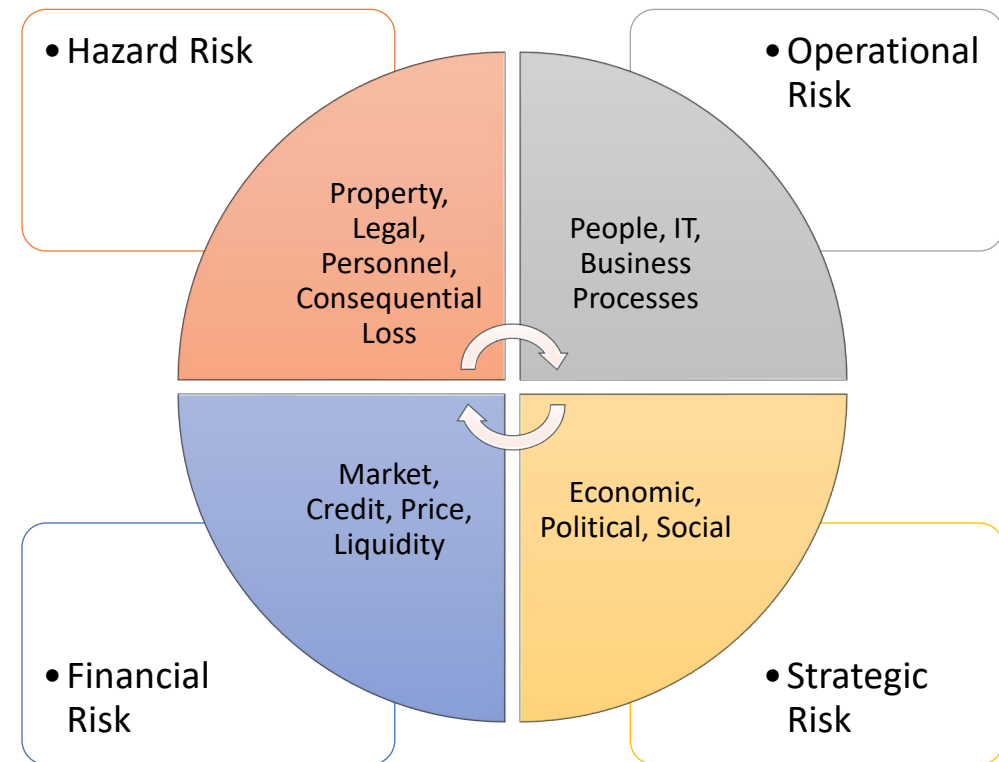# Enterprise Risk Management for NSHE

Adam Garcia

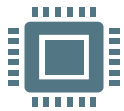Lisa Schaller
Kristi Roberson
Jeff Ohs
Amanda Windes

Enterprise Risk Management framework and process model

- Enterprise Risk Management is the strategic alignment of risk management practices with organizational goals. It is a risk management framework used to identify, assess, respond, control, communicate and monitor risk.

- Hazard Risk

Property, Legal, Personnel, Consequential Loss

- Operational Risk

People, IT, Business Processes

Market, Credit, Price, Liquidity

Economic, Political, Social

- Financial Risk

- Strategic Risk

Risk Framework & Process Model

Scan Environment

Scan environment and align people, processes, and infrastructure allowing NSHE to stay within risk tolerance levels.

EXAMPLE: Define governance structures and create task force.

Identify Risks

Develop comprehensive list of hazard, operational, financial and strategic risks that can impact organizational objectives.

EXAMPLE: Health and Safety, Enrollment, Campus Closures, Labor Shortages and Supply Chain Logistics.

Analyze Risks

Quantitative and Qualitative analysis to determine and prioritize tangible and intangible effects. What is the likelihood and impact of each risk?

EXAMPLE: Campus Closure is a Hazard, Operational, Financial and Strategic risk. Likelihood and Impact may be high during Pandemic.

