



Resiliency and  
Business Innovation

# Building a Resilient Business Community: Before, During, and After a Disaster

Entrepreneurs Support Practitioners

Module D: Integration and Wrap Up

October 6, 2020 6:00pm-8:00pm

Linton Wells II, J.P. Auffret, Robert Rogers



Puerto Rico  
Science, Technology  
& Research Trust



Center for Resilient and  
Sustainable Communities

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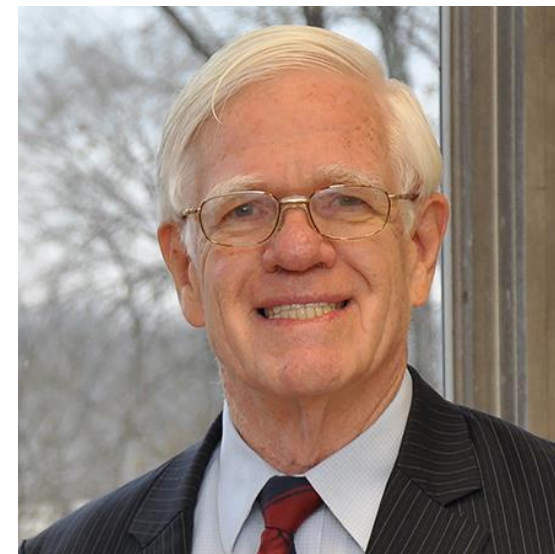
**GEORGE  
MASON  
UNIVERSITY**



# Comparative Strategies of Resilience and Innovation



J.P. Auffret, Ph.D.



Lin Wells, Ph.D.



Bob Rogers



Annie Mustafá Ramos



Gilberto Guevara



Gloria Viscasillas Aponte





# Building a Resilient Business: Before, During, and After a Disaster

## Lesson D

From Personal Resilience to Business Resilience and Building a Culture of Entrepreneurship; Micro-Manufacture (M2) and Puerto Rico, Connecting Farm, City and Technology: Transforming Rural, Peri-Urban and Urban Food Ecosystems in Puerto Rico



Puerto Rico  
Science, Technology  
& Research Trust



Resiliency and  
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Center for Resilient and  
Sustainable Communities

Organized by the Puerto Rico Science, Technology & Research Trust

**Sponsored by: U.S. Economic Development Administration**

**October 6, 2020, 6:00 PM- 8:00 PM**

\*C-RASC consists of researchers from George Mason's Volgenau School of Engineering, the School of Business, the Schar School of Policy and Government, the Jimmy and Rosalyn Carter School of Peace and Conflict Resolution, the College of Science, and the College of Health and Human Services

# Agenda

- From Personal Resilience to Business Resilience and Building a Culture of Entrepreneurship;
- Micro-Manufacture (M2) and Puerto Rico
- Advanced Agriculture for Puerto Rico
- Break
- Recap of Breakout Sessions
- Lesson 4, Integrate Material from Lessons 2 & 3; Finalize Resilience Plan 20 Questions; Discuss “Adapt & Reposition;” “Pivot;”

# Facilitators

## Mike Vivaldi

[MVivaldi1963@gmail.com](mailto:MVivaldi1963@gmail.com)

787-309-1858

SCORE

Mentor

San Juan

## Waleska Crespo

[waleska.crespo@uccaribe.edu](mailto:waleska.crespo@uccaribe.edu)

787-448-0884

Universidad Central del Caribe

President

Bayamon

## Wilmer Arroyo Alvarado

[wilmerchronos@gmail.com](mailto:wilmerchronos@gmail.com)

787-370-5865

Khronos Corporation

President

Aguadilla

## Jaime Yordan-Frau

[jaimeyordanfrau@mac.com](mailto:jaimeyordanfrau@mac.com)

954-610-4247

El Nodo, Ponce

Executive Director

Ponce

## Nerma Albertorio

[nerma@centroparaemprendedores.org](mailto:nerma@centroparaemprendedores.org)

787-400-0906

Centro para Emprendedores

Executive Director

San Juan

## Francisco Garcia

[fgarcia@primexpr.org](mailto:fgarcia@primexpr.org)

787-559-4596

PRIMEX

Senior Management Consultant

San Juan

## Ricardo Aponte-Parsi

[raparsi@gmail.com](mailto:raparsi@gmail.com)

787-398-7620

Aponte Parsi Law Offices

Attorney at Law

## Ramon Barquin

[rbarquin3@barquin.com](mailto:rbarquin3@barquin.com)

787-420-7717

BI Corporation

President

## Andria Salva

[andria@euquest.com](mailto:andria@euquest.com)

787-640-0063

EU^Quest

President

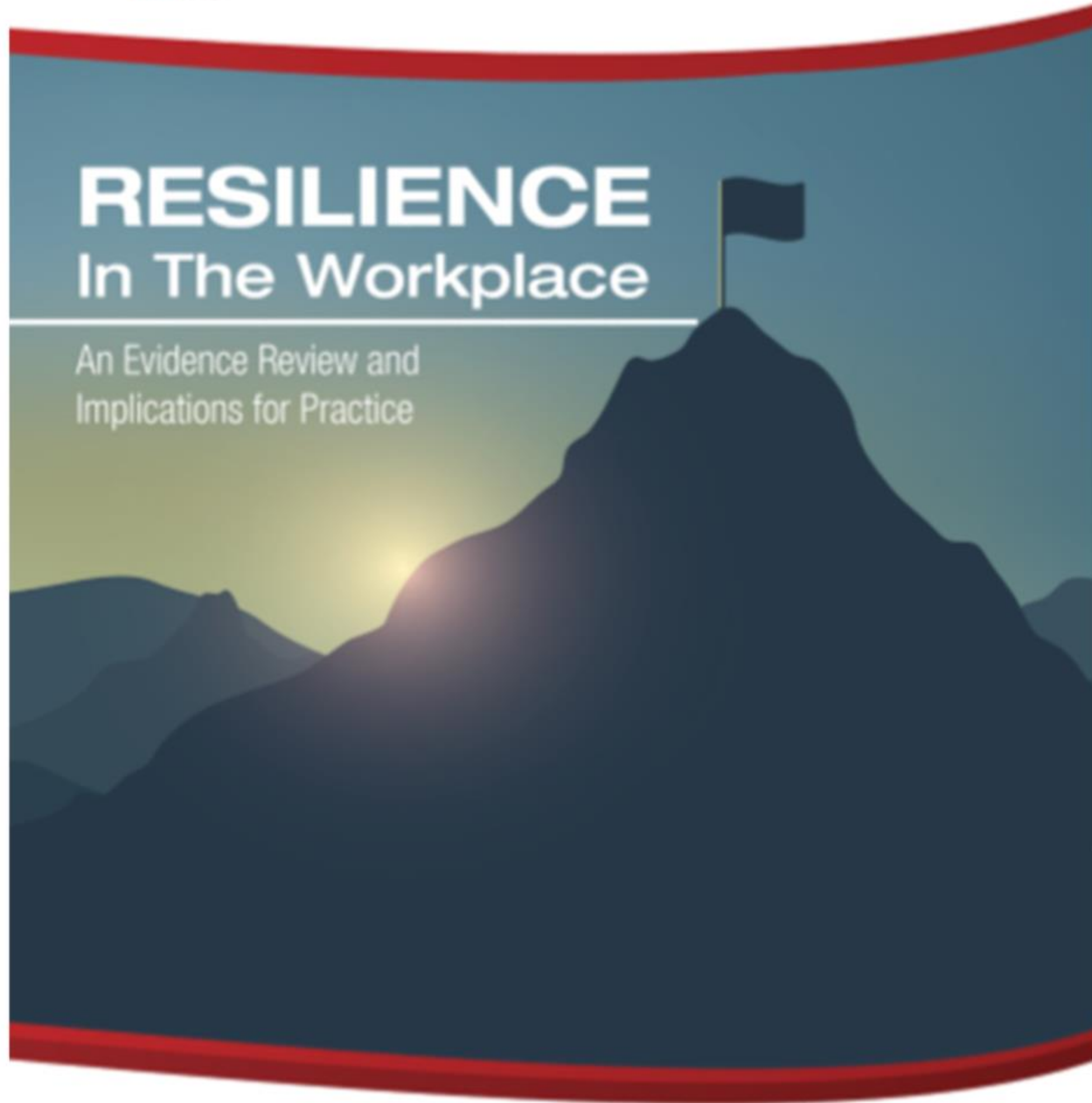
San Juan



CEO Roundtable  
*Creating Healthy Companies  
and Communities*

# RESILIENCE In The Workplace

An Evidence Review and  
Implications for Practice



Conducted by the American Heart Association Center for Workplace Health Research and Evaluation  
[healthmetrics.heart.org](http://healthmetrics.heart.org)



**“Resilience is the ability to withstand, recover and grow in the face of stressors and changing demands.”**

**Deloitte.**



Willing and Able  
Building a crisis resilient  
workforce

# Deloitte Crisis Resilience Workforce Model

- Roles and Responsibilities (important organization and important role)
- Psychological and Social Factors (Concern for safety and family's safety and risk perception)
- Information and Communications
- Organizational Interventions (transport, childcare, healthcare)

# Employee Resilience

“The capacity of employees to utilize resources to continually adapt and flourish at work, even when faced with challenging circumstances”

Source: Naswell, K, Malinen, S., Kuntz, J., and Hodliffe, M.,  
Employee Resilience: Development of a Validation Measure, 2019





Source: Washington Post, April 4<sup>th</sup>, 2020, Nurse Janett Perez at Maimonides Medical Center, New

# Connor – Davidson Resilience Scale (1)

1. Able to adapt to change
2. Close and secure relationships
3. Sometimes fate or God can help
4. Can deal with whatever comes
5. Past success gives confidence for new challenge
6. See the humorous side of things
7. Coping with stress strengthens
8. Tend to bounce back after illness or hardship
9. Things happen for a reason
10. Best effort no matter what
11. You can achieve your goals
12. When things look hopeless, I don't give up.

# Connor – Davidson Resilience Scale (2)

13. Know where to turn for help
14. Under pressure, focus and think clearly
15. Prefer to take the lead in problem solving
16. Not easily discouraged by failure
17. Think of self as strong person
18. Make unpopular or difficult decisions
19. Can handle unpleasant feelings
20. Have to act on a hunch
21. Strong sense of purpose
22. In control of your life
23. I like challenges
24. You work to attain your goals
25. Pride in your achievements.



Source: <https://www.wired.com/2012/09deep-blue-computer-bug>

0000-SORRY-FOR-FILES.html

**#What happened to your files?**

All your files encrypted with RSA-2048 encryption, For more information search in Google 'RSA Encryption'

**#How to recover files?**

RSA is a asymmetric cryptographic algorithm, You need one key for encryption and one key for decryption  
So you need Private key to recover your files.  
It's not possible to recover your files without private key

**#How to get private key?**

You can get your private key in 3 easy step:  
**Step1:** You must send us **0.7 Bitcoin** for each affected PC OR **3 Bitcoins** to receive ALL Private Keys for ALL affected PC's.  
**Step2:** After you send us **0.7 Bitcoin**, Leave a comment on our Site with this detail: Just write Your 'Host name' in your comment  
 \*Your Host name is: [REDACTED]

**Step3:** We will reply to your comment with a decryption software, You should run it on your affected PC and all encrypted files will be recovered  
 \* Our Site Address: [ht](#)  
 \* Our BitCoin Address: [REDACTED]


(If you send us **3 Bitcoins** For all PC's, Leave a comment on our site with this detail: Just write 'For All Affected PC's' in your comment)  
 (Also if you want pay for 'all affected PC's' You can pay 1.5 Bitcoins to receive half of keys(randomly) and after you verify it send 2nd half to receive all keys )


**How To Access To Our Site**

For access to our site you must install Tor browser and enter our site URL in your tor browser.  
 You can download tor browser from <https://www.torproject.org/download/download.html.en>  
 For more information please search in Google 'How to access onion sites'

**OUTAGE ALERT**

The City of Atlanta is currently experiencing outages on various customer facing applications, including some that customers may use to pay bills or access court-related information. Our @ATL\_AIM team is working diligently with support from Microsoft to resolve this issue. Atlantaga.gov remains accessible. We will post any updates as we receive them. Thank you for your patience.







