO)	3
Operational or plant manager	4
Sales or marketing manager	5
Accountant	6
Lawyer	7
Other Administrative	8
Other Management	9
Other (Specify) - <b>a10b</b>	10

**a10a**

**A.11 Please complete the following information about the interviewee(s)**

	<b>Years with the establishment</b>	<b>Gender</b>	<b>Email</b>
<b>Main respondent</b>	<b>a11a</b>	<b>a11b</b>	<b>a11c</b>

**A.12** | The responses to the questions regarding figures (productivity and employment numbers) were:

Taken directly from establishment records	1
Estimates computed with some precision	2
Arbitrary and unreliable numbers	3
In some case taken from books and in some case estimates	4

**a12**

ADD QUESITON ON THE PERCEPTION

INTERVIEWER COMMENTS:

**a13**

(Problems occurred/extraordinary circumstances which could influence results)

**A.14** | This questionnaire was completed in:

One visit in face-to-face interview with one person	<b>STOP HERE</b>
One visit in face-to-face interview with different managers/staff	2
Several visits	3

**a14**

**A.15** | If option 2 or 3 in **A.14**, estimate duration of the whole interview

<b>Hour</b>	<b>Minutes</b>

**a15h**

**a15m**

SUPERVISOR SECTION

A.14 Supervisor code

a14

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**INFORMATION BASED ON LOCATION OF INTERVIEW (s2d). ENSURE s2d IS THE NAME OF AN OFFICIAL LOCALITY AND NOT A NEIGHBORHOOD**

Is this city the official capital city?	a3b	Is this city the main business city?	a3c	Size of locality	a3
Yes	1	Yes	1	City with population over 1 million	2
No	2	No	2	Over 250.000 to 1 million	3
				50.000 to 250.000	4
				Less than 50.000	5

SUPERVISOR: THE DESCRIPTION OF THE ESTABLISHMENT'S MAIN PRODUCT AND ACTIVITY IS PROVIDED IN c1b. PLEASE REVIEW c1b IN ORDER TO IDENTIFY THE CORRESPONDING SECTOR CODE IN c1d

C.1d	<p><b>PLEASE CHOOSE THE 4-DIGIT ISIC REV. 4 SECTOR CODE THAT BEST APPLIES TO THE ESTABLISHMENT'S MAIN ACTIVITY AND PRODUCT.</b></p>
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	Code
<b>CODE OF THE MAIN PRODUCT AND ACTIVITY</b>	<b>c1d</b>

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## C. SECTOR SPECIFIC TECHNOLOGIES

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### C1. Agriculture (all agriculture establishments)

#### C1.0 Information on production planning and propriety characteristics

Question: Over the year [2019], which of these sources of information was relevant to this establishment decisions for <b>pre-cultivation, cultivation, and harvesting?</b>	Variable	Answer
Radio (e.g. agrometeorological information, agriculture programming, advertisements)	<b>c1_0a1</b>	1 = Yes 2 = No -9 = Don't know
TV (e.g. agrometeorological information, agriculture programming, advertisements)	<b>c1_0a2</b>	1 = Yes 2 = No -9 = Don't know
Non-internet mobile phone (e.g. SMS, Voice Calling)	<b>c1_0a3</b>	1 = Yes 2 = No -9 = Don't know
Mobile internet technologies (e.g. YouTube, WhatsApp, Facebook, Skype, Email, and other web applications)	<b>c1_0a4</b>	1 = Yes 2 = No -9 = Don't know
Meetings with other producers, producer organizations, or cooperative	<b>c1_0a5</b>	1 = Yes 2 = No -9 = Don't know
Demonstration or visit by public- or private-extension agents (e.g. NGOs, Agribusiness Buyers etc.)	<b>c1_0a6</b>	1 = Yes 2 = No -9 = Don't know
Precision agriculture tools (e.g. Farm management software, soil sensors, satellite imaging, real time data, drones, apps)	<b>c1_0a7</b>	1 = Yes 2 = No -9 = Don't know

Question	Variable	Answer
What was the <b>most relevant</b> source of information to support your decisions regarding pre-cultivation, cultivation, and harvesting during the last agricultural season?	<b>c1_0b1</b>	1= Radio 2 = TV 3 = Mobile phone (Non-Internet) 4 = Internet 5 = Cooperative 6 = Extension agents 7 = Farm management software 8 = Other

INTERVIEWER: Please include ALL LAND REGARDLESS OF LOCATION OR USE.

Question: What is the total amount of land owned, rented, or used by this establishment?	Variable	Answer
Total number of acres OWNED	<b>c1_0c1</b>	Number
Total number of acres RENTED or LEASED FROM OTHERS	<b>c1_0c2</b>	Number
Number of acres RENTED or LEASED TO OTHERS	<b>c1_0c3</b>	Number
Total number of acres available for this establishment (CAPI: CALCULATE THE NUMBER)	<b>c1_0c4 = (c1_0c1+ c1_0c2- c1_0c3)</b>	Number

Question	Variable	Answer
How many tractors are owned by this establishment?	<b>c1_0c5</b>	(number of tractors)
Does this establishment use rent tractor, equipment, or machines?	<b>c1_0c6</b>	1 = Yes 2 = No -7 = Not applicable
Does this establishment use any digital or online platform for renting a tractor, equipment, or machine (e.g. Uber tractor)? [CONDITION: ask this question only if <b>c1_0c6=1</b> ]	<b>c1_0c7</b>	1 = Yes 2 = No -9 = Don't know

Question	Variable	Answer
What is the main source of seeds used by this establishment?	<b>c1_0d1</b>	1 = Own production 2 = Private providers 3 = Public programs 4 = Other
Does the seed receive any pre-treatment?	<b>c1_0d2</b>	1 = Yes 2 = No -9 = Don't know

## C1. Agriculture (Crops and Fruits)

### C1.1 Land preparation

Question	Variable	Answer
Does this establishment conduct land preparation through its own workers? [SKIP: If <b>c1_1a1=1</b> go to question <b>c1_1b1</b> ]	<b>c1_1a1</b>	1 = Yes 2 = No
Is this task outsourced to workers from another unit of the same enterprise? [CONDITION: Only for multi-establishment farm ( <b>s4=1</b> )] [SKIP: If <b>c1_1a2=1</b> go to question <b>c1_1b1</b> ]	<b>c1_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to other workers or enterprise? [SKIP: Go to question <b>c1_2a1</b> ]	<b>c1_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for land preparation method is used in this farm?	Variable	Answer	
Manual plowing with simple tools (hand-held hoes, split-hoes, rake)	<b>c1_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Animal Aided Instruments (ploughs)	<b>c1_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Tractors, motor tillers, rotators, or other equipment manually operated by workers	<b>c1_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Tractors or other equipment supported by digital enabled technologies (e.g. GPS, software, or precision agriculture tools)	<b>c1_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c1_1b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the land preparation method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among <b>c1_1b</b> variables]	Variable <b>c1_1c</b>	Answer
		1 = Manual plowing with simple tools 2 = Animal Aided Instruments (ploughs) 3 = Tractors, motor tillers, rotators, equipment manually operated by workers 4 = Tractors or equipment supported by digital enabled technologies such as GPS or software 5 = Other -9 = Don't know

Question	Variable	Answer
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For how many years this establishment has been using digital enabled tractors, equipment, or precision agriculture tools for land preparation? [CONDITION: ask only if c1_1b4=1]	c1_1d	(Number of years)
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## C1.2 Irrigation

Question	Variable	Answer
Does this establishment production require any irrigation? [SKIP: If c1_2a1=1 go to question c1_2b1]	c1_2a1	1 = Yes 2 = No -7 = Not applicable

Question: Does this establishment use any of the following methods for irrigation?	Variable	Answer	
Rain-fed, no additional irrigation	c1_2b1	1 = Yes 2 = No	-9 = Don't know
Manual irrigation with watering cans	c1_2b2	1 = Yes 2 = No	-9 = Don't know
Surface Flood Irrigation by Gravity	c1_2b3	1 = Yes 2 = No	-9 = Don't know
Irrigation by Small Pump	c1_2b4	1 = Yes 2 = No	-9 = Don't know
Drip irrigation, localized irrigation, underground pipes, Sprinkler or Center Pivot.	c1_2b5	1 = Yes 2 = No	-9 = Don't know
Automated system controlled by sensors, software, Internet, or apps	c1_2b6	1 = Yes 2 = No	-9 = Don't know
Other	c1_2b7	1 = Yes 2 = No	-9 = Don't know

Question: What is the irrigation system used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c1_2b variables]	Variable c1_2c	Answer
		1 = Rain-fed, no additional irrigation 2 = Manual irrigation with watering cans 3 = Surface Flood Irrigation by Gravity 4 = Irrigation by Small Pump 5 = Drip irrigation, localized irrigation, underground pipes, Sprinkler or Center Pivot. 6 = Automated system controlled by sensors, software, Internet, or apps 7 = Other -9 = Don't know

Question	Variable	Answer
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For how many years this establishment has been using drip irrigation, localized irrigation, underground pipes, sprinkler, center pivot or precision agriculture tools for irrigation? [CONDITION: ask this question only if c1_2b5=1 or c1_2b6=1]	<b>c1_2d</b>	(Number of years)
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### C1.3 Weeding and pest control

Question	Variable	Answer
Does this farm conduct weeding and pest control? [SKIP: If c1_3a1=1 go to question c1_3b1]	<b>c1_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c1_3a2=1 go to question c1_3b1]	<b>c1_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another enterprise? [SKIP: Go to question c1_4a1]	<b>c1_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for weeding and pest control?	Variable	Answer	
Manual application of herbicide, fertilizer, or pesticide	<b>c1_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Mechanical application of herbicide, fertilizer, or pesticide	<b>c1_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Biological methods of fertilizing, weed, or pest control	<b>c1_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Fully-automated Variable Rate Application (VRA) tools in combination with soil and plant sensors (Precision Agriculture)	<b>c1_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Drone Application in combination with remote sensing or on-site sensors (Advanced Precision Agriculture)	<b>c1_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c1_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the weeding and pest control method used more often in this propriety? [CONDITION: Ask only if the answer is YES for more than one option among c1_3b variables]	Variable	Answer
	<b>c1_3c</b>	1 = Manual application of organic herbicide, fertilizer, or pesticide 2 = Manual application of chemical herbicide, fertilizer, or pesticide 3 = Mechanical application of organic herbicide, fertilizer, or pesticide 4 = Mechanical application of chemical herbicide, fertilizer, or pesticide

		<p>5 = Biological methods of fertilizing, weed, and pest control</p> <p>6 = Fully-automated Variable Rate Application (VRA) tools in combination with soil and plant sensors (Precision Agriculture)</p> <p>7 = Drone Application in combination with remote sensing or on-site sensors (Advanced Precision Agriculture)</p> <p>8 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using <b>VRA</b> or <b>drone application</b> for weeding and pest control?</p> <p>[CONDITION: ask this question only if <b>c1_3b6=1</b> or <b>c1_3b7=1</b>]</p>	<b>c1_3d</b>	(Number of years)

Question:	Variable	Answer	
<p>Does this establishment use organic or chemical herbicide, fertilizer, or pesticide for weeding and pest control?</p> <p>[CONDITION: ASK ONLY IF <b>c1_3b1=1</b> ou <b>c1_3b1=2</b>]</p>	<b>c1_3e</b>	<p>1 = Organic</p> <p>2 = Chemical</p> <p>3 = Both</p>	-9 = Don't know

### C1.4 Harvesting, training, pruning

Question	Variable	Answer
Does this establishment conduct harvesting, training or pruning? [SKIP: If <b>c1_4a1=1</b> go to question <b>c1_4b1</b> ]	<b>c1_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c1_4a2=1</b> go to question <b>c1_4b1</b> ]	<b>c1_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another enterprise? [SKIP: Go to question <b>c1_5a1</b> ]	<b>c1_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for harvesting, training, or pruning?	Variable	Answer	
Manual harvesting, training, pruning, or picking	<b>c1_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Animal Aided Instruments	<b>c1_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Human-operated machines or single-axle tractor, with one specific function	<b>c1_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Mechanized process with machines or tractors that combine multiple functions fully operated by the worker (without support of digital technologies)	<b>c1_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Automated process with machines or tractors that combine multiple functions supported by digital enabled technologies (e.g. GPS or computing systems integrated to tractor)	<b>c1_4b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c1_4b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the harvesting/training/pruning method used more often in this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c1_4b</b> variables]	Variable	Answer
	<b>c1_4c</b>	1 = Manual harvesting, training, pruning, or picking 2 = Animal Aided Instruments 3 = Human-operated machines or single-axle tractor, with one specific function 4 = Mechanized process with machines or tractors that combine multiple functions (e.g. Combine harvester) fully operated by the worker (without support of digital technologies)

