



EVOLUTION OF AN IDEA

Interreg IPA Projects – safEarth – RESPONSa – LADY

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**Croatian Geological Survey &
Interreg IPA Croatia – Bosnia and Herzegovina – Montenegro**

Interreg



Co-funded by
the European Union

IPA

Croatia – Bosnia and
Herzegovina – Montenegro

Why Are We Here Today?

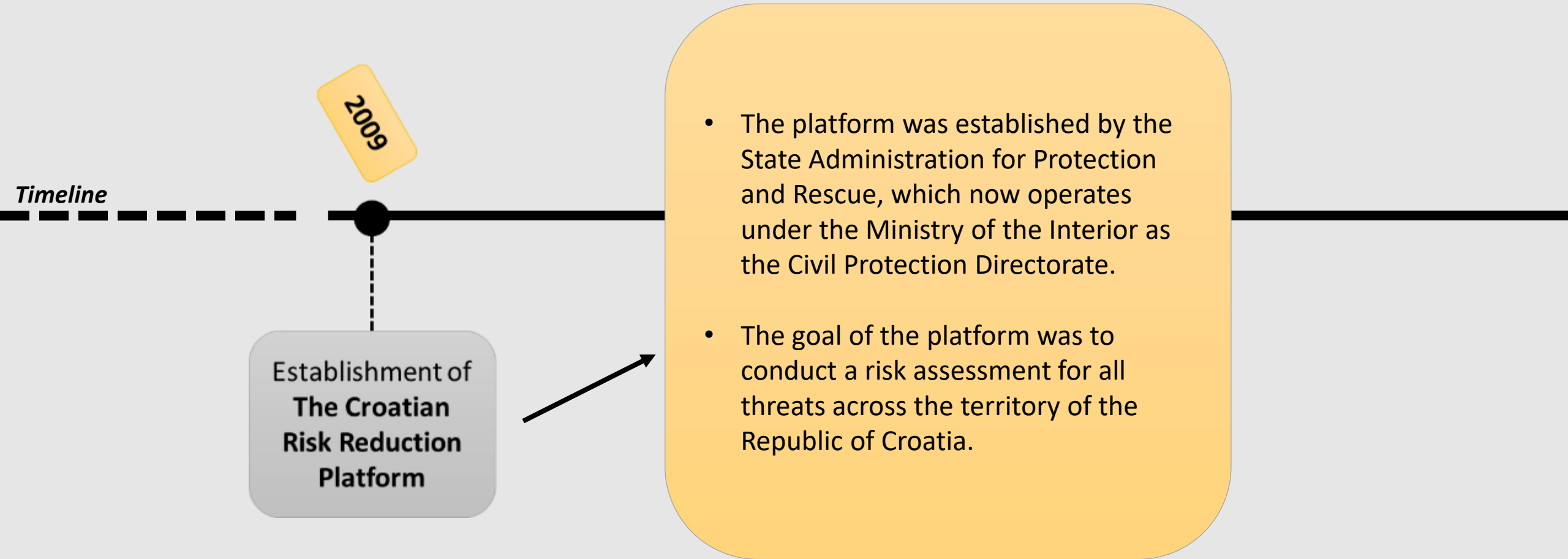
Purpose of This Presentation

- To explore **the evolution of an idea** – from a scientific concept to a real-world impact.
- To reflect on our journey through **safEarth, RESPONSa, and LADY** – three projects that shaped landslide risk management.
- To discuss **key lessons learned** and how they influence future strategies.

Timeline



Launching the Croatian Risk Reduction Platform: Paving the Way for a Safer Future

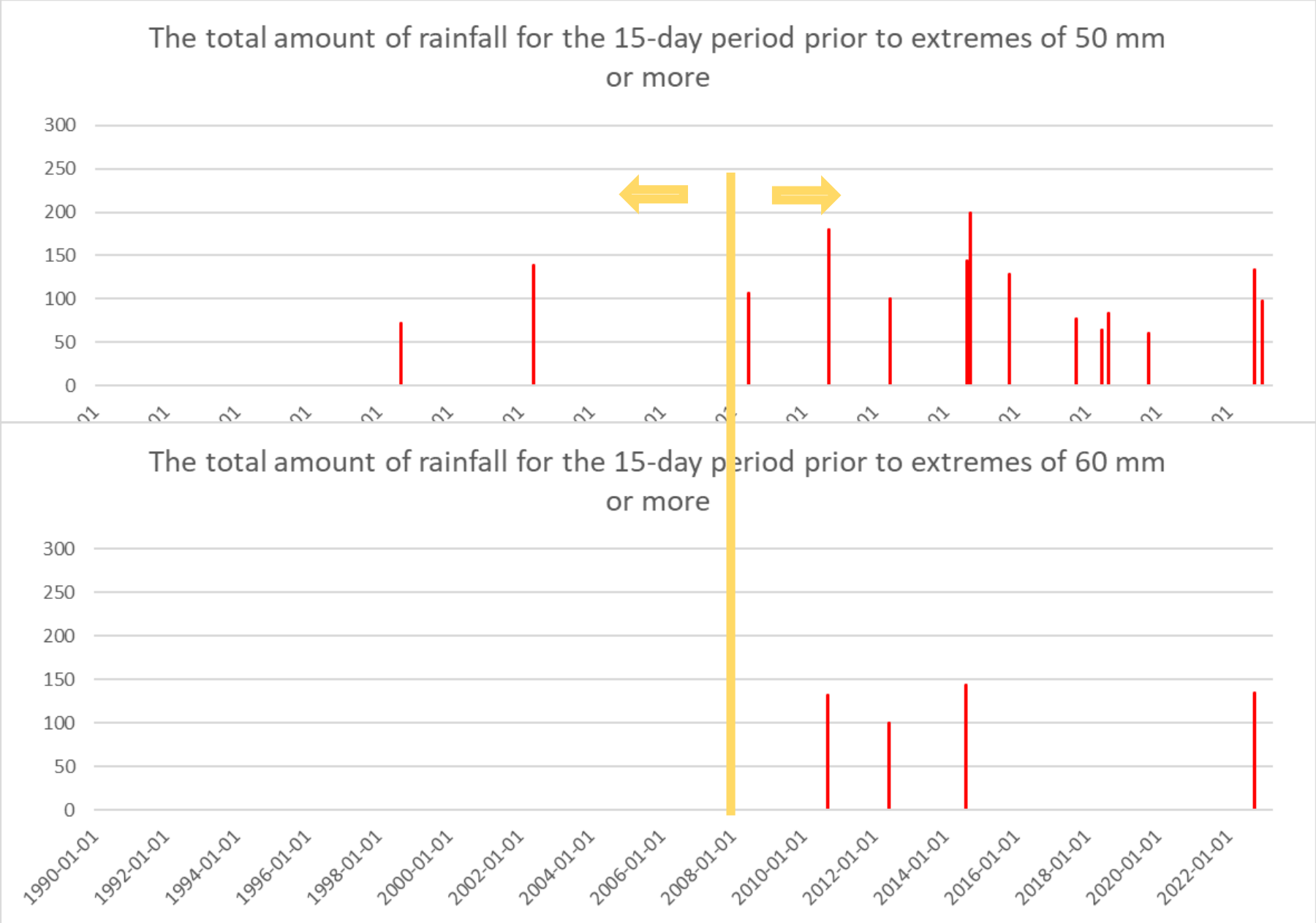


Before safEarth – The Origins of an Idea

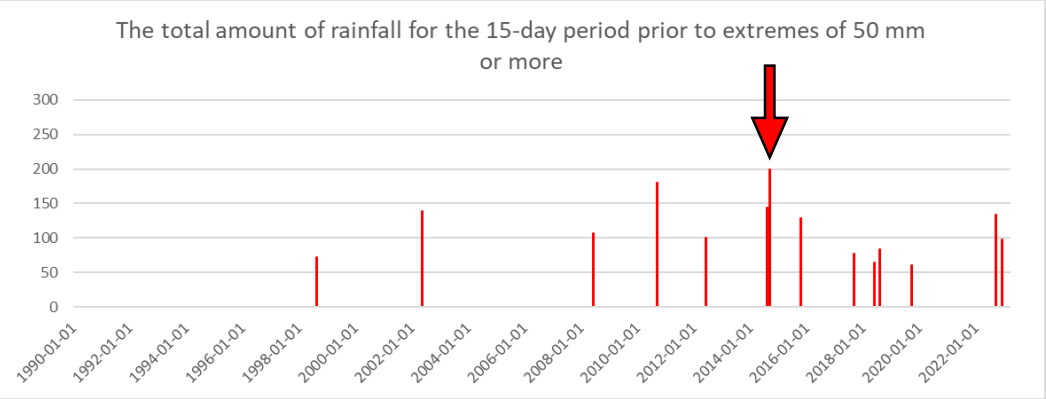
2010

Climate Change

Meteorological extremes becoming more frequent



Before safEarth – The Origins of an Idea



2014

Climate
Change

Meteorological
extremes
becoming
more frequent

The
usability of
LiDAR data
for
creating a
landslide
inventory
was proven

A year of **extreme
climate events** in
Croatia, Bosnia and
Herzegovina, and
Montenegro, where
severe flooding also
triggered numerous
landslides

City of Tuzla (BA)

- Approximately **6750 landslides** were triggered or reactivated in the Tuzla Canton
- In the town of Tuzla, **2,174 landslides** were triggered
- Landslides affected **5.58% of the total area** of Tuzla Canton
- **Nine people** sustained minor injuries
- **397 structures** were destroyed
- **1801 facilities** were damaged, including three schools
- Landslide damage in Tuzla Canton amounted to approximately **€453 million**
- Damage in Tuzla alone totaled around **€226 million**

