

Manufacturing Resilience Survey: Hurricane Maria

English 

OMB Control # 0693-0078

Expiration Date 7/31/2022

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0693-0078. Without this approval, we could not conduct this information collection. Public reporting for this information collection is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the National Institute of Standards and Technology at: 100 Bureau Drive, Gaithersburg, MD 20899, Attn: Dr. Maria Dillard, Associate Team Lead for the NIST Hurricane Maria Program, NIST Engineering Laboratory; or contact at maria.dillard@nist.gov.

O1

Introduction

The first questions ask for basic information about the nature of your business.

O1. What is your role with the organization? (Check all that apply)

- Owner
- Manager
- Assistant manager
- Senior employee with 5+ years at the business
- Employee

I do not have a formal role

Other [please specify]:

Q2-Q3

O2. Which sector best describes your business? What is/was your primary line of business?

- Construction
- Manufacturing
- Retail trade
- Accommodation and Food Services
- Wholesale trade
- Services / Information
- Transportation and Warehousing

O2a. Where does/did this business fall within the supply chain for this industry? Does this business supply?

- Raw materials, raw goods, or part supplies
- Processing, component or system supplier
- Final assembly

O3a. Was this business establishment operating when Hurricane Maria occurred?

- Yes
- No

O3b. Is your business location today the same as it was at the time of Hurricane Maria?

- Yes
- No (the business has moved to a new location after Hurricane Maria)

O4 - O12

O4. In what year was this business established at the current location?

O5. How many locations did your business have at the time of Hurricane Maria?

a. In PR? #

b. In the USA, outside of PR? #

c. Outside of the US? #

Total #

O6. Is this business establishment still in operation?

- Yes, it is still in operation
- No, not in operation

O6a. What is the reason why your business is no longer in operation? (*Please select one.*)

- No longer in business mainly because of Hurricane Irma
- No longer in business mainly because of Hurricane Maria
- No longer in business mainly because of Hurricane Dorian
- No longer in business mainly because of the earthquakes of January 2020
- No longer in business mainly because of COVID-19
- No longer in business because of other reasons, explain:

Q6b When did the business stop operation? An estimate is fine.

	Month	Year
	<input type="text"/>	<input type="text"/>

O7. Are the other Puerto Rico business locations still in operation?

- All other locations are in operation

- Some of the other locations are in operation
- None of the other locations is in operation

O8. Did this business own or rent the building at the time of Hurricane Maria?

- Own
- Rent
- Other (please specify)

O9a. Which describes your business? Remember that the business doesn't have to be officially federally registered as such. (*Select all that apply.*)

- Woman-owned business
- Minority-owned
- Veteran-owned
- Family-owned
- Immigrant-owned
- Other (please specify)

O9b. How would you describe your business' ownership structure? (*Select ALL that apply.*)

- Single owner
- Partnership
- Corporation
- Franchise
- Cooperative
- Multi-location
- For-profit
- Non-profit

Other (please specify)

O10. What is the approximate square footage of the main building? (SQ. FT.)

O11. What is the type of structure of the main building?

- Metal Building System
- Steel frame
- Concrete
- Wood
- Other, please describe:

A: Impacts from Events and Recovery

Section A. Impacts from Events and Recovery:

We want to know about the interruption caused by various disruptive events and this business' recovery.

A1. Did this business establishment experience impacts to operations as consequence of the following events? (*Select one response for each item.*)

	No impacts	Some Impacts	Significant impacts	N/A	Don't know
COVID-19 in 2020?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Earthquakes of January 2020?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Dorian in 2019?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hurricane Maria in September 2017?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	No impacts	Some Impacts	Significant impacts	N/A	Don't know
Hurricane Irma, in September 2017?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A1a. Rank the following based on how you assess their importance to the full recovery of your business after a distributive event.

	1	2	3	4	5
Expected gross sales revenues achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Full building functionality achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adequate number of employees achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Full repair of property damages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, explain:					
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A1b. Did this business establishment FULLY recover to the pre-Hurricane Maria level within a year (by September 2018)?

