
Hurricane Maria Shipping and Transportation Interview Guide

Transportation Interview: Hurricane Maria

U.S. Department of Commerce

National Institute of Standards and Technology

Generic Clearance for Community Resilience Data Collections

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Welcome! We are conducting this interview on behalf of The US Department of Commerce National Institute of Standards and Technology (NIST) to help them better understand the recovery process for businesses impacted from Hurricane Maria in 2017. These interviews will lead to recommended improvements in standards, and practices to make communities in Puerto Rico and across the United States more resilient to hurricanes and other disasters by uncovering vulnerabilities, recovery strategies, limiting & facilitating factors, and changes made (resilience) by organizations in the transportation sector. This study is part of a larger program led by Drs. Joseph Main and Maria Dillard and is funded by the National Institute of Standards and Technology (NIST).

During this interview, you will be asked questions related to the damage to your organization, the repair and recovery process, how hurricane impacts disrupted your business' ability to provide services, and actions your business is taking to prepare for future events. We realize that the hurricane was a few years ago, and some details may not readily come to mind. Please know that there are no right or wrong answers to any of these questions, we just want your experience and opinions. In addition, we encourage you to gather input from colleagues for your responses, as necessary, to answer any questions on topics that are unfamiliar to you. The interview will take approximately 30 minutes to complete and will be recorded for quality training and data analysis purposes.

If you feel uncomfortable answering any of the questions, you can skip them, or stop the survey at any time. Your participation is voluntary and without compensation. If you decide to participate in the study, you may withdraw your consent and stop participation at any time without penalty. Your responses will never be linked to your individual identity or the identity of your business. Instead, findings will be attributed to a "business" at the commonwealth, regional, municipal, or ZIP code level. Information collected in this interview may be shared by NIST with researchers at NIST or with researchers outside NIST. The information that you provide may be used in future research. Any future research will include protections to ensure that both the sharing and use of the information complies with the conditions that I just described. There are NO KNOWN RISKS or direct benefits to you. We hope to gain more knowledge on how your institution's functioning was affected by Hurricane Maria, so that we can learn from your experiences to help communities better prepare for similar events in the future.

AOI- About the Operations and Interviewer

AOI1. What is your role with the organization? (*Check all that apply*)

- Owner / Partner
- Manager / Director
- Assistant manager (Supervisor)
- Senior employee with 5+ years at the business
- Employee
- Other [please specify]: _____

AOI2. How many years have you worked as a business owner, manager or as an employee in a position with knowledge of operations and decisions?

- # years (estimate) Continue to AOIE
- less than 4 years Ask for referral and Go to ENDref.

ENDref Thank you for your time. The participants of this study must have been employed in the organization at the time of Hurricane Maria. Can you please refer me to someone in your organization that can participate in the study?

Company Name _____

Contact Person _____

Contact Phone _____

Contact email _____

AOI3. At the time of Hurricane Maria, how many years had your business been operating in Puerto Rico?

- # years (estimate)
- less than 4 years Ask for referral and Go to ENDSnow

AOI4 Please describe your business operations in Puerto Rico.

AO5. Do your business operations require continuing engagement and dealings with the Port of San Juan?

Note to Interviewer: Clarify that this question is intended for organizations that interact with the Port of San Juan and have the capacity to evaluate the actual conditions of the port (e.g., infrastructure and facilities). These may include truckers, freight forwarders/consolidators, ports services, customs brokers, water transportation, among others).

- Yes.....(1) Answer Interview with 3 in GenImp1 and complete PORTind
- No(2) Answer Interview with 5 in GenImp1

Note to Interviewer: It is possible that participating businesses have more than one location or establishment. In that case and if asked, please inform the participant to answer the entire interview taking into consideration the business in general (not one location in specific) and encourage respondents to provide examples or referred to specific locations along the interview.