Landslide Disaster in Tuzla – A Visual Story



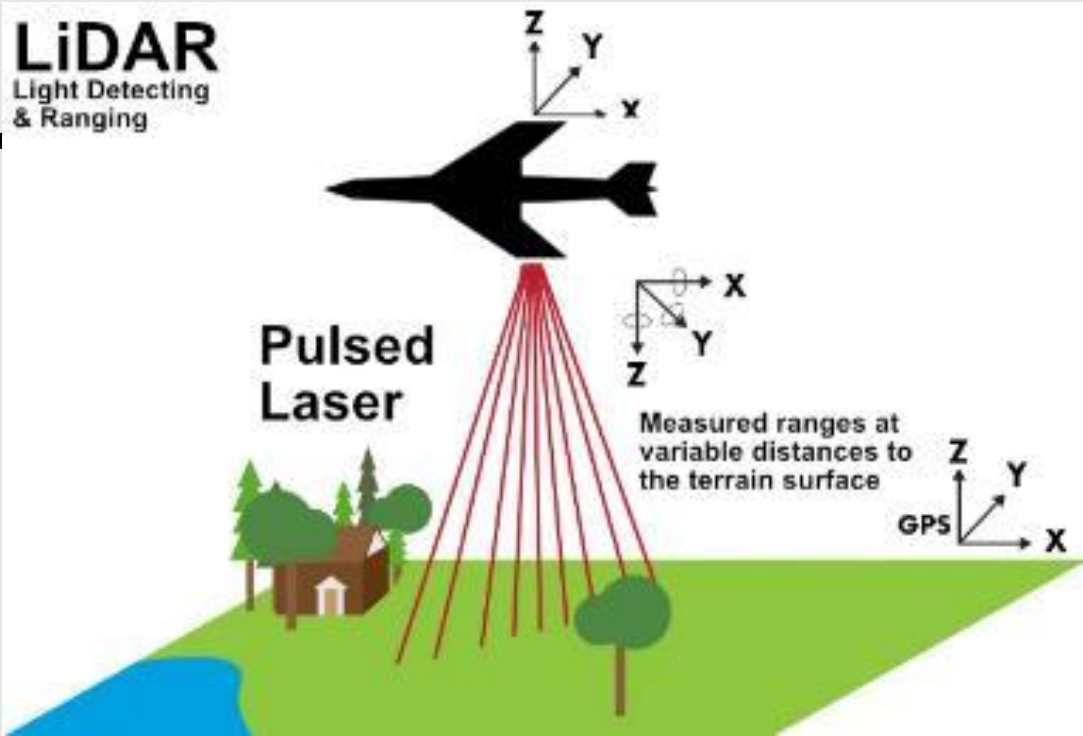
Before safEarth – The Origins of an Idea

Nat Hazards (2012) 61:5–28
DOI 10.1007/s11069-010-9634-2

ORIGINAL PAPER

Use of LIDAR in landslide investigations: a review

Michel Jaboyedoff · Thierry Oppikofer · Antonio Abellán ·
Marc-Henri Derron · Alex Loye · Richard Metzger · Andrea Pedrazzini



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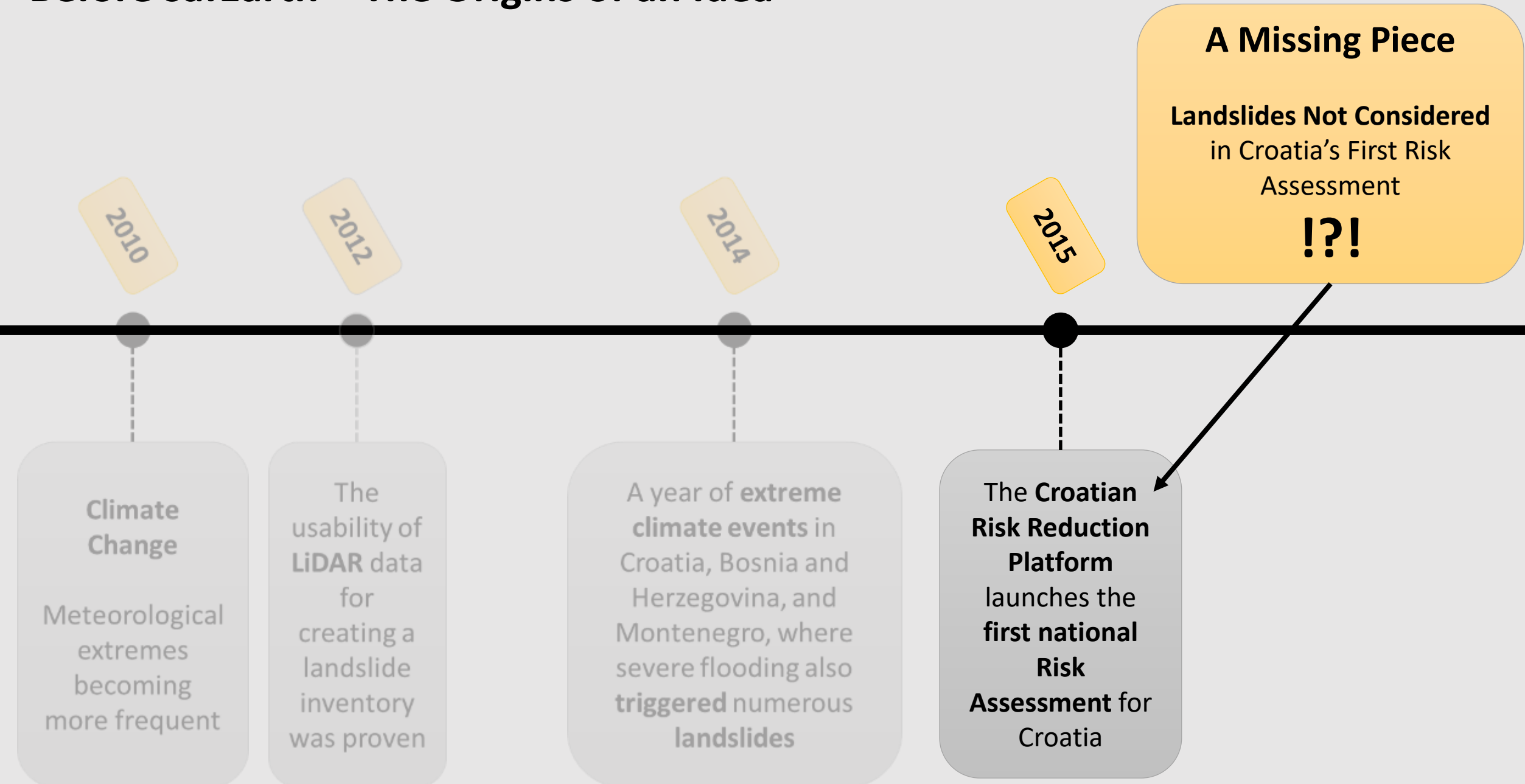
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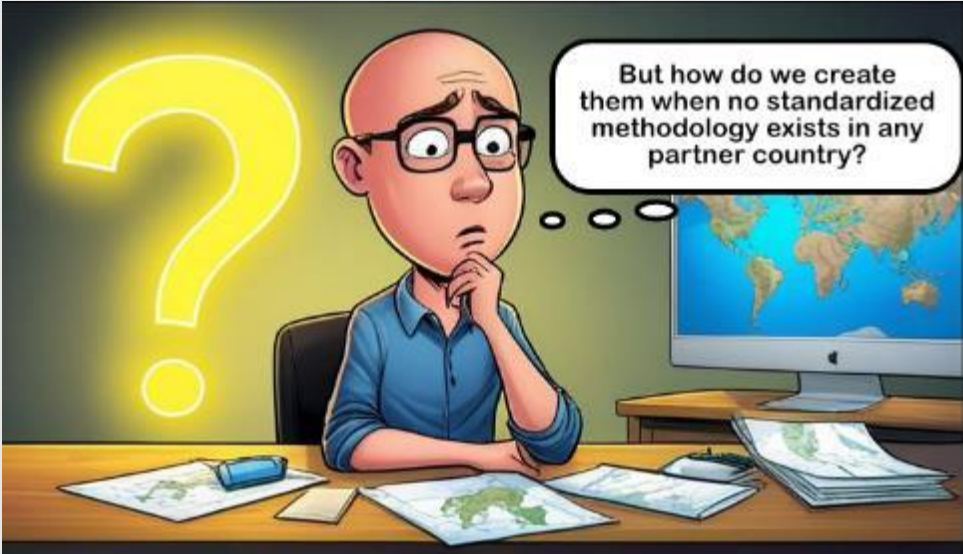
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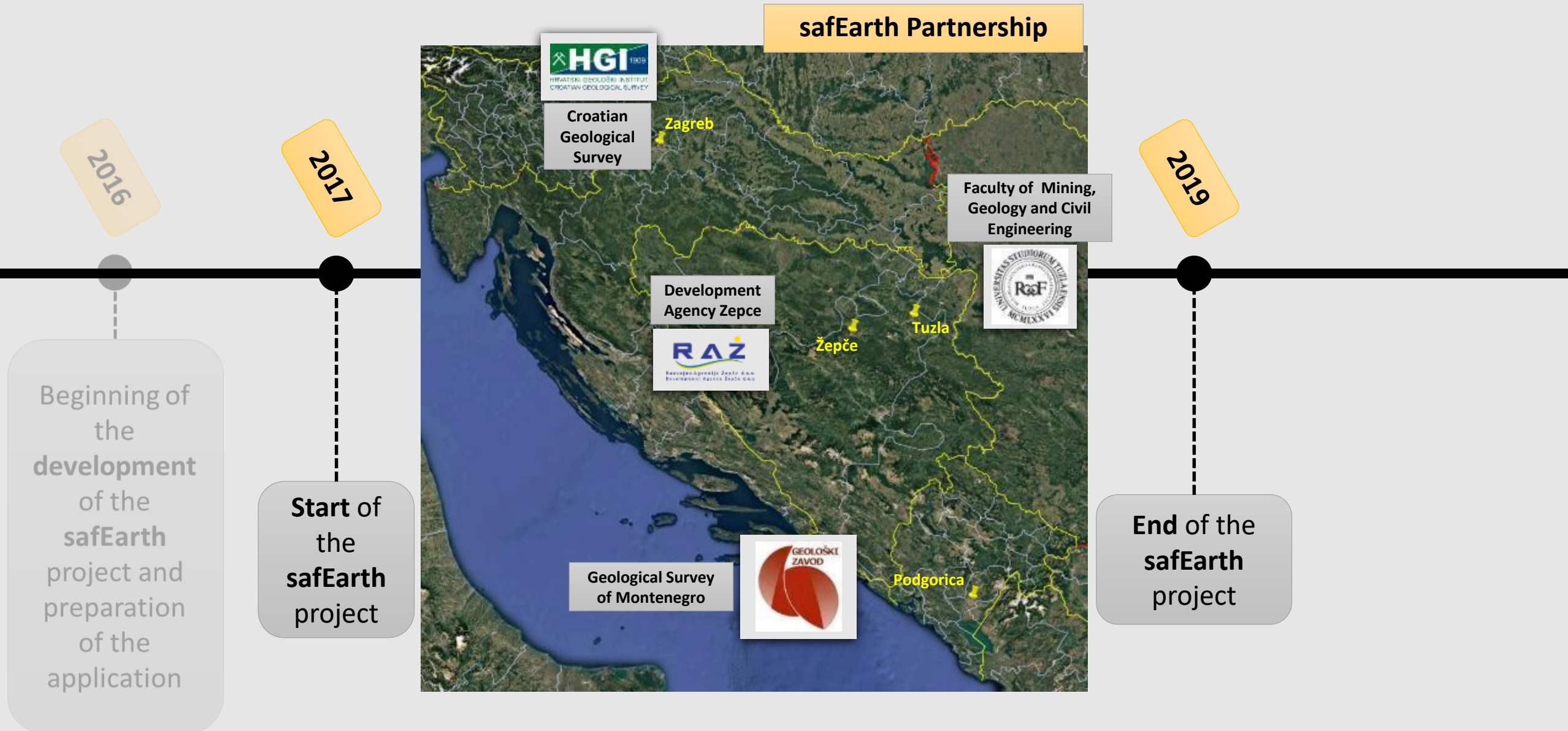
From a Spark to a Project – How safEarth Was Cooked Up