		<p>5 = Automated process with machines or tractors that combine multiple functions supported by digital enabled technologies (e.g. GPS or computing systems integrated to tractor)</p> <p>6 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using <b>mechanized or automated processes</b> for harvesting/training/pruning?</p> <p>[CONDITION: ask this question only if <b>c1_4b4=1 or c1_4b5=1</b>]</p>	<b>c1_4d</b>	(Number of years)

### C1.5 Storage (Post-Harvesting)

Question	Variable	Answer
Does this farm storage its products in house? [SKIP: If <b>c1_5a1=1</b> go to question <b>c1_5b1</b> ]	<b>c1_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c1_5a2=1</b> go to question <b>c1_5b1</b> ]	<b>c1_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c1_6a1</b> ]	<b>c1_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following types of storage facility?	Variable	Answer	
Precarious facility with product totally or partially exposed to sun, rain and wind	<b>c1_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Storage facilities protecting from sun, rain, or wind, but without controlled temperature	<b>c1_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Special Storage facilities with cold or dry controlled environment	<b>c1_5b3</b>	1 = Yes 2 = No	-9 = Don't know
High-end central storage facilities, with controlled atmosphere and temperature	<b>c1_5b4</b>	1 = Yes 2 = No	-9 = Don't know
Continuous temperature monitoring device or digital data loggers	<b>c1_5b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c1_5b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the storage facility used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among <b>c1_5b</b> variables]	Variable	Answer
	<b>c1_5c</b>	1 = Precarious facility with product totally or partially exposed to sun, rain and wind 2 = Storage facilities protecting from sun, rain, or wind, but without controlled temperature 3 = Special Storage facilities with cold or dry controlled environment 4 = High-end central storage facilities, with controlled atmosphere and temperature 5 = Continuous temperature monitoring device or digital data loggers 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using special storage facilities or high-end central storage facilities or continuous temperature monitoring devices for storage? [CONDITION: ask this question only if <b>c1_5b3=1</b> or <b>c1_5b4=1</b> or <b>c1_5b5=1</b> ]	<b>c1_5d</b>	(Number of years)

### C1.6 Packing (Post-Harvesting)

Question	Variable	Answer
Does this farm pack in house? [SKIP: If <b>c1_6a1=1</b> go to question <b>c1_6b1</b> ]	<b>c1_6a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c1_6a2=1</b> go to question <b>c1_6b1</b> ]	<b>c1_6a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c1_6a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packing methods?	Variable	Answer	
Manual packing in bags, crates, or boxes	<b>c1_6b1</b>	1 = Yes 2 = No	-9 = Don't know
Human-operated mechanical equipment for packing in bags, crates, or boxes	<b>c1_6b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated packing directly linked to the harvesting, training, pruning, or picking process	<b>c1_6b3</b>	1 = Yes 2 = No	-9 = Don't know
Modified atmosphere packing	<b>c1_6b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c1_6b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the packing method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among <b>c1_6b</b> variables]	Variable	Answer
	<b>c1_6c</b>	1 = Manual packing in bags, crates, or boxes 2 = Human-operated mechanical equipment for packing in bags, crates, or boxes 3 = Automated packing directly linked to the harvesting, training, pruning, or picking process 4 = Modified atmosphere packing 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>automated packing</b> or <b>modified atmosphere packing</b> for packing? [CONDITION: ask this question only if <b>c1_6b3=1</b> or <b>c1_6b4=1</b> ]	<b>c1_6d</b>	(Number of years)

### 3. Food processing (manufacturing)

#### C3.0 Screening questions

Question	Variable	Answer
Is this establishment regulated and inspected by a government agency related to food processing?	<b>c3_0a1</b>	1 = Yes 0 = No -9 = Don't know -7 = Not applicable
What is the main agency that regulates this establishment? [CONDITION: ask only if <b>c3_0a1=1</b> ]	<b>c3_0a2</b>	Name of the agency

Question	Variable	Answer
Are the finished products made by this establishment shelf stable?	<b>c3_0b1</b>	1 = Yes 0 = No -9 = Don't know -7 = Not applicable
Are the finished products made by this establishment fresh/perishable?	<b>c3_0b2</b>	1 = Yes 0 = No -9 = Don't know -7 = Not applicable

### C3.1 Input testing

Question	Variable	Answer
Does this establishment conduct input testing in house? [SKIP: If <b>c3_1a1=1</b> go to question <b>c3_1b1</b> ]	<b>c3_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c3_1a2=1</b> go to question <b>c3_1b1</b> ]	<b>c3_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c3_2a1</b> ]	<b>c3_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following input testing mechanisms?	Variable	Answer	
Sensory systems (e.g. visual, smell, tactile, color)	<b>c3_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Review of supplier testing on Certificate of Analysis	<b>c3_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Non-computer-controlled testing kits	<b>c3_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Computer testing such as chromatography or spectroscopy	<b>c3_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c3_1b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the input testing mechanism used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c3_1b</b> variables]	Variable <b>c3_1c</b>	Answer
		1 = Sensory (visual, smell, color, etc.) 2 = Review of supplier testing on Certificate of Analysis 3 = Non-computer-controlled testing kits 4 = Computer testing such as chromatography or spectroscopy 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using computer testing for input testing? [CONDITION: ask this question only if <b>c3_1b4=1</b> ]	<b>c3_1d</b>	(Number of years)

### C3.2 Mixing/blending/cooking

Question	Variable	Answer
Does this establishment process food preparation such as mixing, blending, or cooking in house? [SKIP: If <b>c3_2a1=1</b> go to question <b>c3_2b1</b> ]	<b>c3_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c3_2a2=1</b> go to question <b>c3_2b1</b> ]	<b>c3_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c3_3a1</b> ]	<b>c3_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following food preparation methods such as mixing, blending?	Variable	Answer	
Manual process	<b>c3_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Mechanical equipment requiring human force to operate	<b>c3_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Power equipment requiring routine human interaction	<b>c3_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Power equipment controlled by computers or robotics, with minimal human interaction	<b>c3_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c3_2b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the mixing, blending or cooking method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c3_2b</b> variables]	Variable	Answer
	<b>c3_2c</b>	1 = Manual process 2 = Mechanical equipment requiring human force to operate 3 = Power equipment requiring routine human interaction 4 = Power equipment controlled by computers or robotics, with minimal human interaction 5 = Other -9 = Don't know

Question	Variable	Answer
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For how many years has this establishment been using power equipment for mixing, blending or cooking?

[CONDITION: ask this question only if c3\_2b3=1 or c3\_2b4=1]

c3\_2d

(Number of years)

### C3.3 Anti-bacterial processes

Question	Variable	Answer
Does this establishment handle anti-bacterial processes in house? [SKIP: If <b>c3_3a1=1</b> go to question <b>c3_3b1</b> ]	<b>c3_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c3_3a2=1</b> go to question <b>c3_3b1</b> ]	<b>c3_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c3_4a1</b> ]	<b>c3_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following anti-bacterial processes?	Variable	Answer	
Minimal-processing preservation methods	<b>c3_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Anti-bacterial wash or soaking	<b>c3_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Thermal Processing Technologies	<b>c3_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Other advanced methods such as High-pressure processing (HPP) and Pulsed electric field (PEF)	<b>c3_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c3_3b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the anti-bacterial process used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c3_3b</b> variables]	Variable	Answer
	<b>c3_3c</b>	1 = Minimal-processing preservation methods 2 = Anti-bacterial wash or soaking 3 = Thermal Processing Technologies 4 = Other advanced methods such as High-pressure processing (HPP) and Pulsed electric field (PEF) 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using <b>thermal or more advanced anti-bacterial processes</b> for anti-bacterial processes? [CONDITION: ask this question only if <b>c3_3b3=1</b> or <b>c3_3b4=1</b> ]	<b>c3_3d</b>	(Number of years)

### C3.4 Packaging

Question	Variable	Answer
Does this establishment proceed with packaging in house? [SKIP: If <b>c3_4a1=1</b> go to question <b>c3_4b1</b> ]	<b>c3_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c3_4a2=1</b> go to question <b>c3_4b1</b> ]	<b>c3_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c3_5a1</b> ]	<b>c3_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packaging methods?	Variable	Answer	
Manual packing in bags, bottles or boxes	<b>c3_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Human operated mechanical equipment for packaging in bags, bottles or boxes	<b>c3_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Power equipment requiring routine human interaction	<b>c3_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Power equipment controlled by computers or robotics, with minimal human interaction	<b>c3_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c3_4b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the packaging procedure used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c3_4b</b> variables]	Variable <b>c3_4c</b>	Answer
		1 = Manual packing in bags, bottles or boxes 2 = Human operated mechanical equipment for packaging in bags, bottles or boxes 3 = Power equipment requiring routine human interaction 4 = Power equipment controlled by computers or robotics, with minimal human interaction 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using power equipment for packaging? [CONDITION: ask this question only if <b>c3_4b3=1</b> or <b>c3_4b4=1</b> ]	<b>c3_4d</b>	(Number of years)

### C3.5 Food storage

Question	Variable	Answer
Does this establishment store the food in house? [SKIP: If <b>c3_5a1=1</b> go to question <b>c3_5b1</b> ]	<b>c3_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c3_5a2=1</b> go to question <b>c3_5b1</b> ]	<b>c3_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c3_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following food storage conditions?	Variable	Answer	
Minimal protection with some exposure to outside elements	<b>c3_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Ambient conditions in closed building	<b>c3_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Some climate control in secured building (e.g. partial or seasonal control)	<b>c3_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Fully automated climate and security-controlled building	<b>c3_5b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c3_5b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What are the food storage conditions more often observed in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c3_5b</b> variables]	Variable	Answer
	<b>c3_5c</b>	1 = Minimal protection with some exposure to outside elements 2 = Ambient conditions in closed building 3 = Some climate control in secured building (e.g. partial or seasonal control) 4 = Fully automated climate and security-controlled building 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using <b>climate control in secured building</b> for food storage? [CONDITION: ask this question only if <b>c3_5b3=1</b> or <b>c3_5b4=1</b> ]	<b>c3_5d</b>	(Number of years)

#### 4. Wearing apparel (manufacturing)

Question: What material does this establishment use to start production?	Variable	Answer	
Printed fabric (e.g. this establishment assembled the provided fabric)	<b>c4_0a1</b>	1 = Yes 2 = No	-9 = Don't know
White fabric (e.g. this establishment die the fabric)	<b>c4_0a2</b>	1 = Yes 2 = No	-9 = Don't know
Fabric threads (e.g. this establishment weave the fabric)	<b>c4_0a3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_0a4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What garments are produced by this establishment?	Variable	Answer	
Basic: TShirt, shorts, cotton, poly, denim	<b>c4_0b1</b>	1 = Yes 2 = No	-9 = Don't know
Fashion: Complex cuts and stich, material mix	<b>c4_0b2</b>	1 = Yes 2 = No	-9 = Don't know
Sports: alternative finishes such as waterproof, reflective	<b>c4_0b3</b>	1 = Yes 2 = No	-9 = Don't know
Protective apparel: including padding, TPR	<b>c4_0b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_0b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What finishes are available in this establishment?	Variable	Answer	
Silk screen	<b>c4_0c1</b>	1 = Yes 2 = No	-9 = Don't know
Embroidery	<b>c4_0c2</b>	1 = Yes 2 = No	-9 = Don't know
Washing	<b>c4_0c3</b>	1 = Yes 2 = No	-9 = Don't know
Waterproofing	<b>c4_0c4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>C4_0c5</b>	1 = Yes 2 = No	-9 = Don't know

## C4.1 Design

Do clients provide files for design to this establishment? [SKIP: If <b>c4_1a1=2</b> go to question <b>c4_1a3</b> ]	<b>c4_1a1</b>	1 = Yes 2 = No
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Question: What is the most common file provided by clients for design?	Variable <b>c4_1a2</b>	Answer 1 = Graded file of all sizes ready to cut 2 = A prototype cutting file for grading 3 = Hand drawing of the design 4 = Computer drawing of the design 5 = 3D file of the design 6 = Other -9 = Don't know
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Question	Variable	Answer
Does this establishment do design drawing in house? [SKIP: If <b>c4_1a3=1</b> go to question <b>c4_1b1</b> ]	<b>c4_1a3</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c4_1a4=1</b> go to question <b>c4_1b1</b> ]	<b>c4_1a4</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c4_2a1</b> ]	<b>c4_1a5</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following design drawing processes?	Variable	Answer	
Manual design and hand drawing	<b>c4_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital or semi-digital design using specialized 2D drawing software	<b>c4_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Computer Aided Design (CAD), 3D design, virtual prototyping	<b>c4_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_1b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the design drawing process used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c4_1b</b> variables]	Variable <b>c4_1c</b>	Answer 1 = Manual design and hand drawing 2 = Digital or semi-digital design using specialized 2D drawing software 3 = Computer Aided Design (CAD), 3D design, virtual prototyping 4 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using specialized software, 3D design, or virtual prototyping? [CONDITION: ask this question only if c4_1b2=1 or c4_1b3=1]	<b>c4_1d</b>	(Number of years)