# WANTED BY THE FBI

## SAM SAM SUBJECTS

Conspiracy to Commit Fraud and Related Activity in Connection with Computers;  
 Conspiracy to Commit Wire Fraud; Intentional Damage to a Protected Computer;  
 Transmitting a Demand in Relation to Damaging a Protected Computer



Mohammad Mehdi  
Shah Mansouri



Faramarz Shahi Savandi

REMARKS

Mohammad Mehdi Shah Mansouri is an Iranian male with a date of birth of September 24, 1991. He has brown hair and brown eyes and was born in Qom, Iran.  
 Faramarz Shahi Savandi is an Iranian male who was born in Shiraz, Iran, on September 16, 1984. Both men are known to speak Farsi and reside in Tehran, Iran.

DETAILS

Mohammad Mehdi Shah Mansouri and Faramarz Shahi Savandi are wanted for allegedly launching SamSam ransom ware, aka MSIL/Samas.A attacks, which encrypted hundreds of computer networks in the United States and other countries. Since December of 2015, Shah Mansouri and Shahi Savandi have received over \$6 million in ransom payments from victims across several sectors, including critical infrastructure, healthcare, transportation, and state/ local governments.  
 On November 26, 2018, a federal grand jury sitting in the United States District Court for the District of New Jersey, Newark, New Jersey, indicted Shah Mansouri and Shahi Savandi on charges of conspiracy to commit fraud and related activity in connection with computers, conspiracy to commit wire fraud, intentional damage to a protected computer, and transmitting a demand in relation to damaging a protected computer. The District of New Jersey issued a federal arrest warrant for both men.

If you have any information concerning these individuals, please contact your local FBI office, or the nearest American Embassy or Consulate.

Field Office: Newark www.fbi.gov

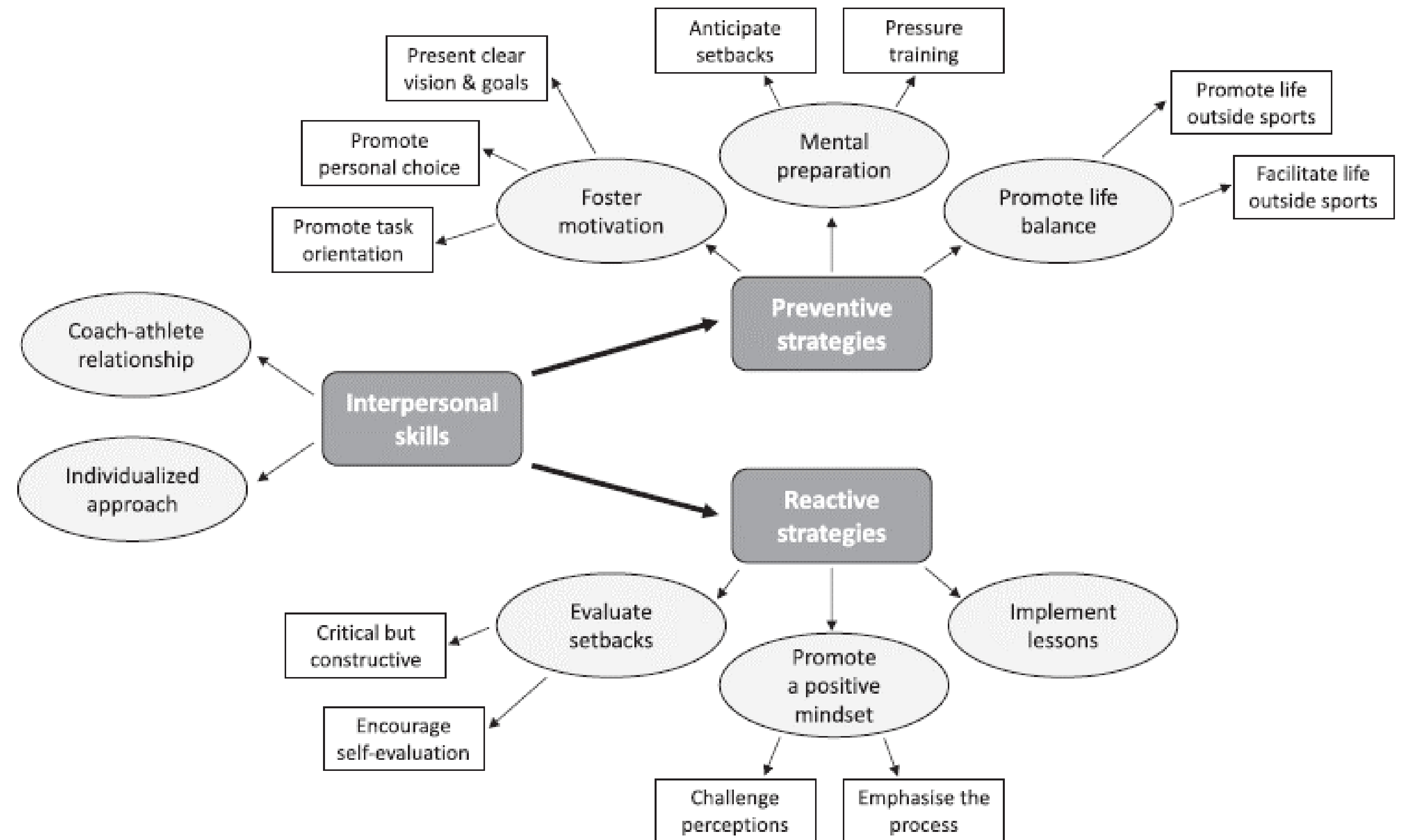


# “Coach’s Role in Fostering Resilience in Elite Athletes”

**Competitive Stressors** – poor performance, failure to meet expectations, injury

**Organizational Stressors** – federation conflicts, legal issues, demanding practices, financial problems, nonselection

**Personal Stressors** – chronic illness, family issues



Source: Kegalaers, Joan and Wylleman, Paul, 2019.

**GUIDE TO BUILDING AN  
Effective EMS Wellness  
and Resilience Program**





# Celebrating the big picture

10 years of wellbeing

2020 BP wellbeing program



2020 BP wellbeing program

## Points snapshot



### health

Health questionnaire	125
Million Steps Challenge	250 per million (1,000 max)
<b>NEW</b> 1500 active minutes *AHA recommendation	125 per quarter (500 max)
Annual physical	375
<b>NEW</b> Preventive exam: mammogram/colonoscopy	125
<b>NEW</b> Preventive health: flu shot	75
<b>NEW</b> Preventive visit: dental	125
<b>NEW</b> Preventative visit: vision	125
Case management	250
Livongo diabetes management (15 checks)	50 per month (250 max)
Lifestyle management coaching	250
Weight management	250
Wellbeing workshops (onsite or digital learning)	125 each (375 max)
<b>NEW</b> Sessions (digital learning)	25 each (300 max)
Daily Dash	25 per month (125 max)

### financial

Financial fitness assessment and coaching call	125
Retirement readiness assessment and coaching call	125
Financial wellbeing classes	125 each (375 max)
Financial coaching (3 sessions)	250
Financial digital workshops	25 each (125 max)
<b>NEW</b> Invest your HSA dollars	125
<b>NEW</b> Review/update beneficiaries	25
<b>NEW</b> Develop a financial plan	25

### social

Participate in a community event (e.g., MS 150, 10k+ or swim event)	125
Participate in a 5k (e.g., AHA Heart Walk)	75
Group exercise classes (10 classes)	75 each (150 max)
Local activity	75 each (150 max)
Personal training sessions (5 sessions)	75 each (150 max)
<b>NEW</b> Complete a certified CPR/first aid training course (e.g., AHA CPR training)	75
<b>NEW</b> Donate blood/platelets	75
<b>NEW</b> Attend a BP BRG networking event	75
<b>NEW</b> Volunteer	75

**+75 points**  
Complete an activity from each category

### emotional

<b>NEW</b> Sleep tracking: 7 hours, 30 nights per quarter	75 per quarter (300 max)
<b>NEW</b> Sleep Basics digital learning	75
<b>NEW</b> Sound Science for Sound Sleep digital learning	75
<b>NEW</b> Meditation sessions (10 sessions)	25 each (125 max)
<b>NEW</b> EAP counseling	125
<b>NEW</b> EAP or Bright Horizons webinar	75
<b>NEW</b> BP Resilience & Psychological Wellbeing briefing	125







# Connections Between Resilience and Entrepreneurship

Entrepreneurship and organizational resilience

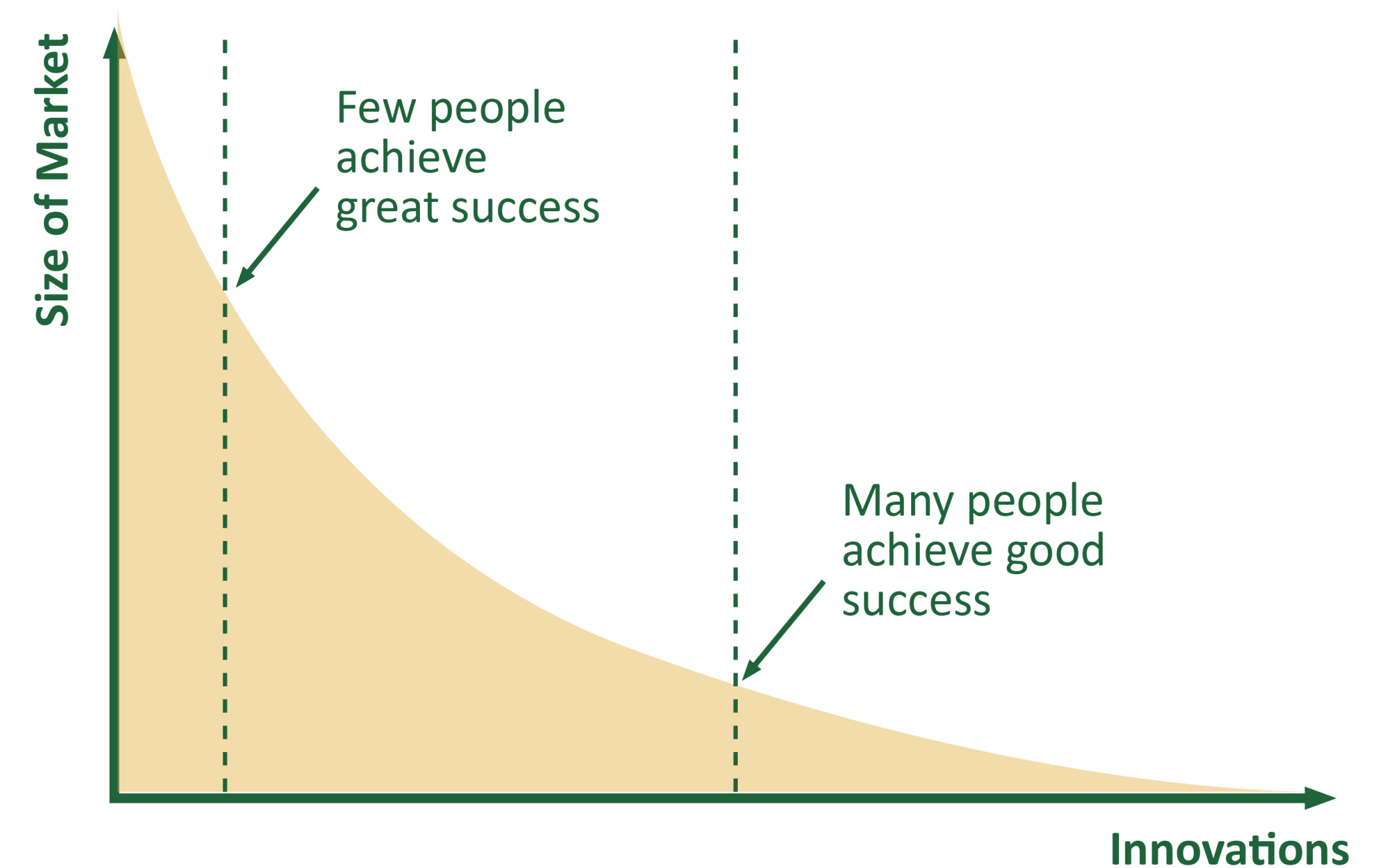
Personal resilience and entrepreneurship