Treat Risks

Decide on option for mitigating risk and whether the residual level of risk is acceptable. May choose to avoid, retain, or transfer (Insurance) risk.
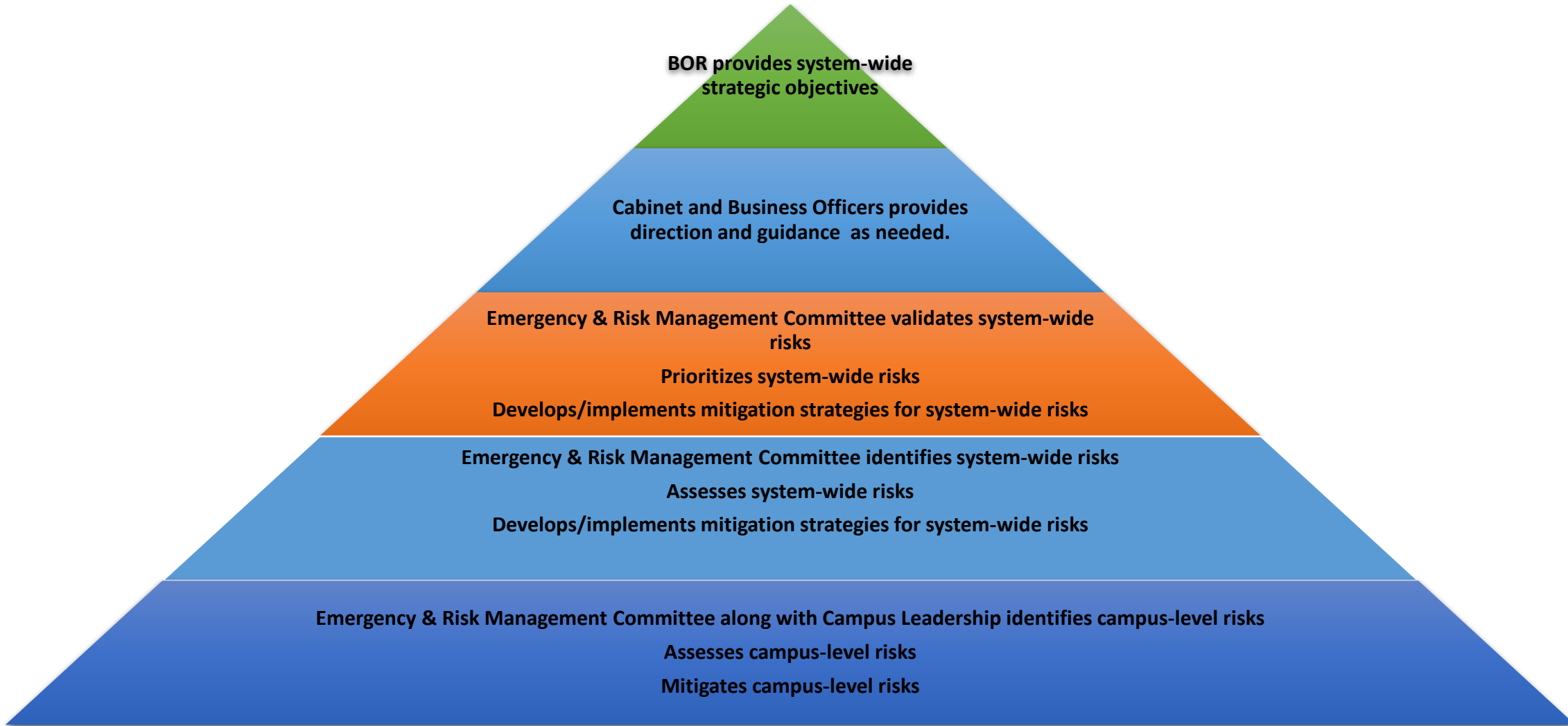
EXAMPLE: Campus closure mitigation for Pandemic could be management of exposures through social distancing, PPE, and sanitation etc. Residual risk may be regulatory obligations for closure. Treat with flexible teaching modality and remote work plans.

Monitor & Assure

Review internal and external changes and how they affect risks and treatments. Record and report.

EXAMPLE: During Pandemic monitor positivity rates and regulatory landscape and how they affect risks and mitigation strategy. Record and report findings to strategize campus operational plans and steps taken to maintain enrollment thresholds.

BOR provides system-wide strategic objectives

Cabinet and Business Officers provides direction and guidance as needed.

Emergency & Risk Management Committee validates system-wide risks
Prioritizes system-wide risks
Develops/implements mitigation strategies for system-wide risks

Emergency & Risk Management Committee identifies system-wide risks
Assesses system-wide risks
Develops/implements mitigation strategies for system-wide risks

