



SPACE GOV BEYOND

Space Sustainability & Governance
Dissemination event



University of Exeter
Business School

The background of the slide features a dark blue, starry night sky. In the upper center, there is a black silhouette of a city skyline with various buildings and a flagpole with a flag. The main title is centered in the middle of the slide.

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Dissemination Event

Summarizing report and visuals to accompany the policy brief for
SPACE-Gov: Space Sustainability & Governance -
Mitigating Compounded Risks through
Foresight & Futures Methods

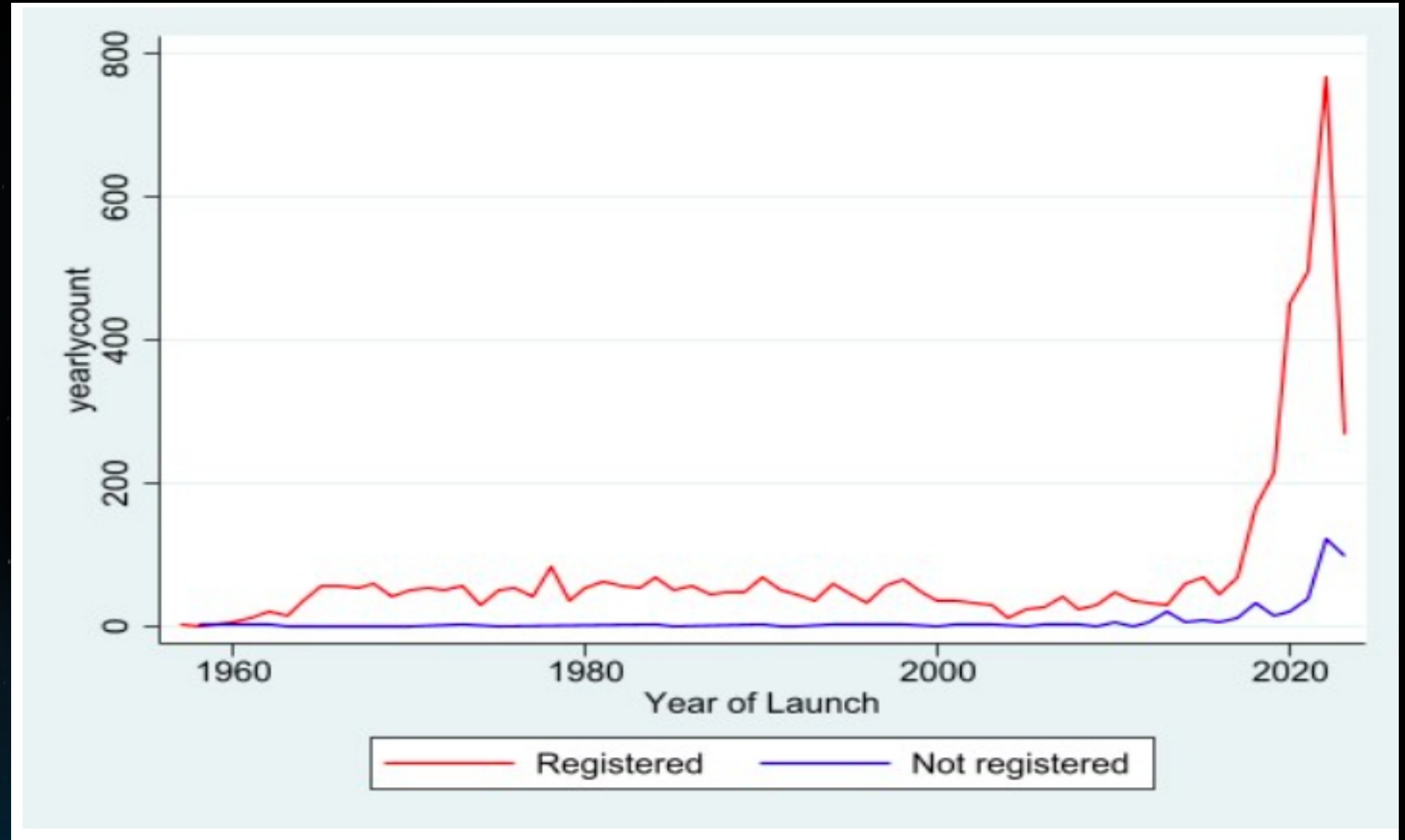
Core objectives:

- **identify common future challenges** that inter-sectoral engagement and multilevel collaboration could collectively overcome;
- **facilitate knowledge exchange** and the sharing of ideas across academia and multilevel governance units; and
- **develop a network of experts** to advance discussions for a **sustainable, responsible, and adaptive space future** that can provide continuity in times of major socio-economic and geopolitical disruptions.

Why the need to be forward-looking?