- Yes
- No
- Don't know

What number of months were required?

A1c. Did this business establishment FULLY recover from Hurricane Maria during any point in time between September 2018 (one year after Hurricane Maria) and March 2020, just before the COVID-19 Pandemic was declared a National Emergency?

- Yes
- No
- Don't know

What number of months were required?

A1d. Once your business recovered, did you achieve *gross sales revenue* at the pre-Hurricane Maria level?

- Yes, gross sales revenue increased GREATLY compared to pre-Hurricane Maria levels
- Yes, gross sales revenue increased SOMEWHAT compared to pre-Hurricane Maria levels
- Yes, gross sales revenue was about EQUAL to pre-Hurricane Maria levels
- No, gross sales revenue DECREASED SOMEWHAT compared to pre-Hurricane Maria levels
- No, gross sales revenue DECREASED GREATLY compared to pre-Hurricane Maria levels

A1e. After Hurricane Maria, was the gross sales revenue of your business impacted by Hurricane Dorian in 2019?

- Yes, greatly in a negative direction
- Yes, somewhat in a negative direction
- No
- Yes, somewhat in a positive direction
- Yes, greatly in a positive direction

A1f. After Hurricane Maria, was the gross sales revenue of your business impacted by Earthquakes of January 2020?

- Yes, greatly in a negative direction
- Yes, somewhat in a negative direction
- No
- Yes, somewhat in a positive direction
- Yes, greatly in a positive direction

A1g. After Hurricane Maria, was the gross sales revenue of your business impacted by COVID-19 Pandemic?

- Yes, greatly in a negative direction
- Yes, somewhat in a negative direction
- No
- Yes, somewhat in a positive direction

Yes, greatly in a positive direction

A3-A9

A3. Did any of the following factors affect the *gross sales revenue* of this business establishment during the following periods?

	Yes	No
a. Supply chain issues (e.g., could not obtain products or lack of inventory)		
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
b. Economic Recession		
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
c. Another factor other than loss of customers (please describe below)		
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>

Other factor besides loss of customers:

The following questions ask about what utility services were disrupted at the business' main building/campus during Hurricane Maria? [If your business does not use a service, please select N/A; if you don't know, please select "Don't know"]

Utilities - (Questions A4-A7 repeat for each of the following utilities)

- electric power
- water/sewer
- land-line telephone
- Internet/IT
- natural gas
- Cell phone service

Section A: Utilities

A4. $\{lm://Field/2\}$. Did your business lose $\{lm://Field/1\}$?

- Yes
- No
- Don't know
- Not applicable

A5. $\{lm://Field/2\}$. About how many days until $\{lm://Field/1\}$ was fully repaired? (days)

A6. $\{lm://Field/2\}$. Did your business have backup systems or emergency reserves for $\{lm://Field/1\}$?

- Yes
- No
- Don't know
- Not applicable

A7. $\{lm://Field/2\}$. Did your business use backup systems or emergency reserves for $\{lm://Field/1\}$?

- Yes
- No
- Don't know
- Back-up system damaged by Hurricane Maria
- Not applicable

B: Property Damage

Section B. Property Damage:

This section asks about the property damage to this establishment as a result ONLY of Hurricane Maria.

Property damage refers to BOTH structural damage and non-structural damage.

Structural damage examples include damage to roofs and walls; examples of non-structural damage include broken windows, fixtures, damage to equipment, furnishings, inventory/stock.

B1. Did your business suffer any physical damage due to Hurricane Maria?

- Yes
- No
- Don't know

B2. Think about the roof that covers your business location.

About what percent area of all the roof cover was damaged or lost as a result of Hurricane Maria?

The roof covering is the exterior part of the roof system that protects the building from the weather. Common types of roof cover include asphalt shingles, clay tiles, rubber membranes, and built-up asphalt roofs.

