



Embracing Change

Successful Transitions in the Post-COVID19 Environment

A Course for Support Practitioners

Lesson 1: Overview and Introduction

June 15, 2021, 6:00pm-8:30 pm

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



Puerto Rico
Science, Technology
& Research Trust



Center for Resilient and
Sustainable Communities

**ECHAR
PA'LANTE**



Overview for Entrepreneurs Support Practitioners' Course:

Embracing Change: Entrepreneurs Support Practitioners Provide Mentoring and Teaching to Business Owners and Operators



Resiliency and
Business Innovation

Introductions

Sponsored by: U.S. Economic Development Administration



Lucy Crespo, CEO



Puerto Rico
Science, Technology
& Research Trust



Annie Mustafá Ramos



Resiliency and
Business Innovation



A program of the:
Puerto Rico
Science, Technology
& Research Trust



Gilberto Guevara



Puerto Rico
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Gloria Viscasillas Aponte

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Course Overview



Embracing Change

Successful Transitions in the Post-COVID19 Environment



Lesson 1: Overview and Introduction

- Changes in the international environment and their impacts on Puerto Rico
- Growing, expanding, and adapting a business under these conditions
 - Business clusters
- Introduce ideas about
 - (a) growing a business
 - (b) expanding products and services, and
 - (c) adapting and pivoting in a post-COVID19 world (which must include a large measure of digital transformation)



Lesson 2:

Digital Transformation and Case Studies in Several Business Sectors

- Continue developing ideas about (a) growing a business, (b) expanding products and services, and (c) adapting and pivoting in a post-COVID19 world (which must include a large measure of digital transformation).
- Case studies in several business sectors
- How to develop case studies tailored to the business owners and operators you'll be teaching and mentoring, along with SWOT analyses (strengths, weaknesses, opportunities, threats). How to use these to engage with for mentoring and teaching.



Lesson 3:

Focused on Developing Materials and Techniques to Mentor and Teach Business Owners and Operators

- **Overview of Embracing Change**
 - Growing Your Business
 - Creating New Products and Services
 - Adapting & Pivoting
- **Case Study Methodology**
- **Craig's List – Test Case**
- **Case Study:** Chocolates El Rey (Growth Issues)
- **Case Study:** Concha y Toro (New Products and Services)
- **Case Study:** Infosys (Adapting & Pivoting)

Who Is Attending



Entrepreneurs Support Practitioners

Organizations Include: Universities, Financial Institutions, NGOs, Professional Associations, Businesses, Government, Philanthropic Organizations, Research Institutes

Sectors Include: Academia, Agriculture, Arts, Business Development, Childhood Development, Design and Fashion, Energy, Entrepreneurial Development, Finance, Healthcare, Human Resources, Law, Management Consulting, Manufacturing, Municipal Government, Philanthropy, Research and Development, Teaching and Education

Roles Include: Presidents, Executives, Board Directors, Entrepreneurial Consultants, Program Managers and Directors, Professors, Attorneys, Administrators, Innovation Managers, Program Associates, Educators and Teachers, HR Consultants, Advocacy Focus Official, Management and Business Consultants, Researchers

Cities/Region Include: Aguadilla, Arroyo, Caguas, Canovanas, Carolina, Cidra, Coamo, Guayama, Guaynabo, Gurabo, Mayaguez, Penuelas, Ponce, Rincon, San German, San Juan, Trujillo Alto, Utuado, Vega Baja, Virginia

Course Learning Outcomes (1)

By the end of the course, participants will have:

- An understanding of what changes in the international environment are expected in the next five years and how these will affect Puerto Rico.
- Been introduced into ideas about (a) growing a business, (b) expanding products and services, and (c) adapting and pivoting in a post-COVID19 world (which must include a large measure of digital transformation).
- Examined case studies in several business sectors
- Learned how to develop learning materials tailored to the business owners and operators you'll be teaching and mentoring, along with SWOT analyses (strengths, weaknesses, opportunities, threats). How to use these to engage with for mentoring and teaching.



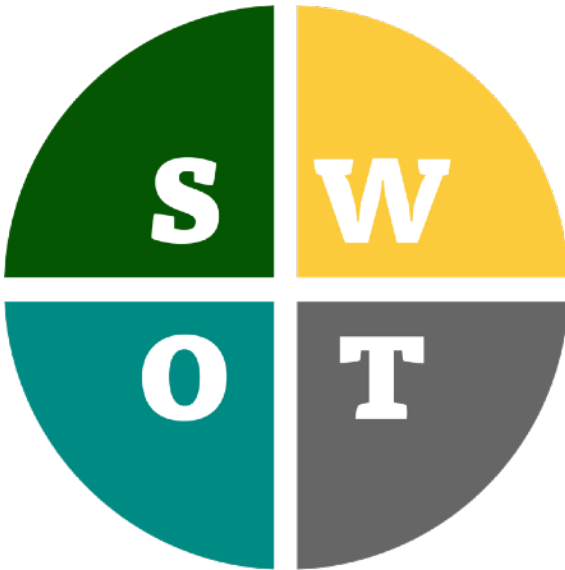
Course Learning Outcomes (2)

And will be able to:

- Develop your own training and mentoring for separate sessions in Spanish that they would then teach to business owners and operators. Topics could include:
 - How would you know when it's necessary to pivot to a new business model, vice adapting what you've been doing? What might be some options?
 - How do you actually pivot?
 - What information would you ask of the owners in developing their decisions to adapt or pivot?
- Emphasize the importance of an effective, adaptable, business resilience plan, and keeping it up to date.



Course Learning Outcomes (3)



And have learned:

- What resources are available to small and medium businesses to help understand, and adapt to, pending changes in Puerto Rico, including special assets related to the post-COVID-19 environment
- The value of a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis in guiding choices



The Importance of Entrepreneurship Moving Toward “Isla Emprendedora”

Based on initiatives by Echar Pa'lante

The Past Decade has been Particularly Challenging...

In the World...

- 4th Industrial Revolution and Industry 4.0
- Globalization
- Contraction of traditional employment
- COVID - 19

In Puerto Rico...

- **Population contraction** (due to migration and the reduction of birth rates) 4.4 (maybe 3.9) to 4. 2
- **Obsolescence of economic model based on industrial incentives**
- **Puerto Rico government bankruptcy -> Fiscal Board supervision**
- **Reduction of disposable income & consumption**
- **2017 Hurricanes and 2020 earthquakes**

We are learning to be resilient

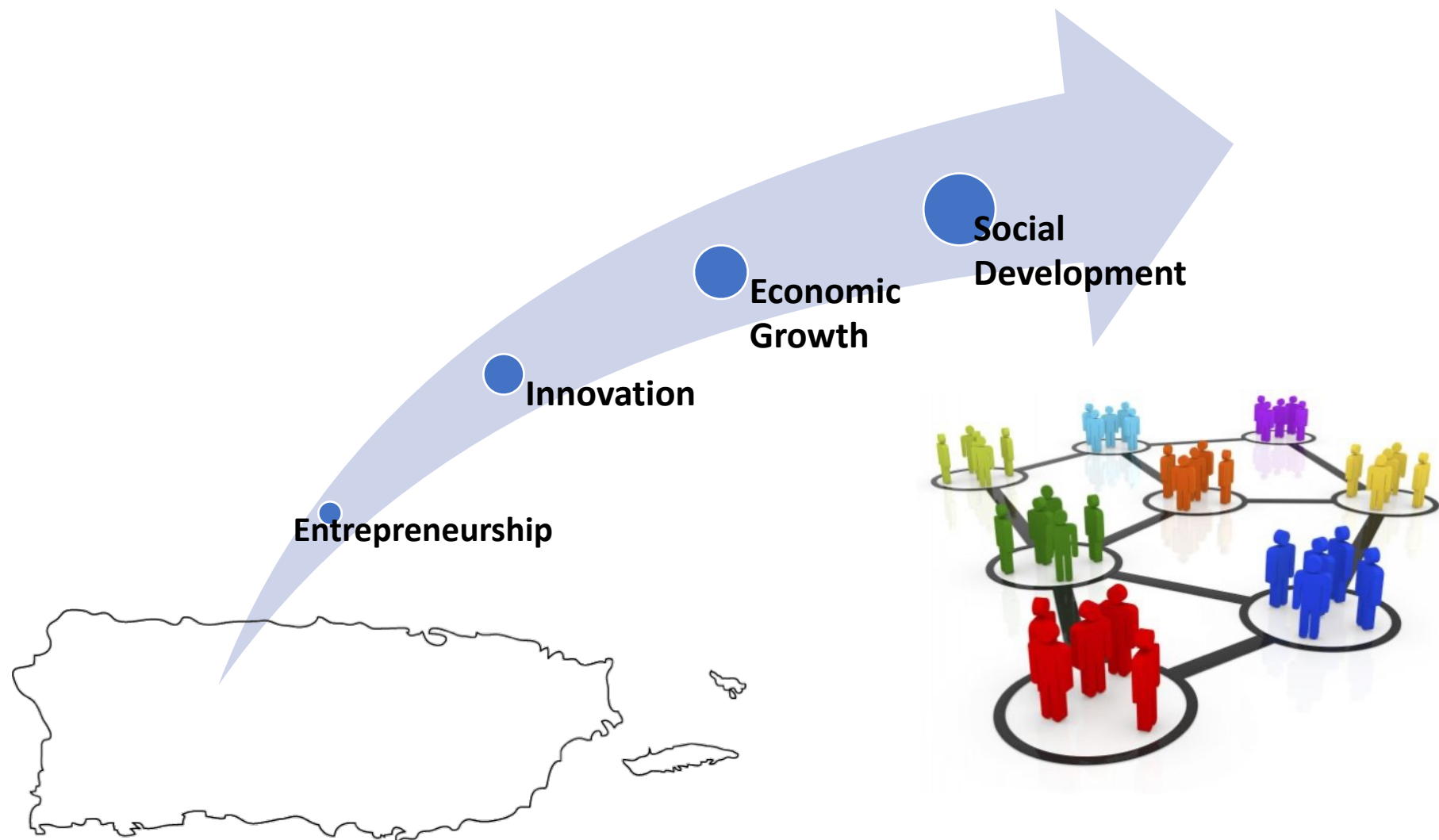
Key Point: Global Workforce Changes

By 2025 (or earlier) 52% of tasks currently handled by humans will be handled by machines.

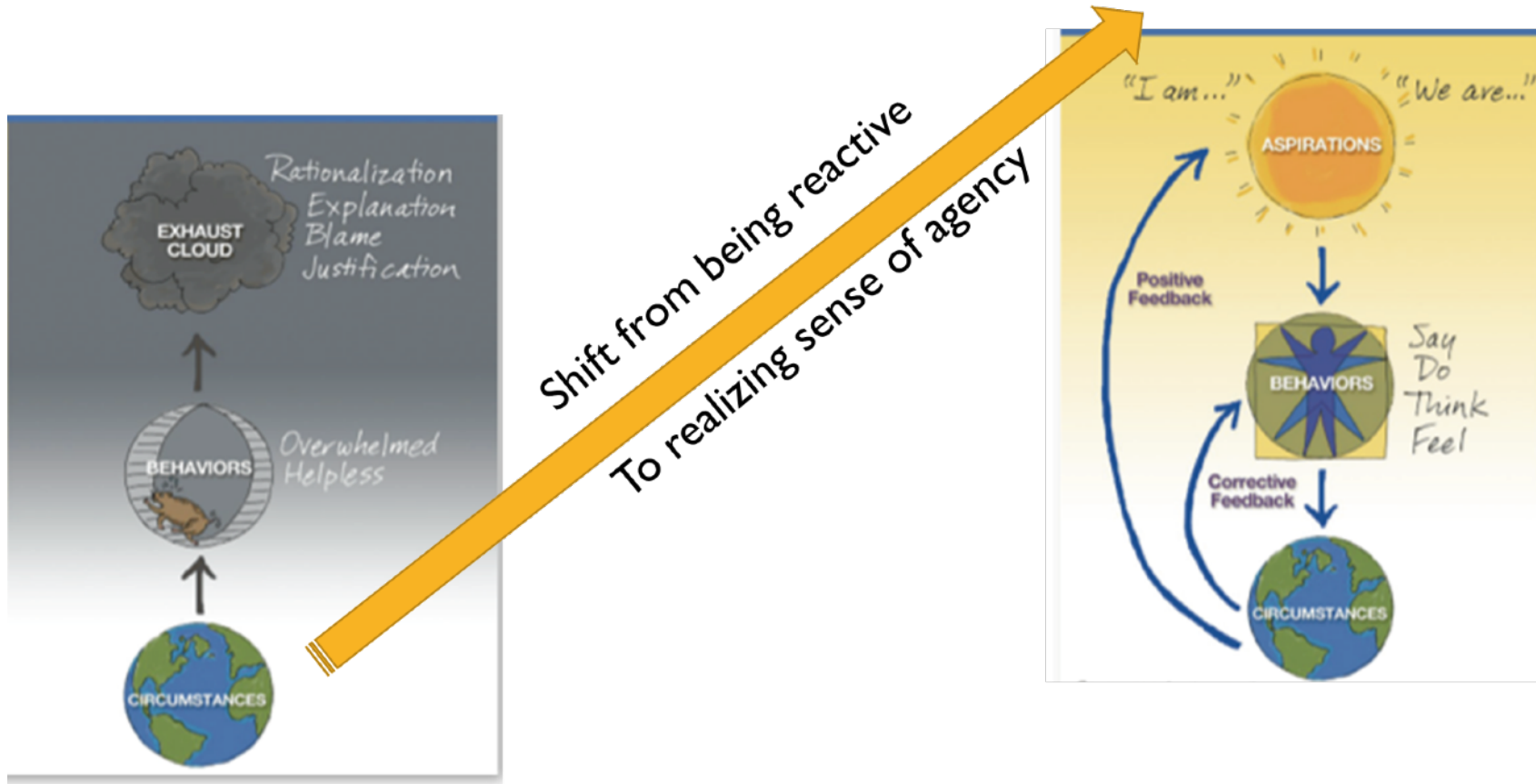
By 2027 (or earlier) 50% of the global work force will depend on self-employment.