Emergency & Risk Management Committee along with Campus Leadership identifies campus-level risks
Assesses campus-level risks
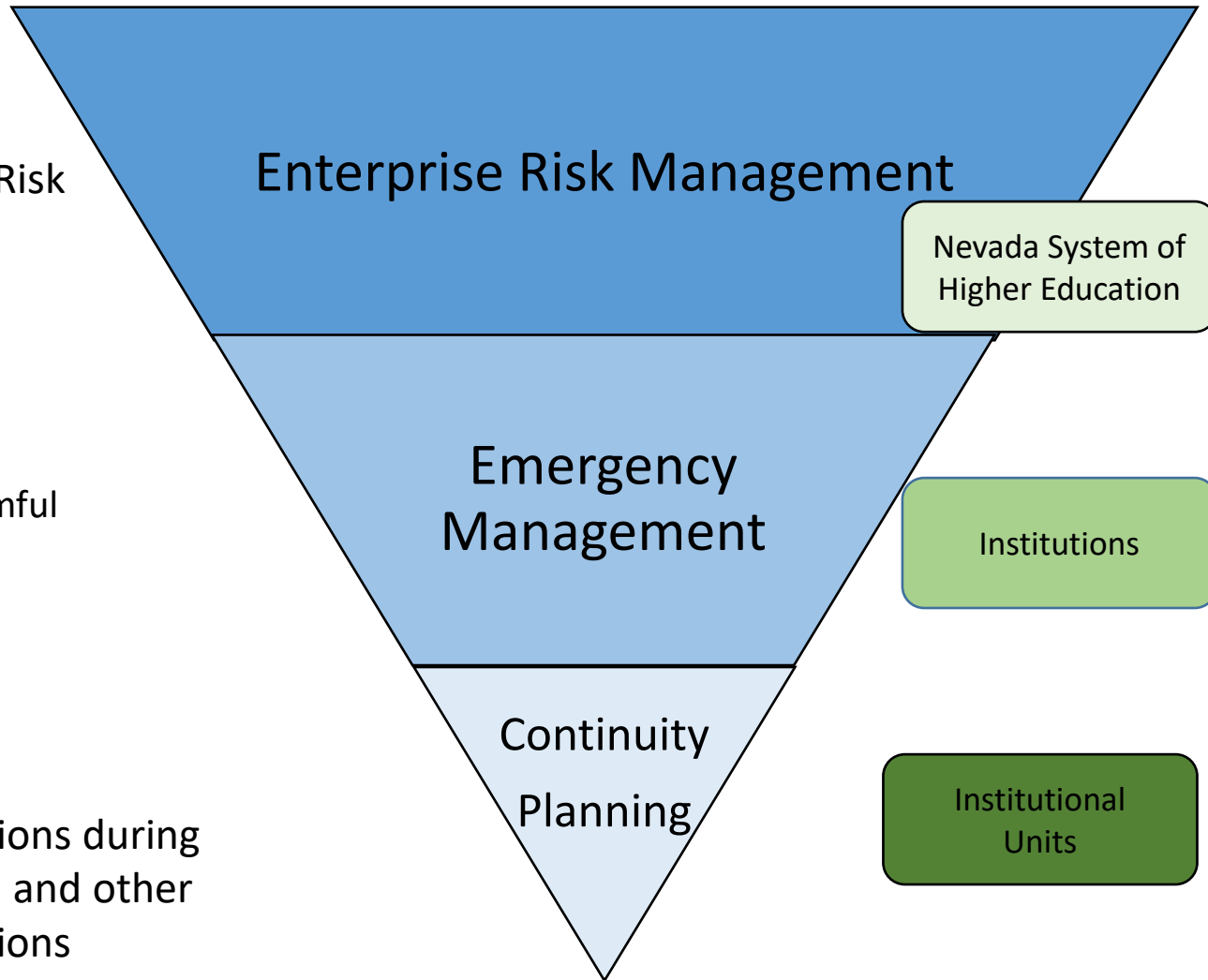Mitigates campus-level risks

Objective:

Avoid, Retain, or Transfer Risk

Prevent and reduce the harmful effects of all hazards

Maintain critical operations during disasters, emergencies, and other business disruptions

Enterprise Risk Management

Emergency Management

Continuity Planning

Nevada System of Higher Education

Institutions

Institutional Units

Produces:

Current Business Drivers

New Strategic Initiatives

Emergency Plans and Operating Procedures

Threat Hazard Identification and Risk Assessment

Business Process Analysis

Business Impact Analysis

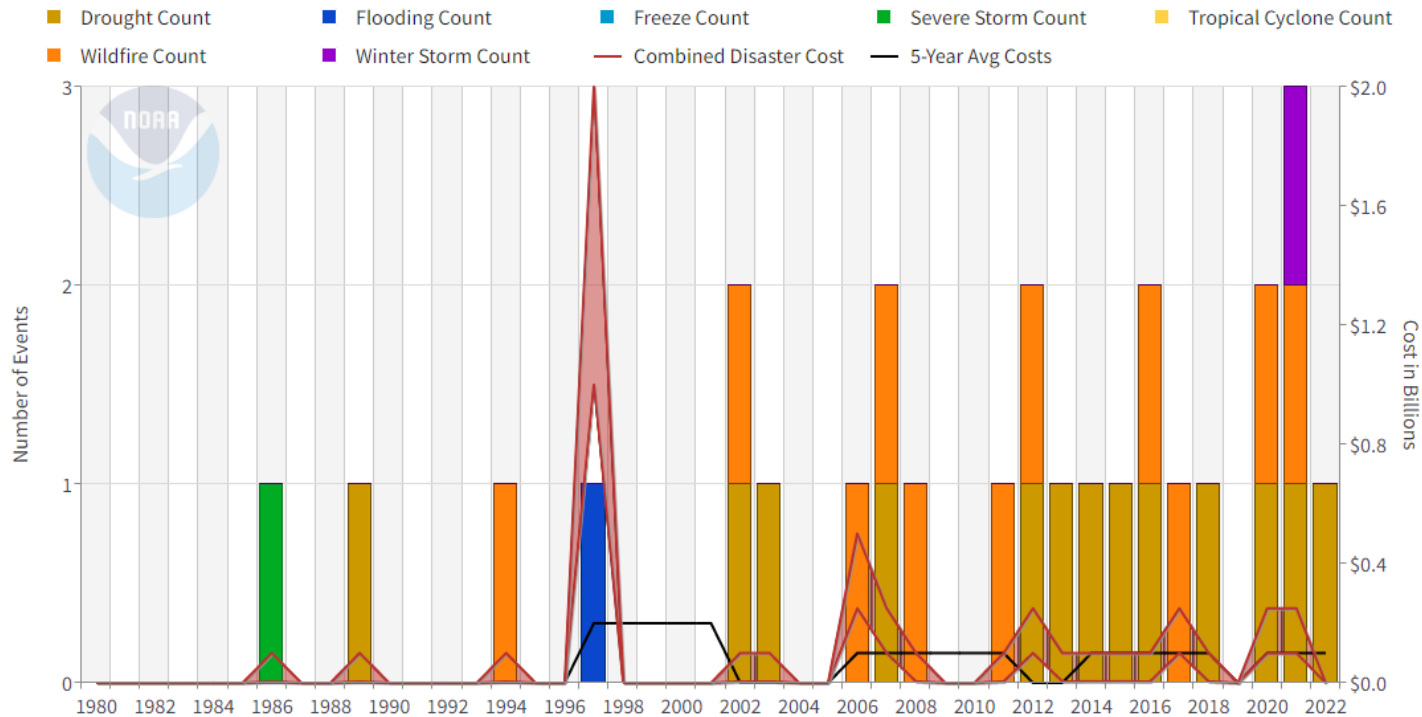# Billion Dollar Disaster Frequency is Increasing

Nevada Billion-Dollar Disaster Events 1980-2022 (CPI-Adjusted)

NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2022). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73

HIGH RISK THREATS

Widespread geographic area with high human impacts

Long-term cascading consequences

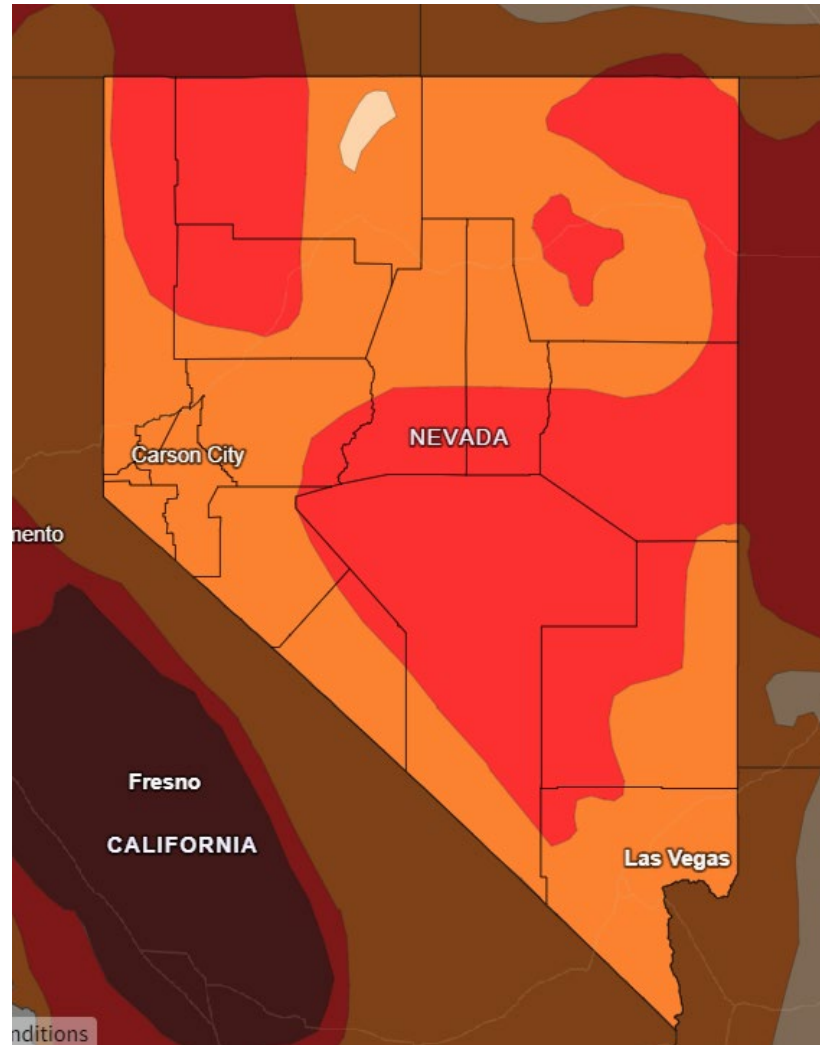Limited capabilities and/or time to mitigate incident