## C4.2 Cutting

Question	Variable	Answer
Does this establishment handle cutting process in house? [SKIP: If c4_2a1=1 go to question c4_2b1]	<b>c4_2a1</b>	1 = Yes 2 = No
Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_2a2=1 go to question c4_2b1]	<b>c4_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c4_3a1]	<b>c4_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following cutting methods?	Variable	Answer	
Manual cutting	<b>c4_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Cutting machine manually operated	<b>c4_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Semi-Automatic cutting machine (straight knife, round knife, die cutting machine)	<b>c4_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Automatic or Computerized cutting machine (no Laser: water jet, knife, other)	<b>c4_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Automatic/Computerized cutting machine (Laser)	<b>c4_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_2b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the cutting method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_2b variables]	Variable	Answer
	<b>c4_2c</b>	1 = Manual cutting 2 = Cutting machine manually operated 3 = Semi-Automatic cutting machine (straight knife, round knife, die cutting machine) 4 = Automatic or Computerized cutting machine (no Laser: water jet, knife, other) 5 = Automatic/Computerized cutting machine (Laser) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using automatic cutting machines and lasers? [CONDITION: ask this question only if c4_2b4=1 or c4_2b5=1]	<b>c4_2d</b>	(Number of years)

### C4.3 Sewing and Joining Parts

Question	Variable	Answer
Does this establishment handle sew process in house? [SKIP: If c4_3a1=1 go to question c4_3b1]	<b>c4_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_3a2=1 go to question c4_3b1]	<b>c4_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c4_4a1]	<b>c4_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following sewing methods?	Variable	Answer	
Manually sewing	<b>c4_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Machine sewing manually operated	<b>c4_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Semi-automated sewing machines	<b>c4_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Automated sewing machines	<b>c4_3b4</b>	1 = Yes 2 = No	-9 = Don't know
3D Knitting	<b>c4_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the sewing method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_3b variables]	Variable	Answer
	<b>c4_3c</b>	1 = Manually sewing 2 = Machine sewing manually operated 3 = Semi-automated sewing machines 4 = Automated sewing machines 5 = 3D Knitting machines 6 = Other -9 = Don't know

Question	Variable	Answer
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For how many years this establishment has been using semi-automated sewing machines or automated sewing machines or 3D knitting? [CONDITION: ask this question only if c4_3b3=1 or c4_3b4=1 or c4_3b5=1]	<b>c4_3d</b>	(Number of years)
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#### C4.4 Finishing – Ironing

Question	Variable	Answer
Does this establishment handle finishing and ironing process in house? [SKIP: If c4_4a1=1 go to question c4_4b1]	<b>c4_4a1</b>	1 = Yes 2 = No
Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_4a2=1 go to question c4_4b1]	<b>c4_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	<b>c4_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following finishing and ironing methods?	Variable	Answer	
Basic manual ironing	<b>c4_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Electric high-pressure steam iron	<b>c4_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Tunnel finisher	<b>c4_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Form finishing machine	<b>c4_4b4</b>	1 = Yes 2 = No	-9 = Don't know
High tech pressing machine	<b>c4_4b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c4_4b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the finishing and ironing method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_4b variables]	Variable	Answer
	<b>c4_4c</b>	1 = Basic manual ironing 2 = Electric high-pressure steam iron 3 = Tunnel finisher 4 = Form finishing machine 5 = High tech pressing machine 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>form finishing machines or high-tech pressing machines?</b> [CONDITION: ask this question only if <b>c4_4b3=1 or c4_4b4=1 or c4_4b5=1</b> ]	<b>c4_4d</b>	(Number of years)

## 5. Automotive (manufacturing)

### C5.1 Vehicle assembly, advanced processing and fabrication technology

Question	Variable	Answer
Does this establishment assemble vehicles? [SKIP: If <b>c5_1a1=1</b> go to question <b>c5_1b1</b> ]	<b>c5_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c5_1a2=1</b> go to question <b>c5_1b1</b> ]	<b>c5_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c5_2a1</b> ]	<b>c5_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following assembly or fabrication processes?	Variable	Answer	
Machines fully controlled by operators	<b>c5_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Flexible Manufacturing Cells (FMC) or Flexible Manufacturing Systems (FMS)	<b>c5_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Lasers used in materials processing (including surface modification)	<b>c5_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Computer numerically controlled (CNC) machinery	<b>c5_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Robots	<b>c5_1b5</b>	1 = Yes 2 = No	-9 = Don't know
Additive manufacturing including including rapid prototyping and 3D printers	<b>c5_1b6</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c5_1b7</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the assembly or fabrication process used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among <b>c5_1b</b> variables]	Variable	Answer
	<b>c5_1c</b>	1 = Machines fully controlled by operators 2 = Flexible Manufacturing Cells (FMC) or Flexible Manufacturing Systems (FMS) 3 = Lasers used in materials processing (including surface modification) 4 = Computer numerically controlled (CNC) machinery 5 = Robots 6 = Additive manufacturing including including rapid prototyping and 3D printers 7 = Others -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using Computer numerically controlled (CNC) machinery, robots, or additive manufacturing? [CONDITION: ask this question only if <b>c5_1b4=1</b> or <b>c5_1b5=1</b> or <b>c5_1b6=1</b> ]	<b>c5_1d</b>	(Number of years)

## C5.2 Body pressing and welding

Question	Variable	Answer
Does this establishment handle body press and welding in house? [SKIP: If <b>c5_2a1=1</b> go to question <b>c5_2b1</b> ]	<b>c5_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c5_2a2=1</b> go to question <b>c5_2b1</b> ]	<b>c5_2a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c5_3a1</b> ]	<b>c5_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following body pressing and welding methods?	Variable	Answer	
Pressing of skin panels using operators	<b>c5_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Pressing of structural components using operators	<b>c5_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Welding of main body using operators	<b>c5_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Pressing of skin panels automated using robotics	<b>c5_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Pressing of structural components automated using robotics	<b>c5_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Welding of main body automated using robotics	<b>c5_2b6</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c5_2b7</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the pressing and welding method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c5_2b</b> variables]	Variable	Answer
	<b>c5_2c</b>	1 = Pressing of skin panels using operators 2 = Pressing of structural components using operators 3 = Welding of main body using operators 4 = Pressing of skin panels automated using robotics 5 = Pressing of structural components automated using robotics 6 = Welding of main body automated using robotics 7 = Other

		-9 = Don't know
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Question	Variable	Answer
<p>For how many years this establishment has been using pressing of structural components automated using robotics, welding of main body using operators or welding of main body automated using robotics?</p> <p>[CONDITION: ask this question only if <b>c5_2b4=1</b> or <b>c5_2b5=1</b> or <b>c5_2b6=1</b>]</p>	<b>c5_2d</b>	(Number of years)

### C5.3 Painting

Question	Variable	Answer
Does this establishment handle painting process in house? [SKIP: If <b>c5_3a1=1</b> go to question <b>c5_3b1</b> ]	<b>c5_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c5_3a2=1</b> go to question <b>c5_3b1</b> ]	<b>c5_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c5_4a1</b> ]	<b>c5_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following painting methods?	Variable	Answer	
Water-based painting using operators	<b>c5_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Solvent-based painting using operators	<b>c5_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Water-based painting automated using robotics	<b>c5_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Solvent-based painting automated using robotics	<b>c5_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c5_3b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the painting method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c5_3b</b> variables]	Variable	Answer
	<b>c5_3c</b>	1 = Water-based painting using operators 2 = Solvent-based painting using operators 3 = Water-based painting automated using robotics 4 = Solvent-based painting automated using robotics 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using water-based painting automated using robotics or solvent-based painting automated using robotics? [CONDITION: ask this question only if <b>c5_3b3=1</b> or <b>c5_3b4=1</b> ]	<b>c5_3d</b>	(Number of years)

#### C5.4 Plastic injection molding

Question	Variable	Answer
Does this establishment handle plastic injection molding in house? [SKIP: If <b>c5_4a1=1</b> go to question <b>c5_4b1</b> ]	<b>c5_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c5_4a2=1</b> go to question <b>c5_4b1</b> ]	<b>c5_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c5_5a1</b> ]	<b>c5_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following plastic injection molding methods?	Variable	Answer	
Molding of non-visible interior plastic components using operators	<b>c5_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Molding of plastic exterior body parts using operators	<b>c5_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Molding of non-visible interior plastic components automated using robotics	<b>c5_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Molding of plastic exterior body parts automated using robotics	<b>c5_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c5_4b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the plastic injection molding method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c5_4b</b> variables]	Variable <b>c5_4c</b>	Answer
		1 = Molding of non-visible interior plastic components using operators 2 = Molding of plastic exterior body parts using operators 3 = Molding of non-visible interior plastic components automated using robotics 4 = Molding of plastic exterior body parts automated using robotics 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using molding of non-visible interior plastic components using robotics or molding of plastic exterior body parts automated using robotic? [CONDITION: ask this question only if <b>c5_4b3=1</b> or <b>c5_4b4=1</b> ]	<b>c5_4d</b>	(Number of years)

### C5.5. Productive assets management

Question	Variable	Answer
Does this establishment implement productive assets management in house? [SKIP: If <b>c5_5a1=1</b> go to question <b>c5_5b1</b> ]	<b>c5_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c5_5a2=1</b> go to question <b>c5_5b1</b> ]	<b>c5_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c5_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following productive asset management systems?	Variable	Answer	
Breakdown maintenance system	<b>c5_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Preventative or predictive maintenance system	<b>c5_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Model Based Condition Monitoring	<b>c5_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c5_5b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the productive asset management system used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c5_5b</b> variables]	Variable	Answer
	<b>c5_5c</b>	1 = Breakdown maintenance system 2 = Preventative or predictive maintenance system 3 = Model Based Condition Monitoring 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using preventive maintenance system or model-based condition monitoring? [CONDITION: ask this question only if <b>c5_5b2=1</b> or <b>c5_5b3=1</b> ]	<b>c5_5d</b>	(Number of years)

## 6. Pharmaceutical Processing

Question: What sort of drugs this establishment produce?	Variable	Answer	
Tablets and capsules	<b>c6_0a1</b>	1 = Yes 2 = No	-9 = Don't know
Creams and ointments	<b>c6_0a2</b>	1 = Yes 2 = No	-9 = Don't know
Eye and ear solutions	<b>c6_0a3</b>	1 = Yes 2 = No	-9 = Don't know
Syrups and dry powders	<b>c6_0a4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the main product produced by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_0a variables]	Variable	Answer
	<b>c6_0b1</b>	1 = Tablets and capsules 2 = Creams and ointments 3 = Eye and ear solutions 4 = Syrups and dry powders

	Variable	Answer	
Does this establishment conduct research associated with new-drug discovery? [SKIP: If c6_0c1=2 go to section c6_1a1]	<b>c6_0c1</b>	1 = Yes 2 = No	-9 = Don't know
Are the lead researchers of these projects mostly direct employees of this establishment?	<b>c6_0c2</b>	1 = Yes 2 = No.	-9 = Don't know

## C6.1 Facilities

Question	Variable	Answer
Does this establishment use its facilities to mix raw material and compounding in house? [SKIP: If <b>c6_1a1=1</b> go to question <b>c6_1b1</b> ]	<b>c6_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c6_1a2=1</b> go to question <b>c6_1b1</b> ]	<b>c6_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c6_2b1</b> ]	<b>c6_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following air filtration systems?	Variable	Answer	
Unfiltered air in filling space	<b>c6_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Basic air filtration	<b>c6_1b2</b>	1 = Yes 2 = No	-9 = Don't know
HEPA air filtration	<b>c6_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Ultra HEPA air, pressurization control	<b>c6_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_1b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the air filtration system used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among <b>c6_1b</b> variables]	Variable	Answer
	<b>c6_1c</b>	1 = Unfiltered air in filling space 2 = Basic air filtration 3 = HEPA air filtration 4 = Ultra HEPA air, pressurization control 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>HEPA air filtration</b> or <b>ultra HEPA air, pressurization control</b> for raw material weighing and dispensing in these facilities? [CONDITION: ask this question only if <b>c6_1b3=1</b> or <b>c6_1b4=1</b> ]	<b>c6_1d</b>	(Number of years)

## C6.2 Raw Material Weighing & Dispensing

Question: Does this establishment use any of the following weighting scale systems?	Variable	Answer	
Beam Scales	<b>c6_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Analog Scales	<b>c6_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Electronic Scales	<b>c6_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Automated Weighing Systems	<b>c6_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_2b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the weighting scale system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_2b variables]	Variable	Answer
	<b>c6_2c</b>	1 = Beam Scales 2 = Analog Scales 3 = Electronic Scales 4 = Automated Weighing Systems 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been automated weighing systems for raw material and weighing? [CONDITION: ask this question only if c6_2b4=1]	<b>c6_2d</b>	(Number of years)