2016

Beginning of
the
development
of the
safEarth
project and
preparation
of the
application

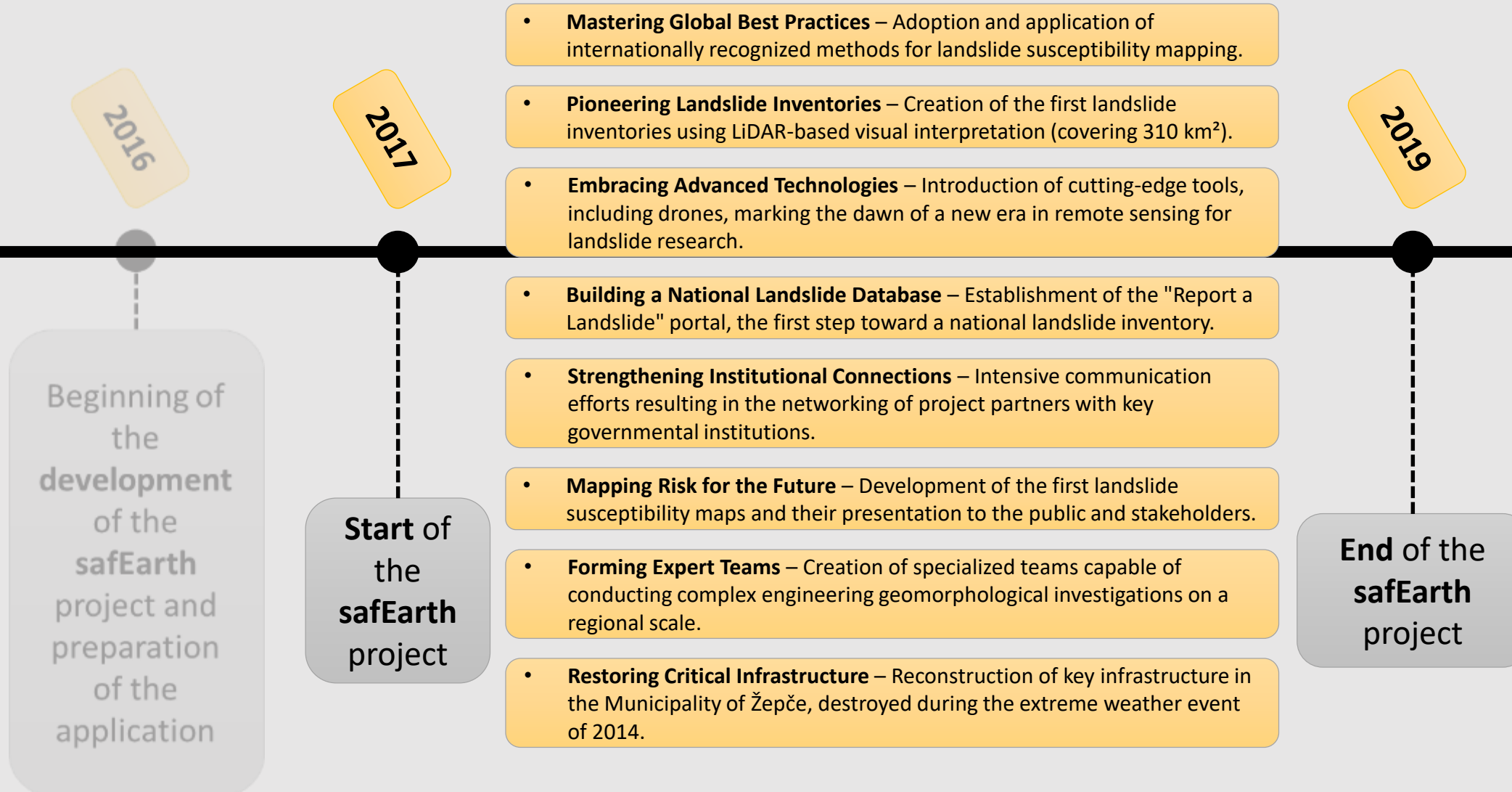


safEarth Kicks Off – A New Approach to Landslide Risk



safEarth Kicks Off – A New Approach to Landslide Risk

safEarth Results – A Pioneering Shift in Landslide Management

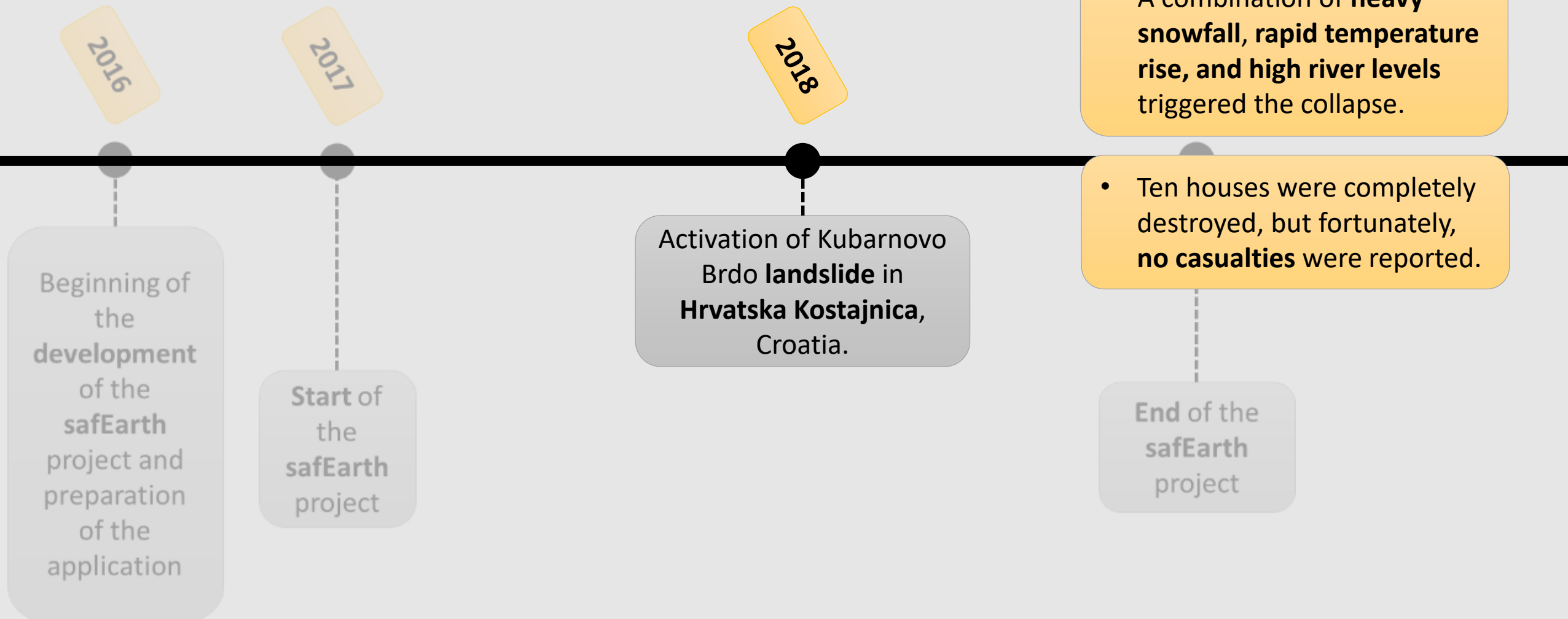


safEarth Kicks Off – A New Approach to Landslide Risk

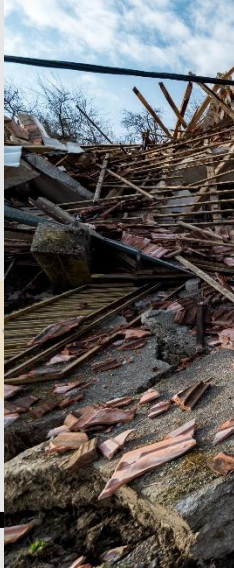