Entrepreneurship and regional / national resilience

# Micro-Manufacture (M2) and Puerto Rico

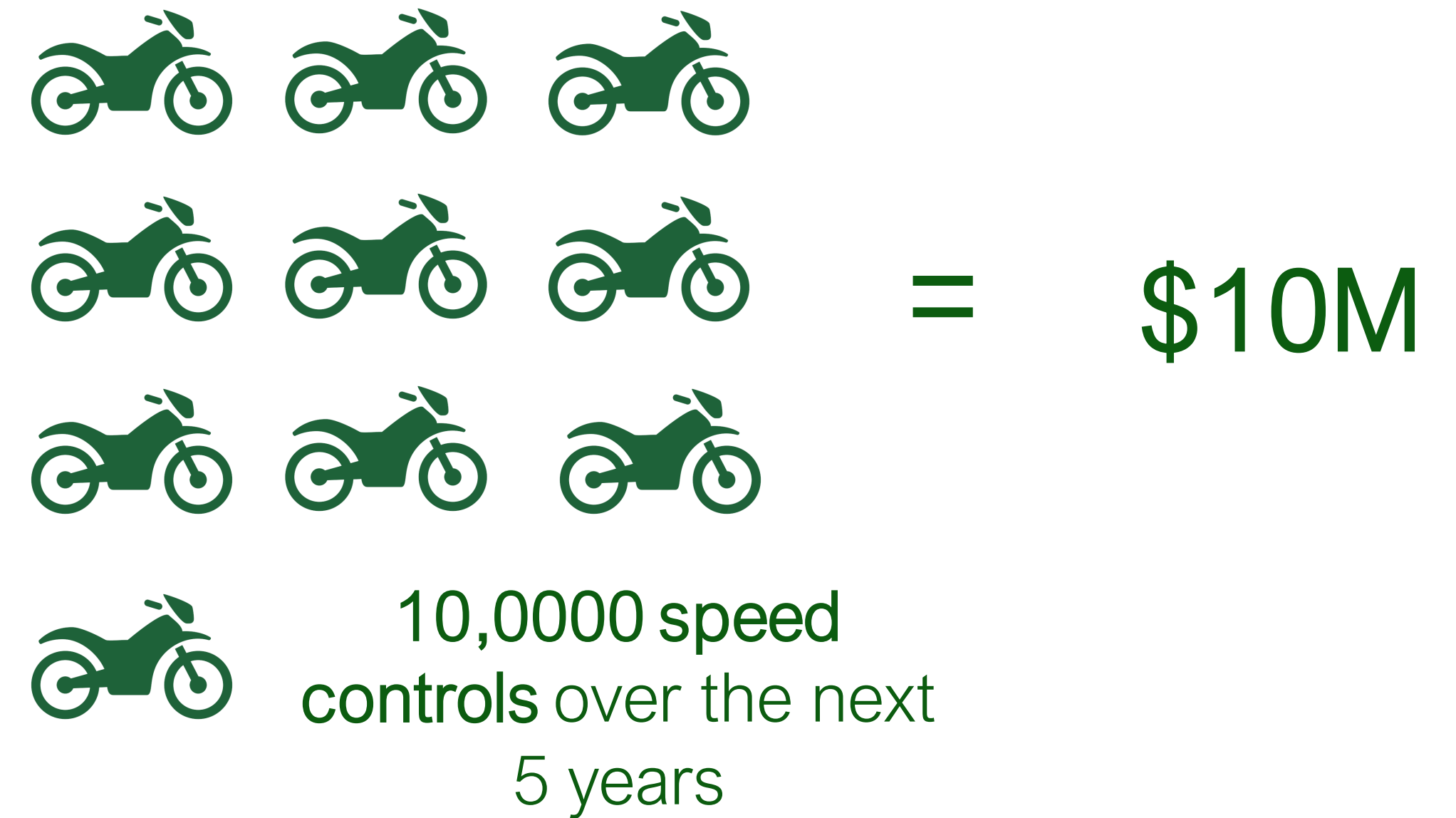
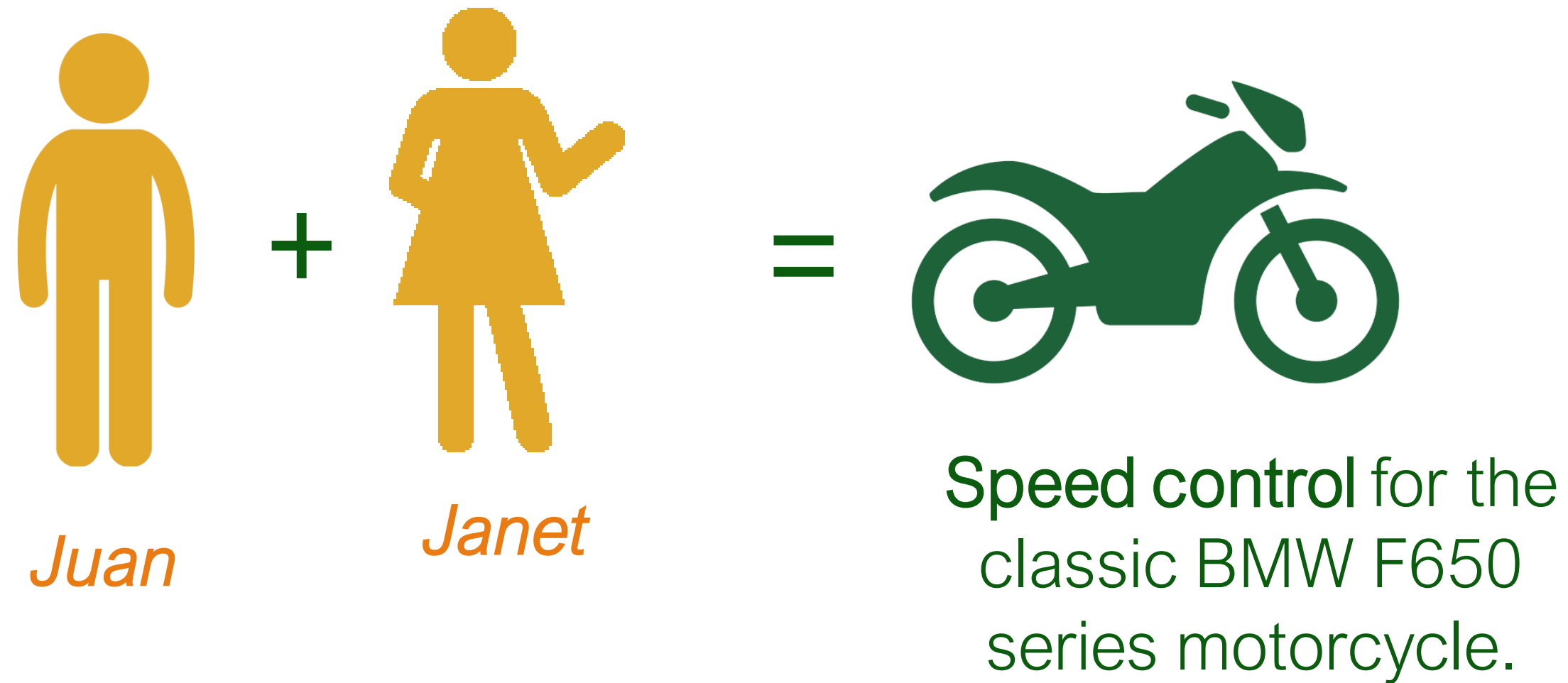
Concept based on research proposal led by Dr. Francis Quek at Texas A&M (TAMU)

- Society-wide grand challenge: Creating jobs and providing meaningful work in manufacturing
- In long-term: Understand implications of Micro-Manufacture across engineering, business, economics, law, and policy
  - Including cross-linkages and dependencies across fields, and potential transformation of society
- Move from today's economy where "few achieve great success to one where many achieve good success"



*Changing the game by shifting the line of entrepreneurial success*

# Micro-Manufacturing Example



*Juan is a designer and Janet is a Computer Scientist. Juan rides a motorcycle and is aware of the aftermarket demand in the motorcycling community. They design an advanced speed control for the classic BMW F650 series motorcycle.*

***They believe they can sell 10,000 speed controls over the next 5 years, which amounts to total sales of \$10M if they price their invention at \$1,000 each.***

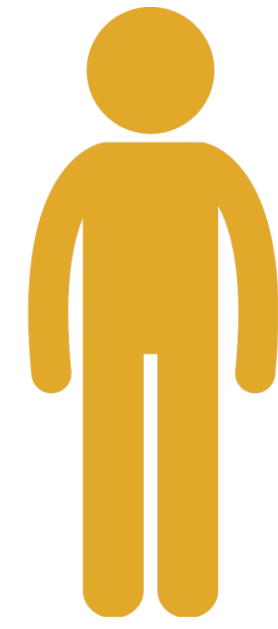
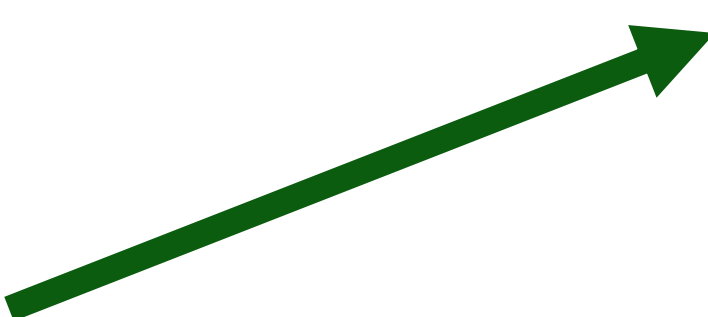
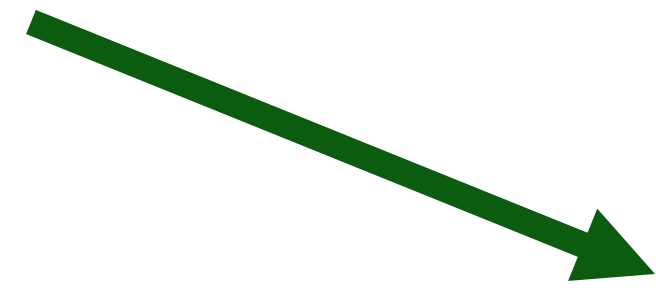
# Micro-Manufacturing (M2)



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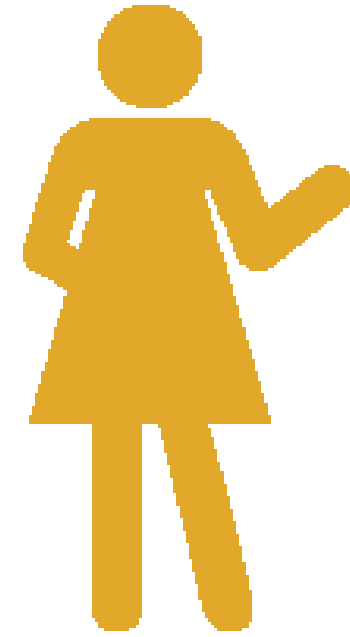


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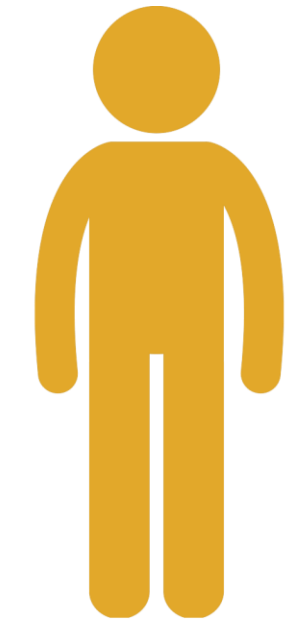