### C6.3 Mixing and Compounding

Question: Does this establishment use any of the following mixing and compounding systems?	Variable	Answer	
Manual Mixing	<b>c6_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Planetary Mixers OR homogenizers	<b>c6_3b2</b>	1 = Yes 2 = No	-9 = Don't know
High Speed, High Shear Granulators	<b>c6_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Fluid Bed Processors (not with syrups)	<b>c6_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Fully Automated Compounding	<b>c6_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the mixing and compounding system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c6_3b</b> variables]	Variable	Answer
	<b>c6_3c</b>	1 = Manual Mixing 2 = Planetary Mixers OR homogenizers 3 = High Speed, High Shear Granulators 4 = Fluid Bed Processors (not with syrups) 5 = Fully Automated Compounding 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using high speed, high shear granulators, fluid bed processors or automated compounding? [CONDITION: ask this question only if <b>c6_3b3=1</b> or <b>c6_3b4=1</b> or <b>c6_3b5=1</b> ]	<b>c6_3d</b>	(Number of years)

## C6.4 Compression and Encapsulation

[SKIP: If **c6\_0b1=3** OR **c6\_0b1=4** go to question **c6\_5a1**]

Question	Variable	Answer
Does this establishment employ compression or encapsulation methods for production in house? [SKIP: If <b>c6_4a1=1</b> go to question <b>c6_4b1</b> ]	<b>c6_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c6_4a2=1</b> go to question <b>c6_4b1</b> ]	<b>c6_4a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c6_5a1</b> ]	<b>c6_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following compression or encapsulation methods?	Variable	Answer	
Manual Compression, Encapsulation with dosing dies	<b>c6_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Motorized Compression, Encapsulation	<b>c6_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated Compression, Encapsulation	<b>c6_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Integrated Compression, Encapsulation	<b>c6_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_4b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the compression or encapsulation method used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c6_4b</b> variables]	Variable	Answer
	<b>c6_4c</b>	1 = Manual Compression, Encapsulation with dosing dies 2 = Motorized Compression, Encapsulation 3 = Automated Compression, Encapsulation 4 = Integrated Compression, Encapsulation 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>automate compression or integrated compression</b> for compression? [CONDITION: ask this question only if <b>c6_4b3=1</b> or <b>c6_4b4=1</b> ]	<b>c6_4d</b>	(Number of years)

### C6.5 Quality Control

Question	Variable	Answer
Does this establishment have an in-house quality control system? [SKIP: If <b>c6_5a1=1</b> go to question <b>c6_5b1</b> ]	<b>c6_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c6_5a2=1</b> go to question <b>c6_5b1</b> ]	<b>c6_5a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c6_6b1</b> ]	<b>c6_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following quality control systems?	Variable	Answer	
Manual, titrimetric/ chromatographic analyses	<b>c6_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Electronic chromatography	<b>c6_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Electronic chromatography with data acquisition	<b>c6_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_5b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the quality control system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c6_5b</b> variables]	Variable	Answer
	<b>c6_5c</b>	1 = Manual, titrimetric/ chromatographic analyses 2 = Electronic chromatography 3 = Electronic chromatography with data acquisition 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>electronic chromatography</b> or <b>electronic chromatography with data acquisition</b> for quality control? [CONDITION: ask this question only if <b>c6_5b2=1</b> or <b>c6_5b3=1</b> ]	<b>c6_5d</b>	(Number of years)

## C1.6 Packaging

Question	Variable	Answer
Does this establishment package products in house? [SKIP: If <b>c6_6a1=1</b> go to question <b>c6_6b1</b> ]	<b>c6_6a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c6_6a2=1</b> go to question <b>c6_6b1</b> ]	<b>c6_6a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c6_6a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packaging methods?	Variable	Answer	
Manual filling of pills in bottles OR placement of syrups, powders in bottles or pouches	<b>c6_6b1</b>	1 = Yes 2 = No	-9 = Don't know
For pills: Slat Counters, Cottoners, Cappers, Labelers OR machine filling of syrups, powders in bottles or pouches	<b>c6_6b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated, Integrated Packaging Lines	<b>c6_6b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c6_6b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the packaging method used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c6_6b</b> variables]	Variable	Answer
	<b>c6_6c</b>	1 = Manual filling of pills in bottles OR placement of syrups, powders in bottles or pouches 2 = For pills: Slat Counters, Cottoners, Cappers, Labelers OR machine filling of syrups, powders in bottles or pouches 3 = Automated, Integrated Packaging Lines 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using Slat counters, Cottoners, Cappers, Labelers OR machine filling automated, integrated packaging lines for packaging? [CONDITION: ask this question only if <b>c6_6b2=1</b> or <b>c6_6b3=1</b> ]	<b>c6_6d</b>	(Number of years)

## 7. Retail (services)

### C 7.1 Customer service

Question	Variable	Answer
Does this establishment provide customer supporting services in house (e.g. technical support, complaints, return)? [SKIP: If <b>c7_1a1=1</b> go to question <b>c7_1b1</b> ]	<b>c7_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c7_1a2=1</b> go to question <b>c7_1b1</b> ]	<b>c7_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c7_2a1</b> ]	<b>c7_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment provide any of the following customer service channels?	Variable	Answer	
At the Store	<b>c7_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Phone call or call Help Desk	<b>c7_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Social Media (e.g. Facebook, WhatsApp, or similar)	<b>c7_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Online requests (using own website or specialized digital platform or App)	<b>c7_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Chatbots (e.g. a computer program which conducts a conversation via auditory or textual methods without human interaction by the company)	<b>c7_1b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c7_1b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the customer service procedure used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c7_1b</b> variables]	Variable	Answer
	<b>c7_1c</b>	1 = At the Store 2 = Phone call or call Help Desk 3 = Social Media (e.g. Facebook, WhatsApp, or similar) 4 = Online requests (using own website or specialized digital platform or App) 5 = Chatbots (e.g. a computer program which conducts a conversation via auditory or textual methods without human interaction by the company) 6 = Other

		-9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using <b>online technologies</b> for customer services? [CONDITION: ask this question only if <b>c7_1b3=1 or c7_1b4=1 or c7_1b5=1</b> ]	<b>c7_1d</b>	(Number of years)

## C 7.2 Pricing

Question	Variable	Answer
Does this establishment decide the pricing strategies in house? [SKIP: If <b>c7_2a1=1</b> go to question <b>c7_2b1</b> ]	<b>c7_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c7_2a2=1</b> go to question <b>c7_2b1</b> ]	<b>c7_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c7_3a1</b> ]	<b>c7_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following pricing strategies?	Variable	Answer	
Manual Cost	<b>c7_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Automated markup (excel or similar)	<b>c7_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated promotional (e.g. planning prices based on seasonality or other predictable events)	<b>c7_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Dynamic pricing systems (using specific software to predict demand and adjust prices)	<b>c7_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Personalized pricing driven by predictive analytics (e.g. data mining, machine learning)	<b>c7_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c7_2b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the pricing strategy used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c7_2b</b> variables]	Variable	Answer
	<b>c7_2c</b>	1 = Manual Cost 2 = Automated markup (excel or similar) 3 = Automated promotional (e.g. planning prices based on seasonality or other predictable events) 4 = Dynamic pricing systems (using specific software to predict demand and adjust prices) 5 = Personalized pricing (e.g. data mining, machine learning) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>dynamic pricing systems or personalized pricing</b> for pricing strategies? <b>[CONDITION: ask this question only if c7_2b4=1 or c7_2b5=1]</b>	<b>c7_2d</b>	(Number of years)
Is there any significant regulation that limits price mechanism decision of this establishment?	<b>c7_2da</b>	1 = Yes 2 = No -9 = Don't know
What is the agency regulating the price mechanism for this establishment?	<b>c7_2db</b>	Name of the agency

### C7.3 Merchandising

Question	Variable	Answer
Does this establishment make strategic decisions about what products are sold and how they are displayed to the costumers in house? [SKIP: If <b>c7_3a1=1</b> go to question <b>c7_3b1</b> ]	<b>c7_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If <b>c7_3a2=1</b> go to question <b>c7_3b1</b> ]	<b>c7_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c7_4a1</b> ]	<b>c7_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following merchandising strategies?	Variable	Answer	
Manually selecting products	<b>c7_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Category Management tools (decide how many products of each category to sell)	<b>c7_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Retail Merchandising Systems or Digital Merchandising (specialized software that takes into account the turnover, inventory, and space)	<b>c7_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Product trend analytics (forward-looking strategies based on Big data analytics, or Machine learning)	<b>c7_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c7_3b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the merchandising strategy used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c7_3b</b> variables]	Variable	Answer
	<b>c7_3c</b>	1 = Manually selecting products 2 = Category Management tools (decide how many products of each category to sell) 3 = Retail Merchandising Systems or Digital Merchandising (specialized software that takes into account the turnover, inventory, and space) 4 = Product trend analytics (forward-looking strategies based on Big data analytics, or Machine learning) 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using digital merchandising or product trend analysis for merchandising? [CONDITION: ask this question only if c7_3b3=1 or c7_3b4=1]	c7_3d	(Number of years)

### C7.4 Inventory

Question	Variable	Answer
Does this establishment manage inventory in house? [SKIP: If <b>c7_4a1=1</b> go to question <b>c7_4b1</b> ]	<b>c7_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c7_4a2=1</b> go to question <b>c7_4b1</b> ]	<b>c7_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c7_5a1</b> ]	<b>c7_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following inventory methods?	Variable	Answer	
Handwritten record keeping	<b>c7_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Computer databases with manual updates	<b>c7_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Warehouse Management System with specialized software	<b>c7_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Automated inventory control (CAO), Vendor managed inventory, and/or Radio-frequency identification	<b>c7_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Automated Storage and Retrieval systems (AS/RS)	<b>c7_4b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c7_4b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the inventory method use more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c7_4b</b> variables]	Variable	Answer
	<b>c7_4c</b>	1 = Handwritten record keeping 2 = Computer databases with manual updates 3 = Warehouse Management System with specialized software 4 = Automated inventory control (CAO) or Vendor managed inventory, or Radio-frequency identification 5 = Automated Storage and Retrieval systems 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using <b>automated inventory systems</b> for food storage? [CONDITION: ask this question only if <b>c7_4b4 = 1</b> or <b>c7_4b5=1</b> ]	<b>c7_4d</b>	(Number of years)

### C7.5 Advertisement

Question	Variable	Answer
Does this establishment use in-house expertise to implement advertisement strategies? [SKIP: If <b>c7_5a1=1</b> go to question <b>c7_5b1</b> ]	<b>c7_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> ) [SKIP: If <b>c7_5a2=1</b> go to question <b>c7_5b1</b> ]	<b>c7_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c7_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following advertisement channels?	Variable	Answer	
Paper based communication: instore signage, newspaper ads, leaflets	<b>c7_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Radio, Billboards, TV	<b>c7_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Email or mobile phone	<b>c7_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Social Media (YouTube, Facebook, Twitter, Instagram) – customer cluster	<b>c7_5b4</b>	1 = Yes 2 = No	-9 = Don't know
Search Engine Marketing to customize advertisement	<b>c7_5b5</b>	1 = Yes 2 = No	-9 = Don't know
Big data Analytics or Artificial Intelligence to generate personalized advertisement	<b>c7_5b6</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c7_5b7</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the main advertisement channel and strategy used in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c7_5b</b> variables]	Variable	Answer
	<b>c7_5c</b>	1 = Paper based communication 2 = Radio, Billboards, TV 3 = Email or mobile phone 4 = Social Media (YouTube, Facebook, Twitter, Instagram) 5 = Search Engine Marketing 6 = Big data or Artificial Intelligence 7 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using search engine marketing or big data (artificial intelligence) for advertisement? [CONDITION: ask this question only if <b>c7_5b5=1</b> or <b>c7_5b6=1</b> ]	<b>c7_5d</b>	(Number of years)

## 8. Banking (services)

Question: What customer service is available in these facilities?	Variable	Answer
What is the number of checking accounts managed by this establishment?	<b>c8_0a</b>	(Number) -9 = Don't know -7 = Not applicable
What is the number of saving accounts managed by this establishment?	<b>c8_0b</b>	(Number) -9 = Don't know -7 = Not applicable
What is the number of loans managed by this establishment?	<b>c8_0c</b>	(Number) -9 = Don't know -7 = Not applicable

### C8.1 Customer Services related to checking and saving accounts

Question	Variable	Answer
Does this establishment provide customer service related to checking and saving accounts (e.g. deposit, payment, transfers)? [SKIP: If <b>c8_1a1=1</b> go to question <b>c8_1b1</b> ]	<b>c8_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c8_1a2=1</b> go to question <b>c8_1b1</b> ]	<b>c8_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c8_2a1</b> ]	<b>c8_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment provide any of the following customer services?	Variable	Answer	
Teller (Face-to-face)	<b>c8_1b1</b>	1 = Yes 2 = No	-9 = Don't know
ATM machines	<b>c8_1b2</b>	1 = Yes 2 = No	-9 = Don't know
On-line on company website	<b>c8_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Mobile application of the company	<b>c8_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Mobile Banking	<b>c8_1b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c8_1b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the customer service used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among c8_1b variables]	Variable <b>c8_1c</b>	Answer 1 = Teller (Face-to-face) 2 = ATM machines 3 = On-line on company website 4 = Mobile application of the company 5 = Mobile Banking 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using online on company website, mobile application or mobile banking? [CONDITION: ask this question only if c8_1b3=1 or c8_1b4=1 or c8_1b5=1]	<b>c8_1d</b>	(Number of years)