safEarth Results – A Pioneering Shift in Landslide Management



Hrvatska Kostajnica Landslide – A Town in Crisis



Hrvatska Kostajnica Landslide – A Town in Crisis



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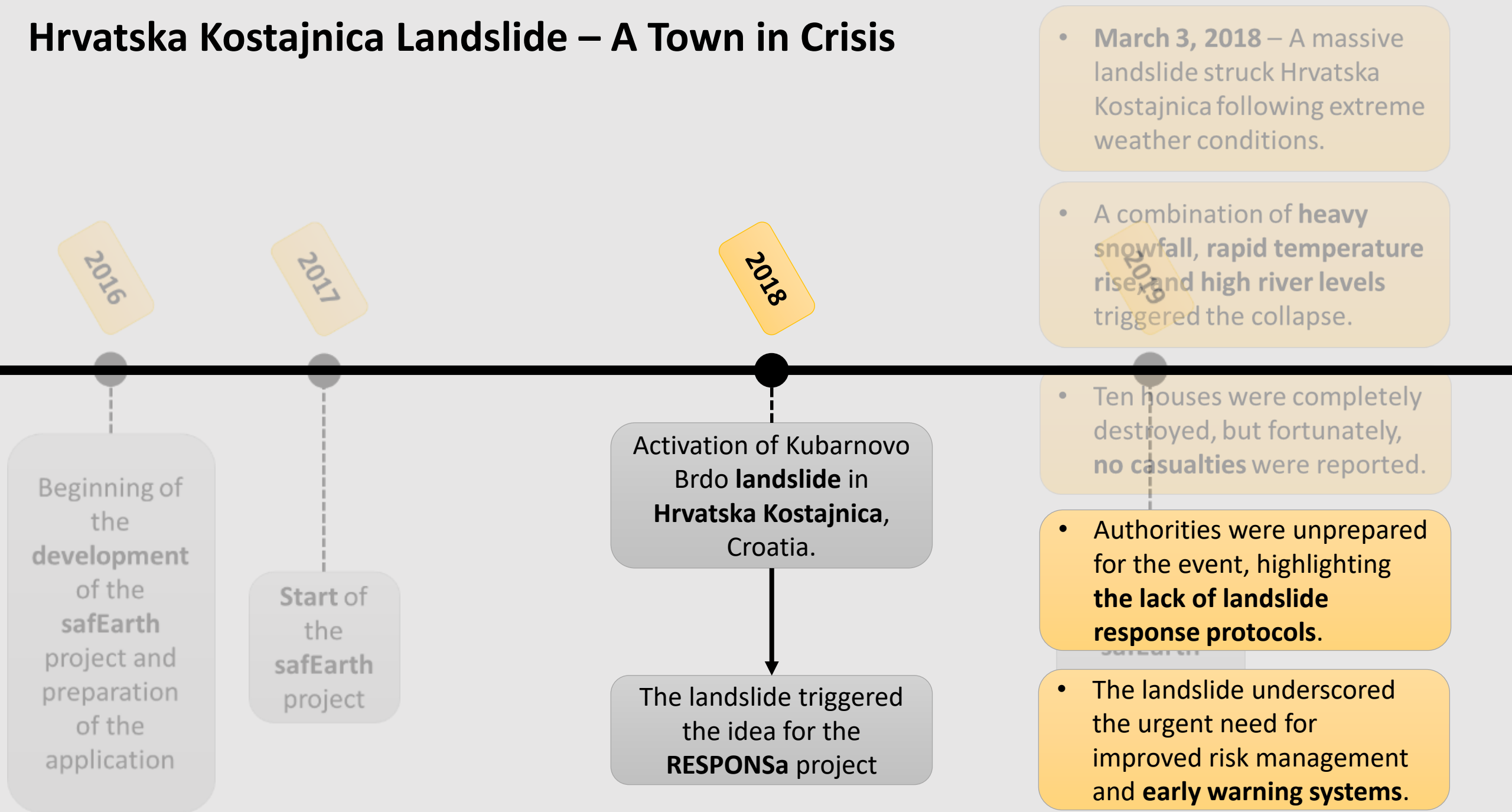
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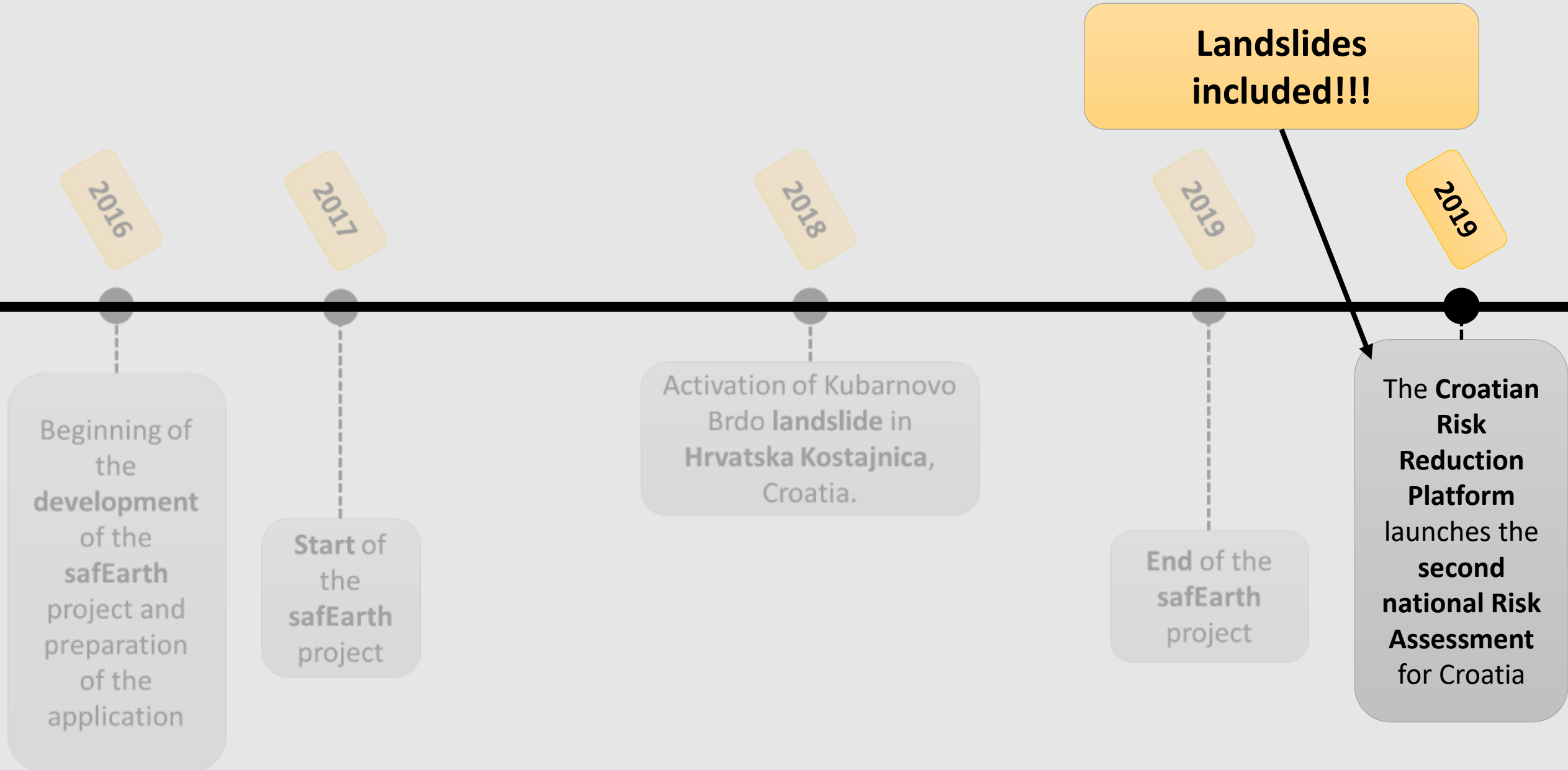
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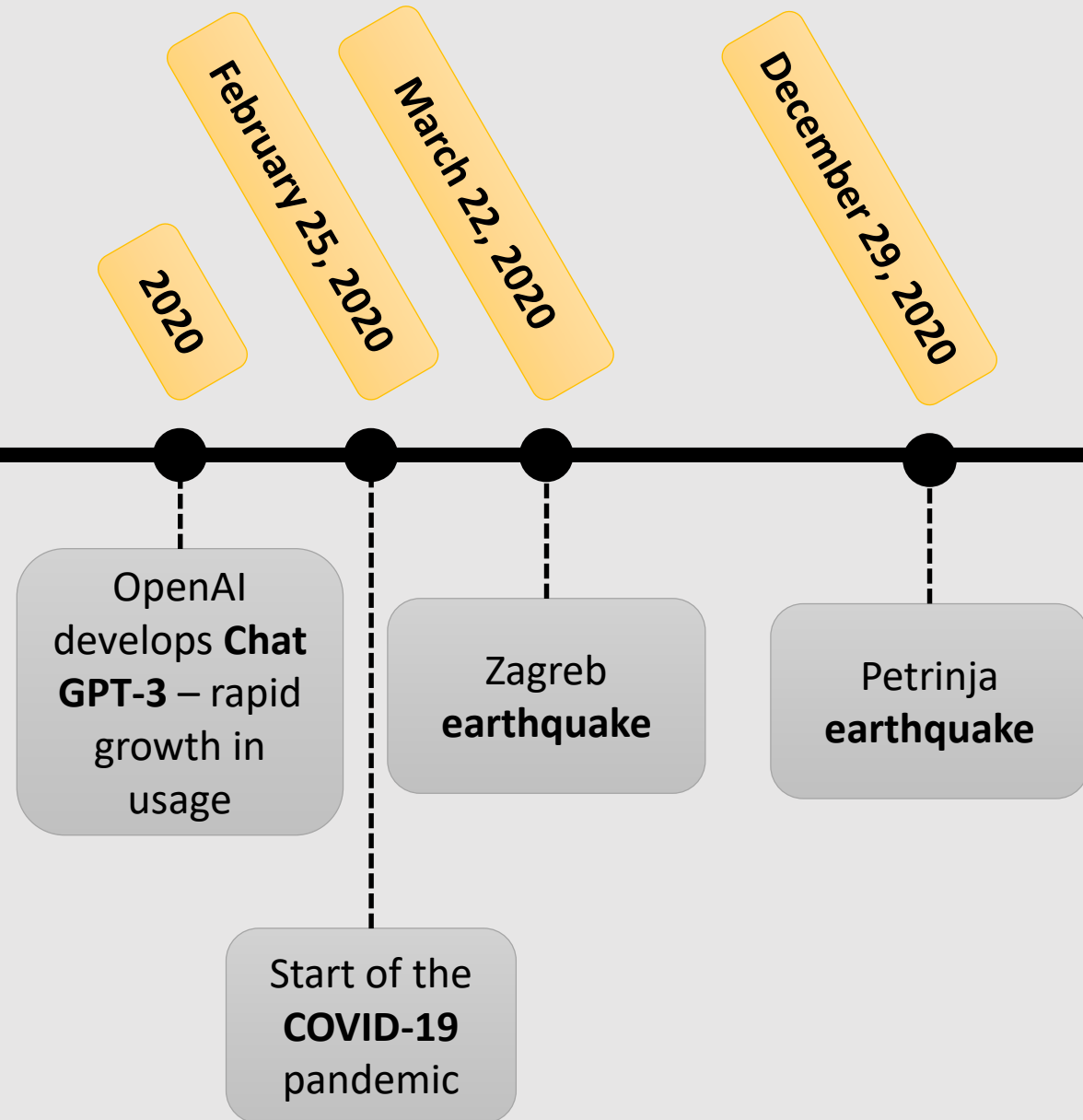
Hrvatska Kostajnica Landslide – A Town in Crisis