DROUGHT

2.7 Million
people in Nevada are affected by drought

17
counties with USDA disaster designations

3rd
wettest August was in 2022, over the past 128 years

7th
driest year to date was in 2022, over the past 128 years

D0 - Abnormally Dry
- Snowpack is reduced

100.0%
of NV
(D0–D4)

D1 - Moderate Drought
- Forage is reduced
- Fire danger increases; fires at elevation increase

100.0%
of NV
(D1–D4)

D2 - Severe Drought
- Bear activity increases; wildlife encroach onto residential areas
- Desert plants implement reproductive survival mechanisms
- Surface water levels decline; Lake Tahoe water clarity is higher than normal

99.5%
of NV
(D2–D4)

D3 - Extreme Drought
- Alfalfa and hay yields decrease; farmers are not planting crops; pasture conditions are very poor; producers are selling cattle
- Fire activity increases; fire season is extended; firework ban is implemented
- Lakes and rivers are depleted; lake hazards are noted; water temperatures rise

45.9%
of NV
(D3–D4)

D4 - Exceptional Drought
- Boat ramps close; trout fishing limits are lifted; wildlife populations decline; producers haul water for wildlife; ecosystem viability is threatened
- Reservoir levels are extremely low; hydropower production is limited; groundwater decreases; water allotments to farmers and ranchers are curtailed; citizens reduce water use
- Fire danger increases; restrictions are enacted earlier than usual; events are canceled

0.0%
of NV
(D4)

Source(s): NDMC, NOAA, USDA

CYBERATTACK (INFRASTRUCTURE AND RANSOMWARE)

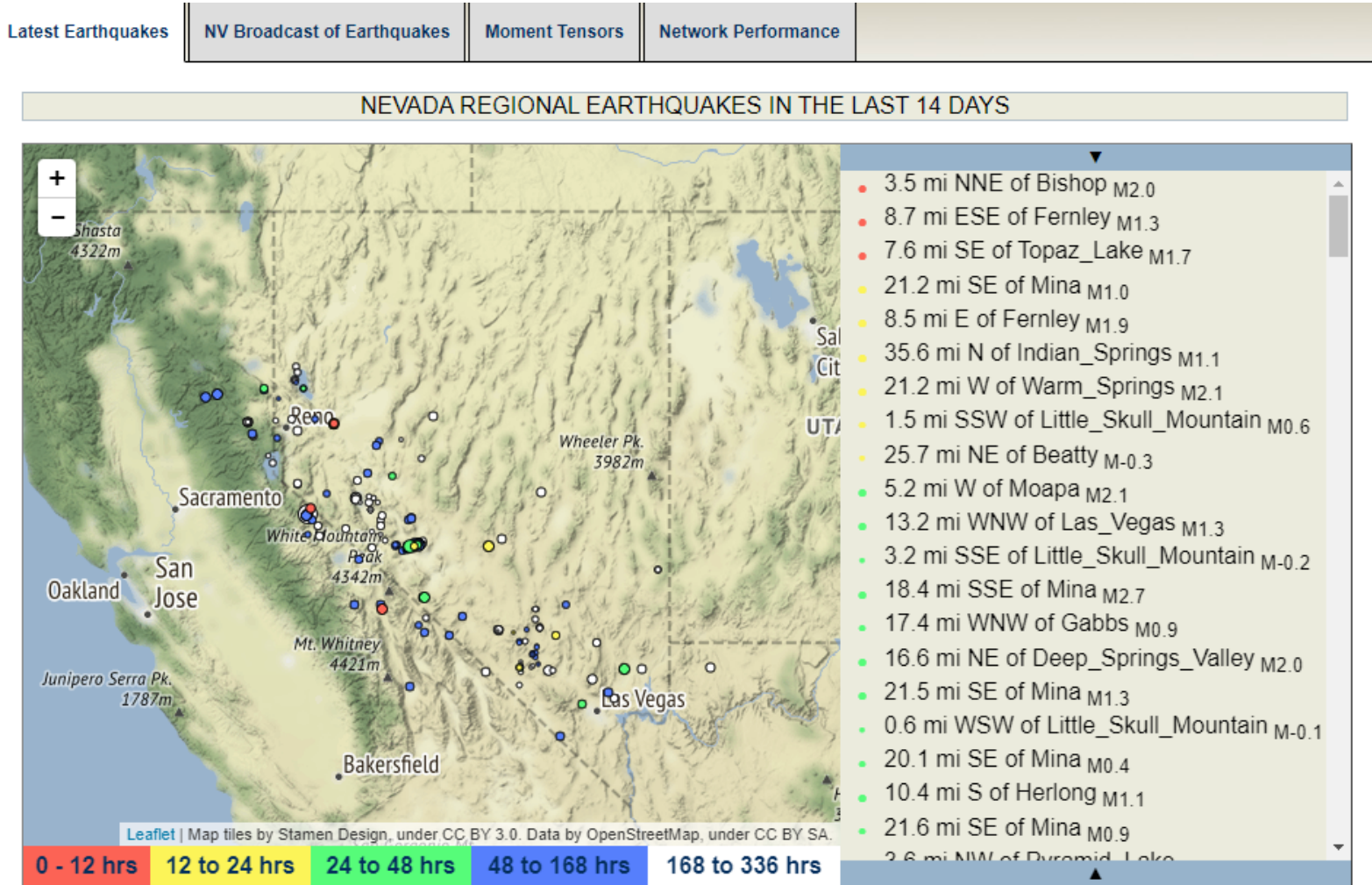## Average Weekly Attacks per Organization by Industry (2021)