### C8.2 Verify clients' identity and avoid fraud

Question	Variable	Answer
Does this establishment handle the client identification and fraud in house? [SKIP: If c8_2a1=1 go to question c8_2b1]	<b>c8_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c8_2a2=1 go to question c8_2b1]	<b>c8_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c8_3a1]	<b>c8_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following verification method for client identification?	Variable	Answer	
Teller (Face-to-face) with documentation	<b>c8_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Use of online passwords	<b>c8_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Use of online passwords combined with security Token devices	<b>c8_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Use of digital authentication service provided by specialized firms	<b>c8_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Biometric identity verification	<b>c8_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Blockchain	<b>c8_2b6</b>	1 = Yes	-9 = Don't know

		2 = No	
Other	<b>c8_2b7</b>	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the verification method used more often by this establishment?  <b>[CONDITION: Ask only if the answer is YES for more than one option among c8_2b variables]</b></p>	<p>Variable  <b>c8_2c</b></p>	<p>Answer  1 = Teller (Face-to-face) with documentation  2 = Use of online passwords  3 = Use of online passwords combined with security Token devices  4 = Use of digital authentication service provided by specialized firms  5 = Biometric identity verification  6 = Blockchain  7 = Other  -9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using digital authentication provided by specialized firms, biometry identity verification or block chain?   <b>[CONDITION: ask this question only if c8_2b4=1 or c8_2b5=1 or c8_2b6=1]</b></p>	<b>c8_2d</b>	(Number of years)

### C8.3 Loan applications

Question	Variable	Answer
Does this establishment handle loan applications in house? [SKIP: If <b>c8_3a1=1</b> go to question <b>c8_3b1</b> ]	<b>c8_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c8_3a2=1</b> go to question <b>c8_3b1</b> ]	<b>c8_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c8_4a1</b> ]	<b>c8_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for handling loan applications?	Variable	Answer	
Loan officer, paper based, in the establishment	<b>c8_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Mobile/Phone application plus paper based submitted to the establishment	<b>c8_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Channel partners, Loan officer, paper based	<b>c8_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Internet/Mobile phone applications (fully digital process)	<b>c8_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c8_3b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the method for handling loan applications used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c8_3b</b> variables]	Variable	Answer
	<b>c8_3c</b>	1 = Loan officer, paper based, in the establishment 2 = Mobile/Phone application plus paper based submitted to the establishment 3 = Channel partners, Loan officer, paper based 4 = Internet/Mobile phone applications (fully digital process) 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using internet application (plus paper-based) or mobile phone applications? [CONDITION: ask this question only if <b>c8_3b4=1</b> ]	<b>c8_3d</b>	(Number of years)

### C8.4 Approval process of credit applications

Question	Variable	Answer
Does this establishment handle the approval process of credit applications in house? [SKIP: If <b>c8_4a1=1</b> go to question <b>c8_4b1</b> ]	<b>c8_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c8_4a2=1</b> go to question <b>c8_4b1</b> ]	<b>c8_4a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c8_5a1</b> ]	<b>c8_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following approval processes of credit applications?	Variable	Answer	
Analyst decision based on papers delivered in the application	<b>c8_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Analyst decision based on digital information	<b>c8_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated decision mechanisms using specialized software	<b>c8_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Credit appraisal algorithm using Artificial Intelligence or Big Data Analytics	<b>c8_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c8_4b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the approval process of credit applications used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c8_4b</b> variables]	Variable	Answer
	<b>c8_4c</b>	1 = Analyst decision based on papers delivered in the application 2 = Analyst decision based on digital information 3 = Automated decision mechanisms using specialized software 4 = Credit appraisal algorithm using Artificial Intelligence or Big Data Analytics 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using automated decision mechanisms using specialized software, big data or artificial intelligence?	<b>c8_4d</b>	(Number of years)

[CONDITION: ask this question only if <b>c8_4b3=1</b> or <b>c8_4b4=1</b> ]		
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### C8.5 Technologies of Operational Support Area

Question	Variable	Answer
Does this establishment handle operational support area in house? [SKIP: If <b>c8_5a1=1</b> go to question <b>c8_5b1</b> ]	<b>c8_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c8_5a2=1</b> go to question <b>c8_5b1</b> ]	<b>c8_5a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c8_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for handling operational support area?	Variable	Answer	
Purely rely on writing records from employees	<b>c8_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital accounting and document management system using PCs	<b>c8_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Digital Network (Centralized system across branches)	<b>c8_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c8_5b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the method for handling operational support area used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c8_5b</b> variables]	Variable	Answer
	<b>c8_5c</b>	1 = Purely rely on writing records from employees 2 = Digital accounting and document management system using PCs 3 = Digital Network (Centralized system across branches) 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using digital accounting or digital network?	<b>c8_5d</b>	(Number of years)

[CONDITION: ask this question only if **c8\_5b2==1** or **c8\_5b3==1**]

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## 9. Transportation (services)

Question: What are the main transportation services provide by this establishment?	Variable	Answer	
Passengers	<b>c9_0a1</b>	1 = Yes 2 = No	-9 = Don't know
Freight	<b>c9_0a2</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_0a3</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the type of the fleet used by this establishment?	Variable	Answer	
Trucks	<b>c9_0b1</b>	1 = Yes 2 = No	-9 = Don't know
Cars	<b>c9_0b2</b>	1 = Yes 2 = No	-9 = Don't know
Motorcycle	<b>c9_0b3</b>	1 = Yes 2 = No	-9 = Don't know
Others	<b>c9_0b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the number of vehicles used by this establishment by type of the fleet?	Variable	Answer	
Trucks [CONDITION: Ask only if <b>c9_0b1=1</b> ]	<b>c9_0b5</b>	Number	-9 = Don't know -7 Does not apply
Cars [CONDITION: Ask only if <b>c9_0b2=1</b> ]	<b>c9_0b6</b>	Number	-9 = Don't know -7 Does not apply
Motorcycle [CONDITION: Ask only if <b>c9_0b3=1</b> ]	<b>c9_0b7</b>	Number	-9 = Don't know -7 Does not apply

Question: What is the number of vehicles with the following features?	Variable	Answer	
Automatic transmission [CONDITION: Ask only if any of the <b>c9_0b</b> answers is 1]	<b>c9_0b8</b>	Number	-9 = Don't know -7 Does not apply
Hybrid or electric [CONDITION: Ask only if any of the <b>c9_0b</b> answers is 1]	<b>c9_0b9</b>	Number	-9 = Don't know -7 Does not apply

GPS tracking system	<b>c9_0b9</b>	Number	-9 = Don't know -7 Does not apply
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Question:	Variable	Answer	
Are there any regulations regarding the number of hours that drivers can drive uninterruptedly that applies for this establishment?	<b>c9_0c1</b>	1 = Yes 2 = No	-9 = Don't know
Are there any regulations regarding the type of vehicles allowed to be used for business purpose by this establishment?	<b>c9_0c2</b>	1 = Yes 2 = No	-9 = Don't know

### C 9.1 Transportation Planning

Question	Variable	Answer
Does this establishment make load optimization plans in house? [SKIP: If <b>c9_1a1=1</b> go to question <b>c9_1b1</b> ]	<b>c9_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c9_1a2=1</b> go to question <b>c9_1b1</b> ]	<b>c9_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c9_2a1</b> ]	<b>c9_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for transportation planning?	Variable	Answer	
Handwritten information to create load plans	<b>c9_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Information collected by electronic file share (e.g. Email or FAX to create load plans)	<b>c9_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Batch information collected by installed software to create ERP generated load plans	<b>c9_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Real time information by online software interface with ERP to create load plans	<b>c9_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_1b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the transportation planning software application used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c9_1b</b> variables]	Variable	Answer
	<b>c9_1c</b>	1 = Information collected by non-specialized workers to create load plans 2 = Information collected by electronic file share (e.g. Email or FAX to create load plans) 3 = Batch information collected by software installed ERP to create ERP generated load plans 4 = Real time information by online software interface with ERP to create load plans 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using batch information or real time information collected by specialized software integrated with ERP to create load plans? [CONDITION: ask this question only if <b>c9_1b3=1</b> or <b>c9_1b4=1</b> ]	<b>c9_1d</b>	(Number of years)

### C 9.2 Transportation Plan Execution

Question	Variable	Answer
Does this establishment execute transportation load plans? [SKIP: If <b>c9_2a1=1</b> go to question <b>c9_2b1</b> ]	<b>c9_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c9_2a2=1</b> go to question <b>c9_2b1</b> ]	<b>c9_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c9_3a1</b> ]	<b>c9_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following processes for loading tender, routing, and dispatching?	Variable	Answer	
Manual process with the support of fax, text, or phone calls	<b>c9_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Manual process with the support of digital platforms or mobile apps	<b>c9_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Execution plan exchanged via web based direct to delivery equipment for interface with Driver: GPS,- routing, tracking, Email, text	<b>c9_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Specific software interface via Internet: GPS, Dynamic routing (weather ,traffic), Elog – Driver status and safety, load monitoring	<b>c9_2b4</b>	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment	<b>c9_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_2b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the data file exchange system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c9_2b</b> variables]	Variable <b>c9_2c</b>	Answer
		1 = Manual process with the support of fax, text, or phone calls 2 = Manual process with the support of digital platforms or mobile apps 3 = Execution plan exchanged via web based direct to delivery equipment for interface with Driver: GPS,- routing, tracking, Email, text 4 = Specific software interface via Internet: GPS, Dynamic routing (weather ,traffic), Elog – Driver status and safety, load monitoring 5 = File exchange between ERP integrated applications

		6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using specialized software for transportation load plan execution? [CONDITION: ask this question only if c9_2b3=1 or c9_2b4=1 or c9_2b5=1]	<b>c9_2d</b>	(Number of years)

### C 9.3 Transportation Monitoring

Question	Variable	Answer
Does this establishment monitor load and delivery in house? [SKIP: If c9_3a1=1 go to question c9_3b1]	<b>c9_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c9_3a2=1 go to question c9_3b1]	<b>c9_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c9_4a1]	<b>c9_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following systems for monitoring load and delivery?	Variable	Answer	
Event driven at predetermined intervals with the support of fax, text, or phone calls	<b>c9_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Event driven at predetermined intervals with the support of digital platforms or mobile apps	<b>c9_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Paper documentation exchange on daily, weekly or monthly intervals with data entry into ERP or planning system– invoice, bill of lading, regulatory, etc.	<b>c9_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring	<b>c9_3b4</b>	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment software application(s)	<b>c9_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the transportation monitoring	Variable	Answer
	<b>c9_3c</b>	1 = Event driven at predetermined intervals with the support of fax, text, or phone calls

<p>system used more often by this establishment?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among <b>c9_3b</b> variables]</p>		<p>2 = Event driven at predetermined intervals with the support of digital platforms or mobile apps</p> <p>3 = Paper documentation exchange on daily, weekly or monthly intervals with data entry into ERP or planning system– invoice, bill of lading, regulatory, etc.</p> <p>4 = Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring</p> <p>5 = File exchange between ERP integrated applications and delivery equipment software application(s)</p> <p>6 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using a system integrated into ERP, specialized software, or batch processing of electronic data exchange for monitoring transportation?</p> <p>[CONDITION: ask this question only if <b>c9_3b3=1</b> or <b>c9_3b4=1</b> or <b>c9_3b5=1</b>]</p>	<p><b>c9_3d</b></p>	<p>(Number of years)</p>

### C 9.4 Transportation Performance Measurement

Question	Variable	Answer
Does this establishment measure transport performance in house? [SKIP: If <b>c9_4a1=1</b> go to question <b>c9_4b1</b> ]	<b>c9_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If <b>c9_4a2=1</b> go to question <b>c9_4b1</b> ]	<b>c9_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c9_5a1</b> ]	<b>c9_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following transport performance measurement systems?	Variable	Answer	
Manually monitored and reported	<b>c9_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Computer with non-specialized software such as Excel, Word, Power Point, or equivalent	<b>c9_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Computer or apps with specialized transportation reporting applications by service and cost performance metrics	<b>c9_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring	<b>c9_4b4</b>	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment software application(s)	<b>c9_4b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_4b6</b>	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the transportation performance measurement system used more often in this facility?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among <b>c9_4b</b> variables]</p>	<p>Variable <b>c9_4c</b></p>	<p>Answer</p> <p>1 = Manually monitored and reported</p> <p>2 = Computer with non-specialized software such as Excel, Word, Power Point, or equivalent</p> <p>3 = Computer or apps with specialized transportation reporting applications by service and cost performance metrics</p> <p>4 = Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring</p> <p>5 = File exchange between ERP integrated applications and delivery equipment software application(s)</p> <p>6 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using computer with specialized software or Apps or ERP integrated applications reporting performance metrics or fuel consumption?</p> <p>[CONDITION: ask this question only if <b>c9_4b3=1</b> or <b>c9_4b4=1</b> or <b>c9_4b5=1</b>]</p>	<p><b>c9_4d</b></p>	<p>(Number of years)</p>