Juan

+



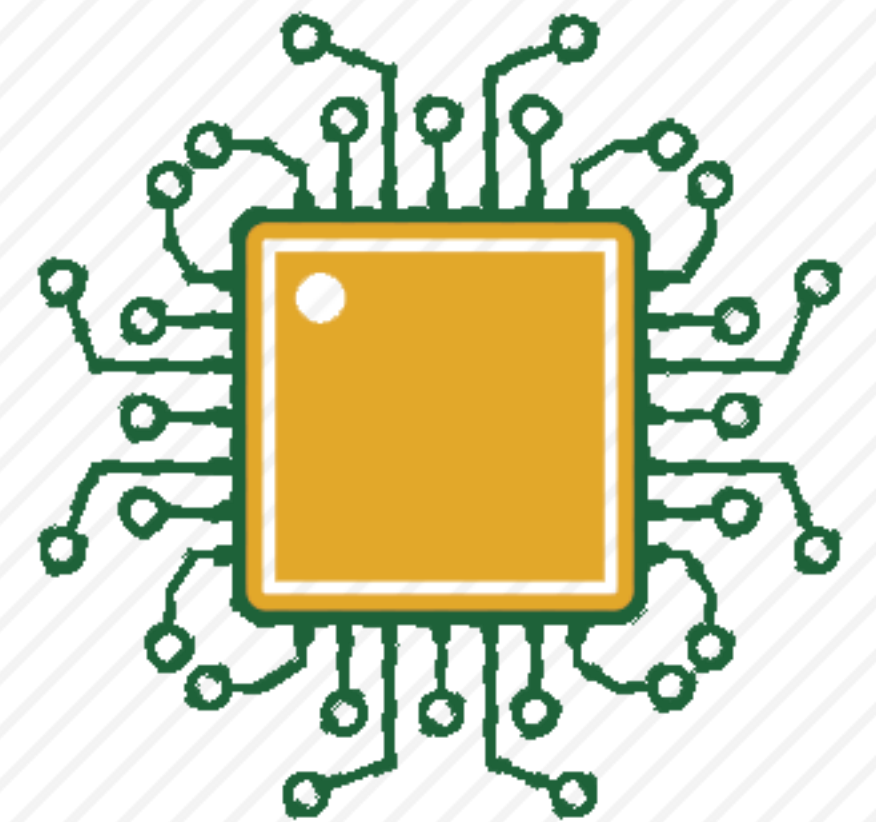
Janet



Jack

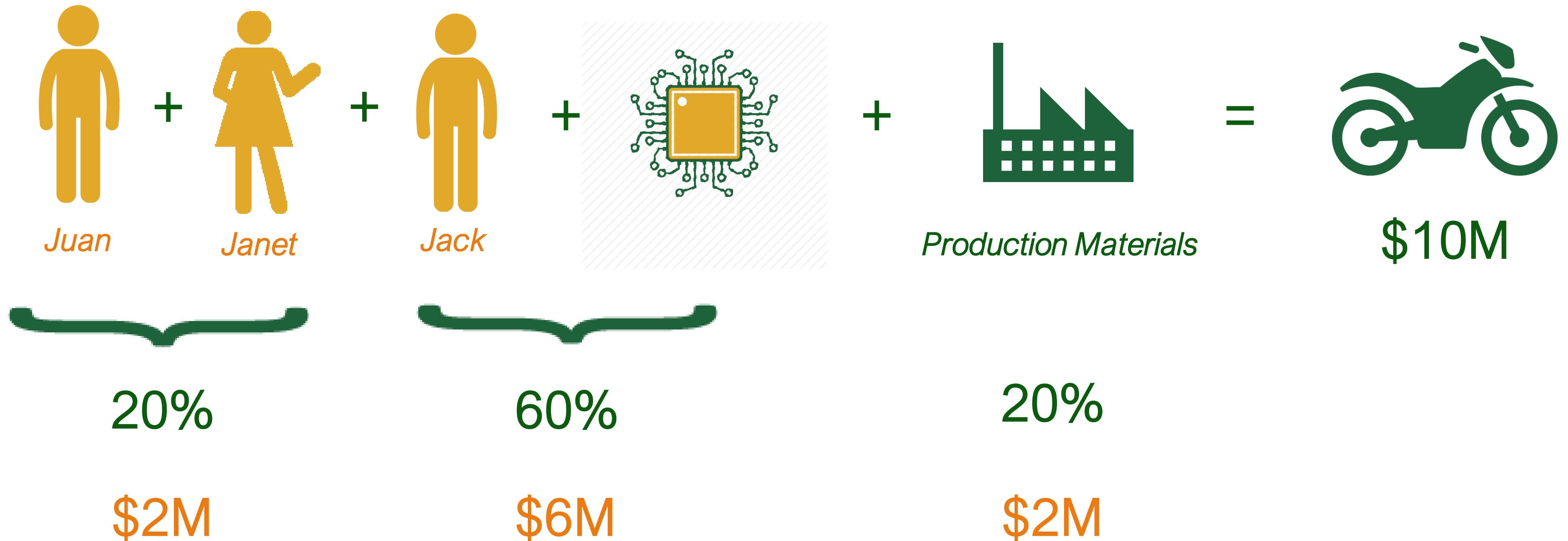


10,000 speed controls over the next 5 years



Nearby M2 Business

# Micro-Manufacturing (M2)



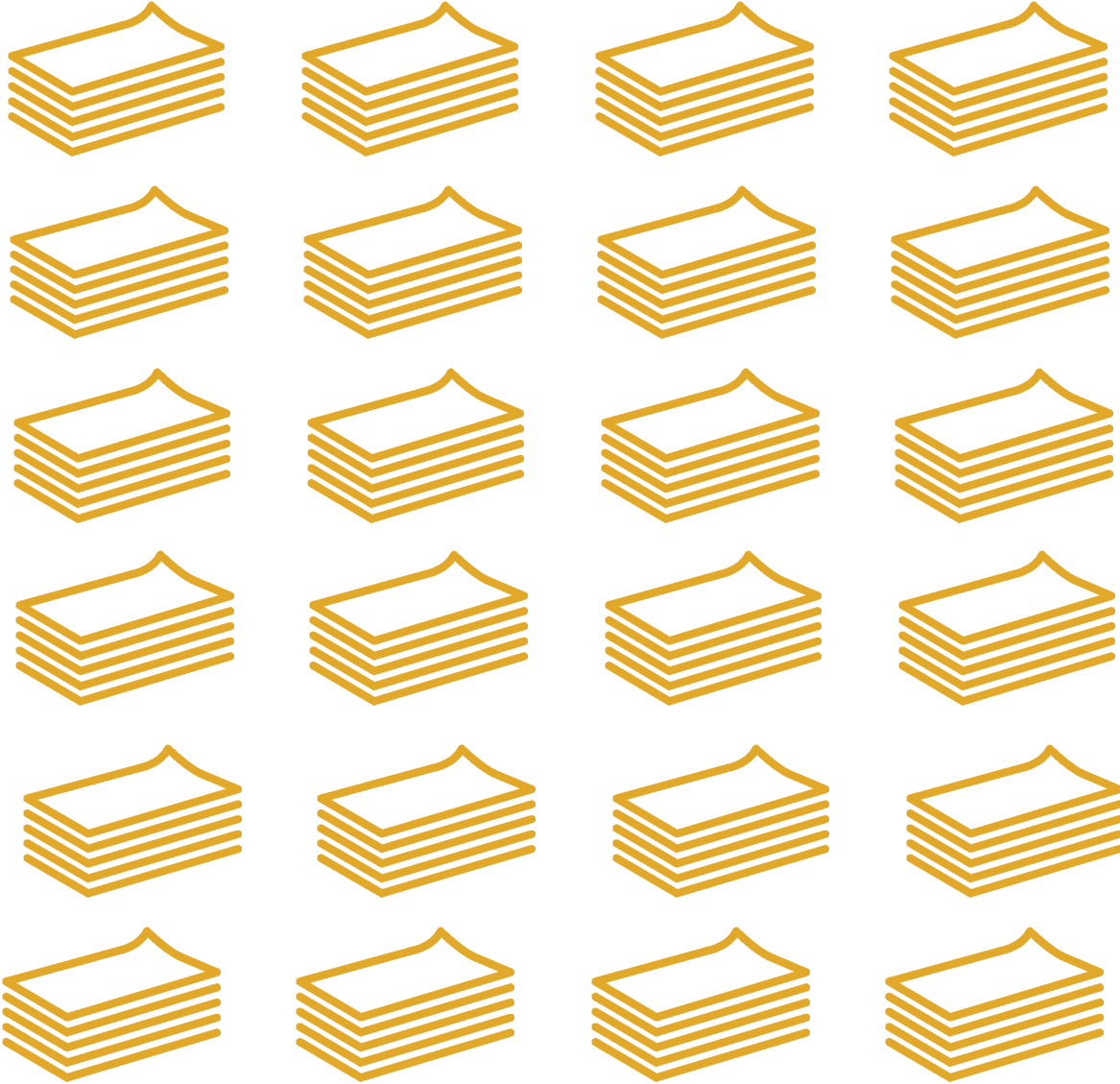
# Desktop Publishing Analogy

- In 1984 Lisa and Macintosh computers and ImageWriter printer let bit-mapped graphics be translated to paper
- Low-cost, high-quality inkjet and laser printers led to personal desktop publication in 90s
  - Democratized printing over mass-production offset printing
    - Small restaurants could now design and print their own menus
    - But even modest high-quality color printing projects were complex and costly
    - Spurred growth of community printing businesses like Kinkos
  - Now many homes have a printer for occasional small quantity prints
  - Use Kinkos for large, complex or customized projects
    - Printing businesses like Kinkos in almost every U.S. town
    - Employing thousands of workers, providing invaluable services