- Limits of historic data
- Scale and rate of growth in the sector
- Convergence of multiple challenges requiring solutions spanning across the time horizon

Number of satellites launched by year



Credit: M. Abdelrazek / Source: UNOOSA

- Explore underexamined compounded risks scenario

(Not necessarily focus on consensus-building, unlike other methods such as DELPHI)

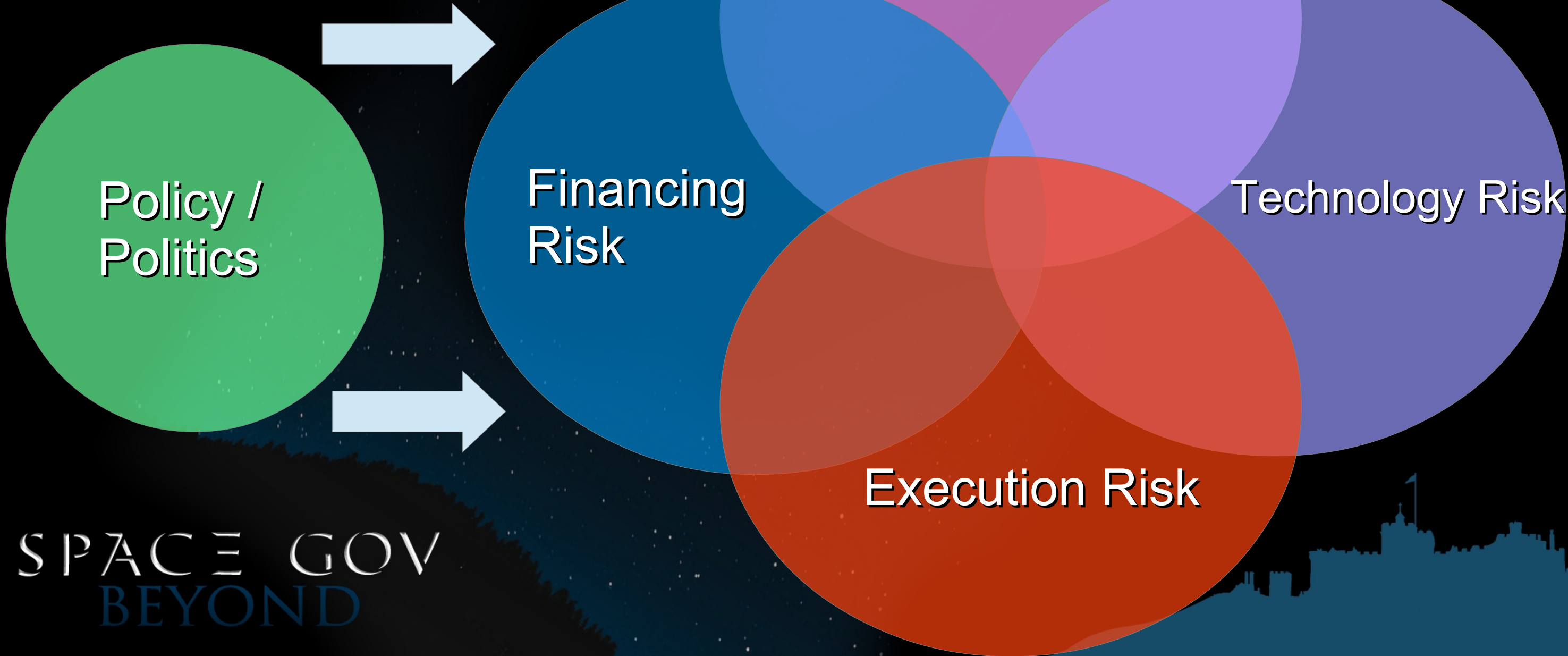
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Policy/Politics > area of risks neglected

(Eisenmann, 2013; Chiu, 2022)

(Source: Framework expanded on T. Eisenmann, "Entrepreneurship: A Working Definition," *Harvard Business Review*, 2013.)



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Hopes/ Aspiration explored:

Truly international space/ moon co-operation

Inclusive space sector (backgrounds, gender, diverse abilities, development)

Responsible space behaviours

Regular and normalized access to space

Co-ordinated (and organic) policy development

Sustained financial support

Risks/ Challenges explored:

Armed conflicts escalated to orbit (e.g. kinetic and cyber)