Entrepreneurship is critical for competitiveness



Take Charge of Your Situation



Puerto Rico needs
30,000

New entrepreneurs/
New sustainable enterprises

How?



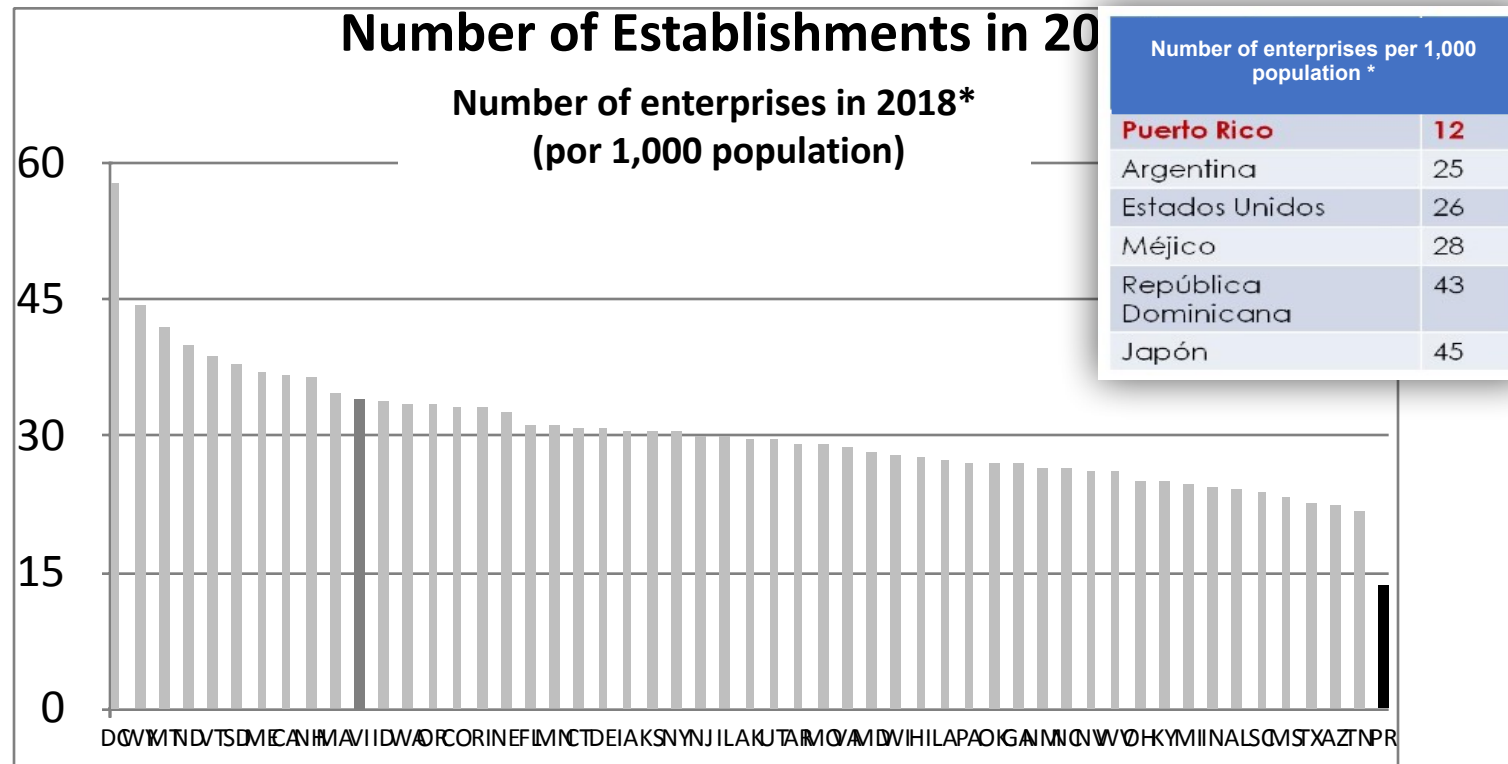
Mission

Integrate multisector efforts to accelerate the development of a global **entrepreneurship, innovation, resilience and sustainability** culture to help restore growth in the Island.



A Major Challenge

Puerto Rico has the least developed entrepreneurship sector in the US ...



*Professor Manuel Lobato

Entrepreneurial Ecosystems Comparison

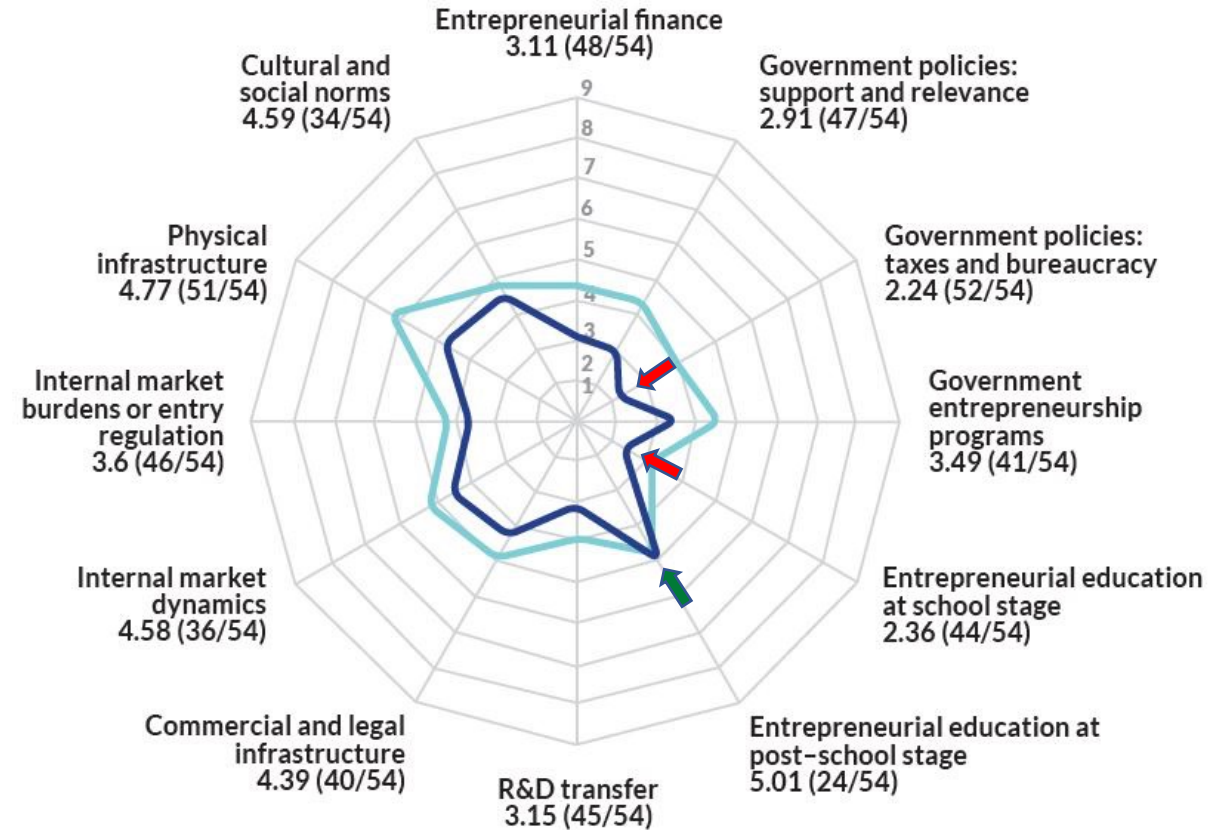
National Entrepreneurship Context Index (NECI)

4.1
2018

(51 of 54 countries)

EXPERT RATINGS OF THE ENTREPRENEURIAL FRAMEWORK CONDITIONS

— GEM
— Puerto Rico



EFCs scale: 1 = very inadequate insufficient status, 9 = very adequate sufficient status
Rank out of 54 recorded in brackets

PUERTO RICO FUTURE ECONOMY MODEL

ATTRACT WORLD TALENT
TO LIVE & WORK

INVEST IN FUTURE
GROWTH MARKETS

INTERNATIONALIZATION / EXPORTS-ORIENTED

TRANSFORM INNOVATIVE HIGH GROWTH INDUSTRIES

Strengthen

- Advanced Manufacturing
- Agro-Industries
- Visitors Economy
- Creative Industries
- Health Care

Emerging

- Information Technology
- Energy
- Aerospace
- Life Sciences/Bio-economy

New Clusters

- Experts In Emergency / Resiliency
- Ocean Technologies

RESKILL WORKFORCE AND NURTURE LIFELONG LEARNING

Curriculum alignment with
strategic cluster development
and Industry 4.0 needs

ENTERPRISING
ISLAND

Develop Leadership
Capabilities

Job-Skill Matching
with Internship Culture
(starting in high school)

Strengthen
Vocational Education

Long-term Integrated Urban Planning

Sustainable Energy



BUILD RESILIENT, SMART AND FUTURE-READY INFRASTRUCTURE & SYSTEMS

Transshipment HUB



Digital & Physical Connectivity

Digital Puerto Rico

e-Government

Fast Transportation

Collective Responsibility/Corporate Social Responsibility

Individual Responsibility/Values

Operating Principles

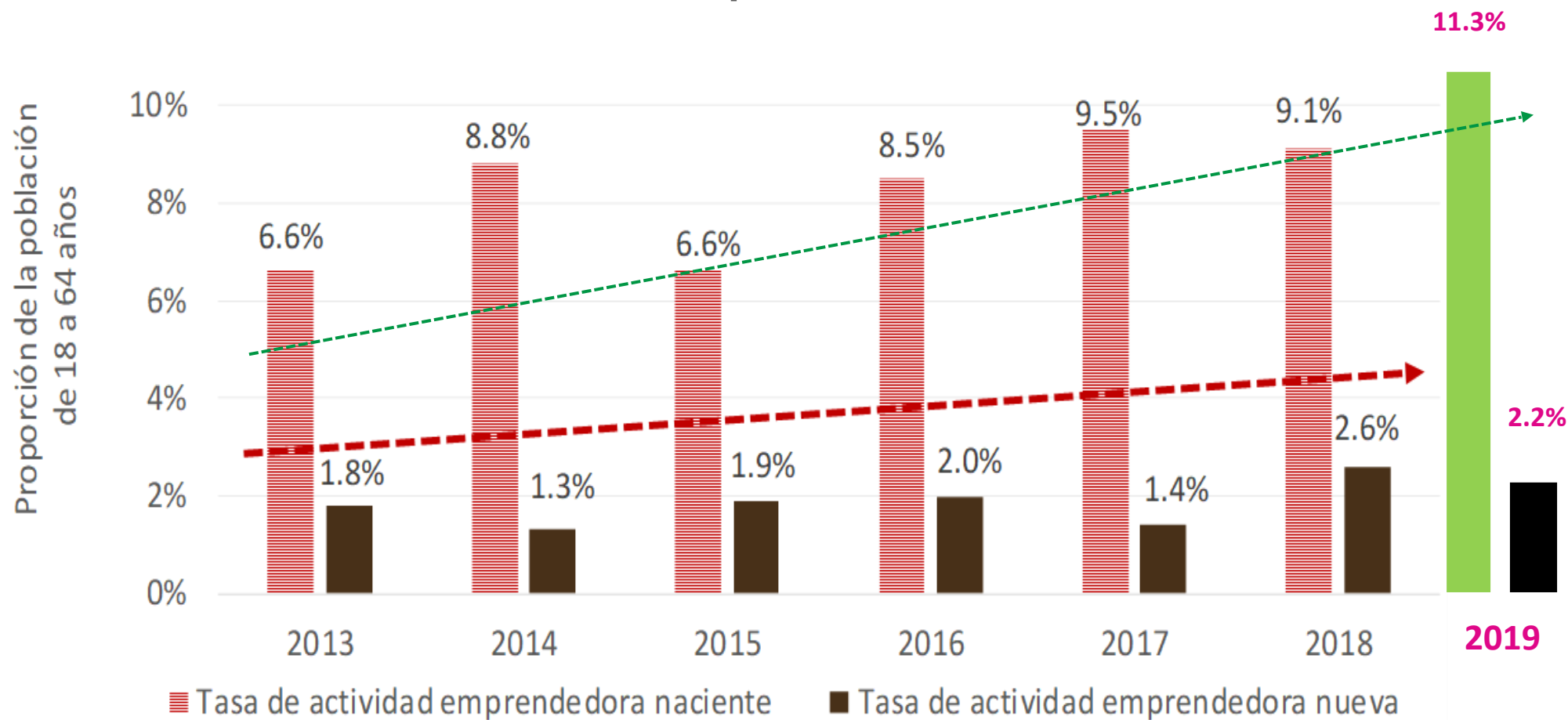
- One plan.
- Integrated human capital, infrastructure and urban development.
- Future-ready & long-game audacious components.
- Collectively engineered by multisector Economic Development Council.
- Advanced citizenship and trained leadership.
- Maximum transparency.