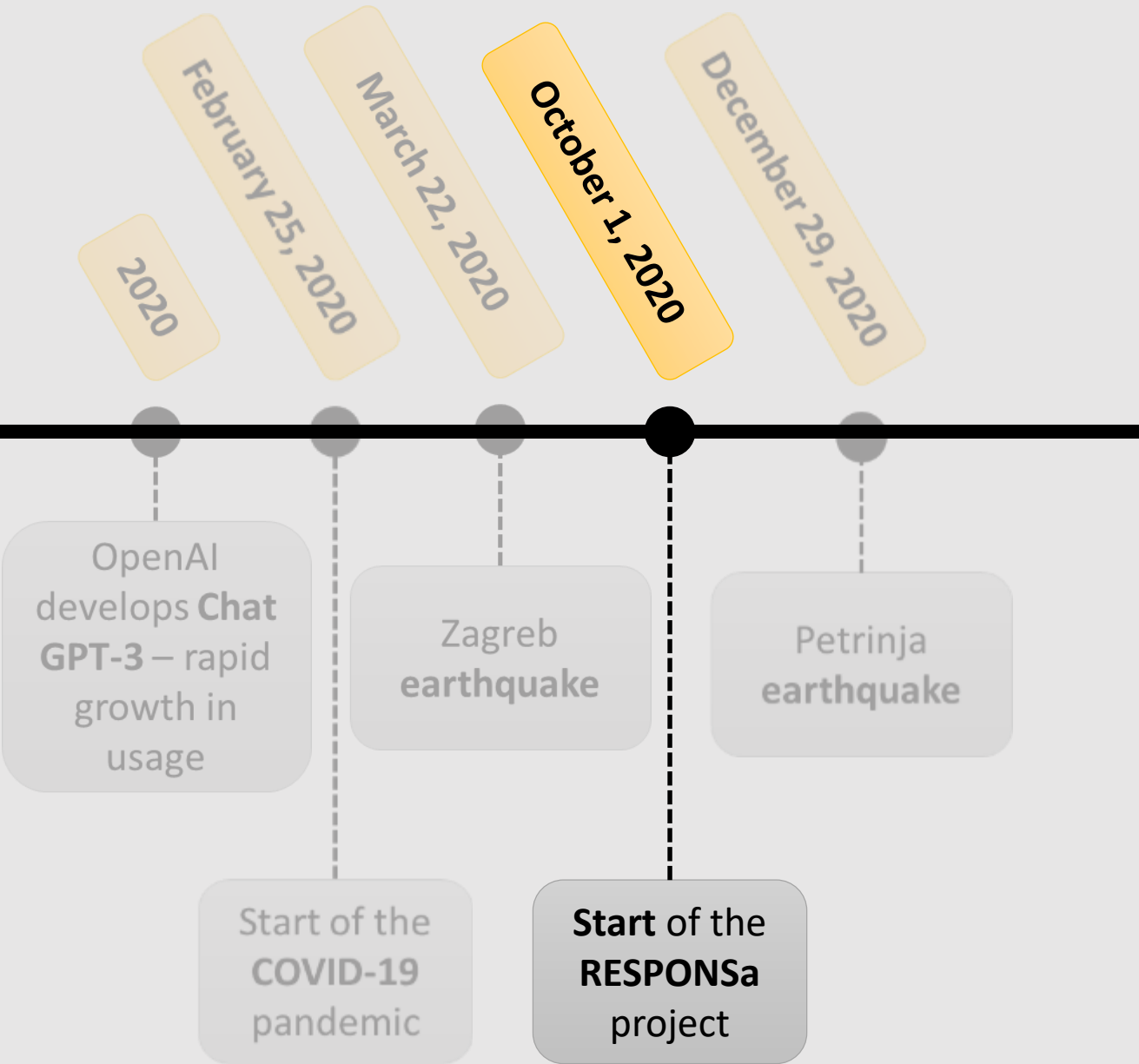
A Step in the Right Direction – Landslides Acknowledged as a Risk



