

- \* 21+ years of technical and managerial experience
  - \* Business and operations, asset management O&M, GIS, emergency management, IT security, strategic planning etc.
  - \* Serves as the Chair of American Public Works Association (APWA) Asset Management Committee
  - \* Advises the CxO level executives, City and District managers and department heads
- Worked for many corporations including Weston, ESRI, Tata Group  
and Aktivov Asset Management and Aakavs Consulting.
- M.S. in Civil Engineering and couple M.S. in Business Information Systems, GIS, and Sustainable Technologies.  
Teaches Rural Water (ERWOW) for more CEU based classes



## **Arnab Bhowmick**

AKTIVOV Asset Management

arnab@aakavs.com

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

425.245.3569

**Asset Management**  
**Business Continuity Planning**  
**Data Migration**  
**IT, Security, GIS**  
**Integration between Systems**  
**Mobile and Cloud**

# Agenda



- Types of Crisis, Risks or Hazards
- Understanding and Managing Business Continuity
- Continuity of Operations :: Strategy and Planning
- Capacity Capability Maturity
- Case Study
- Tech Resiliency
- Compliance
- Landscape Changes
- Next Steps

# Crisis Types

- Natural Calamities:

- Flood
- Fire
- Earthquake
- Pandemics
- ...

- Human Propelled:

- War
- Act of Terrorisms
- Bio Terrorisms and Pandemics
- Cyber Attacks
- Protests and Demonstrations
- Retirement, Death
- ...

# Business Continuity

- Strategies, Planning, Actions :: Alternate mode of Operations



# Strategy and Planning

## Diagnostics

- Risk Identification
- Business Impact identification

## Assessment

- Risk Assessment
- Risk Analysis
- Business Impact Assessment
- Business Impact Analysis
- Program Governance – Execs, Biz, Tech teams buy in

## Strategies

- Disaster or Crisis Management
- Staff Recovery
- Customer Services
- Vendors and Partners
- IT Arch and Systems Recovery
- Business Recovery
- Business Continuation
- Location and Facilities Recovery
- Compliance

## Planning

- Crisis Management
- Communication of Information and Data
- Communication Responsibility
- Accountability on each aspect of plan
- Staff Plan
- Customers
- Location
- IT
- Vendors
- Partners
- Compliance

## Implementation

- Execute the Plan :: Mock or LIVE
- Implement all planned strategies
- Invoke Emergency Response on all areas of Operations

## Compliance

- Monitor and Test for Compliance
- Responsible party for each aspect to monitor and report adjustments

## Life Cycle

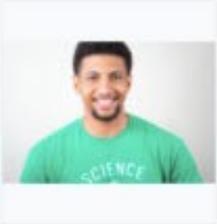
- Document observations & feedbacks for adjustments
- Feed all inputs back to the starting step: Diagnostics
- Manage Business Continuity as a **LIVE PLAN** :: Update every year

# Succession Planning Steps



- Begin with the End: Make it Organizational priority
- Clarity on Roles: Included and Excluded
- Engage all impacted stakeholders
- 1-3-5 year plans:
- Identify Leadership materials: Develop them, redefine leadership, break status-quo
- Use Technology to manage talent: DEI, performance, leadership, automation, flexibility, new normals
- Talent pool assessment: every 6 months
- Employee-owned Individual Development Plan: Support and Develop
- Quartely 2-way feedback, 360 degree transparent review: Measure success
- Communicate well and regularly: meetings, feedbacks, newsletter, plans, casual/ official

# People Performance



Name **John Smith**

Role & EID# **Marketing Manager**

Hire Date **01-Jul-2020**  Position Start Date **08-Jul-2021** 

Yrs in Service **1.6** Yrs in Position **0.6**

Location **SoCal** 

Department **Marketing** 

Supervisor **James Miller**

[9-Box Placements Definitions](#)

