

# Phase 2: Innovation

## **Machine Learning and AI:**

Using cutting-edge machine learning and artificial intelligence (AI) techniques, examine voluminous seismic data for patterns and antecedents that might point to approaching earthquakes.

## **Sensor networks:**

Adding and enhancing high-resolution sensors, GPS, and accelerometers to seismic sensor networks can result in the production of data that is more precise and timely.

## **Earthquake Early Warning Systems:**

Enhance and expand earthquake early warning systems, such as the Shake Alert system in California. These systems can provide seconds to minutes of warning before strong shaking reaches a location.

## **Citizen Science and Crowdsourced Data:**

To improve the gathering of seismic data, promote public involvement in earthquake monitoring by leveraging mobile apps and crowdsourced data.

## **Environmental Monitoring:**

Keep an eye on changes in environmental parameters that have been shown to occur prior to some earthquakes, such as groundwater levels, radon gas emissions, and animal behavior.

## **Stress Transfer Models:**

Create more complex stress transfer models that can forecast how stress spreads through the Earth's crust and causes earthquakes in nearby areas.

## **Geodetic and GPS Technology:**

Utilizing GPS and other geodetic technology, keep track of ground movement in order to spot the buildup of strain along fault lines, which may be an indicator of oncoming seismic activity.