Types of Entrepreneurs/Business Owners

- Global Entrepreneurship Monitor (GEM) Logical Model classifies entrepreneurs/business owners as:
 - potential entrepreneurs
 - nascent entrepreneurs
 - new enterprises
 - existing businesses
- Support practitioners need to be trained to support people at every stage
- This course focuses on new and existing enterprises

The impact of collective efforts is noticeable

Evolution of nascent and new enterprises in Puerto Rico 2013 to 2019



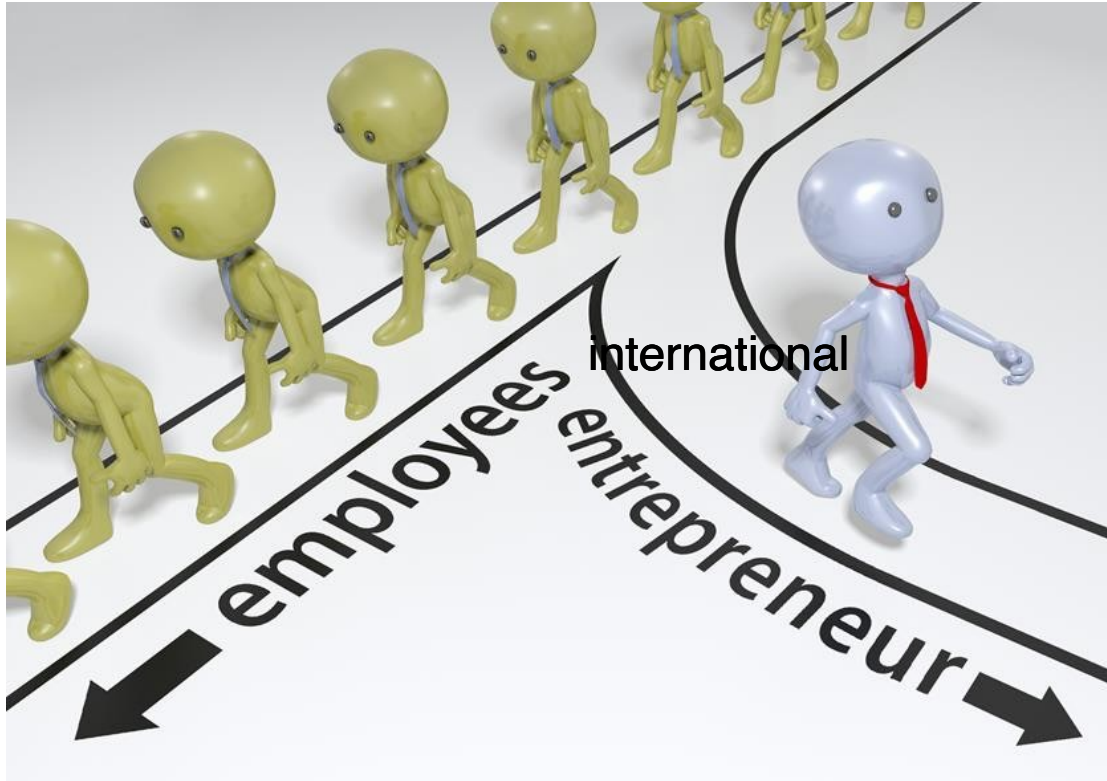
Intention to engage in entrepreneurship is growing

	2013	2014	2015	2016	2017	2018	2019
Perception of GOOD opportunities	28.3%	25.1%	25.0%	25.1%	28.0%	35.2%	39.4%
Perception of the capacity to engage in entrepreneurship	53.0%	48.8%	50.4%	47.9%	46.7%	47.5%	55.7%
Fear of failure*	24.6%	24.0%	17.7%	20.1%	28.6%	20.7%	33.2%
Intention to engage in entrepreneurship in the next 3 years**	13.1%	12.5%	11.1%	19.4%	18.3%	22.9%	23.9%

* Among those that perceive Good opportunities

** Among those that are NOT currently engaged in entrepreneurship

The Way Ahead



Leap to Swim in a New Ocean



Discussion



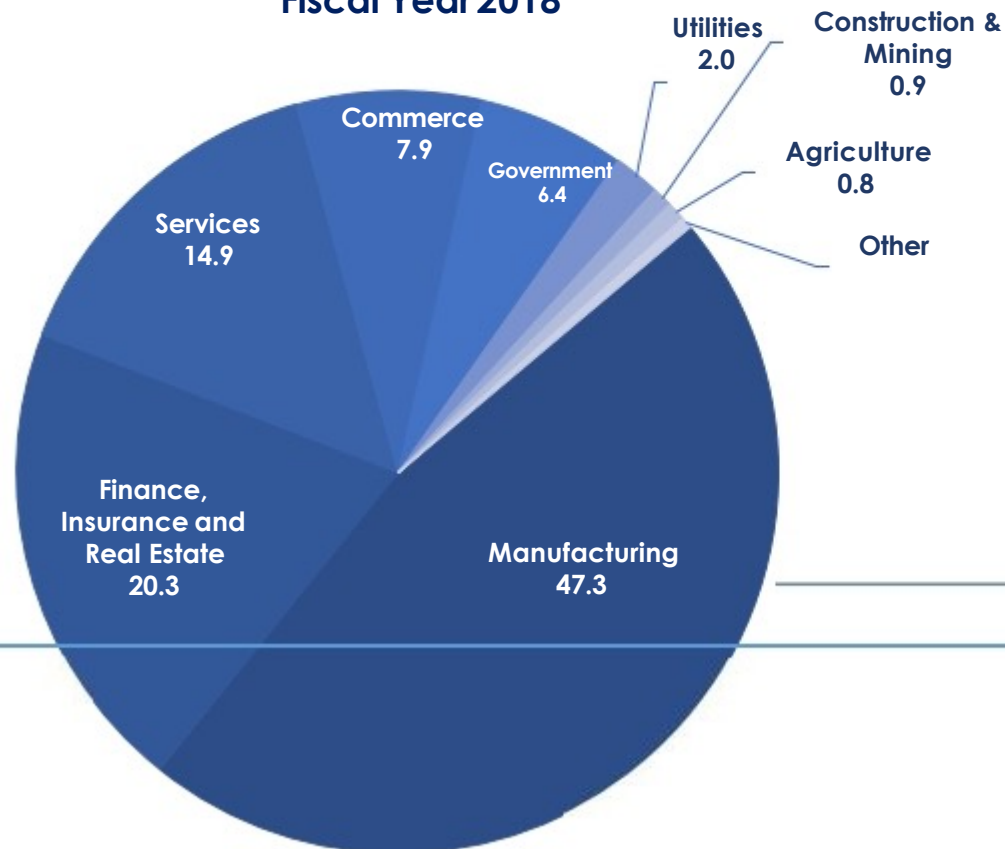
Changes to be Embraced

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Our Economy

$$\text{GDP} = \text{Personal consumption expenditure} + \text{Government consumption expenditure} + \text{Gross public* domestic investment} + \text{Gross private domestic investment} + (\text{Sales Exports} - \text{Purchases Imports})$$

Gross Domestic Product Share by Main Economic Sector Fiscal Year 2018



GNP \$70.8 billion (2019)

GDP \$105.0 billion (2019)

GDP Per Capita \$32,871 (2019)

Exports Value \$63.7 billion (2019)

Imports Value \$49.4 billion (2019)

TOURISM: 2.0% of GDP and estimated to 7.4%* in 2018 as a total contribution to the Economy GDP (including wider effects from investment, the supply chain and induced income impacts).

*calculated by the World Travel & Tourism Council (WTC)

Contribution to Total MFG GDP FY 2018

36.3% Pharmaceutical Industry (includes Bio-Pharma)

22.0% Computer and Electronics

26.9% Basic Chemicals

5.4% Medical Devices

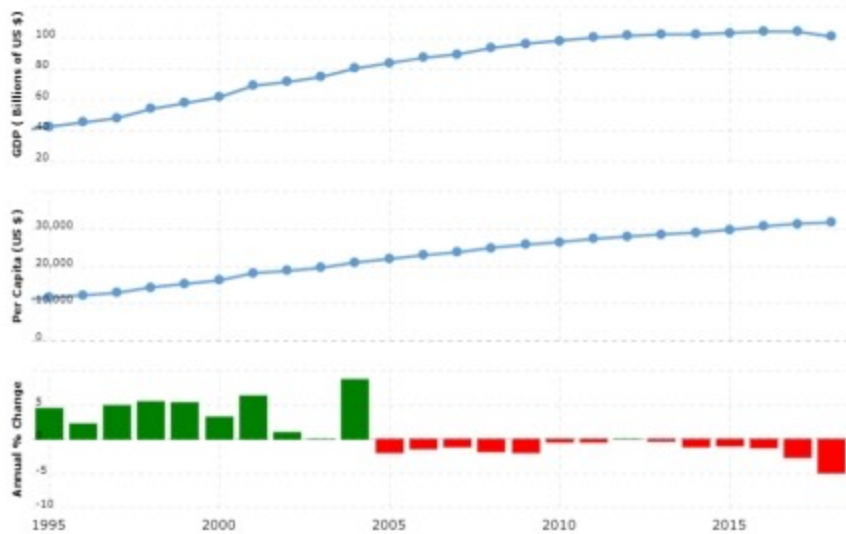
2.5% Beverages & Tobacco

2.5% Food

1.5% Electrical Equipment & Components

3.0% Others

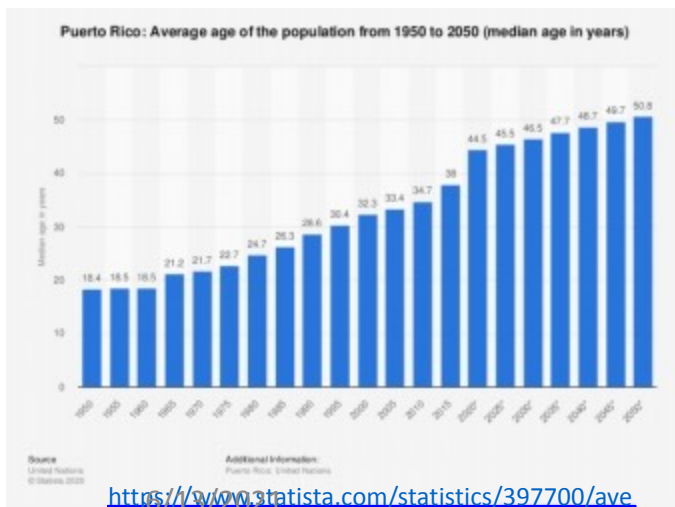
GDP, GDP p/c, Growth Rate



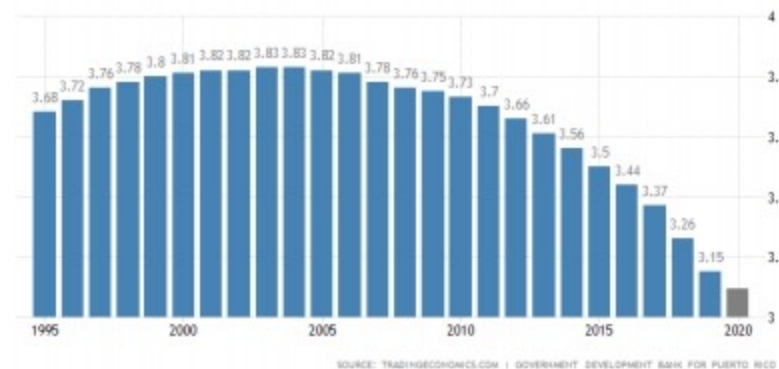
<https://www.macrotrends.net/countries/PRI/puerto-rico/gdp-gross-domestic-product> Puerto Rico GDP 1960-2020 Data Source: World Bank

Trends 1995-2020

Population Avg Age

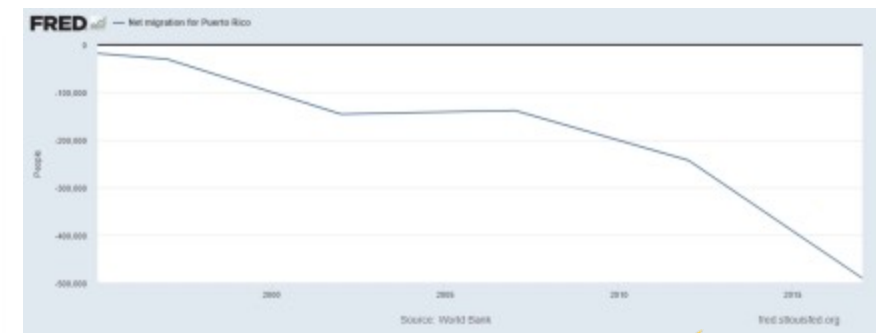


Population



<https://tradingeconomics.com/puerto-rico/population>

Cumulative Net Migration



<https://fred.stlouisfed.org/series/SMPOPNETMPRI>



What Changes: 2021-2028 (or earlier)

- Change in and around PR
 - External Forces (Natural Disasters and Climate Change)
- External environment
 - Age of Accelerations, the 4th Industrial Revolution
- Business environment