Performance **2 -Consistently Meets** 

Potential **1 -Limited or Well-Placed** 

9-Box Placement **8 - Stable Contributor**

Readiness to Progress **> than 2 Years** 

Risk of Leaving **Unsure** 

Reason for Risk of Leaving **Personal reasons** 

Notes

**ARCHIVE**

# Evaluation Matrix



# Best Practices Matrix



# Focus Area: Biz Continuity

- Extent : May be Global, not just local :: affect all locations, employees, customers, vendors, partners
- Staff : Biggest and most high value Resource. Absentees, Death, Remote working, House Situation with School changes, Cross Training, Responsibility and Accountability
- Systems : IT, DR, Failover/ Failsafe, High-Availability, Scalable
- Supply Chain : Vendors and Partners – who is critical, what plans they have
- Customers : Assistance Program, Moratorium, SLA
- Operations : Funding Support, Grants, State and Fed Assistance, Revenue Planning
- Healthcare Measures – Employee Infections, Customer-Vendor-Partner Interactions

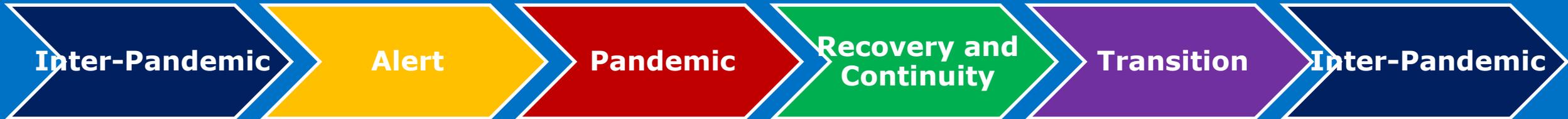
# Emergency Response



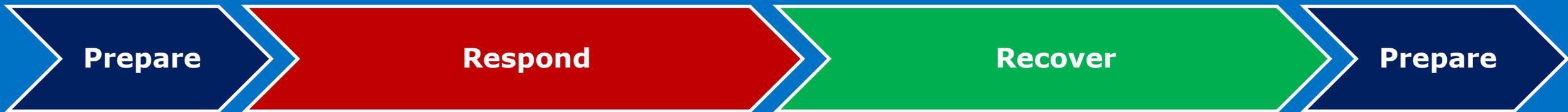
- All documentation (spatial and non-spatial) on the cloud, mobilized, accessible anywhere anytime on any device
- Protocols, plans, strategies with action items and actors in place, dry run tested
- Extensive GIS Scenario Analysis, GIS/ CAD Based ICS for locating and managing assets
- Develop and Approve Hazard Mitigation Plan for FEMA funding
- State Level – THIRA based on GIS, GIS metadata – CSDGM
- People, roles, training, dry runs
- Dry runs for finding and fixing assets
- FEMA Preparedness Toolkit
- Web EOC Integration and Training for Public Works

# Capacity Capability Maturity

- Pandemic Phases:



- Business Continuity Plan Implementation:



- Develop capacity and capabilities
- Support Emergencies and Risks
- Develop and Test Biz Continuity Plan

- Monitor Risks and its Impacts to your Operations
- Monitor information sources for actionable items of the plan
- Activate support networks, advisor and partner networks
- Deploy multiple plans, monitor for feedback and adjustments

- Scale up to required response measures per plan
- Ensure business continuity of critical functions to minimum acceptable SLA for given crisis
- Modify or terminate any temporary measures
- Monitor plan for feedback and adjustments

- Incorporate all lessons learned
- Discuss, decide, modify the plan
- Deploy testing and annual update of the plan

**Capacity**

**Capability**

**Maturity**

# Covid-19 Pandemic



- **Recent Covid-19 Timelines:**

- Dec 31 2019: First Case documented or acknowledged officially by WHO
- Jan 13 2020 : WHO declares Public Health Emergency :: **First Alert** should trigger Communication Plan
- Feb 11, 2020 : WHO changed name to Covid-19 from Corona virus :: **Second Alert** that its serious, getting classified as specific strain and not generic so it demands plans to be put into actions
- March 12, 2020: WHO declares Global Pandemic Emergency
- March 13, 2020: Our President declared National Emergency in USA

- **Pandemic Phases:**

- Preparation Phase :: From last Pandemic about 100 years ago till Dec 2019.
- Alert Phase :: Jan 13, 2020 through March 13, 2020 :: What did we do during the 60 days?
- Pandemic Phase :: March 13,2020 till present
- Transition Phase :: After Critical Mass vaccination
- Preparation Phase :: End of Covid-19 Pandemic till the next one.