Industry	Attacks	Change
Education/Research	1605	+75%
Government/Military	1136	+47%
Communications	1079	+51%
ISP/MSP	1068	+67%
Healthcare	830	+71%
SI/VAR/Distributor	778	+18%
Utilities	736	+46%
Manufacturing	704	+41%
Finance/Banking	703	+53%
Insurance/Legal	636	+68%
Leisure/Hospitality	595	+40%
Consultant	576	+73%
Software vendor	536	+146%
Retail/Wholesale	526	+39%
Transportation	501	+34%
Hardware vendor	367	+16%

Cyber-attacks per organization by Industry in 2021 CHECK POINT SOFTWARE

EARTHQUAKE

Latest Earthquakes | NV Broadcast of Earthquakes | Moment Tensors | Network Performance

NEVADA REGIONAL EARTHQUAKES IN THE LAST 14 DAYS

- 3.5 mi NNE of Bishop M2.0
- 8.7 mi ESE of Fernley M1.3
- 7.6 mi SE of Topaz_Lake M1.7
- 21.2 mi SE of Mina M1.0
- 8.5 mi E of Fernley M1.9
- 35.6 mi N of Indian_Springs M1.1
- 21.2 mi W of Warm_Springs M2.1
- 1.5 mi SSW of Little_Skull_Mountain M0.6
- 25.7 mi NE of Beatty M-0.3
- 5.2 mi W of Moapa M2.1
- 13.2 mi WNW of Las_Vegas M1.3
- 3.2 mi SSE of Little_Skull_Mountain M-0.2
- 18.4 mi SSE of Mina M2.7
- 17.4 mi WNW of Gabbs M0.9
- 16.6 mi NE of Deep_Springs_Valley M2.0
- 21.5 mi SE of Mina M1.3
- 0.6 mi WSW of Little_Skull_Mountain M-0.1
- 20.1 mi SE of Mina M0.4
- 10.4 mi S of Herlong M1.1
- 21.6 mi SE of Mina M0.9
- 3.6 mi NW of Pyramid_Lake

Leaflet | Map tiles by Stamen Design, under CC BY 3.0. Data by OpenStreetMap, under CC BY SA.

| 0 - 12 hrs | 12 to 24 hrs | 24 to 48 hrs | 48 to 168 hrs | 168 to 336 hrs |

3rd most seismically active state in the USA

Many Unreinforced Masonry Buildings

High Potential for Loss of Critical Infrastructure

Geographically Widespread Incident with Extremely Long Recovery Time

WILDFIRE

Not only destruction from fire itself but:

- Early loss of critical infrastructure (electric grid, mass warning and notification, etc.)