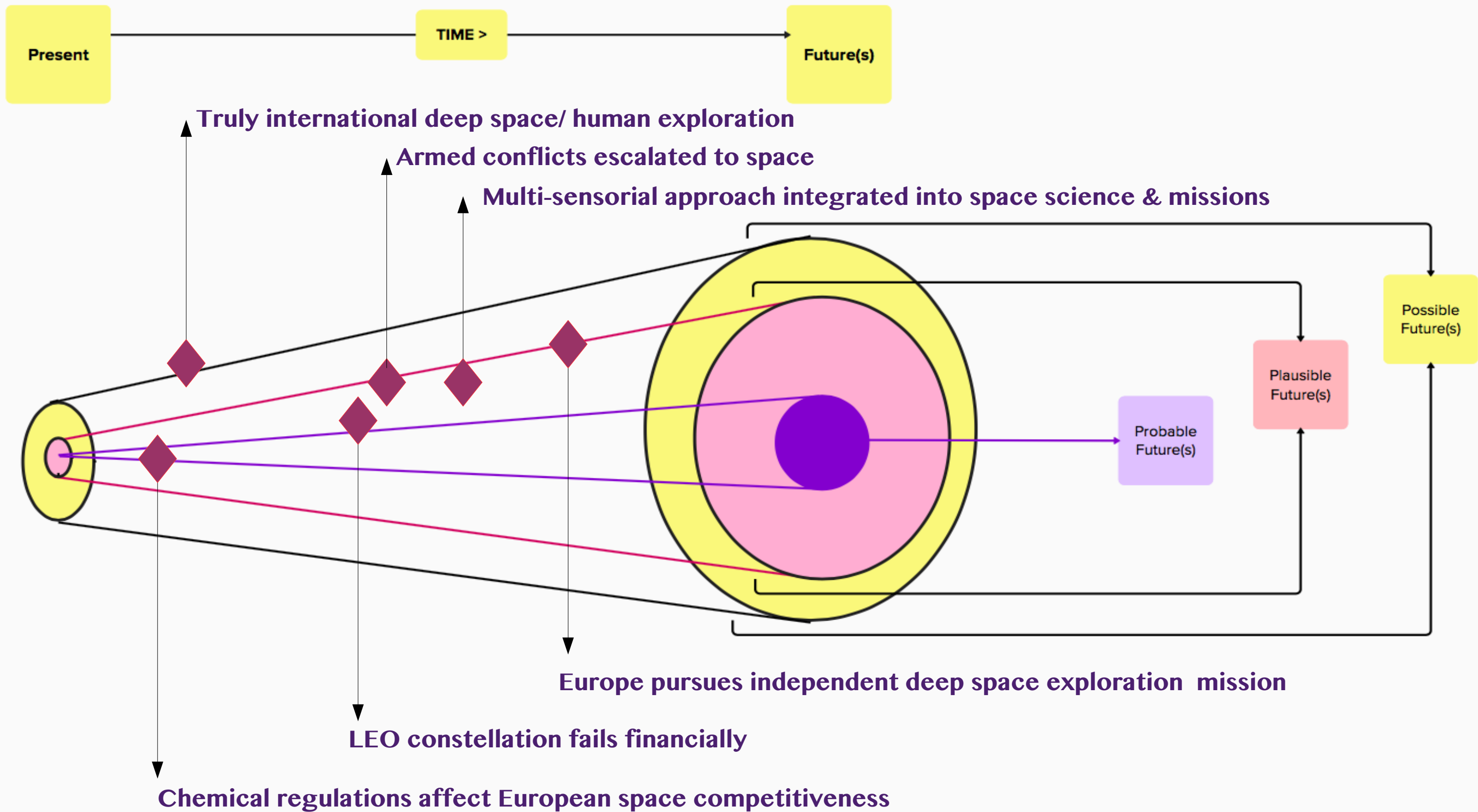
Fragmented policy development at multiple levels, lacking coherence/ Competing policy priorities

Catastrophic events (e.g. Kessler)

Collapse of dominant space actor(s) (State, private)

Space loses its inspirational appeal/ public support





Scenario (Likely)
Unintended
consequences of
Policy Silos

Supply/
Demand Risk

Policy Risk:

REACH (EU chemical ban/regulations) affect cost and procurement of specialist supplies for space (e.g. glues)

Technology Risk:

Lag in innovation/R&D in non-toxic adhesive substances mean there are no immediate substitutes/equivalent

Technology
Risk

Demand/Supply Risk:

Chemical ban/ regulations affect demand/supply economics
Decreased demands/production of specialist glues lead to a "space price."

Financing
Risk

Financing Risk:

Increased cost in sourcing materials

Execution
Risk

Execution Risk:

Increased cost, decreased supplies cause mission delay
Europe loses competitiveness in space market

Policy/
Political
Risk

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Scenario (Plausible)
LEO Financing Crisis
Turned Opportunity

Supply/
Demand Risk

Financing Risk:

Lack of continuous funding led to LEO constellation fall into administration/ bankruptcy.

Execution Risk:

Inability to succeed in next funding round led to the bankruptcy.

Technology Risk:

Physical technology robust, bankrupt constellations able to deorbit as planned. Competition for spectrum outpaces technological innovation to effectively “split” the spectrum further to meet demands.

Demand/Supply Risk:

Demands for radio frequency exceeds supplies.

Policy Opportunity:

Deorbited constellation frees up spectrum for new comers; opens up new policy-making opportunity for more equitable allocation of spectrum

Technology
Risk

Financing
Risk

Execution
Risk

Policy/
Political
Risk

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Scenario (Desired)
European Space
Exploration

**Supply/
Demand Risk**

Demand/Supply Risk:
Reliance on partnership for access to space prompts goal to launch independent European Space Mission.

Policy Risk:
Lengthy negotiations among member states (years) and lengthy red tape.

**Technology
Risk**

Technology Risk:
Technology that the mission relied on is delayed.

**Financing
Risk**

Financing Risk:
Inflation and delay mean the original budget runs out after ~10 years.

**Execution
Risk**

Execution Risk:
Original independent mission scaled back.

**Policy/
Political
Risk**

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“Being determined to be successful
is at least half the game.”

Jim Green,
Former Chief Scientist, NASA

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