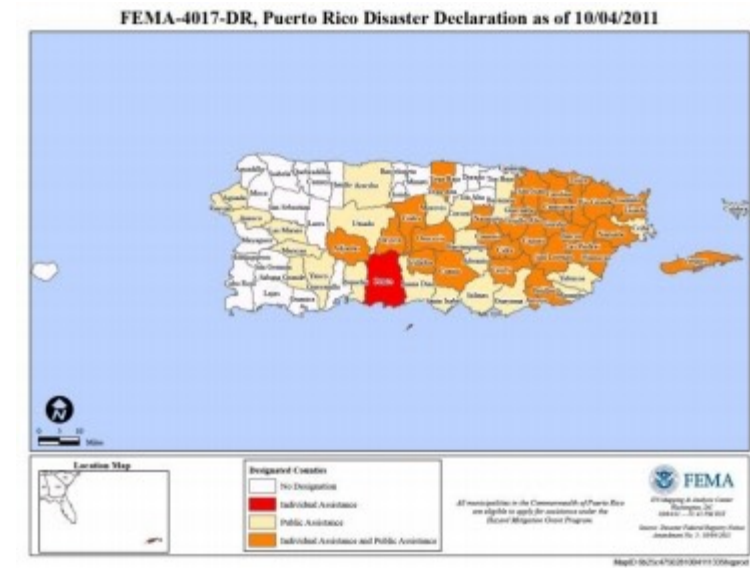
External Forces (1)

Natural Disasters & Climate Change

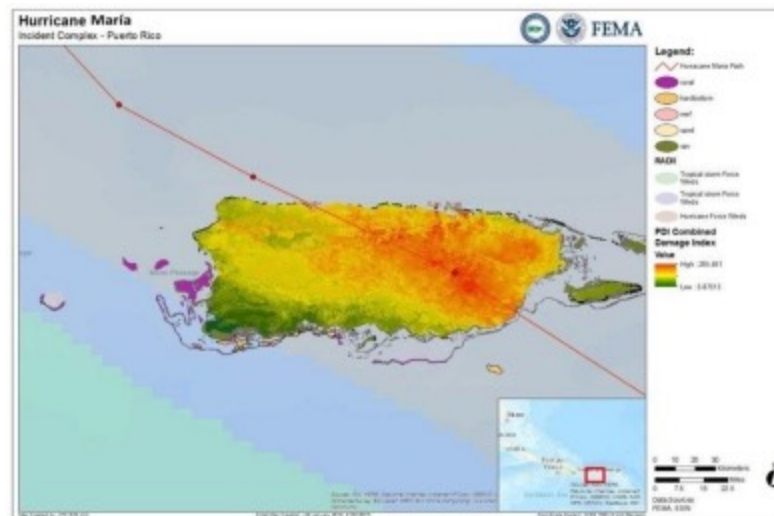
Natural Disasters 2004-2020



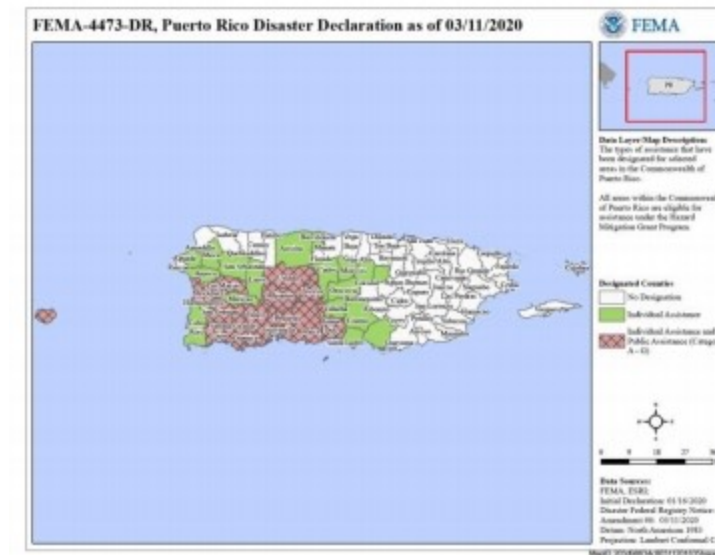
Tropical Storm Jeanne Sep 2004



Hurricane Irene Aug 2011

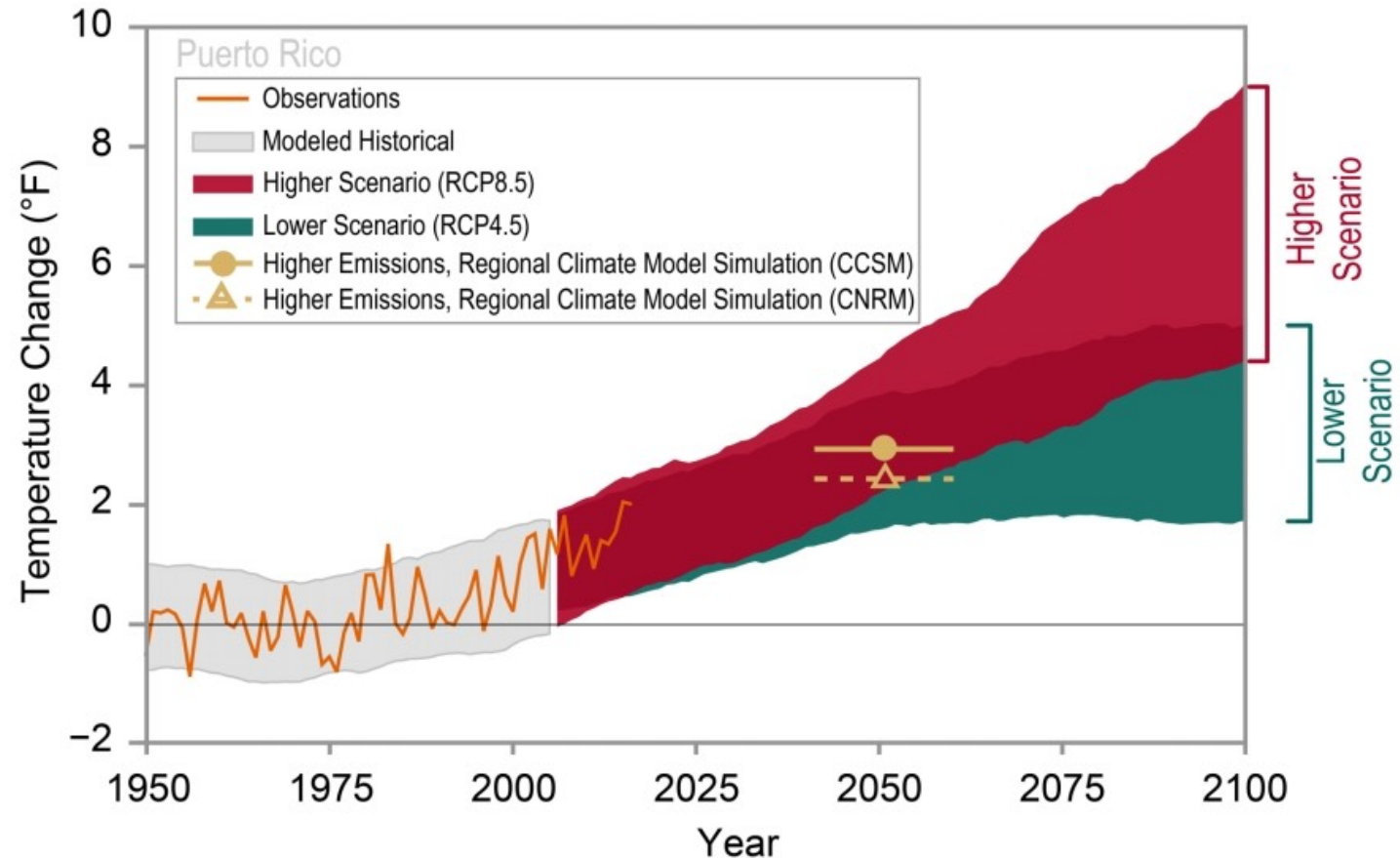


Hurricane Maria Sep 2017



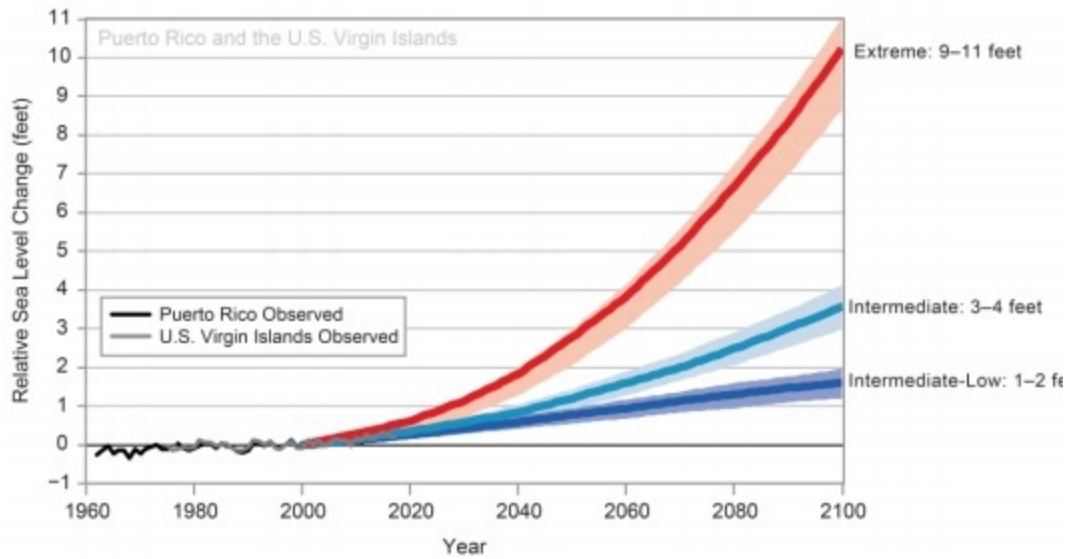
Earthquakes, as of Mar 2020

Temperature Change 1950-2100



Global Models Predict 1.5 to 4 F by 2050

Effects of Sea Level Rise



Sea Level Rise Predictions 2000-2100



San Juan, 1 foot



San Juan, 3 feet



San Juan, high tide flooding

Sea Level Rise Projections for Puerto Rico by 2050: 0.8 feet, 1.2 feet, 2.8 feet

Under Intermediate-Low, Intermediate, and Extreme Scenarios

6/13/2021

From CARICOOS: Caribbean Coastal Ocean Observing System, and <https://nca2018.globalchange.gov/chapter/20/>

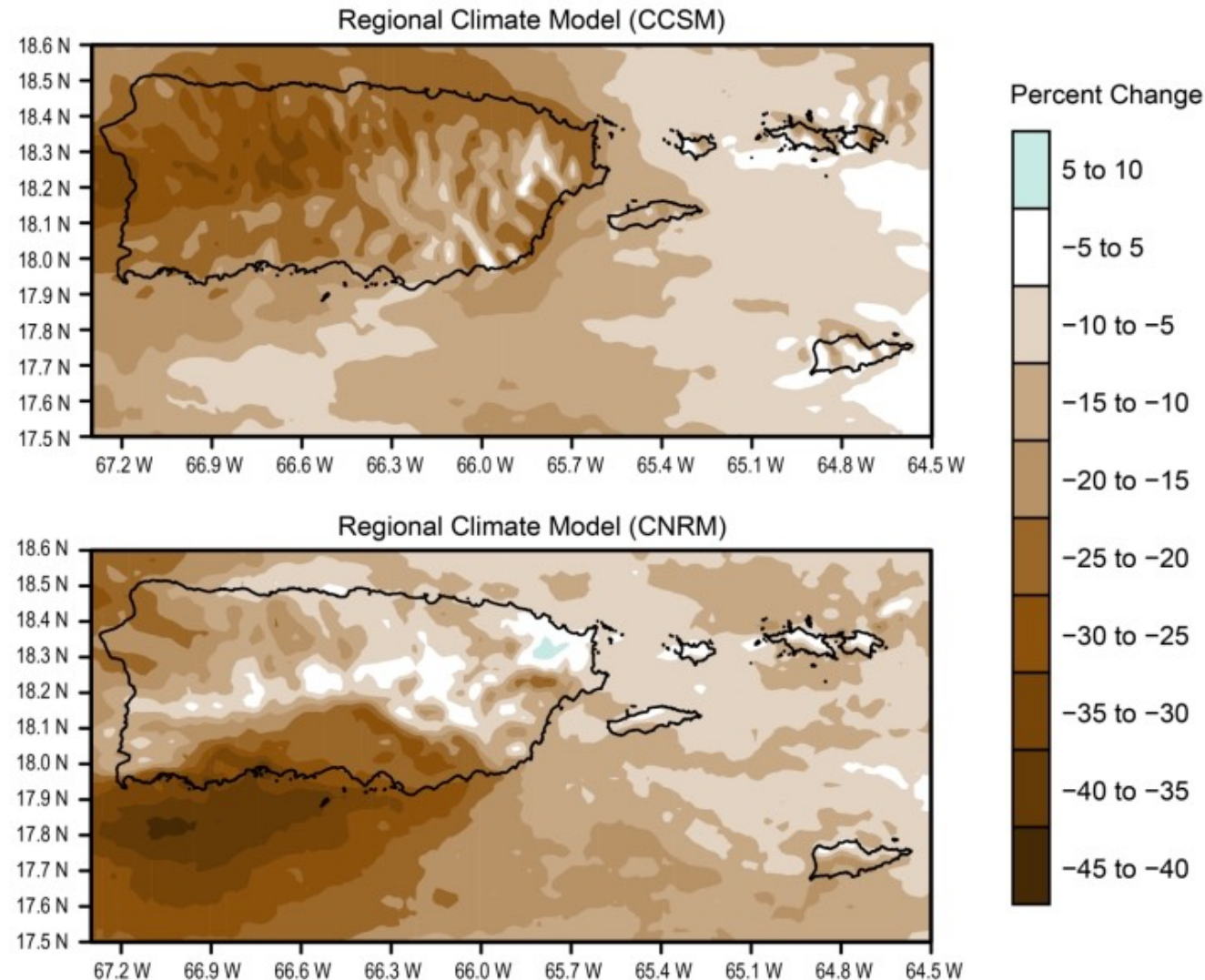
Drop in Precipitation Forecast

Major reservoirs in Puerto Rico could enter permanent supply deficit as early as 2025 under a higher emissions scenario and by 2040 under a lower emissions scenario