- Smoke impacts on air quality

- Mass care and sheltering operations from neighboring states
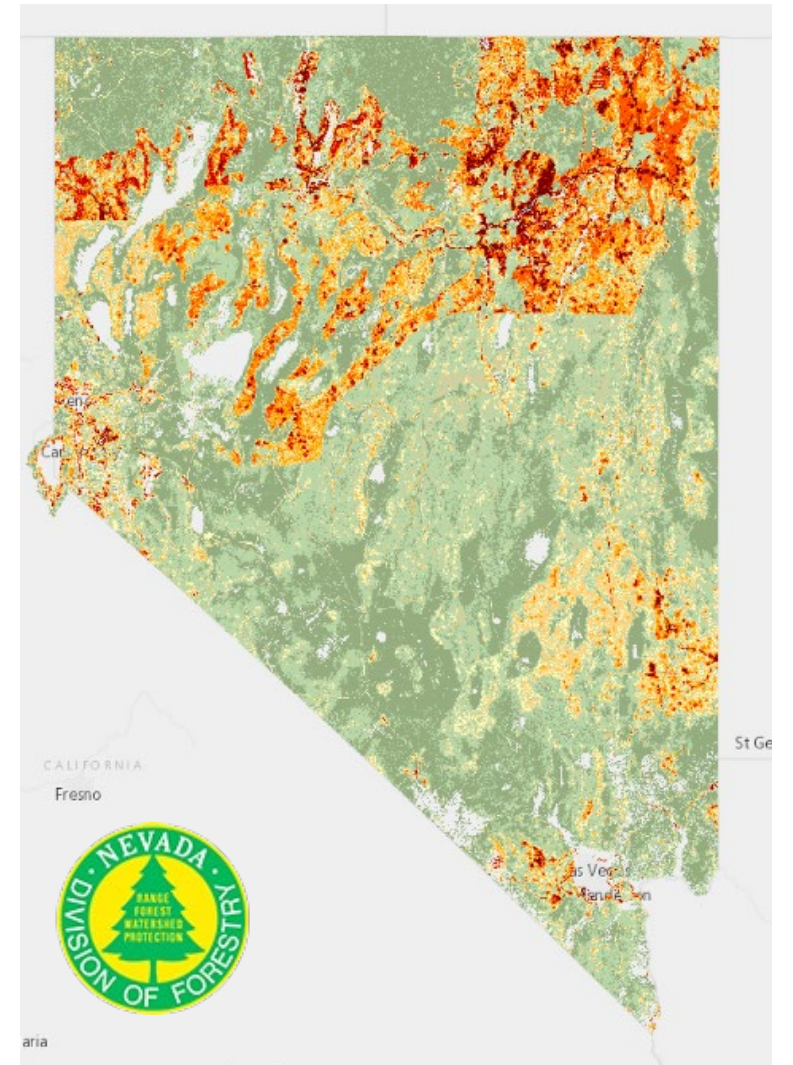
PANDEMIC- HUMAN

- Rapid Spread due to Globalization and Ease of Travel

- Overdependence on Just in Time Logistics

- Significant Increase in Mental Health Crisis

- Essential Worker Burnout and Turnover

- Polarization and Misinformation

- Massive Long-term Economic Impacts
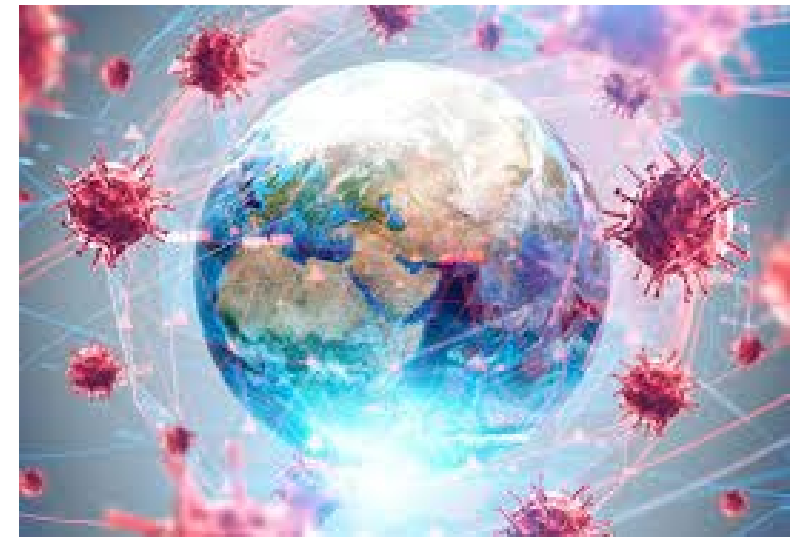
STRATEGIC PRIORITIES TO BUILD RESILIENCY

- Build a Culture of Preparedness

- Continue to Develop Strong Multidiscipline, Interagency Relationships

- Adhere to Professional Best Practices

- Strive for Constant Improvement

- Offer State of the Art Training for the Whole NSHE Community – Internal and External

- Support Enterprise Risk Management, Emergency Management and Continuity Planning