### C 9.5 Fleet Asset Management/Maintenance – Equipment/Operator

Question	Variable	Answer
Does this establishment manage fleet assets in house? [SKIP: If <b>c9_5a1=1</b> go to question <b>c9_5b1</b> ]	<b>c9_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c9_5a2=1</b> go to question <b>c9_5b1</b> ]	<b>c9_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c9_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following fleet management systems?	Variable	Answer	
All manual paper driven system (e.g. repair, regulatory, licensing, insurance, warranty, performance, and parts management)	<b>c9_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Information collected by electronic file and shared through Email or FAX	<b>c9_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Batch information collected by software installed on transportation equipment – ETM (engine monitoring) for fleet management documentation and reporting	<b>c9_5b3</b>	1 = Yes 2 = No	-9 = Don't know
Data exchange via Web between ERP and software installed on transportation equipment – ETM, (engine monitoring) Elog and GPS (driver monitor) for fleet management documentation and reporting	<b>c9_5b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c9_5b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the fleet management system used more often in this facility?	Variable	Answer
	<b>c9_5c</b>	1 = All manual paper driven system (e.g. repair, regulatory, licensing, insurance, warranty, performance, and parts management)

<p>[CONDITION: Ask only if the answer is YES for more than one option among <b>c9_5b</b> variables]</p>		<p>2 = Information collected by electronic file and shared through Email or FAX  3 = Batch information collected by software installed on transportation equipment – ETM (engine monitoring) for fleet management documentation and reporting  4 = Data exchange via Web between ERP and software installed on transportation equipment – ETM, (engine monitoring) Elog and GPS (driver monitor) for fleet management documentation and reporting  5 = Other  -9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using batch information collected by specialized software or real-time information by on-line software interface with ERP?  [CONDITION: ask this question only if <b>c9_5b3=1</b> or <b>c9_5b4=1</b>]</p>	<p><b>c9_5d</b></p>	<p>(Number of years)</p>

## 10. Health services (services)

Question	Answer
How is this hospital classified in terms of level of complexity for health treatment care?	<b>c10_0</b> 1 = Level 1 : Primary Care 2 = Level 2 : Specialty Physician Care 3 = Level 3 : Acute Care General Hospital or Ambulatory Surgical Center 4 = Level 4 : Specialty Acute Care Hospital -9 = Don't know -7 = Not applicable

**OBS: This question may need to be adapted to the health system in each country.**

Question	Answer
What is the average number of patient visits per day in this establishment?	<b>c10_0a</b> Number of patients -9 = Don't know -7 = Not applicable
What is the average number of patients spending the night in this establishment per day	<b>c10_0b</b> Number of patients -9 = Don't know -7 = Not applicable
How many full-time doctors work in this establishment?	<b>c10_0c</b> Number of full-time doctors -9 = Don't know -7 = Not applicable
How many of full-time nurses work in this establishment?	<b>c10_0d</b> Number of full-time nurses -9 = Don't know -7 = Not applicable

### C 10.1 Infrastructure and machines available

Infrastructure/Technology	Is this infrastructure or equipment available in this establishment? 1= Yes 0= No -9 = Don't know -7 = Not applicable	What is the number of equipment in "workable" conditions available?  [CONDITION: IF these infrastructures or equipment are available.]
Emergency department	<b>c10_1a1</b>	<b>c10_1b1</b> Number of beds
Postoperative care area	<b>c10_1a2</b>	<b>c10_1b2</b> Number of beds
Intensive Care Unit	<b>c10_1a3</b>	<b>c10_1b3</b>

		Number of beds
Pretested blood available (blood bank)	<b>c10_1a4</b>	<b>c10_1b4</b> Number of tests per day
Lab to test blood and urine	<b>c10_1a5</b>	<b>c10_1b5</b> Number of tests per day
Functioning X-ray machine	<b>c10_1a6</b>	<b>c10_1b6</b> Number of machines
Functioning ultrasound machine	<b>c10_1a7</b>	<b>c10_1b7</b> Number of machines
Functioning Computerized Tomography CT scan	<b>c10_1a8</b>	<b>c10_1b8</b> Number of machines
Functioning MRI machine	<b>c10_1a9</b>	<b>c10_1b9</b> Number of machines
Functioning ultrasound machine?	<b>c10_1a10</b>	<b>c10_1b10</b> Number of machines
Pulse oximetry	<b>c10_1a11</b>	<b>c10_1b11</b> Number of machines
Electrocardiogram (ECG)	<b>c10_1a12</b>	<b>c10_1b12</b> Number of machines

### C 10.2 Scheduling appointments (for clinics)

Question	Variable	Answer
Does this establishment schedule appointments? [SKIP: If <b>c10_2a1=1</b> go to question <b>c10_2b1</b> ]	<b>c10_2a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c10_2a2=1</b> go to question <b>c10_2b1</b> ]	<b>c10_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c10_3a1</b> ]	<b>c10_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following scheduling systems?	Variable	Answer	
Personal visit and paper	<b>c10_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Phone call, SMS, or Email	<b>c10_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Specialized software or mobile app for appointment WITHOUT automated reminders	<b>c10_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Specialized software or mobile app for appointment WITH automated reminders and confirmation	<b>c10_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c10_2b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the scheduling system used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among <b>c10_2b</b> variables]	Variable	Answer
	<b>c10_2c</b>	1 = Personal visit and paper 2 = Phone call, SMS, or Email 3 = Specialized software or mobile app for appointment WITHOUT automated reminders 4 = Specialized software or mobile app for appointment WITH automated reminders and confirmation 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been scheduling appointments with specialized software, webpage, or mobile app?	<b>c10_2d</b>	(Number of years)

[CONDITION: ask this question only if <b>c10_2b3=1</b> or <b>c10_2b4=1</b> ]		
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### C 10.3 Management of Patient Records (Physician's note)

Question	Variable	Answer
Does this establishment handle patient records in house? [SKIP: If <b>c10_3a1=1</b> go to question <b>c10_3b1</b> ]	<b>c10_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> ) [SKIP: If <b>c10_3a2=1</b> go to question <b>c10_3b1</b> ]	<b>c10_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c10_4a1</b> ]	<b>c10_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following patient record keeping systems?	Variable	Answer	
Handwritten process	<b>c10_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital patient records using standard software, such as Excel and Word	<b>c10_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Electronic Health Records (EHR) with specialized software	<b>c10_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Cloud-based Electronic Health Records (EHR) integrated to analytical and management tools	<b>c10_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c10_3b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the patient record keeping system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c10_3b</b> variables]	Variable	Answer
	<b>c10_3c</b>	1 = Handwritten process 2 = Digital patient records using standard software, such as Excel and Word 3 = Electronic Health Records (EHR) with specialized software 4 = Cloud-based Electronic Health Records (EHR) integrated to analytical and management tools 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using electronic health records? [CONDITION: ask this question only if c10_3b3=1 or c10_3b4=1]	c10_3d	(Number of years)

### C 10.4 Medication management and administration

Question	Variable	Answer
Does this establishment have a pharmacy to provide medication for patients in house? [SKIP: If c10_4a1=2 go to question c10_4c1]	c10_4a1	1 = Yes 2 = No

Question: What of the following options better describe the way this establishment handle:	Variable	Answer %
The stock of medication in the (internal) pharmacy	c10_4b1	1 = Manual accounting 2 = Electronic system accounting with manual order to suppliers 3 = Electronic system accounting with automated order to suppliers -9 = Don't know (SPONTANEOUS) -7 = Not applicable (SPONTANEOUS)
The order of medication to patients by physicians	c10_4b2	1 = Manual order 2 = Electronic order -9 = Don't know (SPONTANEOUS) -7 = Not applicable (SPONTANEOUS)

Question: Does this establishment use any of the following medication management and administration systems?	Variable	Answer	
Handwritten monitoring administration of medicine	c10_4c1	1 = Yes 2 = No	-9 = Don't know
Barcode or electronic identification for medicine administration to patients	c10_4c2	1 = Yes 2 = No	-9 = Don't know
Other	c10_4c3	1 = Yes 2 = No	-9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using barcode identification for medicine administration to patients? [CONDITION: ask this question only if c10_4c2=1]	c10_4d	(Number of years)

### C 10.5 Procedures (Sepsis, Childbirth, Trauma, and Strokes)

Question: What is the availability of the following sepsis treatment in this establishment?	Variable	Answer
Treatment with antibiotics	<b>c10_5a1</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Treatment with advanced therapies, such as resuscitation, mechanical ventilation, glucose control, and renal control	<b>c10_5a2</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following childbirth procedures in this establishment?	Variable	Answer
Cesarean Section	<b>c10_5b1</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
High-risk labor	<b>c10_5b2</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following procedures related to trauma in this establishment?	Variable	Answer
Traction (closed fracture)	<b>c10_5c1</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Open Treatment of Fracture	<b>c10_5c2</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following procedures related to <b>Myocardial infarction/-strokes</b> in this establishment?	Variable	Answer
Defibrillation	<b>c10_5d1</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Coronary Angiography or Multivessel coronary revascularization	<b>c10_5d2</b>	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

## 11. Footwear and Leather goods (manufacturing)

Question: What of the following material does this establishment use to start production?	Variable	Answer	
Finished natural Leather	<b>c11_01a</b>	1 = Yes 2 = No	-9 = Don't know
Man-made leather/ Synthetic	<b>c11_01b</b>	1 = Yes 2 = No	-9 = Don't know
Textile (i.e. Mesh/ engineering mesh/ canvas etc)	<b>c11_01c</b>	1 = Yes 2 = No	-9 = Don't know
Synthetic + Textile (mix-components man made)	<b>c11_01d</b>	1 = Yes 2 = No	-9 = Don't know
Synthetic + Textile + Leather (mix components-natural and man-made)	<b>c11_01e</b>	1 = Yes हाँ 2 = No ना	-9 = Don't know
Other	<b>c11_01f</b>	1 = Yes हाँ 2 = No ना	-9 = Don't know

Question: What of the following footwear/ Leather goods is produced by this establishment?	Variable	Answer	
Basic (i.e: Footwear> oxford/ derby/ moccasin etc/ wallet/ carry bags etc)	<b>c11_02a</b>	1 = Yes 2 = No	-9 = Don't know
Fashion (fashion shoe, fashion accessories/ sling bag, vanity bag etc.)	<b>c11_02b</b>	1 = Yes 2 = No	-9 = Don't know
Sports or specific purpose (travel bags, sports bags, summer sandal, running shoe, hiking shoe, water sports shoe etc)	<b>c11_02c</b>	1 = Yes 2 = No	-9 = Don't know
Protective shoes (industrial use)	<b>c11_02d</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c11_02e</b>	1 = Yes 2 = No	-9 = Don't know

Question: What of the following finishes are available in this establishment?	Variable	Answer	
Screen print/ heat transfer	<b>c11_03a</b>	1 = Yes 2 = No	-9 = Don't know

Embroidery	<b>c11_03b</b>	1 = Yes 2 = No	-9 = Don't know
Seamless (no stitch)	<b>c11_03c</b>	1 = Yes 2 = No	-9 = Don't know
Ink or Wax Polishing	<b>c11_03d</b>	1 = Yes 2 = No	-9 = Don't know
Waterproofing	<b>c11_03e</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c11_03f</b>	1 = Yes 2 = No	-9 = Don't know

### C11.1 Design

Do clients provide files for design to this establishment? [SKIP: If <b>c11_1a1=2</b> go to question <b>c11_1a3</b> ]	<b>c11_1a1</b>	1 = Yes 2 = No
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Question: What is the most common file provided by clients for design?	Variable <b>c11_1a2</b>	Answer 1 = Graded file of all sizes ready to cut 2 = A prototype cutting file for grading 3 = Hand drawing of the design 4 = Computer drawing of the design 5 = 3D file of the design 6 = Other -9 = Don't know
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Question	Variable	Answer
Does this establishment do design drawing in house? [SKIP: If <b>c11_1a3=1</b> go to question <b>c11_1b1</b> ]	<b>c11_1a3</b>	1 = Yes 2 = No -7 = Not applicable
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c11_1a4=1</b> go to question <b>c11_1b1</b> ]	<b>c11_1a4</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c11_2a1</b> ]	<b>c11_1a5</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following design drawing processes?	Variable	Answer	
Manual design and hand drawing	<b>c11_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital or semi-digital design using specialized 2D drawing software	<b>c11_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Computer Aided Design (CAD), 3D design, virtual prototyping	<b>c11_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c11_1b4</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the most used design drawing process by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c11_1b</b> variables]	Variable <b>c11_1c</b>	Answer 1 = Manual design and hand drawing 2 = Digital or semi-digital design using specialized 2D drawing software 3 = Computer Aided Design (CAD), 3D design, virtual prototyping -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using specialized software, 3D design, or virtual prototyping? [CONDITION: ask this question only if <b>c11_1b2=1</b> or <b>c11_1b3=1</b> ]	<b>c11_1d</b>	(Number of years)