Screening Impact

GenImp1 Please tell me which of the following factors affected your business operations in Puerto Rico the most in the aftermath of Hurricane Maria. *Note to Interviewer: Ask respondents to focus on the first days following the hurricane (up to a month) or Ask respondents to focus on the most impactful to date and - as perceived by respondents -can be directly attributed to Hurricane Maria.* Please select the top (5 for AO5 =2, and 3 for AO5=1)

_____ business facilities & infrastructure (e.g., damages to physical structures, equipment, containers, cargo, vehicles).....(1) Go to FACImp1

_____ utilities, telecommunications & IT (e.g., failure of communication systems, power, water supply)(3) Go to UTImp1

_____ employees (e.g., employees injured or unable to report to work).....(4) Go to EMPImp1

_____ suppliers (e.g., reductions in critical partners).....(5) Go to SUPImp1

_____ market (e.g., reduction in clients, lack of orders).....(6) Go to CLImp1

_____ transportation systems (e.g., access to roads, delays/damages in ports).....(7) Go to TRANImp1

_____ other (e.g., executive orders, regulations, other).....(8) Go to OTHImp1

SCM Facilities - Impact, Strategies & Facilitating Factors

FACImp1 Please tell me about the damage caused by Hurricane Maria to facilities & infrastructure (e.g., physical structures, equipment, containers, , vehicles) and how it affected business operations? *Note to interviewer: Ask the participant to give examples of the damage and the disruptions the damage caused to the organization.*

FACStr1 What actions were taken by your organization to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). *Note to interviewer: Ask the participant to give example and indicate rough timeframes for these.*

FACact1 Please tell me about the circumstances that limited your firm’s capacity to resolve this? *Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. Note to interviewer: Ask the participant to give examples.*

FACRes1 Please describe changes made (i.e., plans, structural/non-structural changes to facilities, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event?

SCM Utilities, Communications, and IT – Impact, Strategies & Facilitating Factors

UTImp1- You reported challenges related to interruptions in electricity, water systems and/or communications. Please explain these challenges and how they affected the business operations. *Note to interviewer: Ask the participant to give examples. Note the type of system that was interrupted.*

UTStr1 What was done by your business (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing mitigation/continuity plan or responses to completely unanticipated conditions. *Note to interviewer: Ask the participant to give example and indicate rough timeframes for these.*

UTact1 Please tell me about the circumstances that limited your firm’s capacity to resolve this? *Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. Note to interviewer: Ask the participant to give examples.*

UTRes1 Please describe changes made (i.e., plans, redundancies, inter-firm collaborations, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event.

SCM Employees - Impact, Strategies & Facilitating Factors

EMPImp1 You stated previously some challenges related to employees that affected your business operations in the aftermath of Hurricane Maria. Please explain these and how it affected the business operations. *Note to interviewer: Remind respondents they are being asked about the challenges selected before (in previous questions). Ask the participant to give examples.*

EMPstr1 What was done by your organization (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the

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event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). . *Note to interviewer: Ask the participant to give examples and indicate rough timeframes.*

EMPact1 Can you tell me about the circumstances that limited your firm’s capacity to resolve this? *Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. Note to interviewer: Ask the participant to give examples.*

EMPRes1 Please describe changes made (i.e., contracts, employee roles, plans, redundancies, inter-firm collaborations, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event.

SCM Suppliers - Impact, Strategies & Facilitating Factors

SUPImp1 You stated previously some challenges related to suppliers that affected your business operations in the aftermath of Hurricane Maria. Can you explain these and how it affected the business operations? *Note to interviewer: Remind respondents they are being asked about the challenges selected before (in previous questions). Ask the participant to give examples. Ask the participant to give examples.*

SUPstr1 What was done by your organization (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). ? *Note to interviewer: Ask the participant to give examples and indicate rough timeframes.*

SUPact1 Can you tell me about the circumstances that limited your firm’s capacity to resolve this? *Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. Note to interviewer: Ask the participant to give examples.*

SUPRes1 Can you describe changes made (i.e., plans, redundancies, inter-firm collaborations, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event?