- Embrace Prevention and Mitigation

Igor Linkov, NAEC cross-directorate meeting
(24 November 2020)
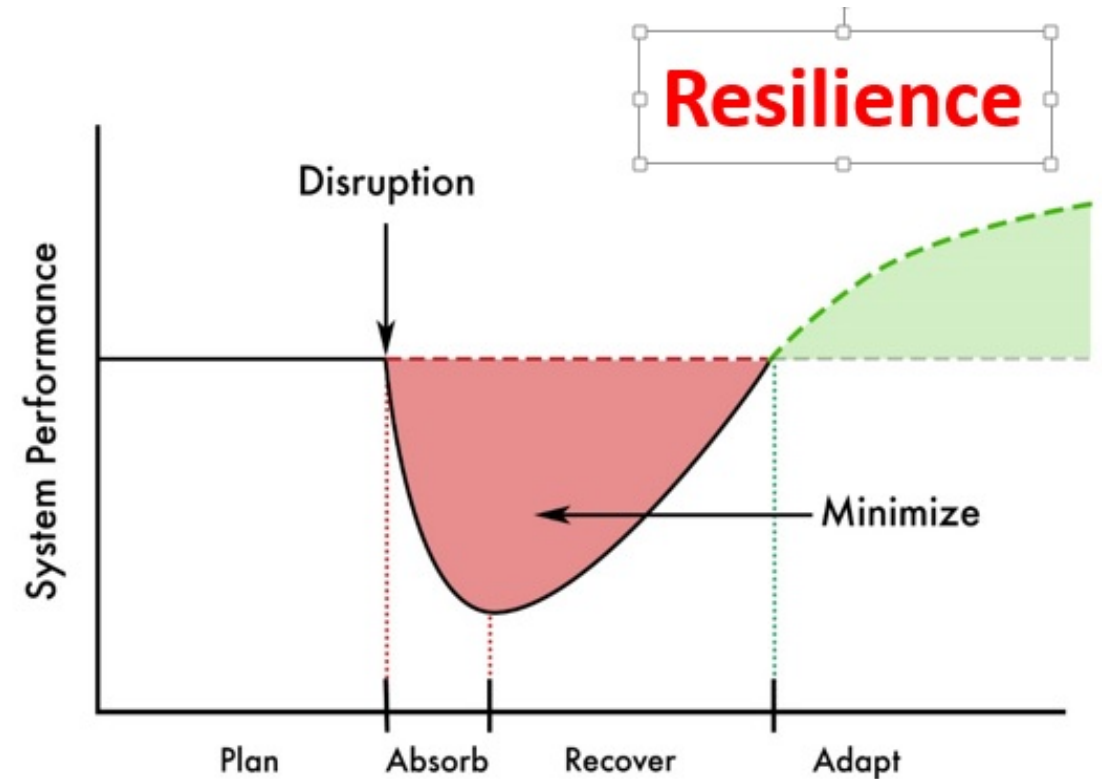
FIVE STEPS OF EMERGENCY MANAGEMENT

- Identify, estimate and validate our capabilities

- Each section is independent and dependent to the process

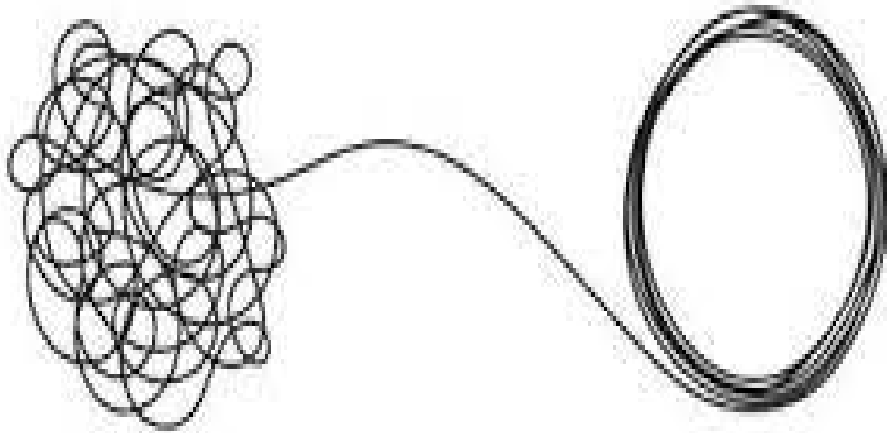- Recognize, utilize and implement an All-Hazards approach

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The ability to withstand adversity....

The capacity to recover from difficulty.....

How do we get back to?????

What is the intent? or…What is the WHY???

- Protect lives

- Protect property

- Reduce recovery costs

- Reduce recovery time

- Reduce chaos…bring some sort of order…

HOW DO WE GET THERE?

- Planning
- Engagement
- Training and exercise
- Roles and responsibilities
- Tools and templates
- Get better…

Evaluate/Improve

Plan

Preparedness Cycle

Organize/Equip

Exercise

Train

HOW WE TRAIN...

- All-Hazard/All-Risk approach
- Emphasize the importance of...
  - Objectives (and validating them)
  - The 'Process'
  - The Team
  - Role of Senior Leadership
- Exercise your COOP

WHAT TO TRAIN ON….

- Incident Command System (ICS)
  - Foundational
  - Position specific
  - Leadership

QUESTIONS?