

Project Title

**“Participatory Operational Assessment (POA):
Evaluating and predicting the
operational effectiveness of
Cargo Security Processes at Ports of Entry”**



Project Team Profile

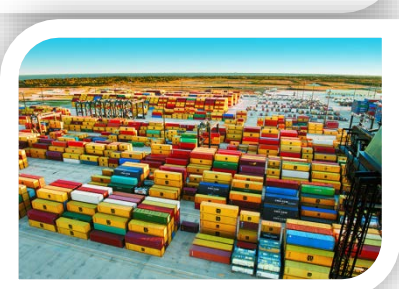
- PI(s) Name(s), University:
Maria Burns, University of Houston
- Project Start Date: January 2016
- Anticipated End Date: June 2018

- Project personnel:
 - **RA: Kishan Savant (UH)**
 - **Consultant: Glen Harisson**



Problem Statement

Focus on **Security**, while facilitating **Trade Flows**



Addressing the **DHS Goals**:

- To measure, assess, and predict the impact of security processes at U.S. Ports of Entry, and facilitate legitimate trade and travel.

Addressing the **CBP Goals**:

- To safeguard our borders and the 328 U.S. Ports of Entry

U.S. Trade :

- **Cargo** : Two billion MT (2,000,000,000 MT)
- **Containers** : Fifteen million TEU (15,000,000 TEU).



Problem Statement

Issue 1: Risks Beyond the Border

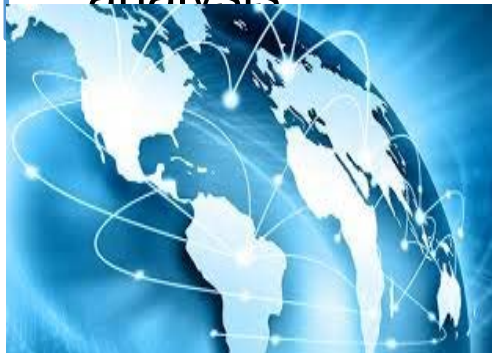


Question 1:

- What are the delays, disruptions and illegitimate activities **beyond the U.S. Border**, and to which extent do they cause delays and disruptions at **U.S. Ports of Entry**?

Solution:

- Data collection & analysis.
- Identify, measure, help eliminate **risks** and quantify the impact by means of an econometric/ ANOVA/ regression analysis



Problem Statement

Issue 2: Inbound & Outbound Risks

- What are the outbound security risks in a containerized cargo transport process?
- What are the differences and similarities between the **inbound and outbound** trade?

Solution: A Risk Assessment method will be constructed based on findings.



Problem Statement

Issue 3: Best Practices Industry- Focused



What are the recommendations for improvement to all the above challenges?

Solution: Use of Techniques

1. **Supply Chain Management**
2. **Resource Management**
3. **Time Management**



Methods: The Participatory Operational Assessment protocol and the Delphi method will provide first-hand information on the best practices, and risk areas at Ports of Entry.

Beneficiary / End User Profile: Jobs

DHS Professionals



- **PoE Directors;**
 - **Operations Executives & Personnel;**
 - **Cargo Inspectors;**
 - **Logisticians & Schedulers at POEs;**
 - **Risk managers & data analysts**
 - **Resource & Procurement Managers**
 - **Security Managers**
-
- **Field Operations**
 - **Manifest and Conveyance Security**
 - **Cargo and Conveyance Security**
 - **C-TPAT**

Beneficiary / End User Profile: Jobs

Industry Professionals



- Operations Executives & Personnel;
- Cargo Inspectors;
- Logisticians; Schedulers; Drivers
- Risk managers & data analysts
- Resource & Procurement Managers
- Security Managers

- Commodity importers & exporters
- Commodity Producers, Manufacturers
- Sea and Land Transportation & Logistics
- Warehousing / Distribution Center facilities

Beneficiary / End User Profile: Desired Gains

1. **Security** (Borders, PoEs, Cargoes)
2. **Operational Efficiency**
3. **Optimum use of time & resources**



Beneficiary / End User Profile: Pain Points



1. Challenges at the border are rooted beyond the border
2. Illegitimate entities have time to plan.
DHS must act & decide in real time

1. **DELAYS** AT BORDER
2. **ADVANCE DATA** ABOUT GLOBAL CARGOES & SUPPLY CHAINS
3. **LACK OF HARMONIZATION**
POLICIES * INFRASTRUCTURE * OPERATING HOURS.