## C11.2 Cutting

Question	Variable	Answer
Does this establishment handle cutting process in house? [SKIP: If <b>c11_2a1=1</b> go to question <b>c11_2b1</b> ]	<b>c11_2a1</b>	1 = Yes. ₹ 2 = No -7 = Not applicable
Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c11_2a2=1</b> go to question <b>c11_2b1</b> ]	<b>c11_2a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c11_3a1</b> ]	<b>c11_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following cutting methods?	Variable	Answer	
Manual cutting	<b>c11_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Cutting machine manually operated	<b>c11_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Semi-Automatic cutting machine (straight knife, round knife, die cutting machine)	<b>c11_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Automatic or Computerized cutting machine (no Laser: water jet, knife, other)	<b>c11_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Automatic/Computerized cutting machine (Laser)	<b>c11_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c11_2b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the most used cutting method in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c11_2b</b> variables]	Variable	Answer
	<b>c11_2c</b>	1 = Manual cutting 2 = Cutting machine manually operated 3 = Semi-Automatic cutting machine (straight knife, round knife, die cutting machine) 4 = Automatic or Computerized cutting machine (no Laser: water jet, knife, other) 5 = Automatic/Computerized cutting machine (Laser) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using automatic cutting machines and lasers? [CONDITION: ask this question only if <b>c11_2b4=1</b> or <b>c11_2b5=1</b> ]	<b>c11_2d</b>	(Number of years)

### C11.3 Sewing and Joining Parts

Question	Variable	Answer
Does this establishment handle sewing process in house? [SKIP: If <b>c11_3a1=1</b> go to question <b>c11_3b1</b> ]	<b>c11_3a1</b>	1 = Yes 2 = No -7 = Not applicable
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )]	<b>c11_3a2</b>	1 = Yes. 2 = No

[SKIP: If <b>c11_3a2=1</b> go to question <b>c11_3b1</b> ]		-9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c11_4a1</b> ]	<b>c11_3a3</b>	1 = Yes. হ্যাঁ 2 = No না -9 = Don't know জানি না -7 = Not applicable প্রযোজ্য নয়

Question: What sewing method is used by this establishment?	Variable	Answer	
Manually sewing	<b>c11_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Machine sewing manually operated	<b>c11_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Semi-automated sewing machines	<b>c11_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Automated sewing machines	<b>c11_3b4</b>	1 = Yes 2 = No	-9 = Don't know
3D Knitting	<b>c11_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other (non-sewing/ seamless)	<b>c11_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the most used sewing method in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c11_3b</b> variables]	Variable <b>c11_3c</b>	Answer 1 = Manually sewing 2 = Machine sewing manually operated 3 = Semi-automated sewing machines 4 = Automated sewing machines 5 = 3D Knitting machines 3D 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using semi-automated sewing machines or automated sewing machines or 3D knitting? [CONDITION: ask this question only if <b>c11_3b3=1</b> or <b>c11_3b4=1</b> or <b>c11_3b5=1</b> ]	<b>c11_3d</b>	(Number of years)

#### C11.4 Assembly – Finishing

Question	Variable	Answer
Does this establishment handle assembly and finishing process in house? [SKIP: If <b>c11_4a1=1</b> go to question <b>c11_4b1</b> ]	<b>c11_4a1</b>	1 = Yes. 2 = No -7 = Not applicable
Is this task outsourced another to unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c11_4a2=1</b> go to question <b>c11_4b1</b> ]	<b>c11_4a2</b>	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>D1</b> ]	<b>c11_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: What assembly and finishing method is used by this establishment?	Variable	Answer	
Manual one station-based finishing and assembly method	<b>c11_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Conveyor based finishing and assembly method (Static/semi-automated conveyor system)	<b>c11_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Conveyor based finishing and assembly method (Dynamic/automated conveyor system)	<b>c11_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Injection machine & finishing line- DIP	<b>c11_4b4</b>	1 = Yes 2 = No	-9 = Don't know
3D printing / assembly	<b>c11_4b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c11_4b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the most used assembly and finishing method in this facility? [CONDITION: Ask only if the answer is YES for more than one option among <b>c11_4b</b> variables]	Variable	Answer
	<b>c11_4c</b>	1 = Manual one station based finishing and assembly method 2 = Conveyor based finishing and assembly method (Static/semi-automated conveyor system ) 3 = Conveyor based finishing and assembly method (Dynamic/automated conveyor system) 4 = Injection machine & finishing line- DIP (industry 3.0 fully or partially) 5 = 3D printing / assembly 3D

		5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using dynamic/ automated conveyor-based finishing and assembly method, injection machine & finishing line, or 3D/printing/assembly? [CONDITION: ask this question only if <b>c11_4b3=1</b> or <b>c11_4b4=1</b> or <b>c11_4b5=1</b> ]	<b>c11_4d</b>	(Number of years)

## C12. Accommodations (services)

Question	Variable	Answer
How is this accommodation classified based on its accreditation from the Department of Tourism?	<b>C12_0</b>	1 = Hotel: Luxury (De Luxe or First Class) 2 = Hotel: Standard or budget (Standard or Economy Class) 3 = Resort: Luxury (AAA) 4 = Resort: Standard or budget (AA, A, or Special Interest) 5 = Apart-hotel/Pension house/bed & breakfast 6 = Motel -9 = Don't know -7 = Not applicable
What is the total number of (accommodation) rooms available in this establishments?	<b>C12_0a</b>	Number -9 = Don't know
What is the maximum capacity of guests in this establishments?	<b>C12_0b</b>	Number -9 = Don't know

Question: What is the total number of (accommodation) rooms with the following features?	Variable	Answer
Internet connectivity to guests	<b>C12_0c</b>	Number -9 = Don't know
Air condition	<b>C12_0d</b>	Number -9 = Don't know
TV	<b>C12_0e</b>	Number -9 = Don't know
Cable Channels	<b>C12_0f</b>	Number -9 = Don't know
Minibar/refrigerator	<b>C12_0g</b>	Number -9 = Don't know
Coffee maker	<b>C12_0h</b>	Number -9 = Don't know
Telephone	<b>C12_0i</b>	- Number -9 = Don't know
Hairdryer	<b>C12_0j</b>	Number -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using offering Internet connectivity to guests? [CONDITION: ask this question only if <b>C12_0c&gt;1</b> ]	<b>C12_1k</b>	(Number of years)

### C12.1 Reservations/Bookings/Room Inventory

Question	Variable	Answer
Does this establishment handle reservations/bookings in house? [SKIP: If <b>c12_1a1=1</b> go to question <b>c12_1b1</b> ]	<b>c12_1a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c12_1a2=1</b> go to question <b>c12_1b1</b> ]	<b>c12_1a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? SKIP: Go to question <b>c12_1a4</b> ]	<b>c12_1a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following systems to handle reservations/bookings?	Variable	Answer	
Handwritten process	<b>c12_1b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital reservation records using standard software, such as Excel and Word	<b>c12_1b2</b>	1 = Yes 2 = No	-9 = Don't know
Dedicated reservation/booking specialized software	<b>c12_1b3</b>	1 = Yes 2 = No	-9 = Don't know
Property management software (PMS)	<b>c12_1b4</b>	1 = Yes 2 = No	-9 = Don't know
Cloud-based systems integrated to analytical and management tools	<b>c12_1b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c12_1b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the booking management system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c12_1b</b> variables]	Variable	Answer
	<b>c12_1c</b>	1 = Handwritten process 2 = Digital reservation records using standard software, such as Excel and Word 3 = Dedicated reservation/booking management specialized software 4 = Property management system (PMS) 5 = Cloud-based systems integrated to analytical and management tools 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using electronic reservation/booking systems?	<b>C12_1d</b>	(Number of years)

[CONDITION: ask this question only if **c12\_1b3=1** or **c12\_1b4=1** or **c12\_1b5=1**]

Question:	Variable	Answer	
Does this establishment use any online travel agency for booking (e.g. Booking, Trip Advisor, Agoda, Expedia)? [SKIP: If <b>c12_1a4=2</b> go to question <b>c12_2a1</b> ]	<b>c12_1e1</b>	1 = Yes 2 = No	-9 = Don't know
What is the share of booking through online travel agency?	<b>c12_1e2</b>	Share	-9 = Don't know
What is the online travel agency most used by this establishment for booking?	<b>c12_1e3</b>	Name of OTA -9 = Don't know	
What of the following online travel agencies are used by this establishment for booking? (Please select all that apply)	<b>c12_1e4</b>	1 = Booking.com 2= Trip Advisor 3= Expedia 4=AirBnB 5= Others -9 = Don't know -7 = Does not apply	
Please describe what online travel agencies are used by this establishment for booking? [CONDITION: Ask only if <b>c12_1e4=5</b> ]	<b>c12_1e5</b>	Name	

### C 12.2 Pricing

Question	Variable	Answer	
Does this establishment decide the pricing strategies in house? [SKIP: If <b>c12_2a1=1</b> go to question <b>c12_2b1</b> ]	<b>c12_2a1</b>	1 = Yes 2 = No	
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c12_2a2=1</b> go to question <b>c12_2b1</b> ]	<b>c12_2a2</b>	1 = Yes 2 = No -9 = Don't know	
Is this task outsourced to another firm? [SKIP: Go to question <b>c12_3a1</b> ]	<b>c12_2a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable	

Question: Does this establishment use any of the following pricing strategies?	Variable	Answer
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Manual Cost	<b>c12_2b1</b>	1 = Yes 2 = No	-9 = Don't know
Automated markup (excel or similar)	<b>c12_2b2</b>	1 = Yes 2 = No	-9 = Don't know
Automated promotional (e.g. planning prices based on seasonality or other predictable events)	<b>c12_2b3</b>	1 = Yes 2 = No	-9 = Don't know
Dynamic pricing systems (using specific software to predict demand and adjust prices)	<b>c12_2b4</b>	1 = Yes 2 = No	-9 = Don't know
Personalized pricing driven by predictive analytics (e.g. data mining, machine learning)	<b>c12_2b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c12_2b6</b>	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the pricing strategy used more often by this establishment?  <b>[CONDITION: Ask only if the answer is YES for more than one option among c12_2b variables]</b></p>	<p>Variable  <b>c12_2c</b></p>	<p>Answer  1 = Manual Cost  2 = Automated markup (excel or similar)  3 = Automated promotional (e.g. planning prices based on seasonality or other predictable events)  4 = Dynamic pricing systems (using specific software to predict demand and adjust prices)  5 = Personalized pricing (e.g. data mining, machine learning)  6 = Other  -9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years this establishment has been using <b>dynamic pricing systems or personalized pricing</b> for pricing strategies?  <b>[CONDITION: ask this question only if c12_2b4=1 or c12_2b5=1]</b></p>	<b>c12_2d</b>	(Number of years)

<p>Is there any significant regulation that limits price mechanism decision of this establishment?</p>	<b>c12_2da</b>	1 = Yes 2 = No -9 = Don't know
<p>What is the agency regulating the price mechanism for this establishment?</p>	<b>c12_2db</b>	Name of the agency

### **C12.3 Housekeeping system**

Question	Variable	Answer
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Does this establishment handle housekeeping in house? [SKIP: If <b>c12_3a1=1</b> go to question <b>c12_3b1</b> ]	<b>c12_3a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c12_3a2=1</b> go to question <b>c12_4a1</b> ]	<b>c12_3a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c12_4a1</b> ]	<b>c12_3a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following housekeeping systems?	Variable	Answer	
Handwritten process	<b>c12_3b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital room records using standard software, such as Excel and Word	<b>c12_3b2</b>	1 = Yes 2 = No	-9 = Don't know
Dedicated housekeeping management specialized software	<b>c12_3b3</b>	1 = Yes 2 = No	-9 = Don't know
Property management system (PMS) software	<b>c12_3b4</b>	1 = Yes 2 = No	-9 = Don't know
Cloud-based systems integrated to analytical and management tools	<b>c12_3b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c12_3b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the housekeeping system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c12_3b</b> variables]	Variable <b>c12_3c</b>	Answer 1 = Handwritten process 2 = Digital room records using standard software, such as Excel and Word 3 = Dedicated housekeeping management specialized software 4 = Property management system (PMS) software 5 = Cloud-based systems integrated to analytical and management tools 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using <b>electronic housekeeping systems</b> ? [CONDITION: ask this question only if <b>c12_3b3=1</b> or <b>c12_3b4=1</b> or <b>c12_3b5=1</b> ]	<b>c12_3d</b>	(Number of years)