- No roof damage
- Less than 25 %
- 25-50 %
- 51-75 %
- 76-100%

B3. Think about the roof that covers your business location.

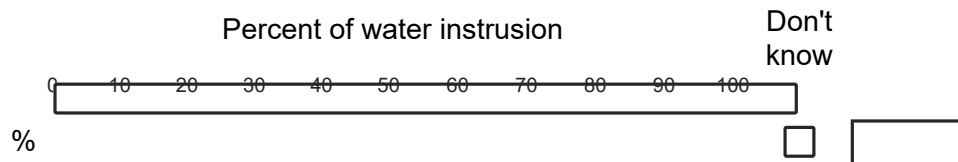
About what percent area of all the roof decking and/or structure was damaged or lost as a result of Hurricane Maria?

The roof decking and/or roof structure is the intermediate section of the roof between the internal structural components and the weatherproofing layers. Roof decking and/or structures include roof beams, joists, or girders, the roof structural members that support the decking, also precast planks or single or double T for concrete roofs.

- No roof damage
- Less than 25 %
- 25-50 %
- 51-75 %
- 76-100 %

	None	Minor	Moderate	Severe	Complete	Don't Know
B8. Inventory (raw material, work in process, finished good)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B9. Machinery and equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B10. How would you describe the extent to which water entered the building during Hurricane Maria (for example, wind-driven rain), in terms of building area, with 0% meaning no water intrusion and 100% meaning complete water intrusion inside the whole building? Slide to select %.



B11. This question asks about flooding from rising water

a. Did flooding from rising water occur at the building site? For example, within a parking lot or a pathway leading to the facility.

- Yes
- No
- Don't know

b. Did any floodwater enter the building?

- Yes
- No
- Don't know

c. About what was the maximum water height inside the building? Please answer in feet.

-
- Don't know

B12. Was roof-mounted equipment damaged or dislodged by Hurricane Maria?

- Yes
- No
- Don't know

B13. Did the damage directly affect the establishment's ability to provide goods or services following the hazard event? Damage refers to BOTH structural damage and non-structural damage.

- Yes
- No
- Don't know

B14. When thinking about your business establishment, did the damage cause your business to close completely?

- Yes
- No
- Don't know

B14a. How long did it take for your business to reopen at any level of service? (days)

C: Essential Products and Services

Section C. Essential Products and Services:

For the following set of questions, think about Resources that you consider(ed) as ESSENTIAL to deliver the main good or service supplied by your business establishment. For the purpose of answering these questions, please EXCLUDE labor and utilities such as water, gas, electricity and telecommunication.

C1. How many suppliers did you count on to provide these essential resources just prior to Hurricane Maria?

- 1 supplier
- 2 suppliers

- 3-5 suppliers
- 6-10 suppliers
- More than 10 suppliers

C1a. Did your business rely on Essential Resource(s) from suppliers located in Puerto Rico?

	Yes	No
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>

C1b. Did your business rely on Essential Resource(s) from suppliers located in the Continental US?

	Yes	No
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>

C1c. Did your business relied on Essential Resource(s) from non-US suppliers?

	Yes	No
One year before Hurricane Maria?	<input type="radio"/>	<input type="radio"/>
One year after Hurricane Maria?	<input type="radio"/>	<input type="radio"/>

C3. During the first year of recovery (until September 2018), how would you describe your business' access to essential resources?

- There were no issues in the supply of any of the essential resources
- There were MINOR issues in the supply that created a MINOR disruption in production
- There were MINOR issues in the supply that created a MAJOR disruption in production
- There were MAJOR issues in the supply that created a MINOR disruption in production
- There were MAJOR issues in the supply that created a MAJOR disruption in production

C4. How did Hurricane Maria affect customer demand for your main service/product line?

- Increased greatly
- Increased some
- Stayed the same
- Decreased some
- Decreased greatly

C5. Did your business have on-site warehousing/storage before Hurricane Maria?