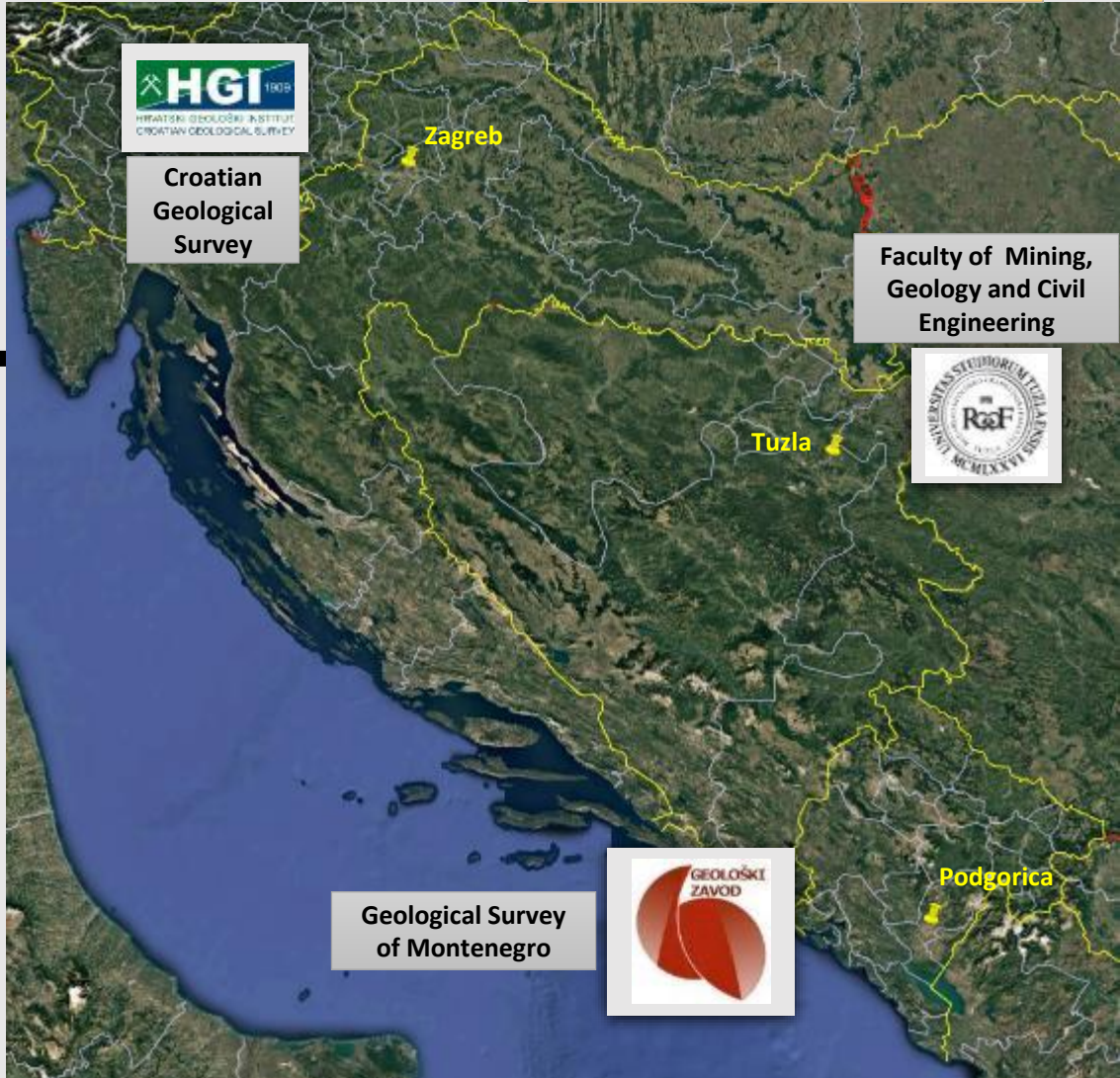
2020 – A Year of Crises and Transformations



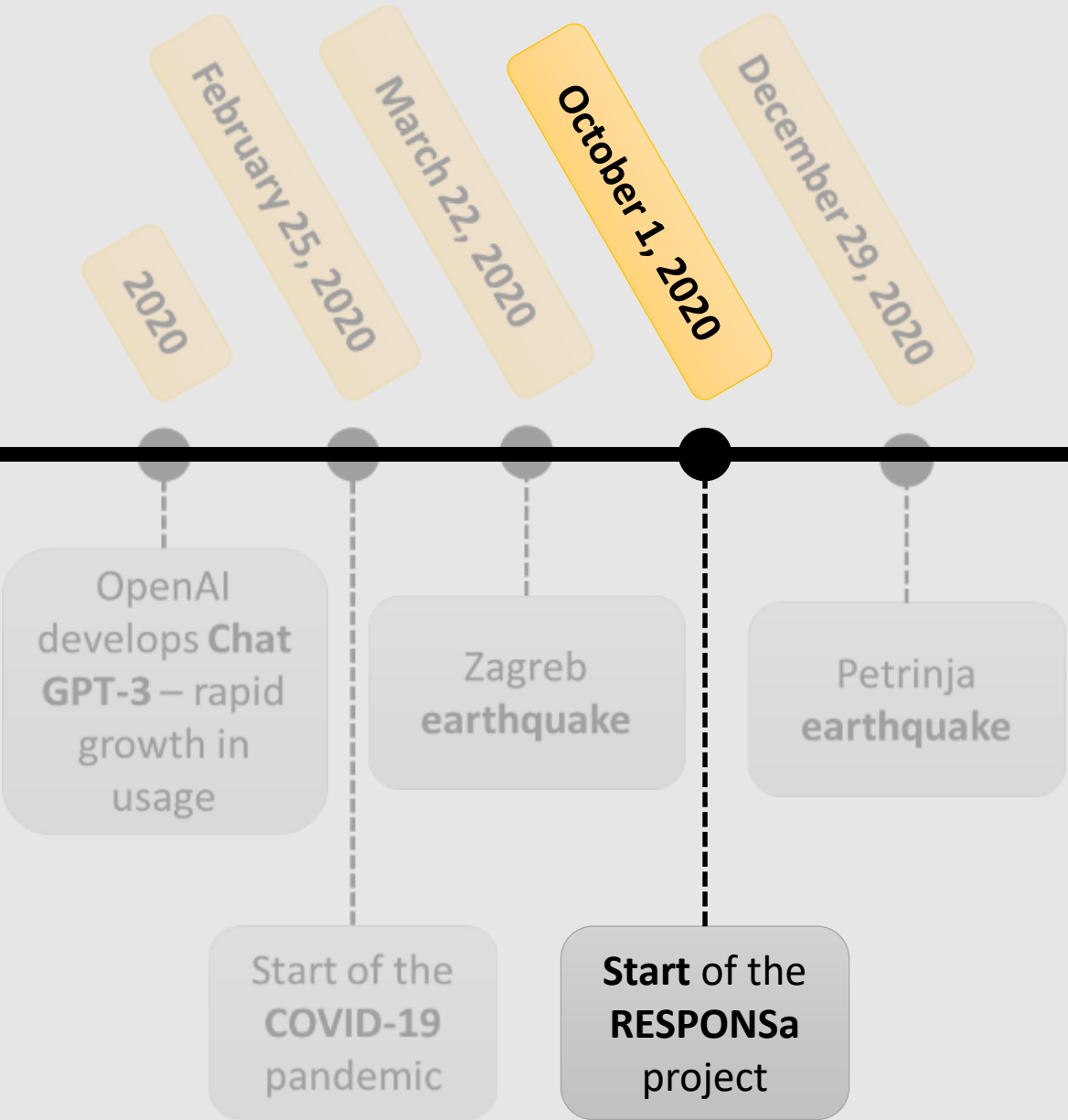
RESPONSa Kicks Off – Strengthening Early Warning Systems



RESPONSa Partnership



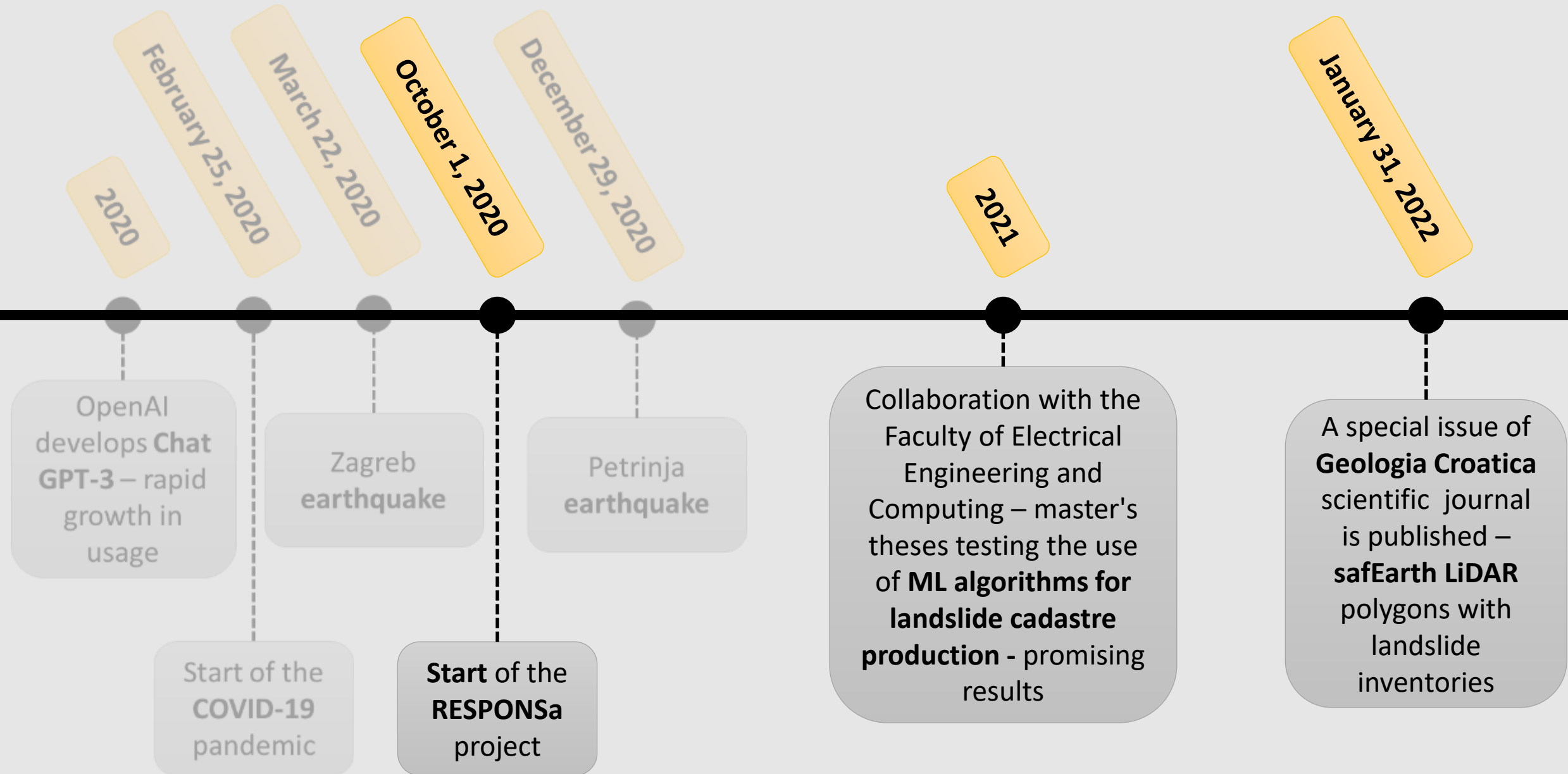
RESPONSa Kicks Off – Strengthening Early Warning Systems