# This is a Necessity!



Every Local Govt.



should GO

CLOUD



MOBILE



GIS/CAD/  
SCADA



# Tech Resiliency



- Mobility and Workforce Mobilization
  - Work on Mobile smart devices – any OS, any Hardware, anytime, anywhere
  - Same user interface and user experience
- Cloud
  - Unlimited users, devices, and storage
  - Security, Resiliency, DR, Failover, High-Availability
  - No ransom, No IT involvement
- Remote Workforce
  - Remote meetings
  - Collaboration Workspace
- Cyber Security : Zero Trust
  - Default policy of denial instead of trust
  - Oldsmar, FL case study

# Tech Resiliency



- Public Works and Asset Management
  - Maintenance and Operations
  - GIS vs CAD vs SCADA Based asset management - on the fly
  - Emergency Management
  - Document Management - support rich multi-media
  - AI, IoT, and Sensors: Predictive Maintenance
  - Natural Language Processing - BIG Data
  - Drones - Remote Recon, Surveillance, Data Capture, Inspections
  - CCTV Integration
  - Asset Recognition – QR code, bar code, picture
  - Virtual Reality, AVR

# Tech Resiliency



- IoT
  - Sensor networks
  - SCADA and Telemetry
  - Automatic Meter Reads
  - Home and Workplace Automation
- BlockChain
  - Distributed consensus ledger
  - Transactions are batched and stored in a fixed structure called a block
  - Each block has a unique hash key
  - Fully traceable and verifiably untampered record in a chain—hence blockchain
- Industrial AI and AVR
  - Concept : Real time data : learn : ML
  - Visualize : Where things are, Scenarios, Voice and Gestures
  - Predict : Failures, Workload
  - Augment : Decision making and productivity

# Landscape Changes



- Prioritize and Prepare : business processes and functions, dependencies SLAs, minimum and optimal ops
- Communicate : clear directives, keep in constant touch with your stakeholders, update
- Training : scenario dry runs, cross training, critical functions overlap, exec decision making, work remotely
- Benchmark : against peers, regulations, compliance, agility to course correct
- Identify benefits : Focus on strengths, lessons learned, workforce or workplace adjustments, business process adjustments
- Vendors and Partners: critical ones and their operations incorporated into your biz process
- Recovery and Reopen : work through conflicts, modify and adjust, ethics

# Next Steps



- Prepare : acknowledge where you are, and where you want to go
- Engage : form an internal team, hire a consultant
- Act : get a business continuity plan
- Timeline : depends on complexity, depth, breadth.
- Costs : Varies. “Typical plan” discussion?
- Execution : mock dry runs
- Adjust and Adapt : incorporate lessons learned from dry runs and fine tune the plan

**Plan for the **WORST**, Hope for the **BEST****

# Business Continuity



- \* 21+ years of technical and managerial experience
- \* Business and operations, asset management O&M, GIS, emergency management, IT security, strategic planning etc.
- \* Serves as the Chair of American Public Works Association (APWA) Asset Management Committee
- \* Advises the CxO level executives, City and District managers and department heads
- \* Worked for many corporations including Weston, ESRI, Tata Group
- \* Founded Aktivov Asset Management and Aakavs Consulting.
- \* Has a B.S. in Civil Engineering and couple M.S. in Business Information Systems, GIS, and Sustainable Technologies.
- \* Evergreen Rural Water (ERWOW) for more CEU based classes

## **Arnab Bhowmick**

AKTIVOV Asset Management

arnab@aakavs.com

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

425.245.3569

**Asset Management**  
**Business Continuity Planning**  
**Data Migration**  
**IT, Security, GIS**  
**Integration between Systems**  
**Mobile and Cloud**