- Yes, for resources and products
- Yes, just for resources
- Yes, just for final products
- No

C6. Did you have any issues delivering your products/service in the year prior to the occurrence of Hurricane Maria??

	Yes	No
a. Transport issues	<input type="radio"/>	<input type="radio"/>
b. Accessibility to site issues	<input type="radio"/>	<input type="radio"/>

C7. Did you have issue with delivering your products/services in the year following Hurricane Maria?

	Yes	No
a. Transport issues	<input type="radio"/>	<input type="radio"/>
b. Accessibility to site issues	<input type="radio"/>	<input type="radio"/>

D: Employees

Section D. Employees

D1. Please indicate the total number of full-time AND part-time individuals (including yourself) that your business employed at this location during the following time periods

a. 1 month Before Hurricane Maria	<input type="text" value="0"/>
b. Immediately after Hurricane Maria	<input type="text" value="0"/>
c. 1 year after Hurricane Maria	<input type="text" value="0"/>
d. After Hurricane Dorian (August 2019)	<input type="text" value="0"/>
e. Before COVID-19 was declared a national emergency in March 2020	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

D2. Did your business experience any issues with employees during recovery?

For the purpose of this question consider the recovery period extending after Hurricane Maria and up until one year after Maria in September 2018.

	Yes	No	Don't know
a. Employee(s) could not report to work due to transportation problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Employee(s) could not report to work due to the need to fix house	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Employee(s) could not report to work because their children not yet back to school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Employee(s) could not report to work because their children not yet back to daycare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Employee(s) could not report to work because of disaster-related physical health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Employee(s) could not report to work because of disaster-related mental health issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E: Resilience Tactics for Hurricane Maria

Section E. Resilience Tactics for Hurricane Maria:

The following questions ask about approaches businesses may employ to improve resilience.

E1. Please tell me which approaches your business employed at any point to help with RECOVERY following Hurricane Maria.

	Yes	No	N/A
Sold some of the business' assets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Yes	No	N/A
Laid off some of the workforce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Renegotiate inputs with key suppliers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pool resources or form partnerships with local businesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moved to temporary or permanent new location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brought on-line physical assets not previously in use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obtained production inputs from new supplier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teleworked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduced inputs to production processes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improvise production/service process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replaced production input with a substitute	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduced salaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employed inventories or emergency stockpiles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exchange or resource share with other businesses (locally)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other:

E2. Was the inventory that was available to your business immediately following Hurricane Maria sufficient to cope with any shortage of essential resources or materials?

- Yes
- No
- Don't know

E3. Which of the following options influenced your decision to not use/have greater inventory available? (*Select Yes or No for each item.*)

	Yes	No
The Inventory Tax (Municipal Property Tax Act of 1991) limits cost-effectiveness of holding inventory	<input type="radio"/>	<input type="radio"/>

	Yes	No
My historical data or models did not forecast correctly to increase the level of inventories	<input type="radio"/>	<input type="radio"/>
Supply chain issues	<input type="radio"/>	<input type="radio"/>
Financial Constraints	<input type="radio"/>	<input type="radio"/>

Other, please describe:

F: Mitigation

Section F. Mitigation:

The following questions ask about insurance coverage and other actions your business did before Maria hit.

F1. Did you have insurance before Hurricane Maria hit?

- Yes
- No
- Don't know

F2. Did you adopt any of the following insurance before Hurricane Maria hit?

	Adopted?	
	Yes	No
Business income interruption insurance	<input type="radio"/>	<input type="radio"/>
Flood insurance on contents	<input type="radio"/>	<input type="radio"/>
Business property insurance on contents	<input type="radio"/>	<input type="radio"/>
Business liability insurance	<input type="radio"/>	<input type="radio"/>

Other insurance (specify):



F3. Did you file a claim on the following insurances following Hurricane Maria?

	Filed claim?	
	Yes	No
Business property insurance on contents	<input type="radio"/>	<input type="radio"/>
Flood insurance on contents	<input type="radio"/>	<input type="radio"/>
Business income interruption insurance	<input type="radio"/>	<input type="radio"/>
Business liability insurance	<input type="radio"/>	<input type="radio"/>
Other insurance: \${q://QID261/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>

F4. Did you receive the money by September 2020?