Also longer dry seasons and shorter, but wetter wet seasons

Recommendations:

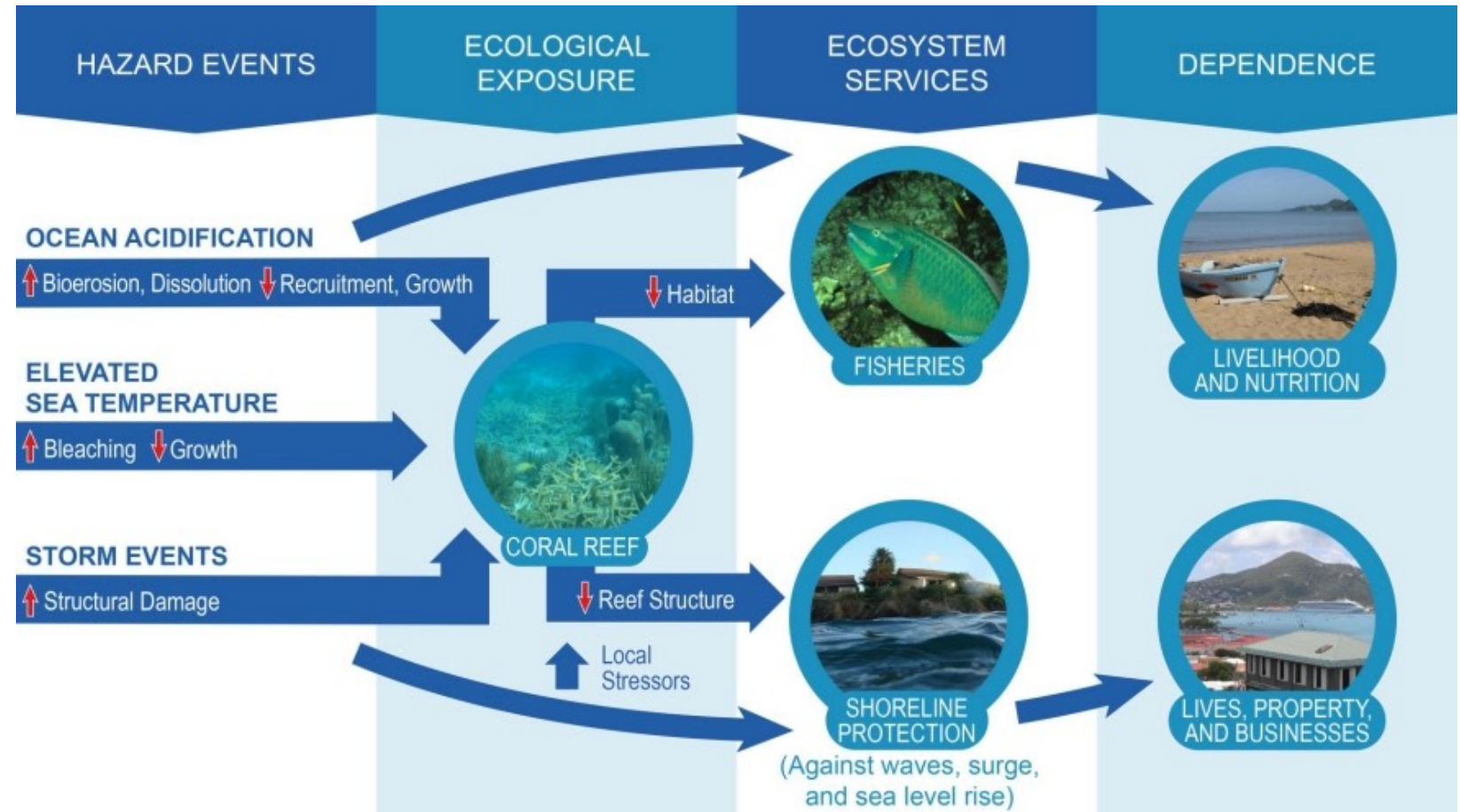
- Fresh water harvesting
- Increase agricultural water use efficiency



Climate Change Impacts on Coral Reef Ecosystems and Societal Implications

Future impacts on island economies due to:

- changes in key fisheries
- declines in natural shoreline protection
- loss of tourism



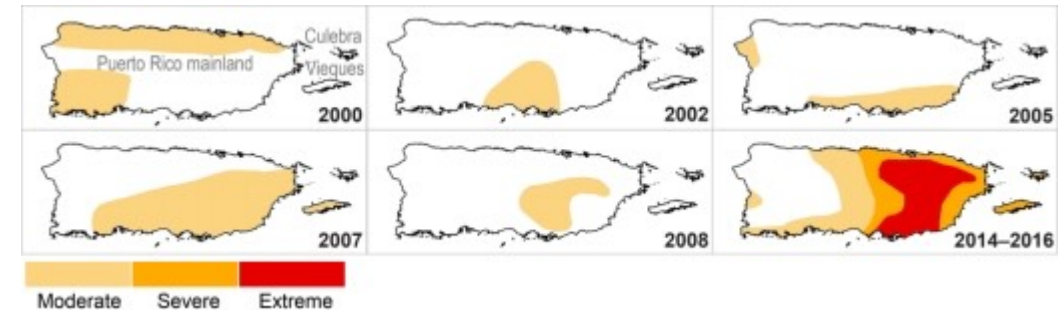
Future Climate Change Relevant to Regional Risks

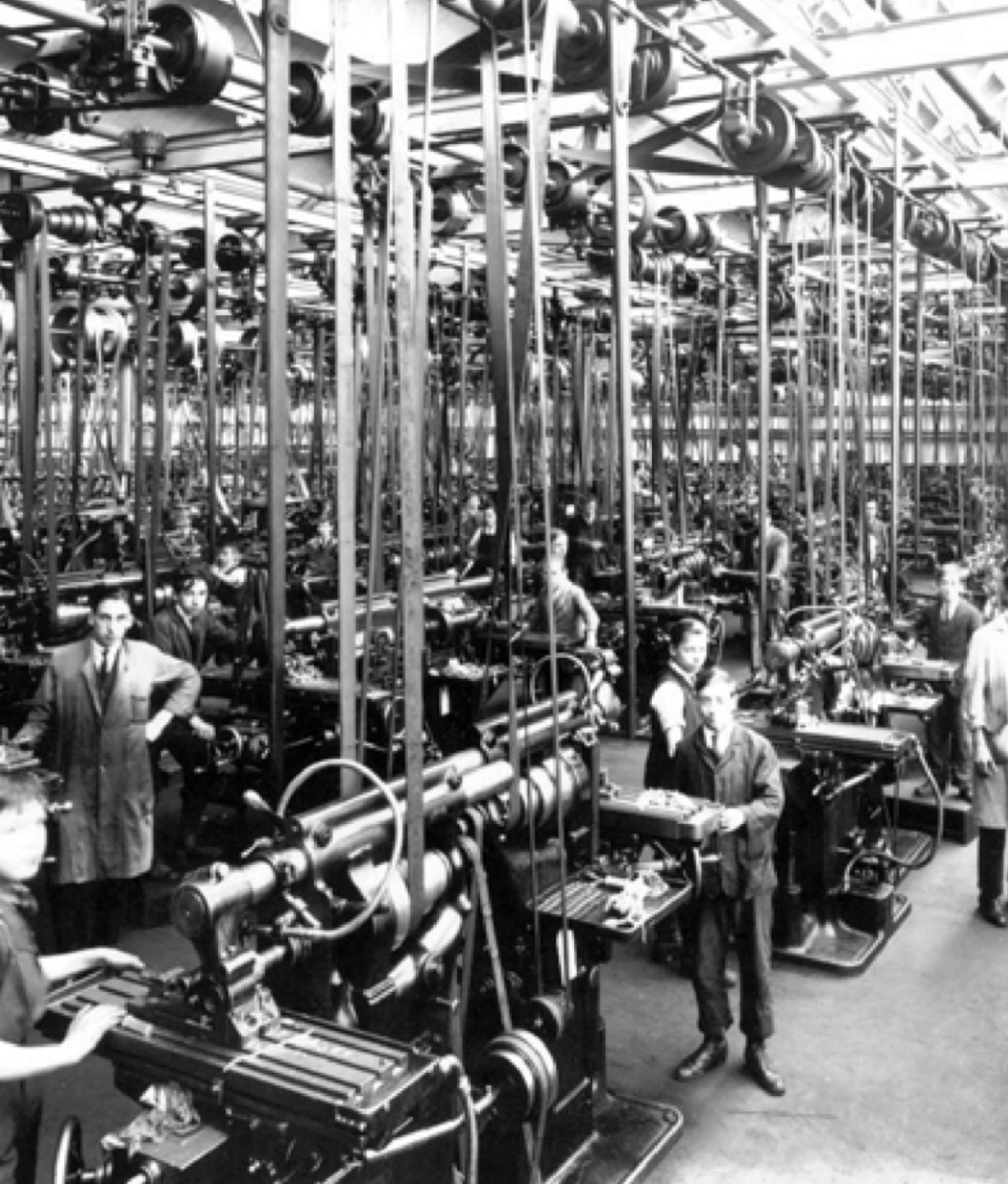
Global climate model predictions uncertain, but they suggest:

- Increased frequency of strong hurricanes (Categories 4 and 5) in Atlantic Basin, including Caribbean • Sea level rise will have particular impacts when combined with high tide flooding
- Increase in both drought intensity and frequency for Puerto Rico due to increases in both average and extreme temperatures and decreases in precipitation

Resilience capacity can be increased through:

- Better data collection of extreme events, and cost analysis
- Application of new technologies
- Collaborative action
 - With other Caribbean countries, e.g. via
 - Caribbean Community Climate Change Centre (5C) in Belize
 - Caribbean Institute for Metrology and Hydrology (CIMH)
 - With US Federal agencies, academics, and climate experts



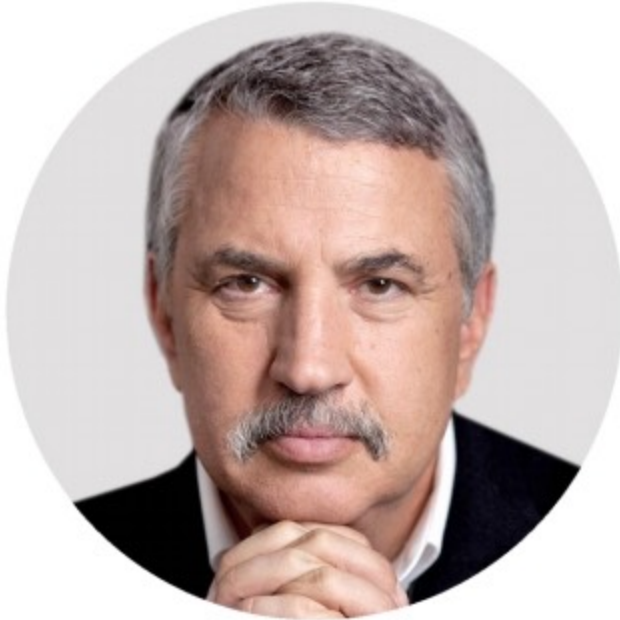


External Economic Forces (2)