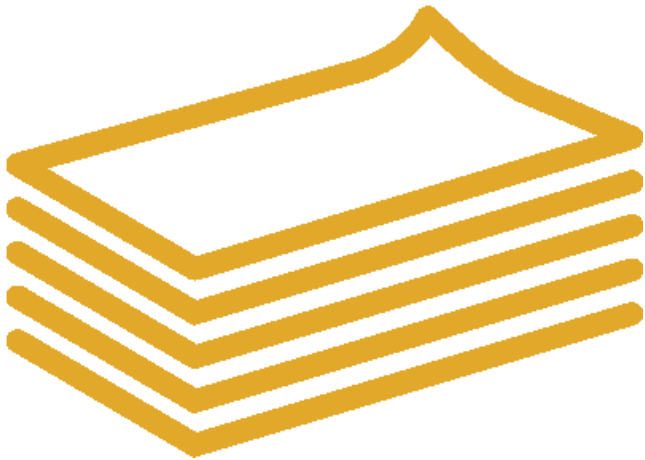
# Desktop Publishing Analogy



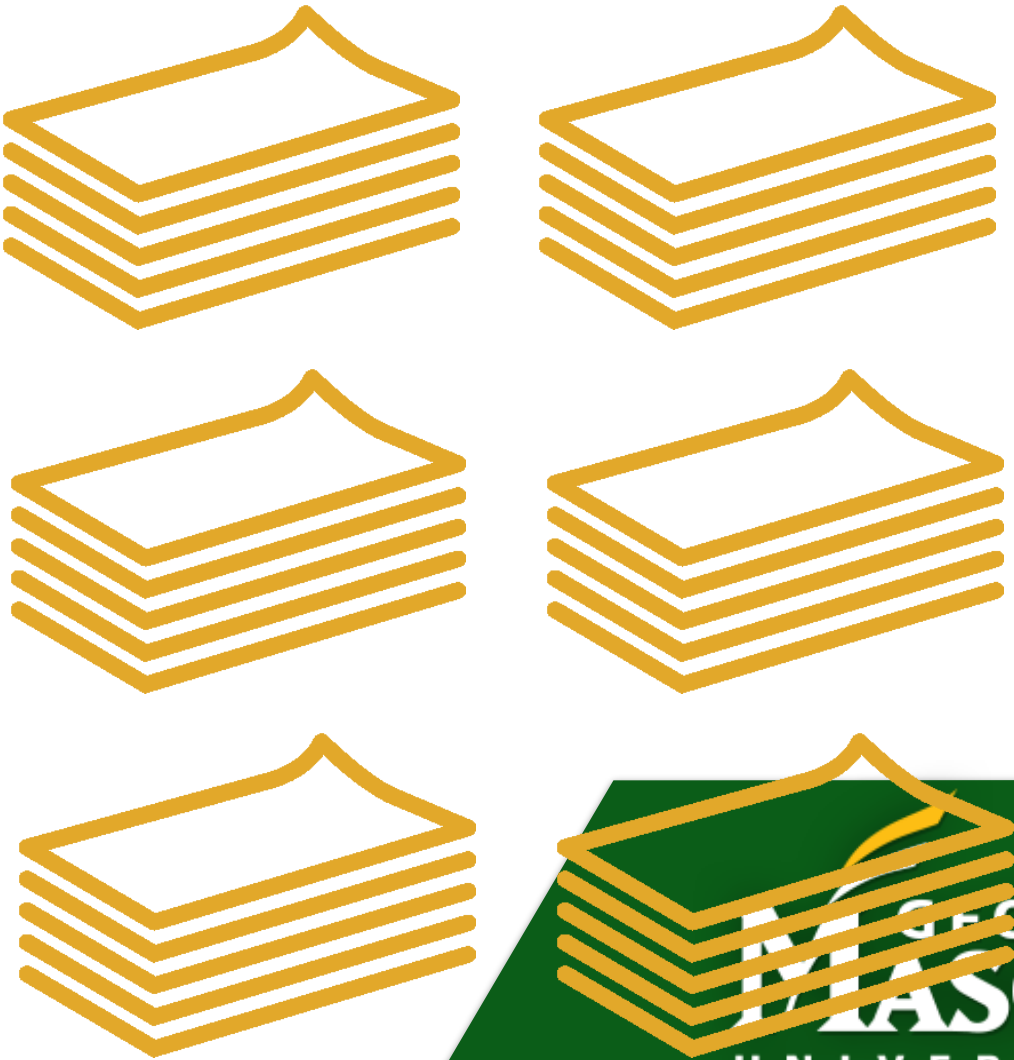
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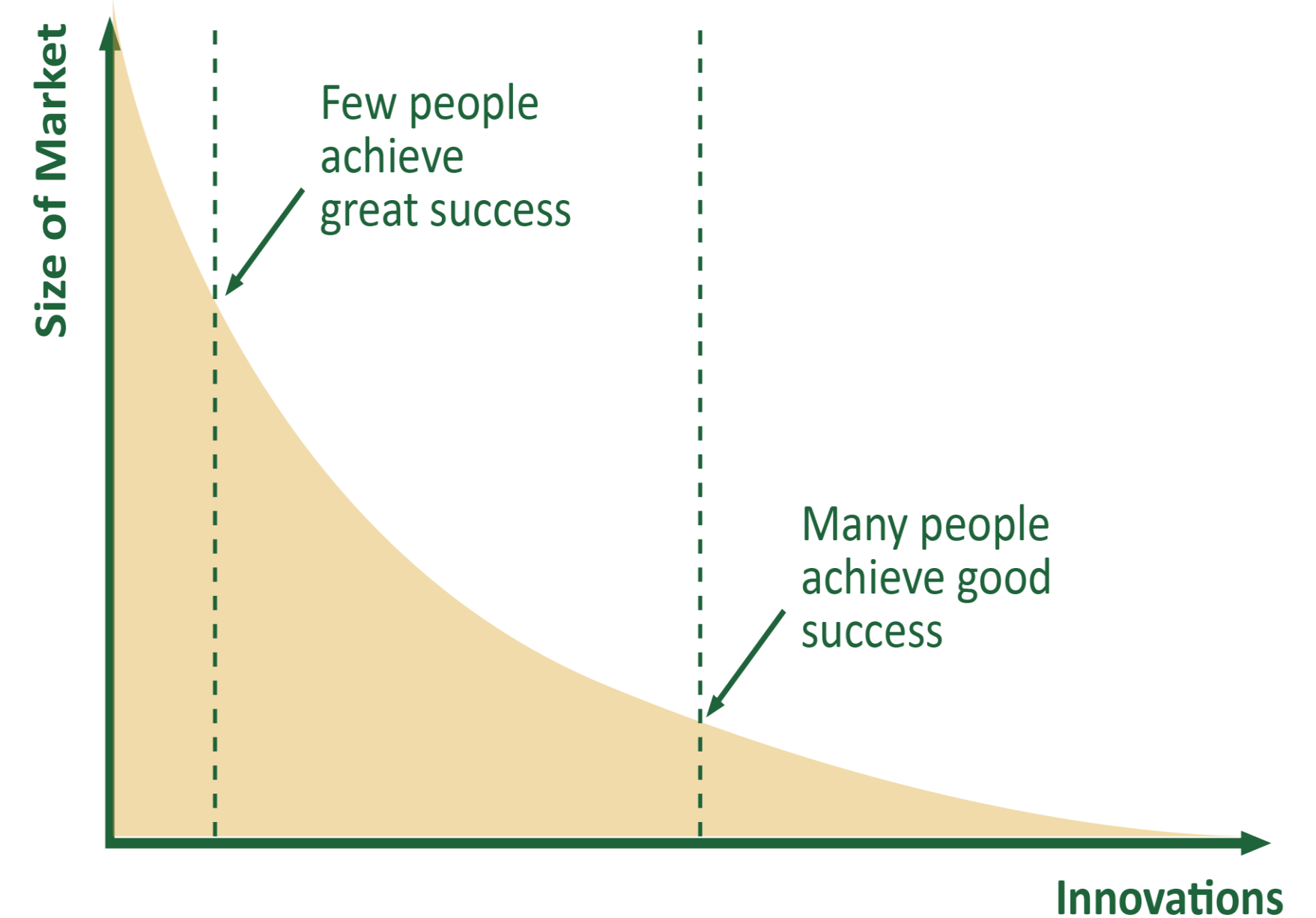


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# Micro-Manufacturing Vision

- **M2 much more complex than desktop printing**
  - **What does Jack's 'Kinkos of Manufacture' need to fulfill orders quickly?**
  - **What research gaps need to be filled?**
- **Digital economy opens tremendous opportunities**
  - **Flexible fabrication**
  - **Universal access to modern Internet**
  - **Social networking and intelligent information**
  - **Accessible electronics and programming**
- **Together they can shift point of entrepreneurial success down the curve**
  - **To enable success by many**
    - **More small innovators could make it to start-up, and scale**



*Changing the game by shifting the line of entrepreneurial success*



# Research Project

## 2 Phases

- **Phase 1 (1-2 years) TAMU and GMU collect and analyze database of innovation**
  - **Which innovations could best benefit from M2?**
  - **Develop a modest flexible fabrication-and-assembly space**
  - **Invite innovations across (TAMU) and (GMU) campuses and surrounding communities, and nationally**
- **Phase 2 (3-years), build more robust M2 testbed from Phase 1 lessons**

## 5-Year Goal

- **Understand enough of the benefits and pragmatics of M2 vision in relation to technology, economics, business, entrepreneurship, law, and policy that we can recommend it as a functional model**

# Opportunities for Puerto Rico

- Innovate with M2

- Take advantage of new Internet capabilities like 5G and Starlink
- Build on Puerto Rico's manufacturing sector
  - Additive manufacturing is improving fast
  - Deploy M2 capabilities geographically
- Build in cyber resilience
- Gather not just tech data, but also economics, business, entrepreneurship, law, and policy
- Leverage re-shoring of U.S. supply chains
- Engage diaspora to add to skill base
- Use M2 pilots to justify distributed, stable power

- Participate in TAMU and GMU research project



# Connecting Farm, City and Technology: Transforming Rural, Peri-Urban and Urban Food Ecosystems in Puerto Rico

Adapted from

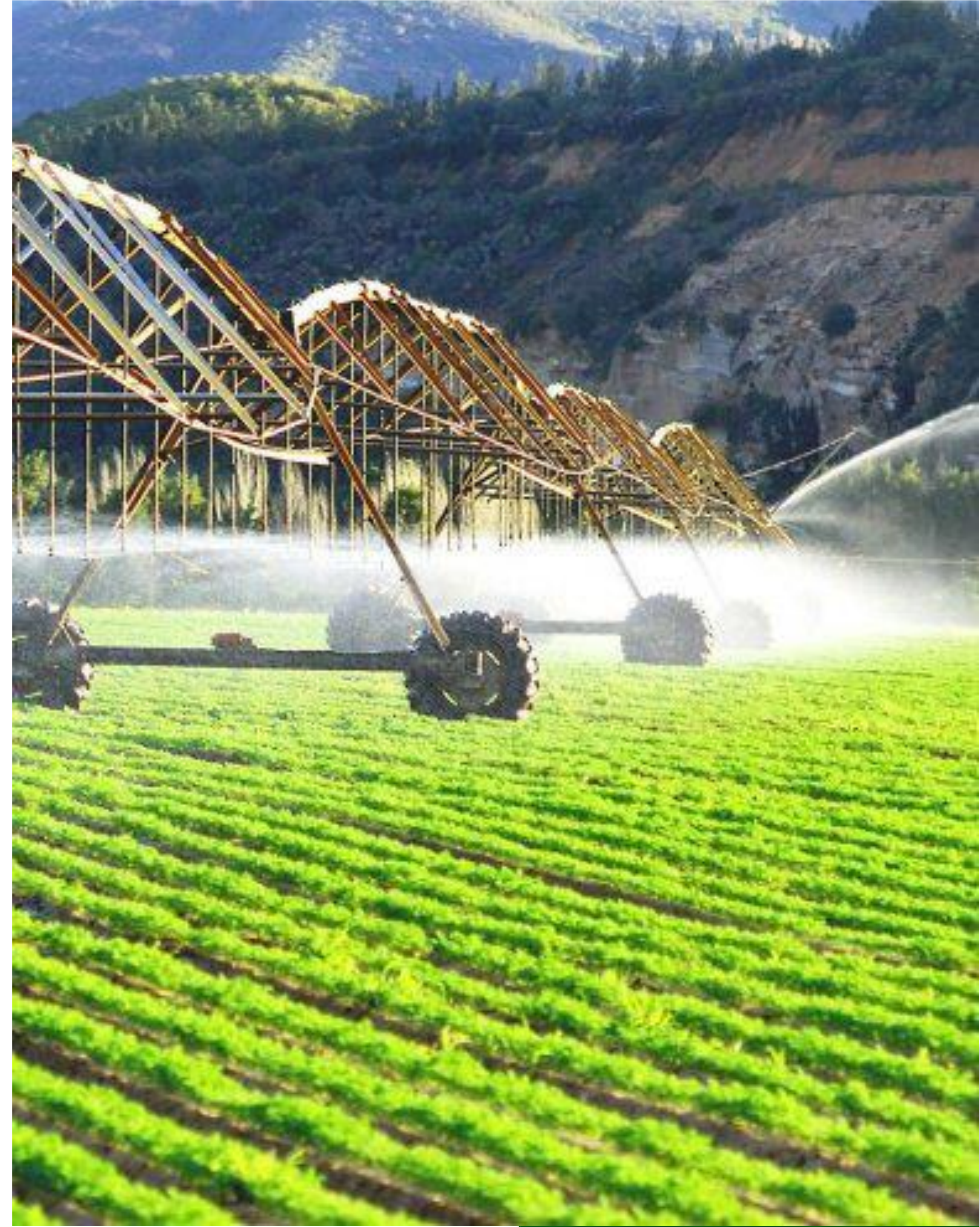
**Fred T. Davies & Banning Garrett, *Connecting Farm, City, and Technology: Transforming Urban Food Ecosystems in the Developing World*, Global Federation of Competitiveness Councils (GFCC), 2019**

<http://www.thegfcc.org/wordpress/wp-content/uploads/GFCC-ConnectFarmCityTech-Report.pdf>



# Agricultural Modernization in Puerto Rico

- **Modernize agriculture to promote greater productivity and output and improve exports**
  - Puerto Rico imports about 80% of its food
  - Agricultural sector suffers from:
    - Lack of critical mass
    - Outdated farming practices
    - Aging workforce
    - Insufficient access to capital
  - Distribution system also fragile
  - Needs
    - Sustainable water sources and integrated management
    - Improved transportation infrastructure
    - Enhance resilience to drought and climate change
    - COVID-19 recovery plans