	Received money?	
	Yes	No
Business property insurance on contents	<input type="radio"/>	<input type="radio"/>
Flood insurance on contents	<input type="radio"/>	<input type="radio"/>
Business income interruption insurance	<input type="radio"/>	<input type="radio"/>
Business liability insurance	<input type="radio"/>	<input type="radio"/>
Other insurance: \${q://QID261/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>

F5. Did you apply for any recovery assistance after Hurricane Maria hit?

- Yes
- No
- Don't know

F6. Which recovery assistance did you apply or ask for after Hurricane Maria?

	Yes	No
SBA (Small Business Administration) loan	<input type="radio"/>	<input type="radio"/>
FEMA financial assistance	<input type="radio"/>	<input type="radio"/>
Financial assistance from any faith-based or religious organization	<input type="radio"/>	<input type="radio"/>

	Yes	No
Crowdsourcing or peer lending	<input type="radio"/>	<input type="radio"/>
Non-Government Organizations (NGO)	<input type="radio"/>	<input type="radio"/>
Private/bank loans	<input type="radio"/>	<input type="radio"/>
Local government funds	<input type="radio"/>	<input type="radio"/>

Other federal or state funds (specify):

Other assistance (specify):

F7. Did you receive your funding from any of the following during your recovery period?

	Yes	No
FEMA financial assistance	<input type="radio"/>	<input type="radio"/>
SBA (Small Business Administration) loan	<input type="radio"/>	<input type="radio"/>
Local government funds	<input type="radio"/>	<input type="radio"/>
Financial assistance from any faith-based or religious organization	<input type="radio"/>	<input type="radio"/>
Non-Government Organizations (NGO)	<input type="radio"/>	<input type="radio"/>
Private/bank loans	<input type="radio"/>	<input type="radio"/>
Crowdsourcing or peer lending	<input type="radio"/>	<input type="radio"/>
Other federal or state funds: \${q://QID263/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>
Other assistance (specify): \${q://QID265/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>

F8. Did this business establishment adopt any of the following actions Before Hurricane Maria? Select one response per item.

	Yes	No	N/A
Received disaster related information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Yes	No	N/A
Backed up all important documents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adopted strategies to stay informed of weather watches and warnings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performed emergency management drills regularly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performed risk assessment to identify business vulnerability to disasters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had building structurally assessed by engineer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attended Meetings, trainings (in person/online)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased inventory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lifted inventory and other supplies off the ground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assigned disaster responsibilities to specific employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having backup systems or emergency reserves for utility services (e.g., electric power, water, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop a disaster recovery plan, business continuity plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Made plans for a temporary location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boarded up windows, brace shelves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developed telework readiness plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developed a written emergency action plan or checklist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Another activity not included in this list. Please specify:

F9. In your opinion, how prepared is your business to deal with a hurricane like Hurricane Maria today?

- Very well
- Well
- Somewhat well
- Poor
- Very poor
- Don't know

F10. You indicated that your business establishment is not well prepared. Why is that? Please select all that apply.

- Lack of money/resources

- Lack of time
- Lack of workers
- Lack of information on how to mitigate and prepare for hurricanes
- Other (SPECIFY):

G: Owner/Manager Demographics

Section G. Owner/Manager Demographics

G1. How many years have you worked as a business owner/manager? (years)

G2. Indicate type of diploma or degree:

- Some high school
- High School
- Associate degree / some college
- Bachelors
- Masters or higher degree

G3. Which category best describes your sex? *You may skip this question if you prefer not to answer.*

- Male
- Female

G4. How many severe disruptive events like Hurricane Maria have you experienced in your life? (Please include at your place of business and at your residence) (Number)

G5. Regarding the recovery of the entire Commonwealth of Puerto Rico, since Hurricane Maria, would you say it is:

- Fully recovered
- Partially recovered
- Still in survival/response mode
- Will never recover

G6. Regarding the recovery of the municipios your business serves, since Hurricane Maria would you say the municipios are:

- Fully recovered
- Partially recovered
- Still in survival/response mode
- Will never recover

Extension Q1-5

The following questions ask about your risk perception. Please answer the following questions given your perception of risks associated with a severe hurricane event like Hurricane Maria.