Products & Services

Tools, technologies, and/or knowledge products (TTKPs)

| Tools | Knowledge Products | Readiness |
|---|--|-----------------------|
| Risk Assessment | <ul style="list-style-type: none"> ➔ PoE Cargo Ops ➔ Annual stats ➔ Data analysis | ✓ |
| Participatory Operational Assessment | <ul style="list-style-type: none"> ➔ PoE Cargo Ops ➔ Annual stats ➔ Data analysis | ✓ |
| | Report with Best Practices & Solutions | ✓ |
| | Training material | To be produced |



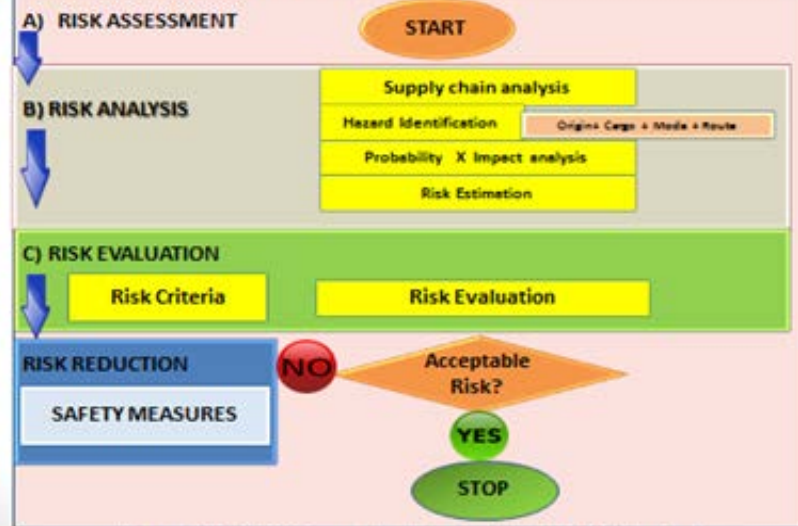
Gains Created

POEs : Typical Risks

Table 2: Optimizing Turnaround Time

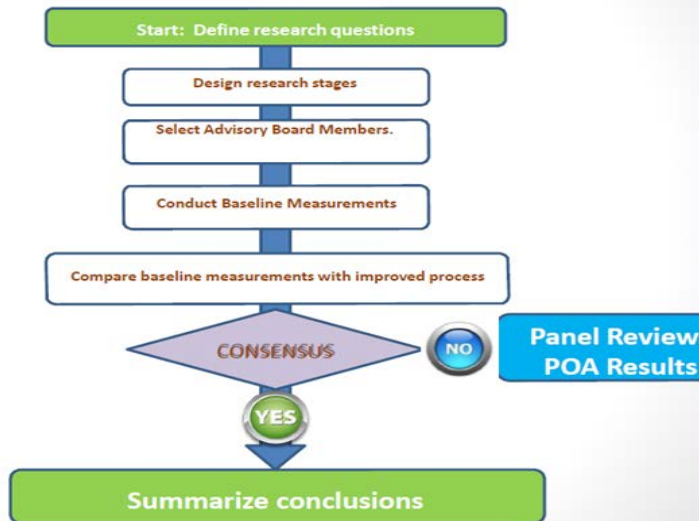
| FACTORS IMPACTING OPERATIONAL EFFICIENCY | SOLUTIONS |
|--|--|
| WEATHER | Increase input, i.e. cranes & labor |
| PORT CONGESTION OR HIGHWAY CONGESTION | Infrastructure investment |
| STRIKES | <ul style="list-style-type: none"> Remedy union relations Restore legal effectiveness Increase technology input |
| SHIPS' SIZE | <ul style="list-style-type: none"> Increase port draft Increase cranes/cargo handling input |
| BERTH AVAILABILITY | <ul style="list-style-type: none"> Scheduling restrictions Invest in port expansion |
| DELAYED ARRIVALS OR NON-SCHEDULED SERVICES | <ul style="list-style-type: none"> Implement scheduling system |
| HIGH CARGO VOLUME | <ul style="list-style-type: none"> Extend hours that POE gates are open Invest in input (labor, technologies) Where possible, promote incentives for cargo interests to promote the use of forty-foot-equivalent unit containers (FEUs), i.e. double the size of standard TBUS. |
| HUMAN ERROR | <ul style="list-style-type: none"> Enhance human performance monitoring process Familiarization for new employees Train-the-trainer, case studies & drills Promote a monitoring culture |

Risk Assessment Methodology



(Based on : BASF, 31st APEC Transportation Working Group Meeting TPT-WG31) Lima, Peru)

Delphi Technique & Participatory Operational Assessment (POA)



Risk Assessment Methodology

Table 6: HAZOP WORKSHEET

DATE: _____ Responsible Agency: _____ Person in Charge: _____ HAZOP Team Members: _____