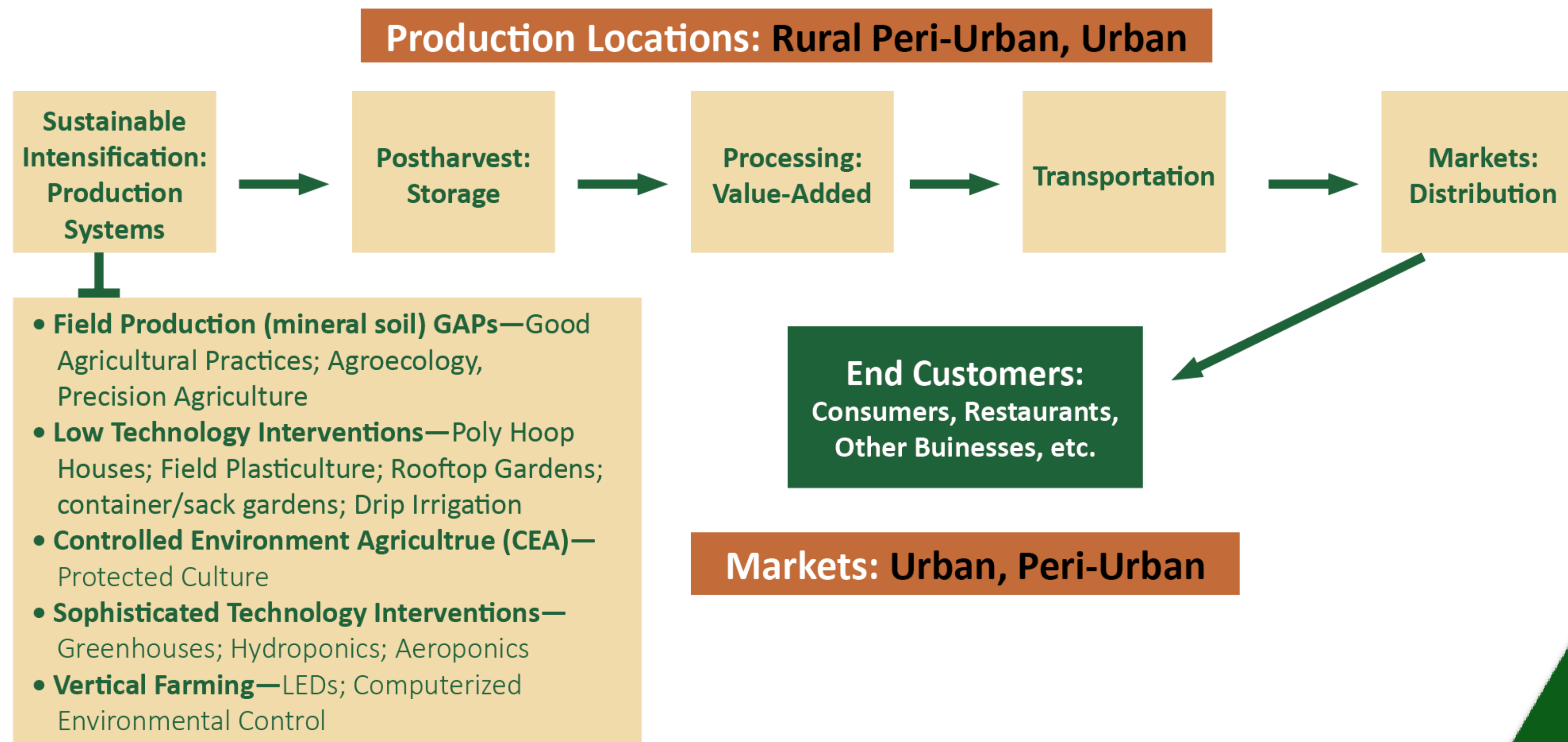


# Connecting Farm, City, and Technology: Transforming Urban Food Ecosystems in the Developing World

*Fred T. Davies & Banning Garrett*



## The Rural/Urban Food Value Chain



# Technology-Led Solutions Can Advance Urban Food Ecosystems for the Developing World

“Holistic Approach”—Using Technology to connect the nexus of food water, energy, nutrition, medicine, health (people/nutrigenetics, plant, animal), sanitation, education, behavior change— **with sustainable intensification of urban food ecosystems**—integrating urban, per-urban and rural environs.

<p><b>1. Connectivity:</b> Info Delivery &amp; digital Technology Platforms: ICT, IOT, Mobile Money, Finance</p>	<p><b>2. Oversized Services:</b> Producers to Consumers</p>	<p><b>3. Precision Agriculture:</b> GPS, IOT, AI, Sensing Tech</p>	<p><b>4. CEA—Controlled Environment Agriculture:</b> Protected Culture, Vertical Farming</p>
<p><b>5. Blockchain:</b> Traceability, Food Safety (Postharvest), Personal Identification</p>	<p><b>6. Solar Electric:</b> Energy, Micro-Grids &amp; Storage</p>	<p><b>7. High Quality Enhanced Seed:</b> Hybrids, Climate &amp; Pest Resilience</p>	<p><b>8. Enhanced Genetics:</b> Gene Editing, Synthetic Biology, Cloud Biology</p>
<p><b>9. Biotechnology:</b> Microbiome Editing, Soil Biologicals, Alternative Proteins, Plants as Factories for Drugs, Meat Substitution</p>	<p><b>10. Nanotechnology &amp; Advanced Materials:</b> Seed Coating, Disease Control, Postharvest, etc.</p>	<p><b>11. 3D Printing/Additive Manufacturing:</b> Food parts production, Machinery, Structures</p>	<p><b>12. Intervention of New tech with Underutilized Tech:</b> “On-” and “Off-Grid” Usage, i.e. Precision Soil Sensors &amp; solar pumps integrated with efficient drip irrigation, “Packaging Technologies”</p>

<http://www.thegfcc.org/wordpress/wp-content/uploads/GFCC-ConnectFarmCityTech-Report.pdf>

# Impact

- Increase diversity and yield of crops
- Reduce distribution losses
- Use MUCH less water
- Implement world-class farming practices
- Attract young people (cool tech)
- Increase resilience to severe weather and climate change
- Distribute more stable energy and comms
- Attract capital
- Increase demand as well as supply

**These address most of Puerto Rico's agricultural modernization needs**





## PCI “Digital Puerto Rico” 2018

- **3-month engagement**
  - **With California Health Medical Reserves Corps (CH-MRC) & RAND Corporation**
  - **Provide policy proposals for “Digital Puerto Rico”**
  - **Submitted with other proposals to Governor’s office**
  - **For submission to FEMA and U.S. Congress**





# PCI 2018 Recommendations Included

- **Resiliency Innovation Network Leading to Development of a Resiliency Industry**
- **Hotspots: (1) Municipal, and (2) in Public Housing**
- Roadmap for digital transformation
- Data Collection and Standardization for Disaster Preparedness and Emergency Response
- Study Feasibility of Digital Identity
- Innovation Economy/Human Capital Initiative
- Health Care Connectivity
- Resiliency/e-Construction Learning Lab
- Digital Citizen Services
- Government Digital Process Reform



# Resiliency Innovation Network (RIN)



## Establish RIN across Puerto Rico to:

- **Create businesses** that could enhance Puerto Rico's Resiliency
  - Build on existing PRSTRT and university facilities
  - PRSTRT leads in conjunction with local institutions
- Next step is **resiliency industry** with
  - Maturity models, insurance ties and volunteer engagement
  - In parallel, facilitate resiliency in the communities:
- **Institutionalize progress** through a Resiliency Center of Education and Innovation (RCOEI)

# RIN Approach

- Apply well-understood network technologies to Puerto Rico's needs in innovative ways
- New local companies and jobs
- Encourage established companies
- Empower Puerto Ricans
- Facilitate resiliency innovation cluster
- Lead to resiliency industry



# Network Contributions (1)

- Set research priorities
  - Comparative advantage of Puerto Rican researchers
  - Resiliency innovation in telecomms, energy, water, etc.
- Roll out community model
  - Leverage best practices
    - Bottom up, begin by **listening**
    - Bi-directional **learning**
    - Build **lasting** capacity



- Establish two resiliency innovation labs in Trust's facilities
  - **San Juan** headquarters
  - Guanajibo Research and Innovation Park (GRIP) in **Mayaguez**

# Puerto Rico



Area: 5,328 mi<sup>2</sup>  
Population: 3.194 million





## Network Contributions (2)

- **Establish RCOEI to institutionalize progress**
- **Lead to resiliency industry in Puerto Rico, including**
  - “Resiliency maturity models”
  - Ties to insurance and re-insurance industry
  - Ways to engage volunteers
- **PRSTRT develops and tests technologies in 90-day cycles**
  - Benefits will accrue quickly



## Resources Available to RIN

- **Leverage PRSTRT's existing resources:**
  - Entrepreneurial programs
  - Existing corporate ties
  - Existing government ties to Fomento
  - Technology Transfer Office (TTO)
- **Field experimentation sites throughout the archipelago**
  - Test in varied micro-climates and topographies
  - PRST could use Ciencia Puerto Rico (CienciaPR) network to ID SMEs

A graphic on the left side of the slide features a target with concentric circles in shades of blue and white. Three white arrows with blue accents are shown in flight, pointing towards the center of the target. The background is a soft, light blue gradient.

# Targets for Resiliency Innovation Network

- At least 30 new local companies and 300 local jobs in first year
- Spur economic returns
- Induce import substitution
- Encourage established companies interested in resiliency technologies to set up new operations or expand existing operations in Puerto Rico
- Open new export markets and opportunities
- Increase Puerto Rico's resiliency to natural disasters
- Lower disaster relief and recovery costs





## Wide-Ranging Sector Impacts (1)

- **Primary contribution in Telecoms/IT sector**
  - Provides an ecosystem for developing and testing
  - Contributes to Capacity Planning and Community Building (CPCB)
  - Helps build new skills in “resiliency” technology
  - In economics sector, RIN teaches planning and business development skills that would attract investment
  - Distributed, integrated network also should make more rural and municipal areas attractive to investors
  - RIN supports Financial Oversight objectives
  - In the long run a “resiliency industry” could be an exceptionally valuable asset for Puerto Rico

# Wide-Ranging Sector Impacts (2)



- RIN also useful to promote innovation in:

- **Energy** (ecosystem for developing and testing new resilient energy-related tech)
- **Natural and Cultural Resources** (areas like remote sensing and data analysis, as well as field experimentation)
- **Water** (water purification, transport and storage)
- **Housing and Public Buildings** (ecosystem for developing and testing new resilient and sustainable housing-related tech and building)
- **Health and Social Services** (skills supporting healthcare tools, services & delivery)
- **Municipalities** (support local integrated services in cities and small communities)

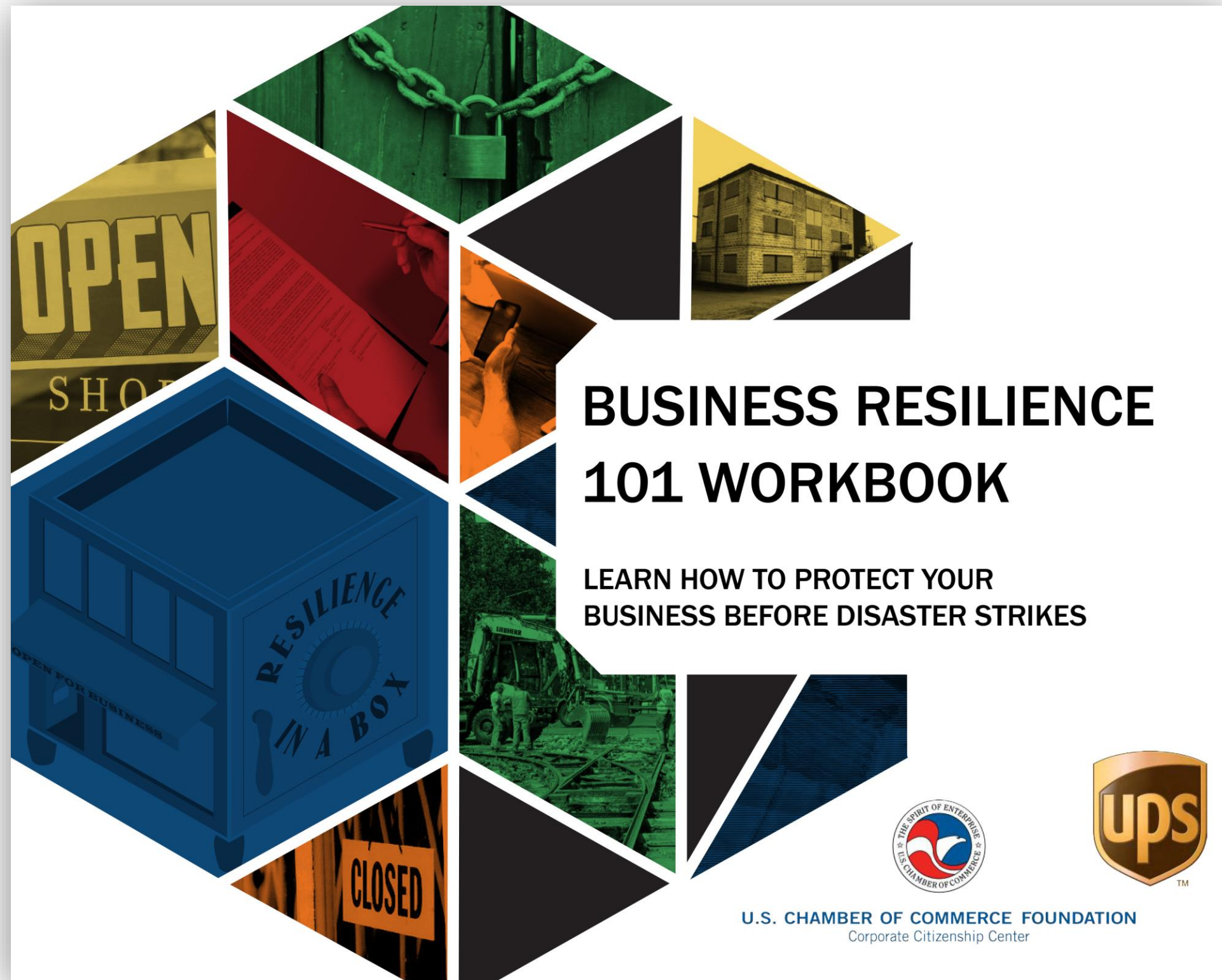
# Wide-Ranging Sector Impacts (3)