Q1.1. How many hurricanes similar to Hurricane Maria do you expect to hit your area in the next 50 years?

Q1.2. Do you expect one of these severe hurricanes to happen in the next five years?

- No
- Yes

Q2. IF a hurricane like Hurricane Maria hits your area next hurricane season, what is the potential risk of loss of life at your business site? Please provide your best estimate. Here "loss of life" means the death of at least one person at your business site.

- No risk
- Minor risk
- Moderate risk
- Severe risk

Complete risk

Q3. IF a hurricane like Hurricane Maria hits your area next hurricane season, what is the potential risk of damages to your business property (structure, contents, etc.)? Please provide your best estimate.

- No risk
- Minor risk
- Moderate risk
- Severe risk
- Complete risk

Q4. How worried are you about the impact (i.e. damages and interruptions) that a hurricane event like Hurricane Maria would cause if one were to occur next hurricane season?

- Not at all worried
- Slightly worried
- Somewhat worried
- Moderately worried
- Extremely worried

Q5. Imagine that the chance that a hurricane like Hurricane Maria occurs is 1 / 100 each hurricane season and your business has not yet taken any action ahead of time. What is your preference towards taking action(s) to become prepared?

- Definitely do not prefer to take any action
- Probably do not prefer to take any action
- Might prefer to take an action
- Probably prefer to take action(s)
- Definitely prefer to take action(s)

Extension Q6-10

The following questions ask about approaches businesses may employ BEFORE/AFTER a hurricane hits to reduce the risk of being impacted.

Q6. IF the chance that a hurricane like Hurricane Maria occurs is **1 / 100** each hurricane season, **how COST-EFFECTIVE** do you think the following options would

be?

	Extremely cost ineffective	Very cost ineffective	Somewhat cost ineffective	Neither cost effective nor cost ineffective	Somewhat cost effective	Very cost effective	Extremely cost effective
I. Take <u>PREPAREDNESS AND RISK REDUCTION</u> actions (e.g., keeping HVAC and electronics away from flood-vulnerable areas, boarding windows, using sandbags, having emergency plans in place, etc.) as compared to saving money by taking no actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
II. Purchase <u>INSURANCE COVERAGES</u> (e.g., Business property insurance, Business income interruption insurance, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
III. Take <u>AFTER-EVENT ACTIONS</u> based on your available resources and capacity (e.g., Moving to temporary or permanent new location, Teleworking, Employing inventories or emergency stockpiles, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7. If a hurricane like Hurricane Maria happens **in the next hurricane season** and impacts your business, how effective do you think the following options would be to **offset the impacts** following the hurricane? Effective = enable business to reduce losses.

Extremely ineffective	Very ineffective	Somewhat ineffective	Neither effective nor ineffective	Somewhat effective	Very effective	Extremely effective
--------------------------	---------------------	-------------------------	--	-----------------------	-------------------	------------------------

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
III. The decisions and actions of my neighboring businesses/my competitors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
IV. What society (my fellow businesses, customers, families, and friends) expects from a businessperson like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Extension (Open-ended Questions):

Please write a short answer to the following question.

Q17. What do you need to better plan for future hurricanes?

Last question

What is the ZIP code of the main facility for your business?

If you would like to be contacted with outcomes from this research, please provide your email address:

If you encounter any issues in completing this survey, please feel free to contact the survey helpdesk at EstudioHMhelp@erg.com or 787-510-6478.

#{e://Field/Unique_ID} #{e://Field/MODE}

Powered by Qualtrics