PLACE (select domestic or global entity): _____ U.S. POE: _____ C-TPAT _____ Global partner: _____

| A) RISK IDENTIFICATION | | | | | Risk Assessment L X C X V Rate 1-5 on a Likert scale where 5=Max and 1=Min | | | |
|------------------------|--|---|--|---|--|--|----------------------|-------------------|
| Guide words | Line | Threat | Deviation | Root Cause | Likelihood | Consequences -Immediate -Long-term | Vulnerability At POE | Total Risk= LxCxV |
| | Identify location/stage in supply chain, i.e. POE Import | Define the problem: e.g. -Health -Environment -Homeland security -Commercial | Explain anticipated change from typical process e.g. -Time Delay -Cargo Loss | Explain likely reason of problem, e.g. Damage due to: Temperature Pressure Biohazards | | | | |
| | | Explain manifestation, e.g. -Health -Environment -Homeland security -Commercial | Specify illegitimate activity: e.g. -Terrorism -Narcotics -Weapons -Human Trafficking | | | | | |

Gains Created



Supply chain
visibility

Risk
Assessment

Public-Private
Partnerships

Efficiency

Improved processing times helps DHS/CBP prioritize security risks

| | |
|---|---------------|
| Improve time at border crossing for containerized cargoes on ships. | >3% less time |
| Improve time at border crossing for containerized cargoes on trucks. | >3% less time |
| Improve time at land border crossing for containerized cargoes on rail. | >3% less time |

1. Enhancing **supply chain** visibility;
2. **Risk Assessment** → region-specific & transport mode-specific
3. **Enable future public/private partnerships**
Industry reach-out & promotion of collaborative efforts aligned with the DHS/CBP goals & mission.
4. Recommendations for optimum use of **time & resources**.

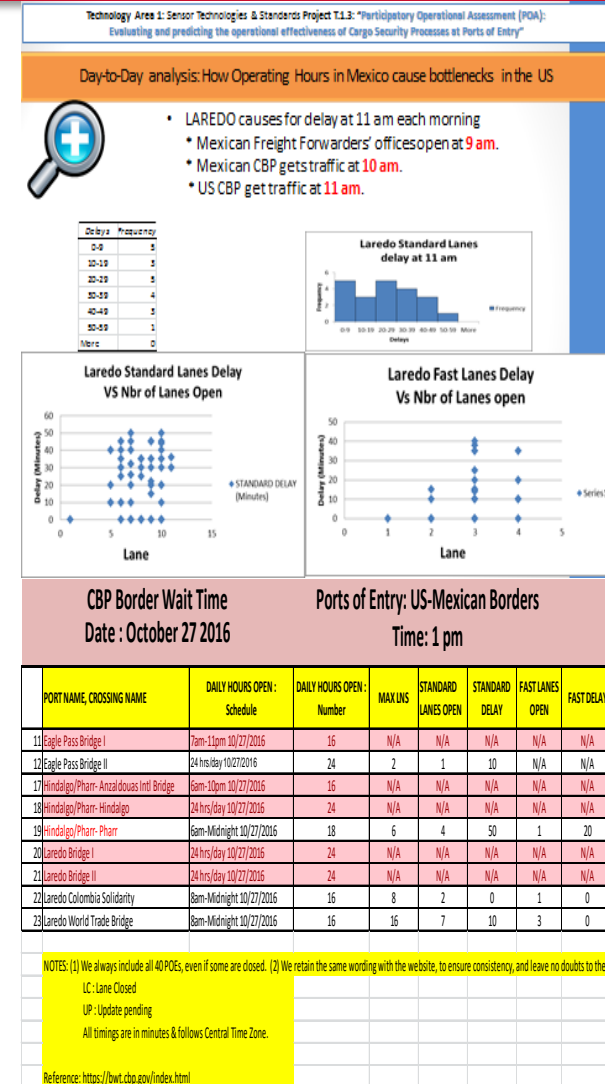
Pains Alleviated



- i. **Increase border security** → supply-chain visibility beyond borders.
- ii. **Increase efficiency** → eliminate high-risk areas → recommend improvements.
- iii. **Reduce time and cost** → eliminate duplication of effort, procedural or transport deviations.
- iv. **Promote harmonized efforts** between the U.S. and Mexican operations.