Age of Accelerations, The 4th Industrial Revolution

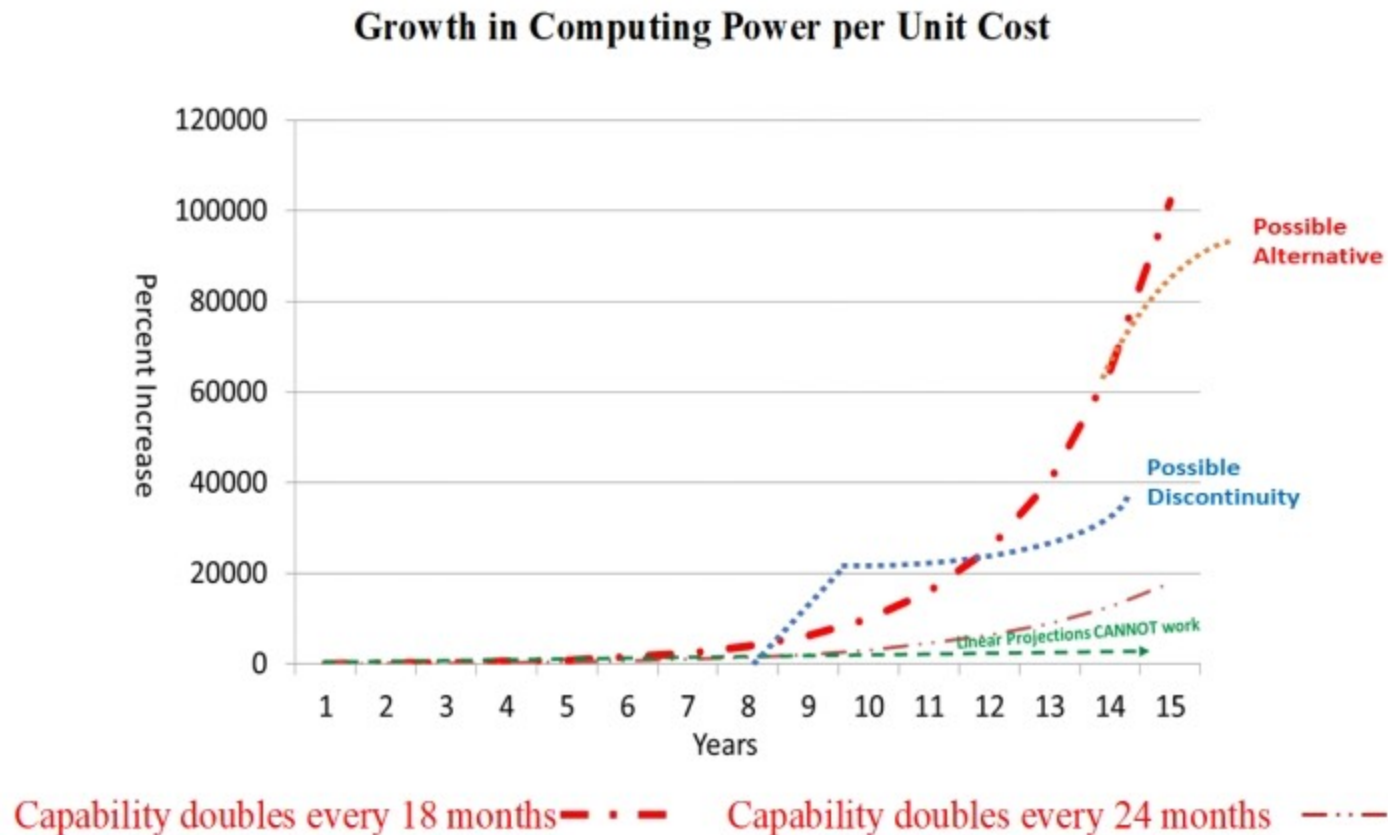
Age of Accelerations

Thomas L. Friedman



- **Accelerating political, social, economic changes**
 - **Climate change and pandemics cross borders**
 - **Pace of tech change**
 - **Globalization vs. de-globalization**
- **From interconnected to interdependent**
- **Deep impacts on people**
- **Left-right political divisions no longer meaningful**
- **How to design socio-political-economic governance for Fused, Fast and Deep world?**

Velocity of One Aspect of Tech Change



If a factor, e.g. computing power/unit cost, doubles every 18 mo, 5-yr increase is 900%, 10-yr is 10,000%, 15-yr is ~100,000%

Biotech even faster, robotics ubiquitous, nanopoised breakout, energy impacts are global

- Think BRINE (bio-robo-info-nano-energy) + Manufacturing & AI
- Interactions complicate things
- Linear projections CAN'T work

Fourth Industrial Revolution



Dr. Klaus Schwab, WEF

- **Accelerating tech change**
- **Blurring lines between physical, digital and biological spheres**
- **Interconnected technical & social impacts**
- **Rising geopolitical risk and changing markets**

Four Industrial Revolutions

1780s

1870s

1969

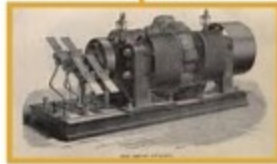
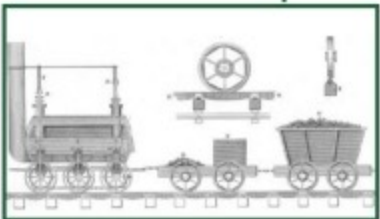
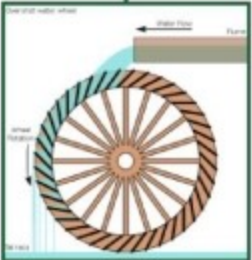
JUST BEGINNING

1ST INDUSTRIAL REVOLUTION

2ND INDUSTRIAL REVOLUTION

3RD INDUSTRIAL REVOLUTION

4TH INDUSTRIAL REVOLUTION



fuse technologies
“blur lines between
physical, digital
and biological
spheres”

Source: Klaus Schwab, “The Fourth Industrial Revolution: what it means, how to respond,” 14 January 2016
<http://www.weforum.org/agenda/2016/01/>, accessed February 16, 2016

4th Industrial Revolution (4th IR)

Key distinctions between 3rd & 4th revolutions:

Velocity of change, scope, and systems-wide impact

- **Massively disruptive**, and accelerating
- **Transforming management**, as well as production and distribution
- Can provide very **important collective benefits** to society, but also negatively affect many individuals

Responses must engage public-private, whole-of-society, and trans-national stakeholders

- In **comprehensive, integrated** ways

Converging 4th IR Trends (1)

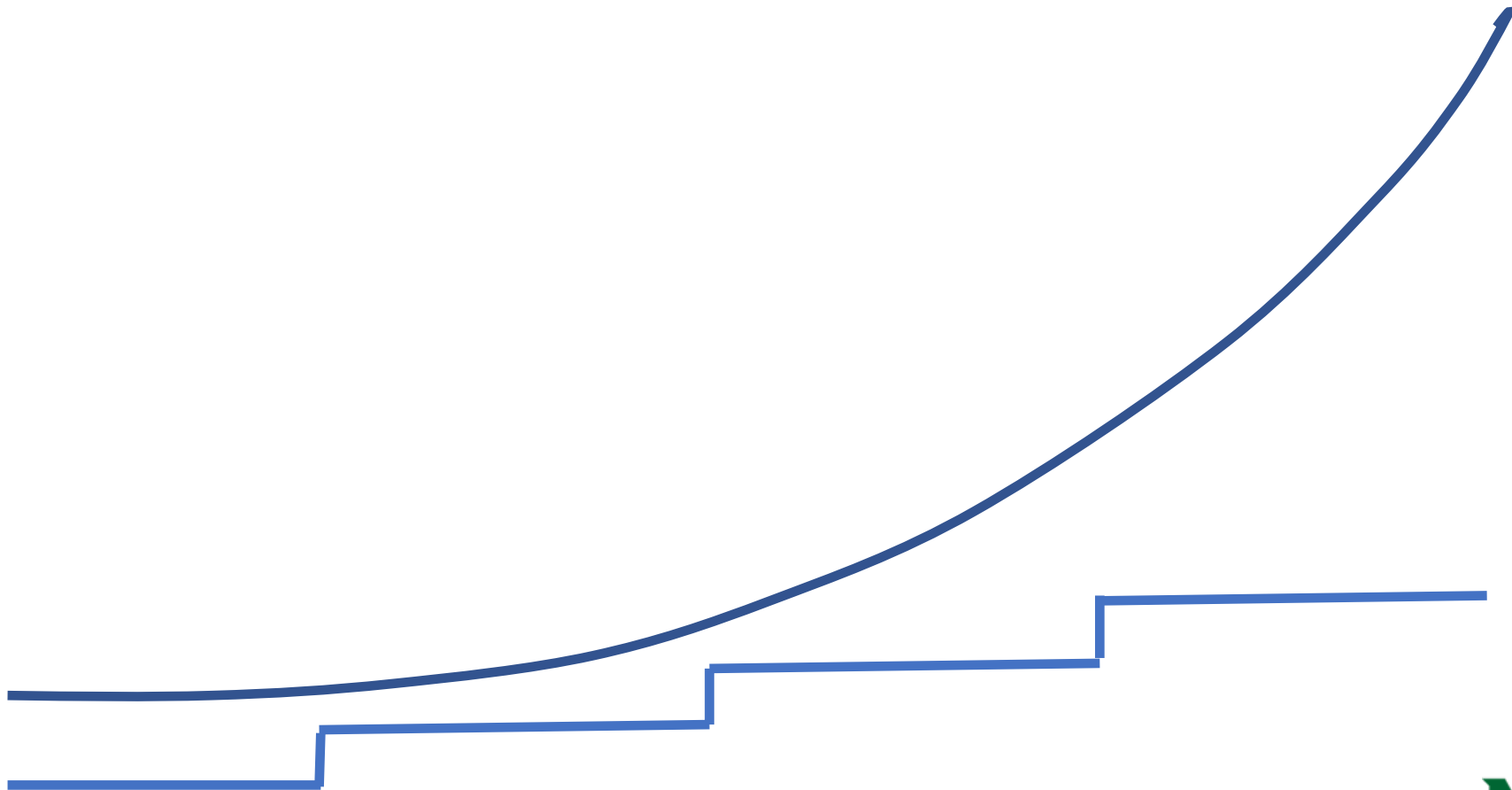
Trends **can't be controlled by governments, only influenced**

4th IR will affect business, government, and people • Now governing by “**systems of public policy and decision-making [that] evolved alongside 2nd IR**”

Challenges of **misinformation & disinformation**



Tech Change vs Organizational Change



Converging 4th IR Trends (2)

Trends support:

- **Empowerment** of individuals and non-state actors
 - **More people part of conversations about their future**

Profound impact on people

- Change “**not only what we do, but also who we are**”
- Privacy issues vs. biotech and AI revolutions • **Pushing back thresholds of life span, health, cognition, and capabilities**
 - **will redefine moral and ethical boundaries**



Benefits & Opportunities for Puerto Rico

Accelerating, converging technologies

- Increased overall productivity
 - Automation beneficial to aging, declining workforce
- Physical, digital, biological worlds play to Puerto Rico's strengths
- Gaming industry now much larger than movies

Also accelerate de-globalization of supply chains

*

- Local production of manufacturing and services
 - But, reduced labor costs through robots/co-bots--reshoring
- Installed new energy production is now dominated by local sources -- solar, wind, hydro, and fracked natural gas.
- Explosion of productivity in urban and indoor agriculture

*TX Hammes, "3-D Printing Will Disrupt the World in Ways We Can Barely Imagine," <http://warontherocks.com/2015/12/3-d-printing-will-disrupt-the-world-in-ways-we-can-barely-imagine/>

Stresses for Puerto Rico

- Potential job loss
 - McKinsey (MGI) 2017 study:
 - **“about 60% of all occupations have at least 30% of constituent activities that could be automated.”** [with present tech]
 - Need human-machine teaming
 - **Service jobs particularly vulnerable** to automation
- Increase in migration pressures
- In many places high potential for domestic unrest, scapegoat-finding, radical nationalism and protectionism
- **Potential balkanization of Internet**



Threats to existing security structures

- **Likely center of gravity of future conflicts: resilience of populations of engaged nations**
 - Can challenge social compacts



Discussion

Break



Change in the Puerto Rican Business Environment

- Industry X, Industry 4.0
- Digital Puerto Rico
- Energy Transformation
- Coordinated, Synchronized, Integrated Approaches Across Silos
- Community Data for Community Good

Industry 4.0 (or Industry X)

- In “Industry 4.0” several emerging technologies converging to provide digital solutions. One [model](#) divides into front-end and base technologies.
 - Front-end technologies four dimensions: Smart Manufacturing, Smart Products, Smart Supply Chain and Smart Working,
 - Base technologies four elements: [internet of things](#), cloud services, big data and analytics.
- [Industry X](#) is about being future-ready
 - Creating new products that are cloud-connected and delivering attractive new services and platforms
 - Using intelligence to make better manufacturing and operating decisions, reducing costs and improving safety across the value chain.
 - Opportunities include scalable solutions across multi-site operations, true virtual digital twin models of live operations to test alternatives.