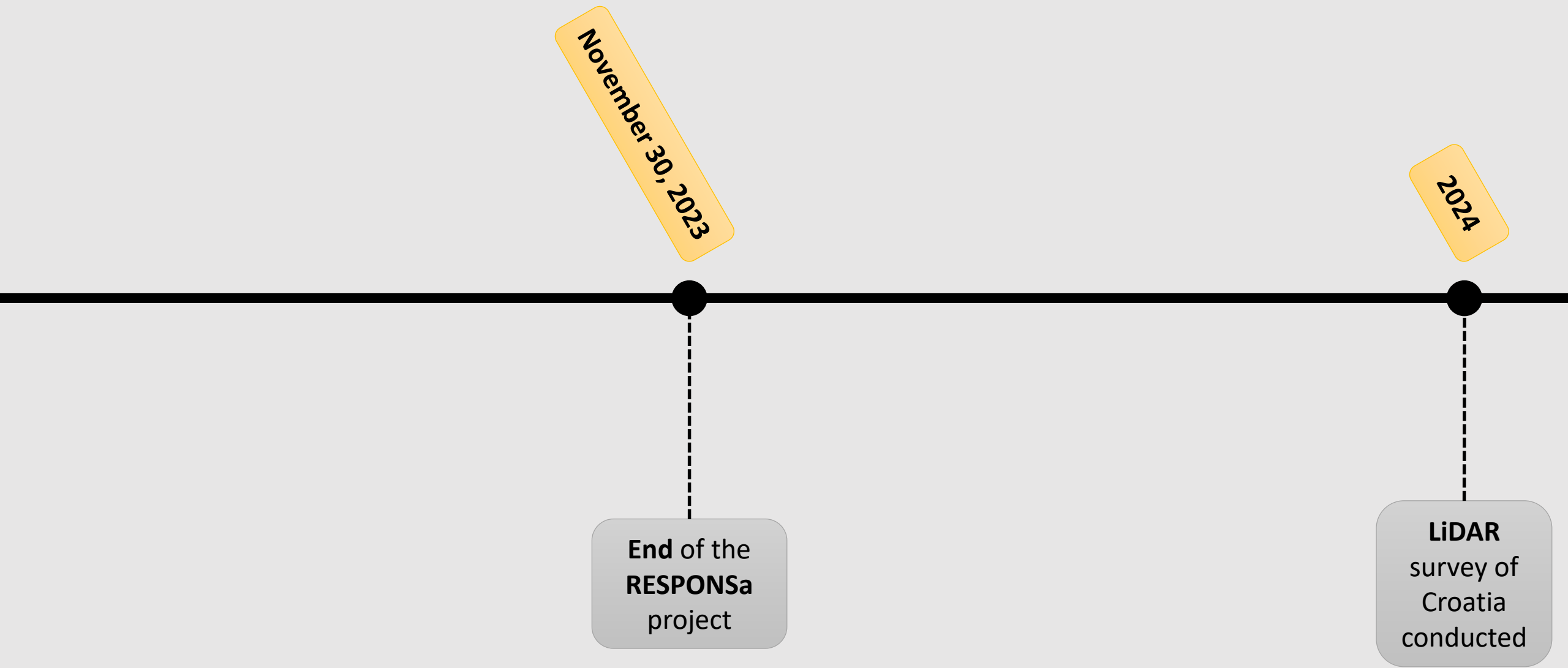
RESPONSa Results

- **Development of an Early Warning System (EWS)** – Implementation of EWS for landslide and flash flood risk prevention in Kutina (HR), Brčko and Tuzla (BA), and Budva (ME), enhancing local disaster preparedness.
- **Strengthening Institutional Cooperation** – Enhanced collaboration between scientific institutions and local governments for improved disaster response.
- **Introduction of Advanced Monitoring Technologies** – Integration of remote sensing methods, including **drone-based surveys**, to improve landslide monitoring and early detection.

Key Milestones on the Road to LADY



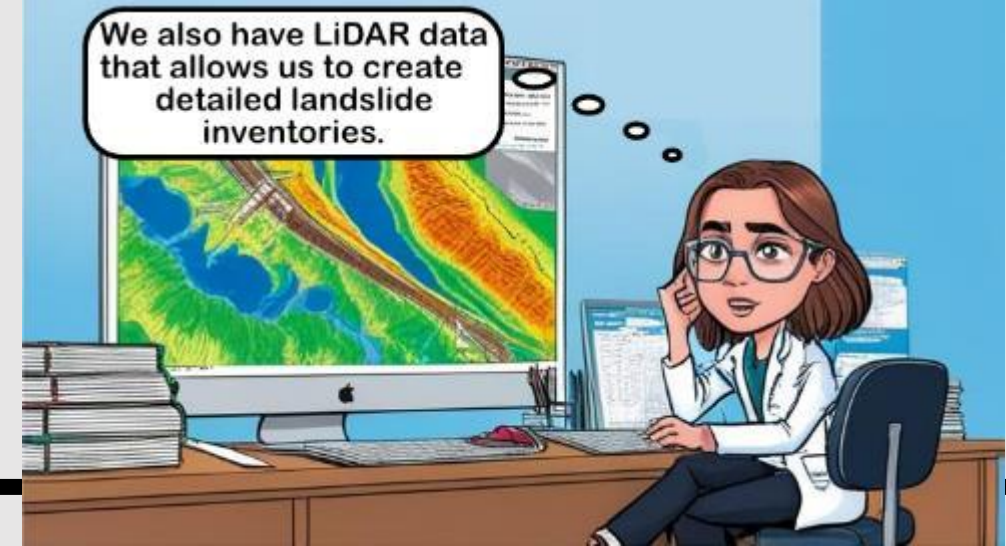
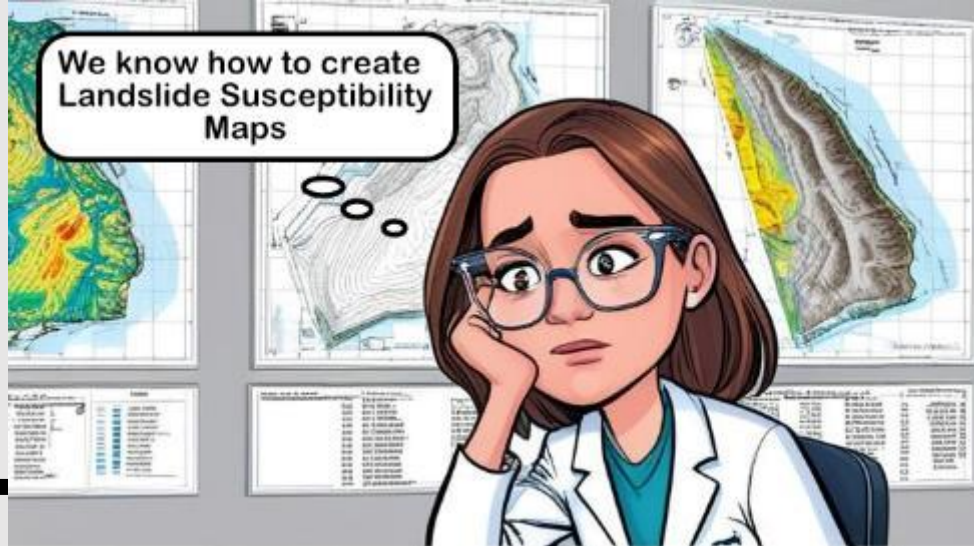
Closing One Project, Opening New Horizons – The Road to LADY