Key accomplishments

1. Have retained engagement with the DHS/CBP Champions and the industry.
2. Have assessed **DHS Risks rooted beyond the US Borders**;
3. Established a **Participatory Operational Assessment Advisory Board**, consisting of elite DHS & Industry stakeholders at Ports of Entry.
4. Developed a **unique Risk Assessment methodology** for containers based on primary data (testbed measurements, industry interviews and surveys).
5. Developed a robust **statistical analysis** to evaluate the **top risk factors in different PoEs**.
6. Data analysis and comparison of several Ports of Entry.
7. Comparison between Canada and Mexico Borders/POEs.

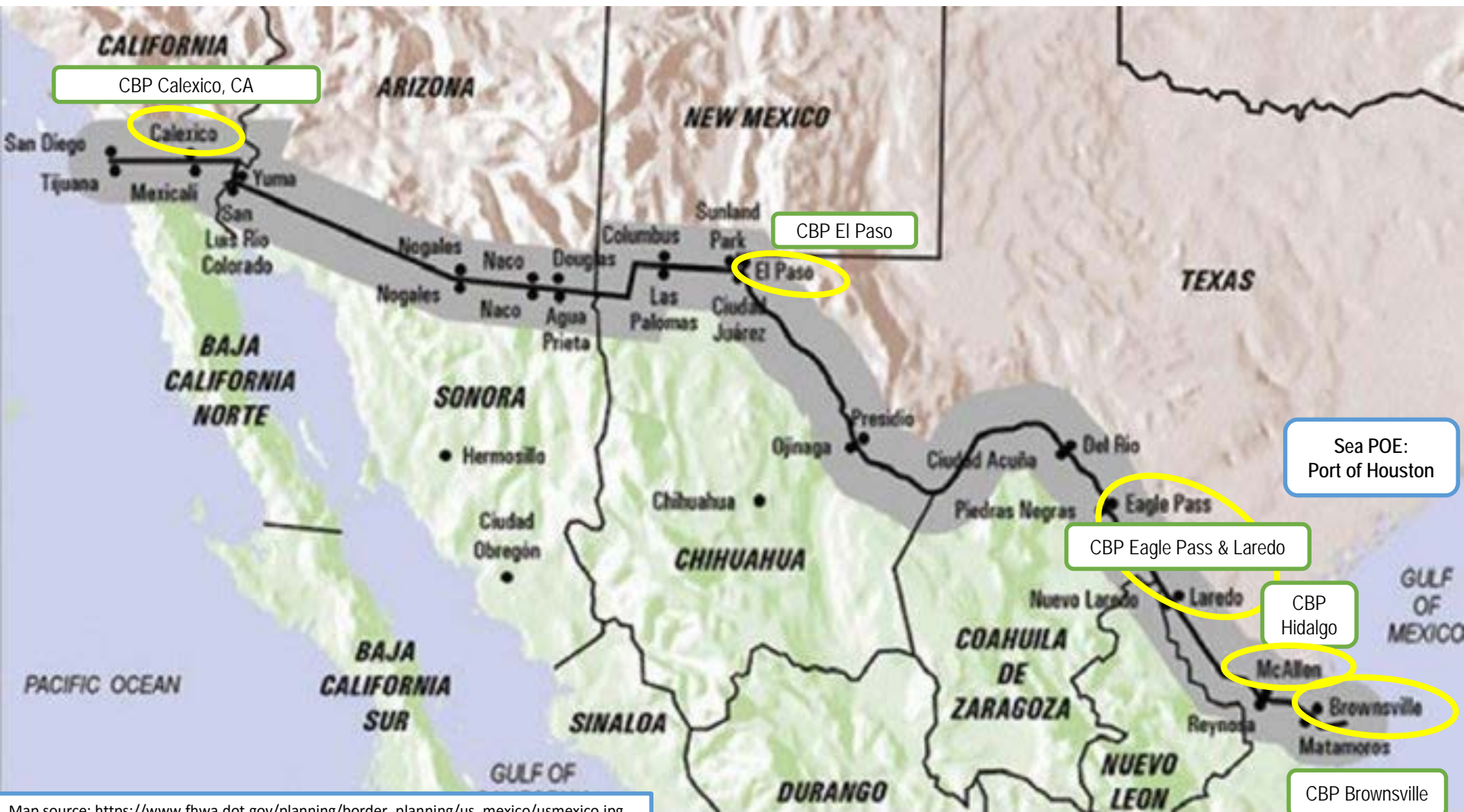


Key accomplishments (2)

1. Compared the **testbed performance** with other significant U.S. Ports of Entry.
2. Deliverables: Submitted **Research Reports and video footage** that can be used to develop Training Material.
3. The deliverables will facilitate **generalization of studies and the transition plan.**
4. Have obtained an Non-Cost-Extension, thus utilizing resources for the transition plan.
5. Developed **2 academic papers**
6. Hired and trained **2 Graduate and 3 Undergrad Students**