Digital Puerto Rico

Layers for Creating Digital Opportunities



From: Greg Conti, et. al., PEN Testing a City
Briefing presented at black hat Aug 2015

- **Sociology** – **LISTEN** to stakeholders; **Co-develop** solutions; **Encourage** them to adopt; **Teach and Mentor**
- **Resources** – **Where** are funds. **How** to get them? What **restrictions**?
- **Governance** -- Which **Laws/Policy/Regs** apply – **Federal/ State/ Local/Corporate**? Where are **conflicts**? How to get **Management team**?
- **Technical** – **Purpose**? **Spectrum, Last mile, middle mile, backhaul**? **Cyber resilience**? **End User equipment**? **Affordability**?
- **Operations and Maintenance**– **Purpose**? **Cost**? **Ability to use capabilities**? **Training**

Must think End-to-End! People ALWAYS top Technology!
Coordinate, Synchronize, Integrate across Silos



Energy Transformation in Puerto Rico

- In energy, a drill down might be like levels of tactical, operational, national strategic or with energy Tier related:
- Tier 1 microgrid controllers;
- Tier 2 District Cluster Pods;
- Tier 3 Regional Financial Operations;
- Tier 4 National Shared Consciousness and
- Tier-5 Global Interactions. There are multiple energy solutions and one solution does not fit all



Coordinated, Synchronized, Integrated Approaches Across Silos

- Power and Comms
 - Smart grid needs comms
 - Comms need power
- Transportation (Trench Roads)
- Connected Ag
 - Big data analytics applied to ag
 - Precision ag
 - Both need bandwidth and power
 - Need transportation to get goods to market
 - Controlled Environment Agriculture



Community Data for Community Good

- Communities generate huge amounts of data
 - Credit card transactions
 - Real estate
 - Transportation
 - Health care
 - Social and regular media
- Most of it does not benefit the community itself
 - If captured, data can be used to increase community awareness and resilience in near-real time
 - Reduce insurance costs
 - Improve health care outcomes
 - Allow better decisions
- Data cooperatives are one idea

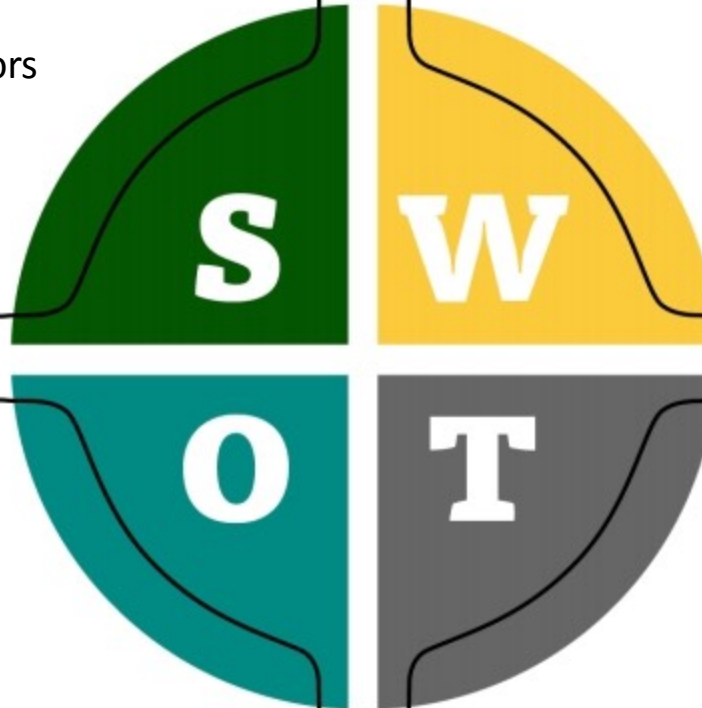
SWOT Analysis for Puerto Rico In the new post-virus “un-normal”

STRENGTHS

- Things your company does well
- Qualities separating you from competitors
- Internal resources: HR, morale, etc
- Tangible assets: IP, patents, etc.

WEAKNESSES

- Things your company lacks
- Things competitors do better
- Unclear selling proposition
- Resource limitations



- Under-served markets
- Areas with few competitors
- Press/media coverage
- Emergency need for your products/svcs

OPPORTUNITIES

- Emerging competitors
- Negative press/media coverage
- Changing customer attitudes
- Changing regulatory environment

THREATS

Contribute Inputs to Business Owner/Operators' Resilience Plans



STRENGTHS

- **Inherent assets**
 - Diverse activities: History, architecture, culture, cuisine, rainforest, beaches
 - Location--weather
- **Qualities separating you from competitors**
 - U.S. jurisdiction, goods “Made in U.S.A.”
 - U.S. accounting and licensing processes
 - No U.S. passport needed
 - **Strategic sectors**: (1) Adv manufacturing, (2) agro industries, (3) visitors’ economy (4) creative industries (5) health care; **Emerging**: (1) IT, (2) energy, (3) aerospace, (4) life science-bio; **New Clusters**: Exports in emergency/resiliency, ocean economy
- **Internal resources**
 - Bi-lingual, educated workforce
 - Strong higher education system
- **Tangible assets**
 - Manufacturing base in pharma, computers & electronics, chemicals, medical devices
- **Lower tax rates**



WEAKNESSES

- **Power, comms & other infrastructures are unstable and vulnerable**
 - **Contracts often go to traditional suppliers**
- **Many small businesses can't shift to remote ops**
- **Extended brain drain: education system not keeping pace**
- **Unstable politics —"long term" is 4 years**
 - **Strategic plans not being executed**
 - **Younger generations often not represented**
- **Regulatory rules and taxes increase production & shipping costs**
 - **Bureaucracy and unpredictable regulatory environment**
- **Resource limitations —debt burden and financial controls**
 - **Uncertain flow of recovery funds**
 - **Good governance will be essential**
 - **No room to squander funds**

Lack of broadband connectivity across archipelago



OPPORTUNITIES

- **Entering new markets via bi-lateral or multi-lateral agreements**
- **Manufacturing in pharma, computers & electronics, medical devices**
- **Closed environment agriculture – also, NO WINTER**
- **De-globalization of supply chains**
- **Local production of energy**
- **Opportunities for remote work**
 - **Bring back, or leverage, diaspora**
 - **Stable power, comms and internet are key**
- **Trans-generational opportunities**
- **Integrated entrepreneurship and learning approaches through Echar Pa'lante and other initiatives**



THREATS

- **Recurring, diverse natural disasters**
 - **Weak critical infrastructures**
 - **Inconsistent preparations —focus of this course**
- **Emerging competitors —varies by sector**
- **Contradictory press/media coverage —need to tell story better**
- **Continuing brain drain, population loss**
- **Global economy restructuring post-COVID-19:**
 - **Will industries like tourism and hospitality recover? Where or where not?**
 - **Availability of reconstruction funds**

Iterative Approaches

- **Interdependencies often are complex (or “wicked”) problems**
 - Problem will change as fixes are applied
 - Iterative solutions
- **Document going-in assumptions and articulate them**
- **Schedule reviews**
 - Get straight feedback
 - If plan is converging to desired outcome, continue
 - If not, review assumptions and adjust
- **Recognize leadership challenges, up and down chain**
 - **MUST** get buy-in up front from bosses and your team
 - Changes based on assessments are strengths, not weakness
- **Form complex, adaptive coalitions with outside organizations**



A silhouette of a person in a running pose, moving from left to right. The background is a vibrant sunset or sunrise sky with orange, yellow, and red clouds. The image is partially obscured by a large white semi-circle on the right side.

Overcoming Obstacles

- **Joplin, Mo reconstruction model—
bottom up, cultural resilience**
- **Understanding Federal Funding—
and the coming drought of it**
- **Countering mis-information/
dis-information**
- **“Managed retreat” from climate change**
- **Co-creation of services (public-private)**

Discussion

Converging Approaches to a Resilient, Sustainable Puerto Rico

- There is no one solution and no one has all the answers
- Effective solutions will have to be “co-created” with Puerto Rico’s stakeholders, not developed in isolation
- Recommendations
 - Focus first on human capital, including education, health, and security to improve quality of life
 - Recognize that solutions involve people, organizations, and processes, as well as technology
 - Build a stable “governance ecosystem” of government, business, and civil society that includes an enduring, nonpartisan entity
 - Pursue coordinated, synchronized, and integrated approaches that cut across silos

Sustainable Development Goals



What is Resilience?

Definition: Coping Capacity + Adaptability*

3 Kinds of Resilience



CULTURAL

- Organization fights back
- Foundation of ethics, principles, governance



OPERATIONAL

- Resilient networks and telecoms systems
- Able to deliver internal and external messages
- Financial resources



INFRASTRUCTURAL

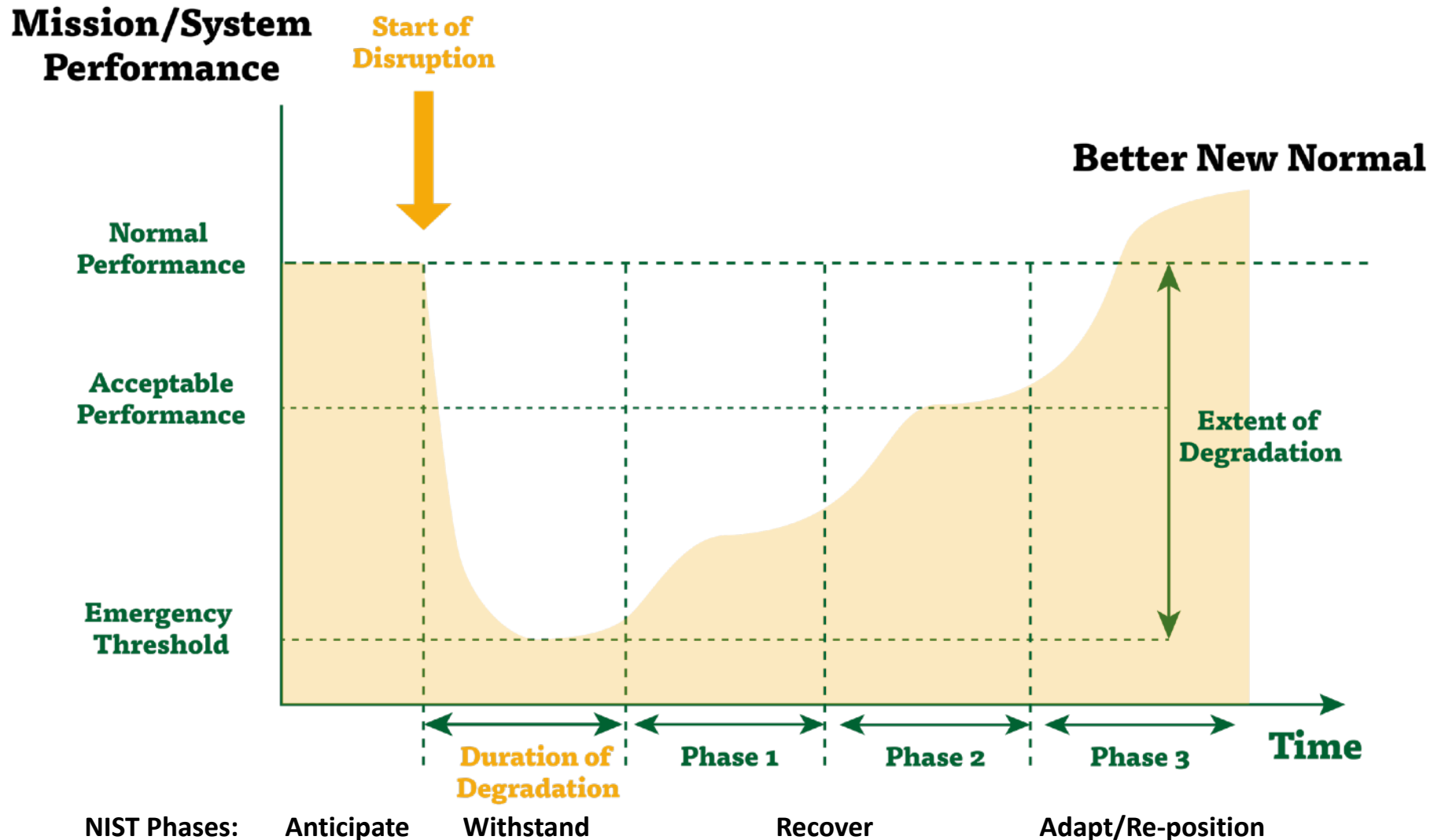
- Essential services are sustained and restored
- Growing infrastructure interdependencies are understood

Phases:
Anticipate,
Withstand,
Recover
(=Coping Capacity) +
Adapt**

* Prof Elise Miller-Hooks, GMU

** National Institute of Standards and Technology (NIST)

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



Security vs Resilience



SECURITY

“locking up and hunkering down”



RESILIENCE

“Achieving organization’s goals”

“Under any level of shock or stress”

“Fighting back”

“Emerging stronger”

Building Resilient Capacity



Adapt and Grow

Adapt

“It is not the strongest or the smartest that survive, but the most adaptable” —
Tom Friedman, from Darwin

Learn from shocks & stresses—change behaviors

Grow

Nassim Taleb—“Anti-Fragile” —
“things [that] benefit from shocks....”