SCM Market - Impact, Strategies & Facilitating Factors

MARKimp1 You stated previously some challenges related to the market (e.g., customers) that affected your business operations in the aftermath of Hurricane Maria. Can you explain these and how it affected the business operations? *Note to interviewer: Remind respondents they are being asked about the challenges selected before (in previous question). Ask the participant to give examples.*

MARKstr1 What was done by your organization (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). ? *Note to interviewer: Ask the participant to give examples and indicate rough timeframes.*

MARKact1 Can you tell me about the circumstances that limited your firm’s capacity to resolve this? Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. *Note to interviewer: Ask the participant to give examples.*

MARKRes1 Can you describe changes made (i.e., plans, redundancies, inter-firm collaborations, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event?

SCM Transportation Systems and Infrastructure – Impact, Strategies & Facilitating Factors

TRNimp1 You stated previously that challenges related to transportation systems/infrastructure (e.g., access to roads, delays/damages to ports) affected your business operations in the aftermath of Hurricane

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Maria. Can you explain how it affected the business operations? *Note to interviewer: Remind respondents they are being asked about the challenges selected before (in previous question). Ask the participant to give examples. Ask the participant to give examples.*

TRNstr1 What was done by your organization (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). ? *Note to interviewer: Ask the participant to give examples and indicate rough timeframes.*

TRNact1 Can you tell me about the circumstances that limited your firm’s capacity to resolve this? *Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. Note to interviewer: Ask the participant to give examples.*

TRNRes1 Can you describe any changes made (i.e., plans, redundancies, inter-firm collaborations, other) to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event?

SCM Other - Impact, Strategies & Facilitating Factors

OTHimp1 You stated that your business confronted other challenges- not addressed in previous questions that affected your business operations in the aftermath of Hurricane Maria. Can you explain these and how these affected the business operations? *Note to interviewer: Remind respondents they are being asked about the challenges selected before (in previous question). Ask the participant to give examples. Ask the participant to give examples.*

OTHStr1 What was done by your organization (actions) to resolve these challenges and restore/continue operations? Please explain if these were part of an existing emergency plan the organization had prior the event (e.g., mitigation, continuity plan, other) or responses to completely unanticipated conditions (e.g., not contemplated in existing emergency plans). ? *Note to Interviewer: Ask the participant to give examples and indicate rough timeframes.*

OTHact1 Can you tell me about the circumstances that limited your firm’s capacity to resolve this? Note to interviewer: The circumstances could be external or internal to the organization. Which factors and/or actors (i.e., employees, partners, competitors, community, government, technologies, policies, other) helped resolve this (facilitating role), if any? Please explain. *Note to interviewer: Ask the participant to give examples.*

OTHRes1 Can you describe changes made (i.e., plans, redundancies, inter-firm collaborations, other), if any, to mitigate (reduce and/or alleviate) the effects of what we just discussed in a future event?

Preparedness, Recovery Status and Resilience

PREP Can you explain how prepared was your organization for an event like Hurricane Maria in 2017 and compare it to how prepared it is now to a similar event? *Note to interviewer: Ask the participant to give examples.*

REC How would you describe your organization’s recovery from Hurricane Maria today? Would you say your organization has been able to return to pre-hurricane state? Please explain. *Note to interviewer: Ask the participant to give examples that illustrate why they think the organization has or has not been able to return to pre-hurricane state and of explain what was learned throughout this recovery process.*

RESstr What other strategies, initiatives, or legislation, if any, should be in place by your organization, government, or other critical actor to reduce business disruptions in the transportation sector in a future similar event?)? *Note to interviewer: Clarify participants that this question attempts to record improvement suggestions that may include their specific organization or other (e.g., government, ports authorities, other).*

OC- Organizational Characteristics

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OC1. Please indicate the total number of full-time AND part-time individuals (including yourself) that your business currently employs. _____.

OC2. Please provide an estimate of gross revenue for your company.