TranSea Port of Entry: Port of Houston, (TX);

Land Ports of Entry: (i) CBP Laredo & Eagle Pass (TX); (ii) CBP El Paso (TX); (iii) CBP Hidalgo (TX); (iv) CBP Brownsville (TX); (v) CBP Calexico (CA)



Transition Pathways



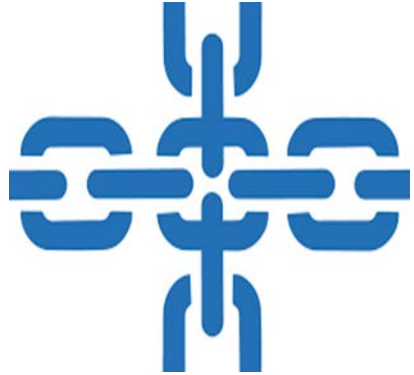
1. Engaging the Project Champion
2. Reaching the end-user.
3. The proposed transition pathway.

1. Supply Chain Management
2. Resource Management
3. Time Management

Transition Engagement

- The transition strategy is enabled through the **leadership and support of CBP, and the groups affiliated with our primary champion**. Namely, the **CBP-OFO divisions of the Manifest and Conveyance Security Group; the Cargo and Conveyance Security Group, and C-TPAT**.
- The transition plan involves reach-out efforts to regional CBP leaders, e.g. POE directors, as well as industry stakeholders, to whom we will present the benefits and opportunities offered via our deliverables.
- Our research enables **the addition of new POEs** and new border regions of interest to the beneficiaries. Therefore, **stakeholders can obtain region-specific, or industry-specific tools**.
- Reaching out to Industry stakeholders.
- Our team possesses the **scientific and commercial expertise** needed to develop spin-off materials and training tools to satisfy existing and new end-users.
- For **post-project support**, we have discussed transition plans with the University of Houston's Division of Research & IP Management, and we will initiate an industry reach-out strategy.

Conclusions: Our 12 Points of Process Improvement based on our PoE Data Analysis



SUPPLY CHAIN MANAGEMENT

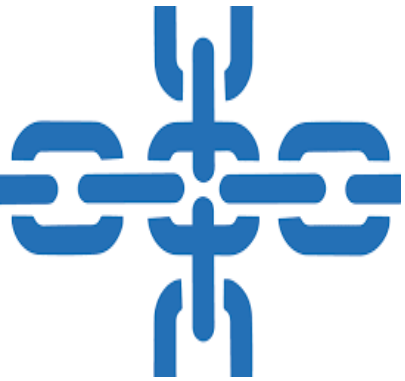
1. **Strategically Planning PoE transit times** →
Avoiding Congestion Days & Hours, e.g. Mon, Fri
2. Increasing Efficiency with Cargo Documentation
3. Selecting **underserved infrastructure** to beat traffic
e.g. Laredo → World Trade vs. Colombia Bridge
4. Pinpoint **inconsistencies in taxes, fees & services**
e.g. **Municipality Taxation**
Freight Forwarders services & charges



McAllen-Hidalgo-Reynosa
Hidalgo, Texas - Reynosa, Tamaulipas
(The U.S. is shown at the bottom.)



Conclusions: Our 12 Points of Process Improvement based on our PoE Data Analysis



5. Strategic selection of **supply chain partners**.
6. Choose **trusted routes** to avoid illegitimate activities
7. Promote Awareness: **FAST & SENTRI LANES, C-TPAT**



Conclusions: Our 12 Points of Process Improvement based on our PoE Data Analysis

SUPPLY CHAIN MANAGEMENT



5. Strategic selection of **supply chain partners**.
6. Choose **trusted routes** to avoid illegitimate activities
7. Promote Awareness: **FAST & SENTRI LANES, C-TPAT**
8. Develop Robust **Training** → **CBP & Industry**
Drills, Scenarios, Situational Awareness
9. Once Trained & Familiar with a location, officers are indispensable. **Reduce CBP Officers' transfer**.

Conclusions: Our 12 Points of Process Improvement based on our PoE Data Analysis

10. Benefit from the **The Trade Facilitation and Trade Enforcement Act of 2015** promoting the recruitment of CBP Personnel.

11. Regulations & Initiatives to strengthen **Harmonization in Policies, Logistics Processes & Documentations** between U.S. & Partners

12. Promote **Public & Private Partnerships.**
POAs are an excellent platform!



Conclusions



Definition of a Hero :
A person who, in the face of **danger**,
combats adversity through
courage and bravery
sacrificing their own safety
for a greater good.



Disclaimer

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