- An annual resiliency innovation conference in Puerto Rico
- Resiliency innovation facilities on many universities
- New ventures form, local workforce educated and trained, and opportunities emerge for non-local investors to invest locally
- RIN also aligns with several Financial Oversight objectives



Image source:

<https://campustechnology.com/articles/2016/02/17/how-to-launch-a-campus-innovation-center.aspx>



# Lesson 4 (G3)

## Completed

### Workbook 101

# Your Six Critical Business Assets



# Chapters in Your Workbook 101

- **Initial Assessments**

- Baseline Survey
- Impact Analysis

- **Six Business Assets**

- Protect People
- Protect Data
- Protect Operations
- Protect Inventory
- Protect Equipment
- Protect Buildings

- **Optional – Communications & Brand**

- **Grab-N-Go Items**

abeingtara.com





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## **Protect People**

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- **Summary Page**
- **Emergency Contacts List**
- **Key Contacts List**
- **Current Customers List**
- **Vendors/Suppliers List**
- **Visitor List (If applicable)**
- **Partner/Partnership List**

# Grab-N-Go

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- **Data**
  - Disaster Plan, Phone Numbers
- **Operations**
  - Bank/Financial Records
  - Contracts, Agreements
- **Inventory & Equipment**
  - Priority Inventory List
  - Photos of Equipment
- **Building**
  - Lease or Ownership Documents
  - Relocation & Alternative Space







## Best Practices After Plan is Completed

- **Implement Your Plan**
  - Don't leave it on a shelf
- **Put Your Plan into Action**
  - Test Your Plan
  - Keep Your Plan Updated
- **Protect Your Brand Reputation**
  - Maintain Crisis Communication Plan
  - Stay Connected with Customers
- **Protect Grab-N-Go Bag**

# 20 Follow Up Questions

- Get Started
- Protect Operations
- Protect People & Relationships
- Protect Buildings, Equipment & Data
- Protect Your Brand
- Put Your Plan Into Action





# RESILIENCE IN A BOX

STRENGTHENING COMMUNITIES GLOBALLY

Research indicates that **43%** of small-to-medium businesses fail after a disaster, and another **25%** of business that do re-open, will fail within two years because they did not have a disaster plan. Having a disaster plan can mean the difference between your business recovering after a disaster or closing forever.



## TOP 20 TIPS FOR BUSINESS PREPAREDNESS

### READ OUR TIPS TO LEARN TO...

- GET STARTED
- PROTECT OPERATIONS
- PROTECT PEOPLE & RELATIONSHIPS
- PROTECT BUILDINGS, EQUIPMENT & DATA
- PROTECT YOUR BRAND
- PUT YOUR PLAN INTO ACTION

The “Resilience in a Box” resources are designed to assist any business planning for disasters using three levels of expertise, from inexperienced to advanced. Resources, such as these 20 tips, share the most effective ways to increase your business’ ability to survive a disaster – power outage, earthquake, flood, storm, etc.

Here you will find simple tips and steps to advance your company’s readiness for any disaster, whether natural or manmade. Each of these elements will become part of your disaster plan, the core of any continuity program. The goal is to increase your business’ resilience through measures that are not extra tasks on your “to do list”, but instead are incorporated into your everyday operations as part of your best practices – since disasters can strike without warning.

By following the information here, you can outline how your company plan is going to protect your operations, your people, your equipment and data, and your brand, ensuring that your organization is as prepared as possible for the hazards it is most likely to face.

“Resilience in a Box” has different levels of useful resources to assist business disaster planners, from inexperienced to evolved. For instance, these 20 tips cover basic steps while more detailed solutions are addressed within the in the Intermediate and Advanced levels.

# GETTING STARTED

Starting the process of creating a disaster plan can be daunting, and companies often aren't sure where to begin. Here are some concrete tips to help you begin.

1

## Build a Team to create your plan

No one person knows everything about your business, so it is crucial to create a team of key people who will make sure you are addressing all of your critical elements. Your planning team will ensure that every facet of your business process is represented. The team can help the planning by providing both the “big picture” of your operations as well as the critical details of your business that must be considered. Remember, every minute that your doors are closed creates more and more opportunities for your competitors to step in and take a bite out of your market share. Waiting until after experiencing a disaster will be catastrophically too late to identify your decision gaps.

2

## Get Top Level Buy-in

Executive support of the planning team must be communicated to the entire organization, ensuring that everyone knows this is a priority and that the team's subject matter experts are allowed some time away from their everyday tasks to work on the planning. Team members need not be away from their normal responsibilities full-time, but it's important that they spend time working together to accomplish their goals. Executives will also need to develop a realistically expected timeline for plan completion. This will help keep the planning process on track, facilitate the achievement of desired results (a final disaster plan), and promote forward momentum in shoring up the business where it is vulnerable.

3

## Keep your disaster plan simple

It should be easy for employees to follow and not too costly to maintain or update. Larger or more complex companies may have more complex plans, but much of the information in the plan can be reduced to checklists for tracking what has been done and next steps that need to be taken. Checklists help employees respond better in a disaster because they help reduce employee stress, which can affect their ability to think and respond appropriately. Your plan will outline how your company is going to protect your operations, your people, your equipment and data, and your brand, ensuring that your company is as prepared as possible for the hazards it is most likely to face.

## PROTECT OPERATIONS

4

### Gather critical documents & information needed for decision-making

These are the key documents that help you make decisions, such as legal documents, insurance policies, and lease agreements. How you gather these documents will differ depending on how you back up and store your information, but it is best to store this critical info in more than one format (e.g., electronically on a laptop or thumb drive, in hard copy, or digitally in a cloud environment that can be accessed via computer or smart phone). Consider these documents as reference materials to be included in your plan's appendix. Many will help you with your current planning process, and others will be needed to assist you during the recovery process.

5

### Identify and then prioritize your critical operations and processes

This will help you prioritize which pieces of your business must be brought back most urgently after a disruption in order to open your doors and minimize losses. For now, think only about how things work under normal, everyday conditions. Consider those critical tasks that must be accomplished first, second, third, etc. Keep drilling down to get an overall picture of what you do, how some of what you do is reliant on the completion of other tasks being accomplished first, resulting in priority order of your operations and processes that must occur each day.

6

### Identify your hazards – the potential disruptions to your operations

Every business is vulnerable to something. This process helps you to determine which hazards can affect your most critical business operations so you know which ones you will need to protect in order to stay open. Now that you have prioritized your business operations when the lights are on and computers are working, it's time to consider those hazards that may delay or disrupt your operations. The most likely disasters to hit a business are a power outage and a fire. A fire may not only disrupt your processes, but may also force you to relocate entirely, either temporarily or permanently. Take your list of hazards and determine which may have the most significant impact on parts or all your business. **Look beyond your four walls** and consider the full scope of your business.

7

### Build Your Plan and create a “Grab-n-Go” case

Now that you've gathered critical documents, prioritized your critical operations, and identified your hazards, you need to formulate your disaster plan for what to do when a disruption occurs that affects your critical operations. You can create your own plan or can use resources like the DRB Toolkit® to simply walk you through the step-by-step process. Next, create a “Grab-n-Go” case that will contain a hard copy of your disaster plan and any relevant documents, which you may need during and after a disaster such as floor plans, lease agreements, and insurance policies. It is your last resort copy when all else fails. Also, be careful when storing sensitive information like phone numbers - security is also important.

## PROTECT PEOPLE & RELATIONSHIPS

8

### Maintain Contact lists – Update emergency lists for your employees, vendors, suppliers, and key contacts

People are your irreplaceable assets, so create and update lists to be used during and after an emergency. Keep in mind that a disaster may occur to one of your vendors. Do you have an alternate supplier? Contact lists should include all possible methods of reaching a person. Beyond the usual phone numbers and email addresses, (business and personal) consider including the spouse's or significant others' contact info or other known contact info. The contact list for employees can be used as a phone tree for sharing critical info. Once contact lists are created, they must be kept updated frequently.

9

### Recruit employee volunteers to become trained emergency responders

These employees will be vital assets in handling an emergency situation as first responders may not be available for some time. Businesses will need to be self-sufficient. Determine what kind of employee emergency response program it wants to employ for your company. Recruit willing volunteers to participate. Once employees are trained, provide them equipment that matches their level of training. As added benefit, these programs can increase employee loyalty.

10

### Stockpile essential emergency supplies

Take a quick trip to an office supply store to stock up on basic and affordable emergency supplies. You can add to your list any specific supplies for specific hazards but the basics are always the same: You need to have supplies sufficient to support yourself and your employees for at least 3 days. Each employee should also be encouraged to have their own personal supplies at work, sufficient to support themselves (e.g. medication) for at least 3 days, to supplement the company's emergency supplies, and based on their own personal needs.

11

### Take the message home: Develop a prepared workforce – business readiness doesn't end at work

It is important for all employees to be prepared at home and even in the car. If employees are not prepared at home, they won't be able to return to work quickly, if at all.

## PROTECT BUILDINGS, EQUIPMENT & DATA

12

### Back up and protect your vital records and data

Without data, a business can't recover. About 93% of businesses that suffer a significant data loss are out of business within five years (US Department of Labor). The median cost of downtime for a medium-sized business is \$23,000 per day, and a small business is \$3,000 per day. Back up your data regularly and store it offsite. It is a lesson learned by many businesses too late. For a micro-business, a simple CD/DVD, thumb drive, or cloud service could be a short-term solution to your business' successful recovery. Consider what documents you want to include in your "Grab-n-Go" Case.

13

### Take action to mitigate potential impacts to your equipment, buildings, and facilities

Mitigation is the specific act of reducing your exposure to specific hazards. As you learn about the likely hazards in your area, you can take steps to protect the property your company needs to remain operational, based on your risks. Address those that will impact your critical processes first or will cause the most losses to your business. Not sure where to begin? Pick "low-hanging fruit" actions that will address something easy and build momentum from there. Some items will be no or low-cost, while others may be more costly. Compare and contrast costs to the potential losses if not completed.

14

### Protect your inventory and storage before it is lost to the disaster and you have nothing to sell

Start by prioritizing any inventory, goods, and supplies in storage that may become damaged or unavailable. Based on the likely hazards in your area, identify methods of securing, elevating, or generally protecting these goods. Because of how often these goods are accessed to fill orders, sometimes they are the last ones to be protected. Finally, review the steps that would need to be taken to replace your inventory if it were damaged or destroyed.

## PUT YOUR PLAN INTO ACTION

17

### Exercise and test your plan

At least annually, exercise your plan to make sure it consistently meets the ever-changing needs of your business as well as the ever-evolving nature of potential threats and vulnerabilities, then make adjustments as needed. Exercises (or drills) provide an opportunity that identifies both gaps in your plan and employees' training before a disaster strikes. This allows your company to make and learn from mistakes without the pressure of a real disruption. Keep in mind that your plan is never complete. It is a living document that should give you flexibility to operate in the changed environment that a disaster creates.

18

### Keep your plan updated

Update your plan at least annually, but preferably more frequently, as there are significant changes to your business. Some elements of your plan, such as your contact lists, will require more frequent updates. The best solution is to institutionalize these updates so they are always performed. Many businesses have had major failures because key parts of their plan were out of date. Employee training also needs to be updated annually. Make sure the training provided is consistent with the latest plan documents and with the equipment that is available (first aid supplies, light search and rescue tools, etc.).

19

### Implement the plan

When a disaster strikes, follow the plan. Document damage with photos and/or videos. Contact your insurance company. Communicate with all employees, customers, vendors, suppliers, key contacts, and possibly the media. Apply for disaster assistance, if needed, when made available from national, state, or local governments, or other resources. After the disaster, update your plan based on your lessons learned.

20

### Connect with the local economy

After a disaster, the community is relying on your goods, products, and services. Also, you and your employees are relying on revenue for paychecks. Connect with local Economic Development offices and Chambers of Commerce to help spread the word that you are open for business. Find creative ways to make your business stand out, especially if you are hard to find due to damage in surrounding areas. Be flexible and look for possible temporary locations to go where potential customers are. Get engaged with community and recovery organizations to help bring back the community. Your involvement will highlight needs your business may be able to address. Your efforts can help the community to recover, too.