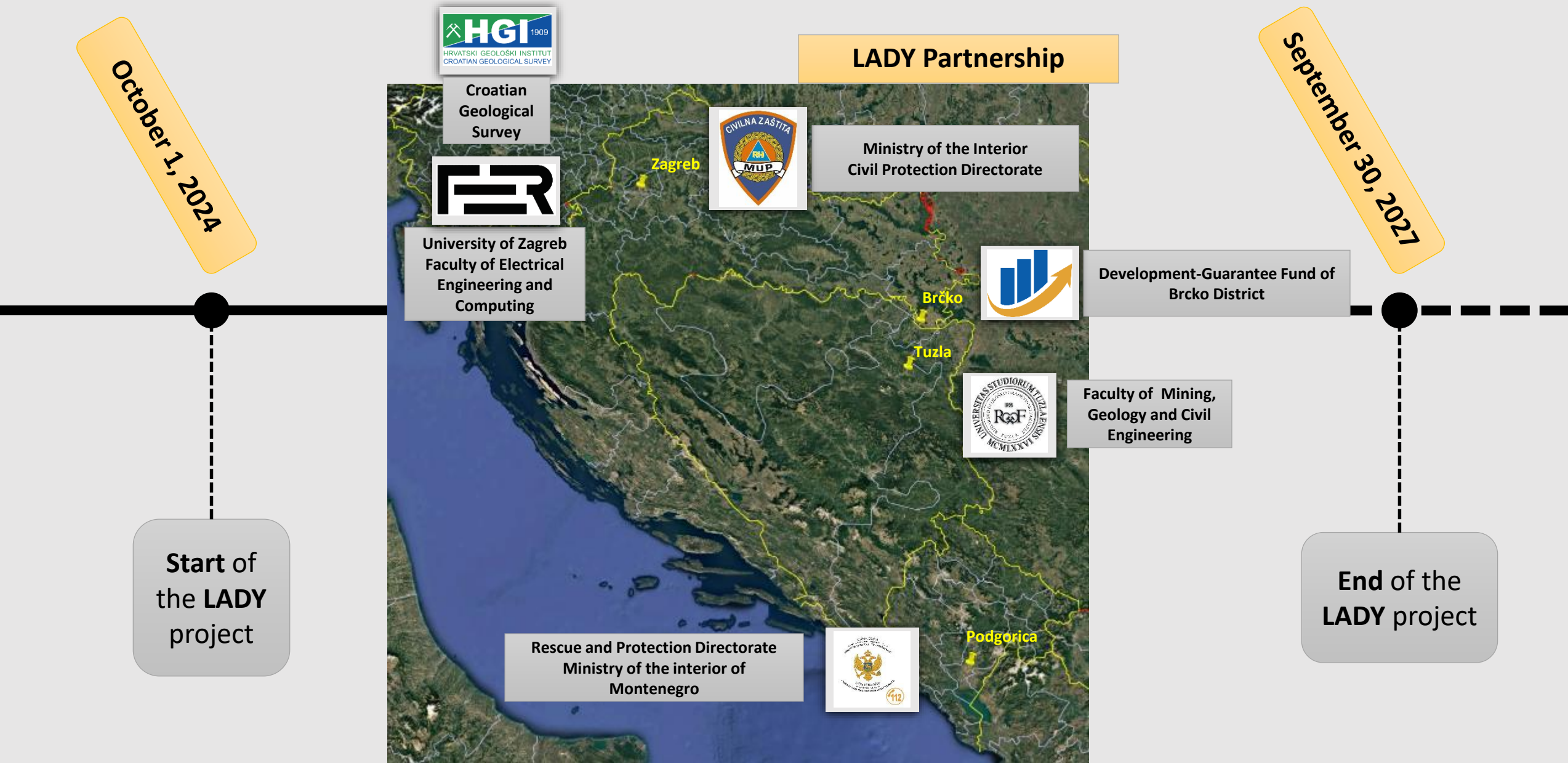
Closing One Project, Opening New Horizons – The Road to LADY

2022

Development
of the **LADY**
idea and
preliminary
discussions on
partnership



Strong Partnerships for Smarter Landslide Management



Three Work Packages, One Vision - From Data to Risk Assessment



Summary

- **From Challenge to Impact** – Three interconnected projects (safEarth, RESPONSa, LADY) advanced landslide risk management, from hazard mapping to early warning systems.

- **Innovation Through Collaboration** – Strong partnerships between scientific institutions, civil protection agencies, and local governments led to advanced technologies, early warning systems, and improved disaster response.

- **The Future is Here** – AI and LiDAR are revolutionizing landslide monitoring, paving the way for smarter risk assessment and greater resilience in the face of climate change.

Interreg IPA Projects – safEarth – RESPONSa – LADY

LESSONS LEARNED

Idea → Proposal

- **Good idea**
 - Real problem aligns with Interreg program priorities
 - Address regional developments needs
 - Collaboration → Networking



- **Proposal**
 - Realistic plan
 - Timeline
 - Clear presentation of objectives and outcomes
 - Well defined actions
 - Ensure good management and communication
 - Sustainability



Consortium

Good 'wibes' → motivation

- **Coordinating institution**
 - Devotion
 - Good and strongly motivated team
 - Experience in EU projects
 - Well structured organization
 - Technical Support
 - Financial department
 - Ready to take the initiative
 - Ready to take the responsibility
- **Partners**
 - Manageable consortium
 - Not too many partners
 - Suitable role in the consortium
 - Motivated partners
 - Diverse and compatible partners with complementary skills
 - Suitable role for each partner
 - Capacity
 - Experience in EU projects
 - Previous contacts and cooperation



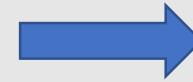
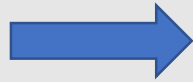
Challenges?

- **General challenges**
 - **Legislative implementation is a high-risk objective** without a clear mechanism or authority to ensure delivery
 - Unfulfilled commitments can lead to project modifications and strained communication with the Managing Authority.
 - Involve a partner with legislative power (e.g. ministry or agency), or frame such outcomes as recommendations or pilot actions.
- **Administrative and Bureaucratic Hurdles**
 - **Complex Administration:** highly decentralized government structure (state, entity, canton, and municipal levels) → delays in approvals and decision-making.
 - **Lengthy Procurement Processes:** Public procurement laws can be complex and slow, delaying project implementation.
 - **Different Legal Frameworks:** BiH is not an EU member, which sometimes creates regulatory mismatches with EU funding requirements.
- **Co-Financing Issues:** Delays in fund disbursement can impact project activities, as some partners rely on external financing or loans.
- **VAT and Taxation Issues:** Non-EU countries often struggle with VAT reimbursement and tax exemptions within EU projects
- **Limited Experience with EU Projects:** issues in reporting, budgeting, and compliance.

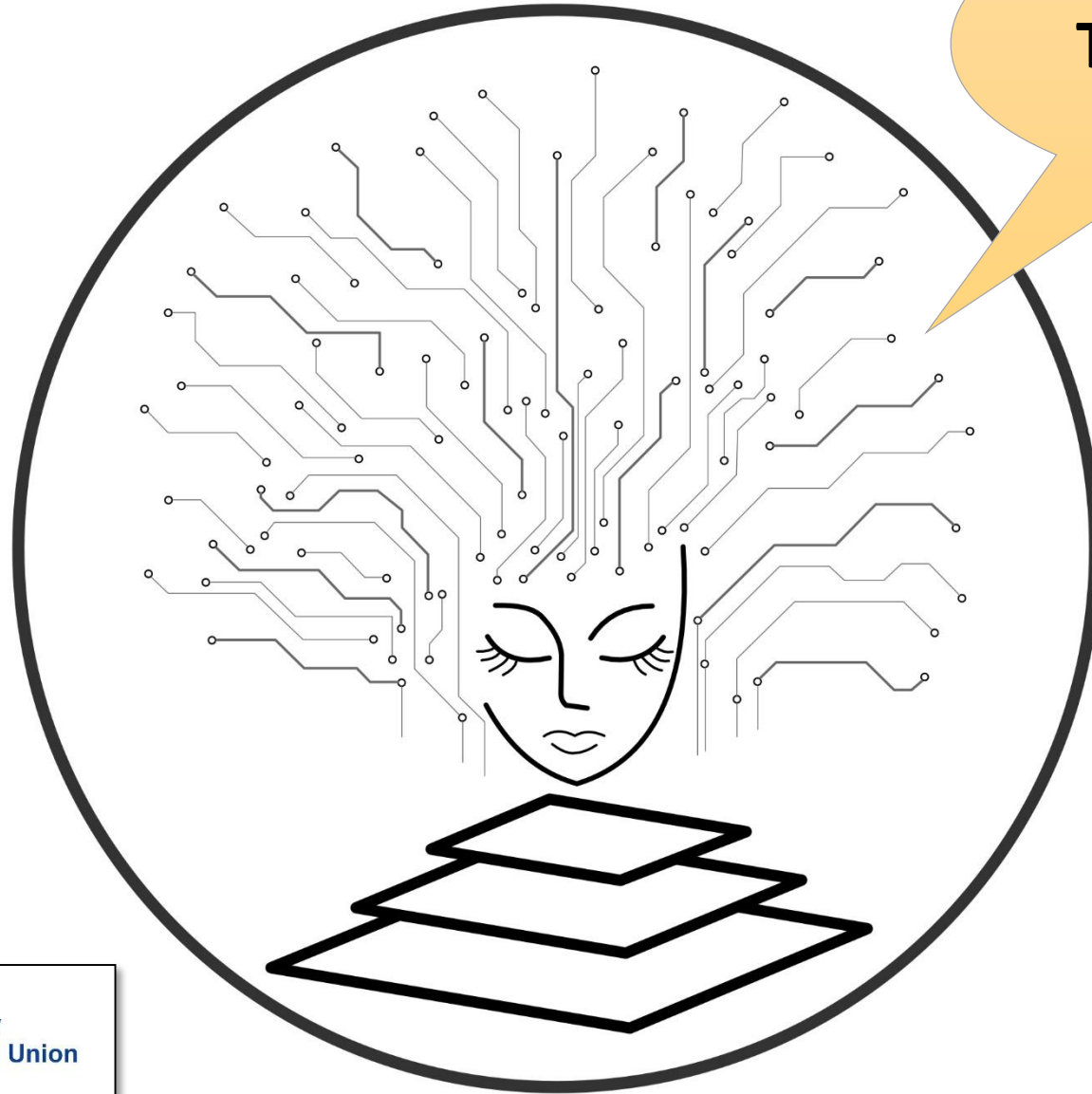


Overcoming challenges?

- **Plan Well in Advance**
 - Assign a dedicated project coordinator familiar with Bosnia's complex administrative structure
 - Early Engagement with Authorities
 - Engage Legal and Financial Experts
 - Flexible Financial Planning
 - Partner with Experienced Institutions: Engage universities or municipalities with past EU project experience to mentor less experienced partners
- Join forces
- Enjoy



Thank you!



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