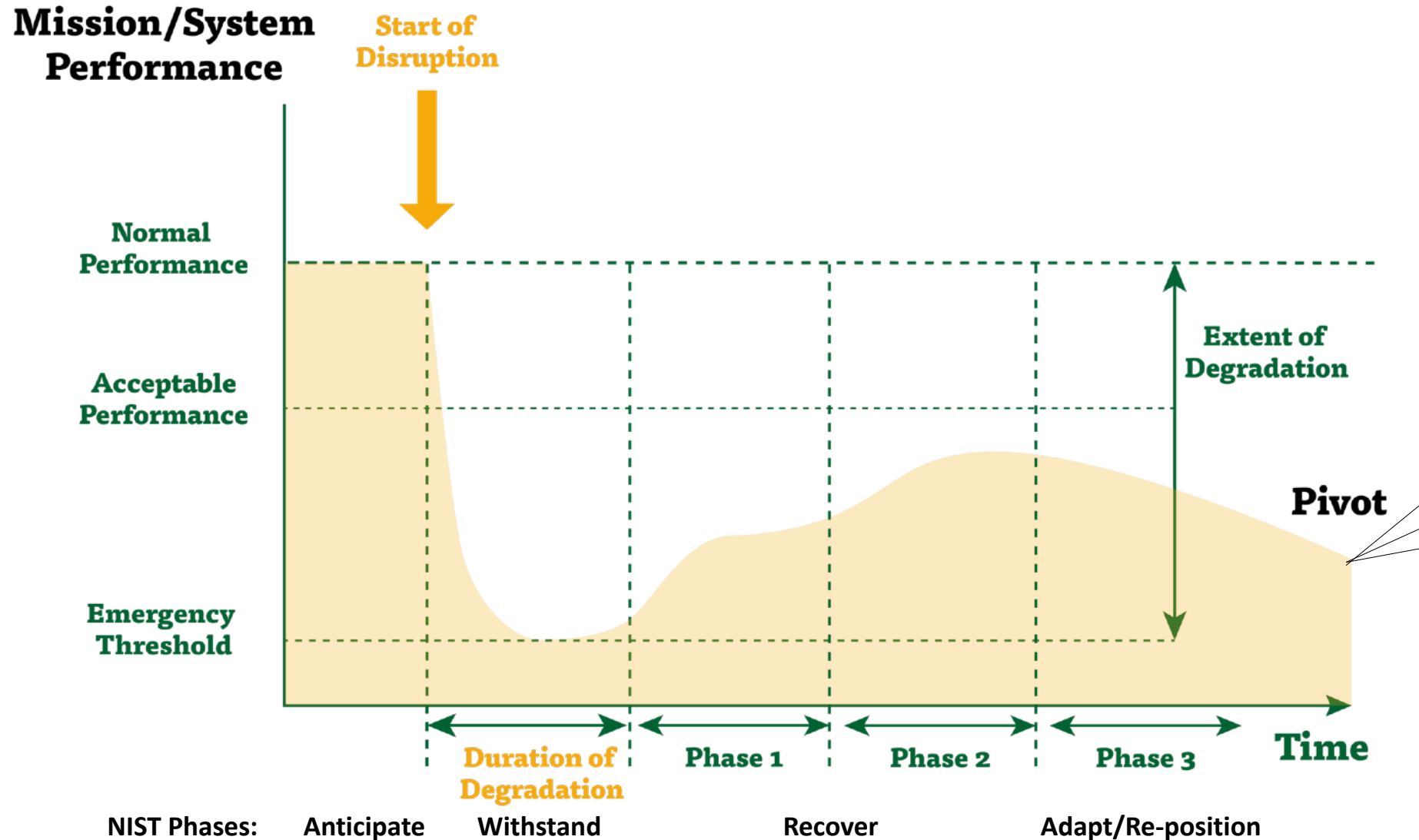
Need agility to analyze shocks and respond effectively

Comprehensive Approaches



- **No easy answers**
- **Resilient culture** is built on foundation of:
 - Ethics
 - Principles
 - Governance
 - Compliance—not just checklists
 - Know what you should be doing
- **Details are important**—need to understand the challenges and risks specific to your situations
- **Benchmark against standards & best practices**

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





Adapt and Reposition (1)

Adaptability: Ability to adjust approaches or actions in response to changes in external environment

- Plan for unexpected - can't anticipate everything
- Establish a standard system or method to respond to change
- Foresight vs forecasting
- Recognize new “un-normal” may be very different

Adapted from Neil Kokemulle, What Is Strategic Adaptability? [Small Business](https://smallbusiness.chron.com/strategic-adaptability-78216.html), [Business Planning & Strategy](https://smallbusiness.chron.com/strategic-adaptability-78216.html), [Strategic Business Plans](https://smallbusiness.chron.com/strategic-adaptability-78216.html), <https://smallbusiness.chron.com/strategic-adaptability-78216.html>



Adapt and Reposition (2)

Many Factors of Change

- **Velocity of change varies by sector**
- **Adjust marketing, R & D, and promotion responses**
- **Also adapt to legal regulations, resource availability and diversification opportunities**

Experiential Learning

- **Must learn from experiences**
- **Recognize mistakes in all areas and adjust over time**
- **Combine new expertise in familiar areas with expertise in flexing to change**



Pivot—Signs it's Time to Pivot (1)



**You Want To
Make Your Business
A Stronger Version
Of Itself**



**The Market's
Overall Needs
Are Changing**



**Your People,
Process Or
Profits
Are Declining**



**You're No Longer
Seeing Results From
The Things That
Made You
Successful**



Pivot—Signs it's Time to Pivot (2)



**You Can't See A
Viable Path To
Further Growth**



**Your Customers
And Employees Are
Leaving You**



**What You're
Offering Is No
Longer Relevant**



**Your Intuition Is
Telling You So**



Pivot—All good pivots start with great questions

3 Business Model Aspects



Value proposition:
What value do you deliver?



Value networks:
How do you deliver and monetize?



Target customers:
Who receives and benefits?

Rapid pivot framework

- Don't try to create pivot options in isolation
- Gather ideas from inside and outside of your team



Pivot— All good pivots start with great questions

3 Ideas to Pivot Rapidly to a New Model



Host a pivot party (via video conferencing)



Perform a sanity check, then select your best bet



Try it—Ugly, bumpy, and fast is much better than smooth, beautiful, and slow

“Make decisions, honor the decisions you made yesterday, then figure out how to do it better today.”

Questions?

Lin Wells

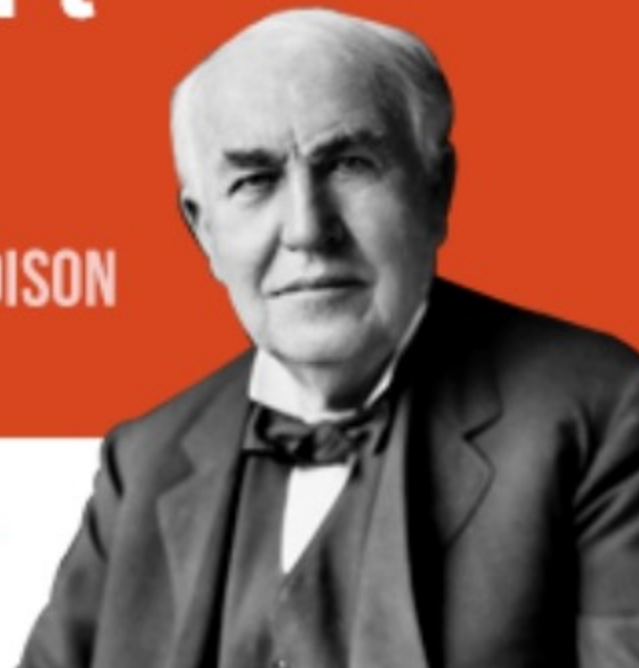
Center for Resilient and Sustainable Communities

Back-up

**“I have not failed.
I’ve just found
10,000 ways
that won’t
work.”**

- THOMAS A. EDISON

Due.com



First
Atttempt at
Iterative
Learning

Puerto Rico and COVID-19

Reported cases and deaths by municipality

This table is sorted by places with the most cases per 100,000 residents in the last seven days. Charts are colored to reveal when outbreaks emerged.

	Cases	Deaths	Search municipalities						WEEKLY CASES PER CAPITA	
									FEWER	MORE
	TOTAL CASES	PER 100,000	CASES IN LAST 7 DAYS	▼ PER 100,000						
Puerto Rico	37,380	1,104	2,847	84						
Las Piedras	374	1,026	66	181						
Cataño	359	1,544	42	181						
Bayamón	2,991	1,754	280	164						
Vega Alta	544	1,519	54	151						
Salinas	356	1,314	39	144						
Manatí	431	1,153	53	142						
San Lorenzo	344	958	50	139						
Corozal	470	1,454	45	139						
Vega Baja	755	1,504	66	132						
Fajardo	411	1,384	39	131						
Show all										

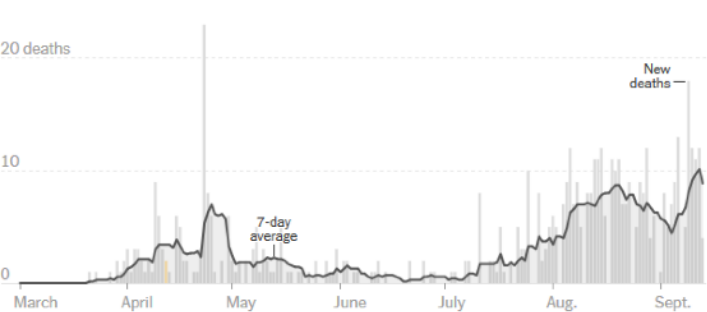
About this data

U.S. | Puerto Rico Covid Map and Case Count

New reported cases by day in Puerto Rico



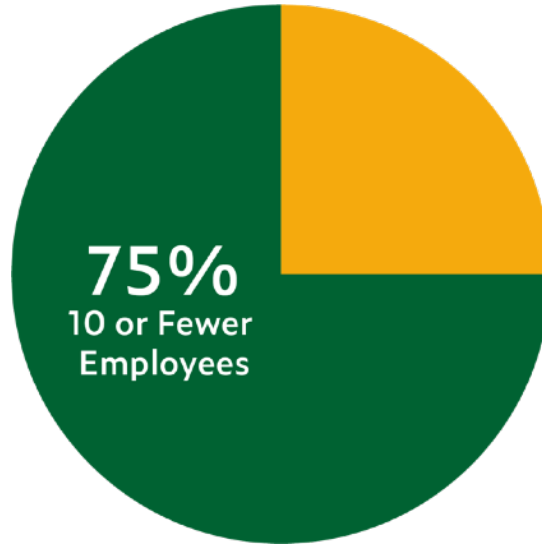
New reported deaths by day in Puerto Rico



Puerto Rico and Small Business and COVID-19



44,000 small businesses



545,000 employees

Puerto Rico has 44,000 small businesses with 75 % having ten or fewer employees, small firm employment 545,000 employees

(New York Federal Reserve)

Puerto Rico and Small Business and COVID-19



**Annual Revenue
<\$250,000**

Approximately 68% of Puerto Rico small businesses have annual revenues of less than \$250,000

(New York Federal Reserve)



As of Friday, May 8, the SBA had approved 24,700 PPP loans in Puerto Rico and the USVI for \$1.1 billion.

<https://newsismybusiness.com/paycheck-protection-program-funding-still-available-for-p-r-usvi-small-businesses/>



Puerto Rico Small Business Unique Recovery Challenges



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FEMA Recovery Efforts Continue on the Island with Funding Obligations for 97 Projects

Release date: April 7, 2020

Release Number: DR-4339-PR NR 426

GUAYNABO, Puerto Rico – FEMA and the Central Office for Recovery, Reconstruction and Resilience, or COR3, have obligated an additional **\$11.4 million** in funds for **97** projects related to the recovery and reconstruction of Puerto Rico due to Hurricane María. These funds were obligated between March 27 and April 2.

As the island continues to safeguard its residents with social distancing and self-quarantine measures, FEMA and COR3 remain focused on prioritizing obligations of funds to municipalities for eligible expenses to help communities recover. To date, nearly **\$6.6 billion** has been approved for Puerto Rico under FEMA's Public Assistance program.

The latest grants obligated are as follows:

- Over **\$4.1 million** for repairs to roads and bridges.
- Nearly **\$4 million** for repairs to public buildings and equipment.
- Over **\$1.6 million** for emergency protective measures.
- Over **\$1.3 million** for repairs to parks and recreational facilities.
- Over **\$632,600** for public utilities.
- Nearly **\$242,000** for debris removal.

Funding for permanent work includes projects like roads, bridges, water control, buildings and equipment, utilities and park and recreation facilities as authorized under Section 406 of the Robert T. Stafford Act. Emergency protective measures are actions taken to eliminate or lessen immediate threats either to lives, public health or safety, or significant additional damage to public or private property in a cost-effective manner.

- On going recovery from Hurricanes Irma and Maria and 2019 - 2020 Earthquakes
- Recovery and upgrade of the electric grid
- Limitations of wireless broadband
- Large percentage of small business and microbusinesses
- Economic recession and changing demographics
- Upcoming hurricane season

Adapt your strategic response

Covid-19 Strategy Matrix
boardofinnovation.com

Impact On Your Organisation

Direct impact of Covid-19 / Indirect impact of economic recession / Ability to adapt fast

Note: strategic response also depends on cash position, competitive position and industry attractiveness

Severity And Duration Of Economic Impact
GDP forecast / Pandemic evolution / Economic policy

	POSITIVE Revenue growth through demand surge e.g. E-commerce	MILDLY NEGATIVE Sustained revenue loss of 0-15% in Q2-4 2020 e.g. Consumer Goods	SEVERE Sustained revenue loss of 15-50% in Q2-4 2020 e.g. Oil and gas	CATASTROPHIC Sustained revenue loss of +50% in Q2-4 2020 e.g. Tourism
0.5 YEAR IMPACT V-curve rebound; Effective pandemic control and economic stimulus	Ride the wave: boost supply to keep up with demand surge	Push through and prepare for fast back-to-normal upswing	Survive and prepare for relatively slow back-to-normal recovery	Mothball large part of the business and prepare for re-start
1.5 YEAR IMPACT U-curve recovery; Social distance measurements prolonged, economic stimulus eases damage	Push for growth and market share	Defend, improve competitive position, and find new growth	Pivot through organic innovation and inorganic growth, or divest	Pivot through organic innovation and inorganic growth, or divest
3 YEAR IMPACT L-curve recovery; Failed pandemic control, and wide-spread bankruptcies and credit defaults	Aggressive push for growth and market share	Defend, improve competitive position, and find new growth	Prepare for aggressive new entrants. Reinvent and create totally new position, or abandon	Abandon market

Pharmaceuticals (Includes Bio Pharma)

Computers and Electronics

Basic Chemicals