These tips, and other resources, are also available in multiple languages on our website.

[www.ResilienceInABox.com](http://www.ResilienceInABox.com)

The “Resilience in a Box” resources have been developed to help you take necessary actions to address your vulnerabilities so you are more resilient after the next power outage or any type of disaster. Use “Resilience in a Box” to begin protecting your business today.

RESILIENCE IN A BOX IS MADE AVAILABLE THROUGH A PARTNERSHIP WITH:

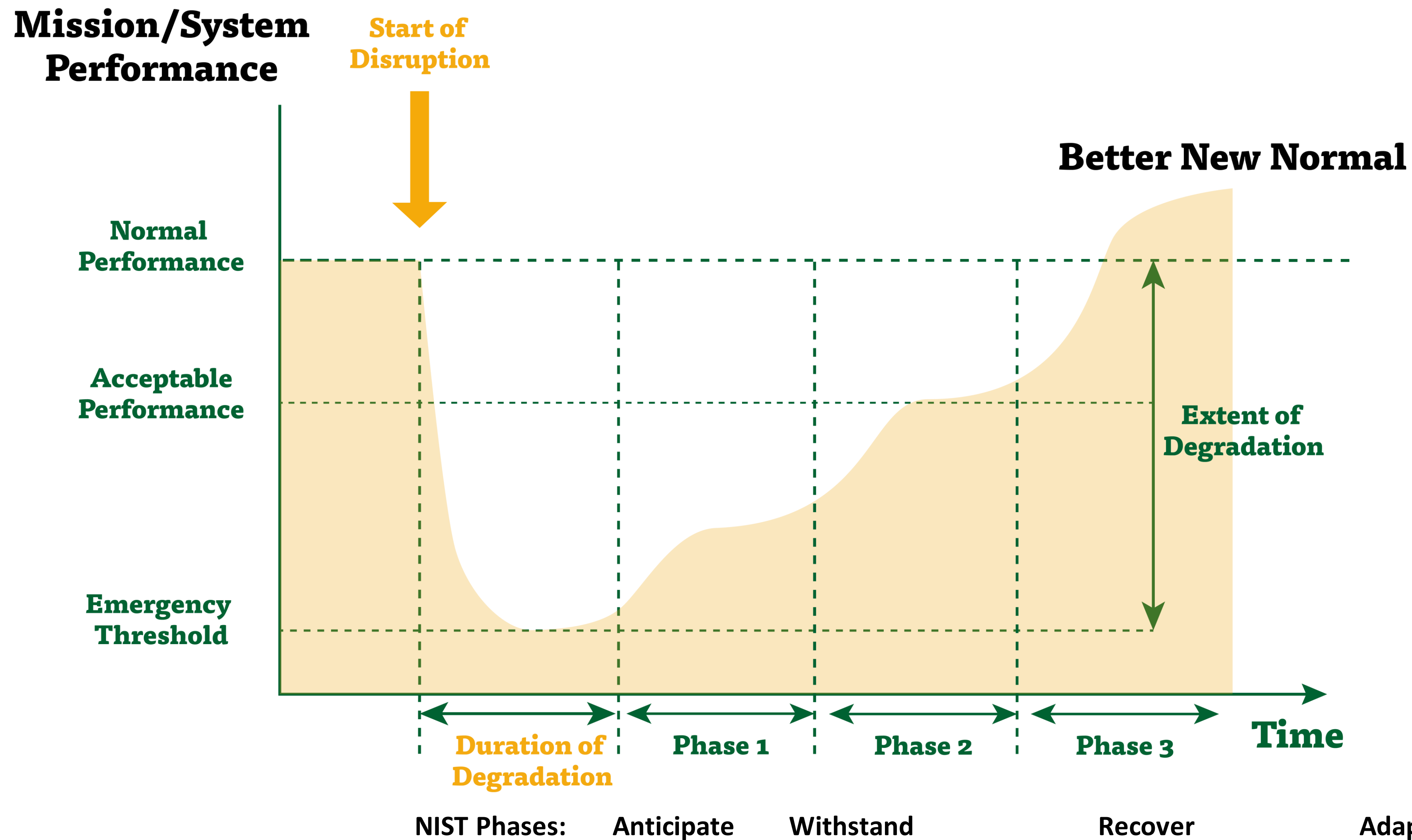


U.S. CHAMBER OF COMMERCE FOUNDATION  
Corporate Citizenship Center

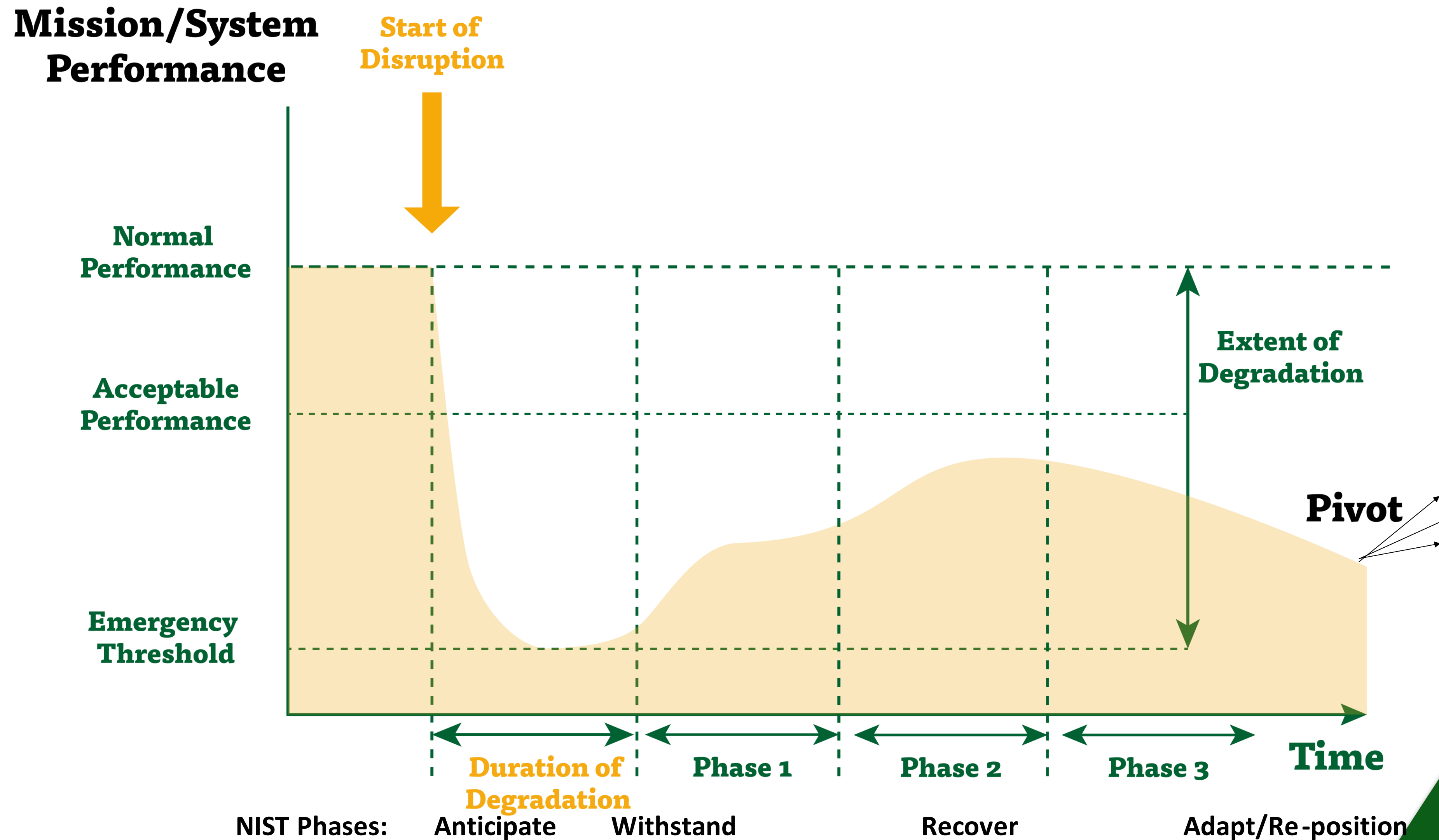
GEORGE  
MASON  
UNIVERSITY



# Resilience is NOT Just Bouncing Back. It's Being Prepared to Bounce Forward Better



# Sometimes You Can't Bounce Forward Better When to Pivot?





# Adapt/Reposition

## Adaption: 4<sup>th</sup> phase of Resilience

- Summarize “resilience” as “**coping capacity and adaptation**” (thanks to Dr. Elise Miller Hooks)
  - Anticipate, withstand, recover make up “coping capacity”
  - “Adapt and grow” largely depends on actions taken before disruption

## Adapt and grow

- “**It is not the strongest or the smartest that survives, but the most adaptable**” -- Tom Friedman
- Culture is key
  - Stand up and fight
  - Learn from mistakes
  - Change behavior
  - Reposition if needed
- Strategic adaptability\*
  - Planned ability to
  - React effectively when
  - Business and environmental factors change unexpectedly
  - Need to “**plan for flexibility in response to the unexpected**”

“Be prepared” is key to “bounce forward better”

\* Drawn from Neil Kokemuller, *What Is Strategic Adaptability?*,  
<<https://smallbusiness.chron.com/strategic-adaptability-78216.html>>



# Planning for Adaptability

- Many projection tools look backward
  - Budgeting often adds predictable increases to past numbers
  - Tech change often is linear projection from recent trends
- Consider factors not included in strategic planning
  - Societal evolution
  - Customer preference changes
  - Emerging opportunities and threats
  - Accelerating, converging tech change
- Can't anticipate changes or problems your research & innovation don't reveal
  - "Horizon scanning" and "strategic foresight" can help anticipate better
    - Often scenario-based
  - Also "establish standard system to respond to change." For example:
    - "Have pre-determined public relations contacts when negative publicity occurs"
    - Review tech changes and impacts
    - Examine marketplace changes
    - Adapt to legal regulations, resource availability, diversification opportunities



# Foresight vs Forecasting

- “Carrying out traditional risk management well is no longer enough. New risks have swung into view, senior-level demands are changing, and new capabilities are forming.”\*
- Foresight
  - Foresight and complexity analyses are essential tools to address interactions.
  - Foresight is not forecasting
    - Forecasting tends to extrapolate present trends to postulate a future
    - Foresight addresses complex interactions among many variables
      - Technical, socio-cultural, economic
      - Try to understand which approaches would be most robust against alternative futures
      - Often involves scenario planning
- Singapore model
- Outside experience may be valuable
  - Especially in technical areas like cyber and infrastructure interdependence
- Can also work for small businesses

\*Richard Smith-Bingham, *Material Improbabilities*, Marsh & McLennan, 2018 <https://www.mmc.com/content/dam/mmc-web/Global-Risk-Center/Files/Getting-Practical-with-Emerging-Risks.pdf>



# Experiential Learning

- Learn from Experiences
  - Recognize mistakes
  - Adjust over time
  - Develop expertise in “flexing to change”
- Culture is key
  - Can’t sweep mistakes under rugs
  - Can’t shoot messengers
  - Leadership must be willing to listen, learn, and act



# Reposition

- COVID-19 impact example\*
  - 74% of businesses will move at least 5% of previously on-site workforce to permanently remote positions
    - [Gartner survey](#) March 2020
  - Keep investing in backbone
  - Must close digital divide
    - Connectivity not “nice to have”
    - ~78% of Puerto Rican people have internet
      - 78.8% 1-5 Mbps
    - How reliable is it? (power & comms)
- Review your
  - Value Proposition (what value do you deliver?)
  - Value Networks (how do you deliver and monetize your product or service?)
  - Target Customers (who receives and benefits from what you provide?)
    - Similar questions for “pivot”
- Knowing what you now know, re-ask “Resilience in a Box” checklist questions, or use “Top 20 Tips” to re-assess your preparedness or end state

# Quiz



## G2 - October 6 - General Concept Quiz

Thank you for participating in "Building a Resilience Community": A course for Entrepreneurs Support Practitioners (Sept 15 - Oct 6, 2020). To complete the course, please answer the following general concept test. You should score at least 8 points. This will be added to the assistance card in order to receive your Resilience Course badge. Good luck.

<https://forms.office.com/Pages/ResponsePage.aspx?id=FaMGORDKZE6Dy1Dqc18o6-5rKh8KO0BFqhT5OpCeCEdUMFpIMU05Q05LNFVONUUVaVVZEVjNJUFBQWiQIQCN0PWcu>