_____ gross revenue in dollars (annual estimate)

_____ do not respond/do not know.....(999)

OC3. Which describes your business? Remember that the business doesn't have to be officially federally registered as such. (*Select all that apply.*)

Interviewer: Read list. Select all that apply.

- Woman-owned business
- Minority-owned
- Veteran-owned
- Family-owned
- Immigrant-owned
- Locally owned 50% or more of the business is owned by Puerto Ricans)
- Other (please specify) _____

End Survey

REPmail The final report with aggregated information will be sent to participants of the study. If interested in receiving this report, please confirm the email where you want to receive it.

E-mail address

ENDsnow Thank you for your time. Before ending the interview, we would like to know if there is any other organization or colleagues in the transportation sector you think might be interested in participating in this study?

Company Name

Contact Person

Contact Phone

Contact email

ENDref Thank you for your time. The participants of this study must have been employed in the organization at the time of Hurricane Maria. Can you please refer me to someone in your organization that can participate in the study?

Company Name

Contact Person

Contact Phone

Contact email

Ports Resilience – Facilities & Infrastructure, Natural Hazards, MTS, Intermodal Connections and Other

PORTInd The next questions will ask you to indicate the importance of different actions to increase resilience of the Port of San Juan. *Note to interviewer: Resilience is defined as the ports capacity to*

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prepare, respond, and recover from disruptive event. Assessment should be conducted based on the current state (actual conditions) of the port.

Resilience of the Port Facilities and Infrastructure	N/A	Not Important	Minor Importance	Important	Critical
	999	1	2	3	4
PEIFI1. Restoring pier to increase capacity, tonnage, and draft.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIFI2. Securing electrical and power systems (e.g., maintaining redundant systems, elevating or flood proofing electrical systems).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIFI3. Upgrading water drainage systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIFI4. Raising or increasing pier height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIFI5. Fendering, mooring systems and rip-rap to accommodate larger ships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIFI6. Upgrading equipment to increase terminal capacity (e.g., cranes and berths)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resilience of Port to Natural Hazards	N/A	Not Important	Minor Importance	Important	Critical
	999	1	2	3	4
PEINH1. Maintaining adjacent property in case of surge waters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEINH2. Hardening of critical structures to better withstand high winds and rain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEINH3. Maintaining retrofitted structures to protect against flood damage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEINH4. Maintaining design standards for installation of anchors for hurricane tie-down straps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEINH5. Upgrading equipment to increase terminal capacity (e.g., cranes and berths)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEINH6. Securing containers and tanks to withstand adverse weather conditions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resilience of the Maritime Transportation System (MTS)	N/A	Not Important	Minor Importance	Important	Critical
	999	1	2	3	4
PEIMTS1. Increasing size, capacity, and drafts of ships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMTS2. Continuing evaluation of water transportation safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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requirements and conditions.					
PEIMTS3. Continuing evaluation of severe weather effects on marine transportation operations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMTS4. Improving modification of waterway coordination.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMTS5. Upgrading and modifying vessels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resilience of Intermodal Connections and Infrastructure	N/A	Not Important	Minor Importance	Important	Critical
	999	1	2	3	4
PEIMod1. Improving truck/tank loading and unloading operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMod2. Maintaining multiple land transportation systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMod3. Maintaining a variety of intermodal exchange points and connections (e.g., different regions, roads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMod4. Diversification of intermodal transportation to move cargo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMod5. Port proximity to main roads, warehouses, and distributors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIMod6. Increasing the capacity of cargo facilities and warehouses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Resilience Indicators	N/A	Not Important	Minor Importance	Important	Critical
	999	1	2	3	4
PEIOth1. Maintaining flexible labor agreements with port employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIOth2. Maintaining flexible inter-port and intra-port agreements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIOth3. Maintaining redundant communications and information systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIOth4. Incorporating (investing in) mitigation actions to reduce natural hazard risks.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PEIOth5.	Maintaining efficient port entry operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEIOth6.	Optimizing port call to improve anchorage capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>