Question	Variable	Answer	
Does this establishment use vacuum cleaner for cleaning the rooms?	<b>c12_3e1</b>	1 = Yes 2 = No	-9 = Don't know
How many vacuum cleaners are used by this establishment for cleaning the rooms?	<b>c12_3e2</b>	Number	-9 = Don't know

### C12.4 Laundry

Question	Variable	Answer
Does this establishment handle laundry in house? [SKIP: If <b>c12_4a1=1</b> go to question <b>c12_4b1</b> ]	<b>c12_4a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c12_4a2=1</b> go to question <b>c12_4a1</b> ]	<b>c12_4a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>c12_5a1</b> ]	<b>c12_4a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for bed sheet and towel laundry?	Variable	Answer	
Manual	<b>c12_4b1</b>	1 = Yes 2 = No	-9 = Don't know
Domestic washing machines	<b>c12_4b2</b>	1 = Yes 2 = No	-9 = Don't know
Industrial washing machines without automatic bed sheet folding	<b>c12_4b3</b>	1 = Yes 2 = No	-9 = Don't know
Industrial washing machines with automatic bed sheet folding	<b>c12_4b4</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c12_4b5</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the laundry system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c12_5b</b> variables]	Variable	Answer
	<b>c12_4c</b>	1 = Manual 2 = Domestic washing machines 3 = Industrial washing machines without automatic bed sheet folding 4 = Industrial washing machines with automatic bed sheet folding 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using Industrial washing machines with automatic bed sheet folding? [CONDITION: ask this question only if <b>c12_4c = 1</b> ]	<b>c12_4d</b>	(Number of years)

### C12.5 Point of Sales

Question	Variable	Answer
Does this establishment offer food and beverage services in addition to breakfast (e.g. restaurants and bars) in house? [SKIP: If <b>c12_5a1=1</b> go to question <b>c12_5b1</b> ]	<b>c12_5a1</b>	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms ( <b>s4=1</b> )] [SKIP: If <b>c12_5a2=1</b> go to question <b>c12_5a1</b> ]	<b>c12_5a2</b>	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question <b>d1a</b> ]	<b>c12_5a3</b>	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following management systems to handle different points of sales?	Variable	Answer	
Handwritten process	<b>c12_5b1</b>	1 = Yes 2 = No	-9 = Don't know
Digital customer records using standard software, such as Excel and Word	<b>c12_5b2</b>	1 = Yes 2 = No	-9 = Don't know
Point of Sales (POS) specialized software.	<b>c12_5b3</b>	1 = Yes 2 = No	-9 = Don't know
POS with PMS integration	<b>c12_5b4</b>	1 = Yes 2 = No	-9 = Don't know
Cloud-based systems integrated to analytical and management tools	<b>c12_5b5</b>	1 = Yes 2 = No	-9 = Don't know
Other	<b>c12_5b6</b>	1 = Yes 2 = No	-9 = Don't know

Question: What is the point of sales system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among <b>c12_5b</b> variables]	Variable	Answer
	<b>c12_5c</b>	1 = Handwritten process 2 = Digital customer records using standard software, such as Excel and Word 3 = Point of Sales (POS) specialized software. 4 = POS with PMS Integration 5 = Cloud-based systems integrated to analytical and management tools 6 = Other -9 = Don't know

Question	Variable	Answer
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For how many years this establishment has been using electronic post of sales systems? [CONDITION: ask this question only if <b>c12_5b3=1</b> or <b>c12_5b4=1</b> or <b>c12_5b5=1</b> ]	<b>c12_5d</b>	(Number of years)
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**CAPI INSTRUCTION: PLEASE ADD THIS QUESTION AT THE END OF THE INTERVIEW**

INTERVIEWER: PLEASE COMPLETE THESE QUESTIONS AFTER YOU FINALIZE THE INTERVIEW AND BEFORE YOU SUBMIT IT TO SUPERVISOR. PLEASE USE INFORMATION PUBLICLY AVAILABLE FROM THE INTERNET.

Question: For each online travel agency used by this establishment, please add the costumer review and rate (review score) [CONDITION: ask this question only if <b>c12_1a4=1</b> ]	Number of reviews	Reviews rate
Booking.com	<b>c12_6a1</b> Number -9 = Don't know -7 = Does not apply	<b>c12_6a2</b> Rate -9 = Don't know -7 = Does not apply
Trip Advisor	<b>c12_6b1</b> Number -9 = Don't know -7 = Does not apply	<b>c12_6b2</b> Number -9 = Don't know -7 = Does not apply
Expedia	<b>c12_6c1</b> Number -9 = Don't know -7 = Does not apply	<b>c12_6c2</b> Number -9 = Don't know -7 = Does not apply
AirBnB	<b>c12_6d1</b> Number -9 = Don't know -7 = Does not apply	<b>c12_6d2</b> Number -9 = Don't know -7 = Does not apply

**THE WORLD BANK  
FIRM ADOPTION OF TECHNOLOGY SURVEY  
Screener Questionnaire**

**INFORMATION SHEET**

**INFORMATION ACQUIRED PRIOR TO SCREENING:**

<b>S.1</b>	ID OF THE FIRM: <b>id</b>
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<b>Sampling Information [CODES FROM WBG PROGRESS REPORT]</b>	
Sampling sector	<b>s1a</b>
Sampling size	<b>s1b</b>
Sampling location	<b>s1c</b>

<b>S.2</b>	CONTACT INFORMATION
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	<b>UPDATED CONTACT INFORMATION</b>	
NAME OF THE FIRM/ESTABLISHMENT	<b>s2a</b>	
NO OF HOUSE/FLOOR/DOOR:	<b>s2b</b>	
STREET	<b>s2c</b>	
CITY	<b>s2d</b>	
STATE/PROVINCE	<b>s2e</b>	
COUNTRY	<b>s2f</b>	
TELEPHONE NUMBER	<b>s2g</b>	
FAX NUMBER	<b>s2h</b>	
EMAIL ADDRESS	<b>s2i</b>	
LANGUAGE	<b>s2j</b>	

**SCREENER SCRIPT BEGINS HERE**

**S. SCREENER CONTROL INFORMATION**

Good morning/afternoon/evening. I am calling from **[insert implementing contractor]**, on behalf of the World Bank. We are carrying out a firm-level survey in **[insert country name]** to better

understand the current conditions and key barriers for **technology adoption** to businesses like yours.

Could I please speak to the person who most often represents the firm for official purposes, that is the individual who most often deals with banks or government agencies or institutions?

**IF THE REQUESTED PERSON IS UNAVAILABLE, ASK IF THE PERSON ON THE PHONE CAN ANSWER SOME QUESTIONS ABOUT THE BUSINESS OR ARRANGE A CONVENIENT TIME TO CALL BACK.**

**IF PUT THROUGH, CONTINUE**

Good [morning/afternoon/evening]. I'm calling from [insert implementing contractor]. On behalf of the World Bank, we are conducting a survey about technology adoption in [insert country name]. Would you please answer a few questions to determine if we should establish an appointment to complete the survey?

		YES	NO
S.3a	Is formally registered with [Registration Agency]	1	2
S.3b	Is fully owned by the government, state, or municipality	1	2
S.3c	Is a worker-owned cooperative or collective	1	2

<b>S.4</b>	Is this establishment part of a multi-establishment firm? (that is, a firm with several establishments, each with its own location, management, activity, and financial statements).			
	Yes	1		
	No	2		
				<b>IF S.4=2, GO TO S.5</b>
				<b>s4</b>

<b>S.4a</b>	How many establishments are part of the firm?
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Number of establishments	<b>s4a</b>
<b>DON'T KNOW (SPONTANEOUS)</b>	<b>-9</b>

CONDITION: **s4a variable must be larger than 1.**

<b>S.4b</b>	Is this establishment the headquarters location?
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Yes	1	
No	2	
		<b>IF S.4b=2, GO TO S.4f</b>
		<b>s4b</b>

<b>S.4c</b>	Are the financial statements of the headquarters location separate from the rest of the other establishments?
-------------	---

Yes	1
No	2

s4b

**S.4d** Does this headquarters location engage in production or sales at this location?

Yes	1
No	2

*IF S.4d=1, GO TO S.5*

s4d

**S.4e** **INTERVIEW THE ESTABLISHMENT THAT REPRESENTS THE LARGEST SHARE OF PRODUCTION OR SALES, WHICH ALSO MAINTAINS ITS OWN SALES, EMPLOYMENT, AND COST RECORDS.**

Address and name of the establishment	<b>s4e1</b>	Code according to regional strata <b>s4e2</b>	<i>GO TO S.5</i>
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**S.4f** Are this establishment's financial statements prepared separately from headquarters' statements?

Yes	1
No	2

*CONTACT HQ TO INTERVIEW THE ESTABLISHMENT THAT REPRESENTS THE LARGEST SHARE OF PRODUCTION OR SALES: GO BACK TO S.4e*

s4f

<b>S.5</b>	Please tell me what type of product or service represents this establishment's greatest share of annual sales?
------------	--

	Please circle one of the numbers below <b>s5</b>	<b>Detailed description of main activity and product</b>
Agriculture (except Livestock)	1	
Livestock	2	
Food Processing	3	
Wearing apparel	4	
Pharmaceuticals	5	
Motor vehicles	6	
Wholesale or retail	7	
Financial services	8	
Land transport	9	
Health services	10	
Other manufacturing	11	
Other Services or Construction	12	

**INTERVIEWER: PLEASE RECORD THE DESCRIPTION OF THE ACTIVITY AND PRODUCT IN DETAIL, FOR EXAMPLE, "RETAIL SALE OF WOMEN'S OUTDOOR CLOTHING" NOT JUST "CLOTHING". IF MANY GOODS ARE SOLD, SUCH AS IN A GROCERY STORE OR PHARMACY, INDICATE THE TYPE OF STORE. THEN CODE THE INDUSTRY IN THE FOLLOWING TABLE S.6.**

*INTERVIEWER: BASED ON THE MAIN SECTOR OF ACTIVITY (s6a) IDENTIFY WHAT SECTOR SPECIFIC QUESTIONNAIRE WILL APPLY (s6b).*

**CONDITION: APPLY THE SECTOR-SPECIFIC QUESTIONNAIRE ACCORDING TO TABLE S.6.**

**S.6 Industry**

		Screener sector <b>s6a</b>	What sector specific questionnaire should be used ? <b>s6b</b>
<b>Agriculture</b>	Agriculture (except Livestock)	01	1
	Livestock	014	2
	Food	10	3
	Beverage	11	0
	Tobacco	12	0
	Textiles	13	0
	Wearing Apparel	14	4

	Leather	15	11
	Wood	16	0
	Paper	17	0
	Publishing, printing, and recorded media	18	0
	Refined petroleum product	19	0
	Chemicals	20	0
	Pharmaceuticals	21	6
	Plastics & rubber	22	0
	Nonmetallic mineral products	23	0
	Basic metals	24	0
	Fabricated metal products	25	0
	Computer and electronics	26	0
	Electronics	27	0
	Machinery and equipment	28	0
	Motor vehicles	29	5
	Other transport equipment	30	0
	Furniture	31	0
	Other manufacturing	32	0
	Repair of machinery and equipment	33	0
<b>Constructi on</b>	Construction of building	41	0
	Civil engineering	42	0
	Specialized construction activities	43	0
<b>Services</b>	Wholesale (45 and 46)	46	7
	Retail	47	7
	Land transport	49	9
	Water transport	50	0
	Air transport	51	0
	Warehousing	52	0
	Postal and courier	53	0
	Hotel and Restaurants (Section I, 55-56)	55	0
	Publishing	58	0
	Telecommunications	61	0
	Computer programming	62	0
	Information service activities	63	0
	Monetary Intermediation	641	8
	Travel agency	79	0
	Services Health (hospital activities)	861	10
	Repair services	95	0
	IF FIRM'S PRIMARY ACTIVITY IS OUTSIDE OF THE ENTERPRISE SURVEY UNIVERSE, INPUT CODE 8 INTO PROGRESS REPORT		

<b>S.7</b>	How many workers does this establishment have?
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Number of workers
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<b>CONDITION: IF FEWER THAN 5, TERMINATE</b> (Enter Code 5 into progress report) <b>TERMINATE.</b>
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<b>s7</b>
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**S.8. APPOINTMENT INFORMATION:**

We would like to schedule an appointment for an interview. The purpose of this survey is to better understand the current conditions and key barriers for **technology adoption** to businesses like yours. Your responses, and those of other business leaders, will help to design new policies and programs to improve the business environment. All information and opinions you provide will be anonymized. Neither your name nor the name of your establishment will be used in any document based on this survey.

APPOINTMENT DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

NAME OF RESPONDENT: \_\_\_\_\_

POSITION OF RESPONDENT: \_\_\_\_\_

**UPDATE THE INFORMATION SHEET IF CONTACT INFORMATION IS  
DIFFERENT THAN WHAT IS LISTED**