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SPACE USE IN THE FUTURE: PROMISES OF SPEED AND TRANSPARENCY IN REMOTE SENSING?”

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Structure

1) Transparency and democratic access to Earth observation data?

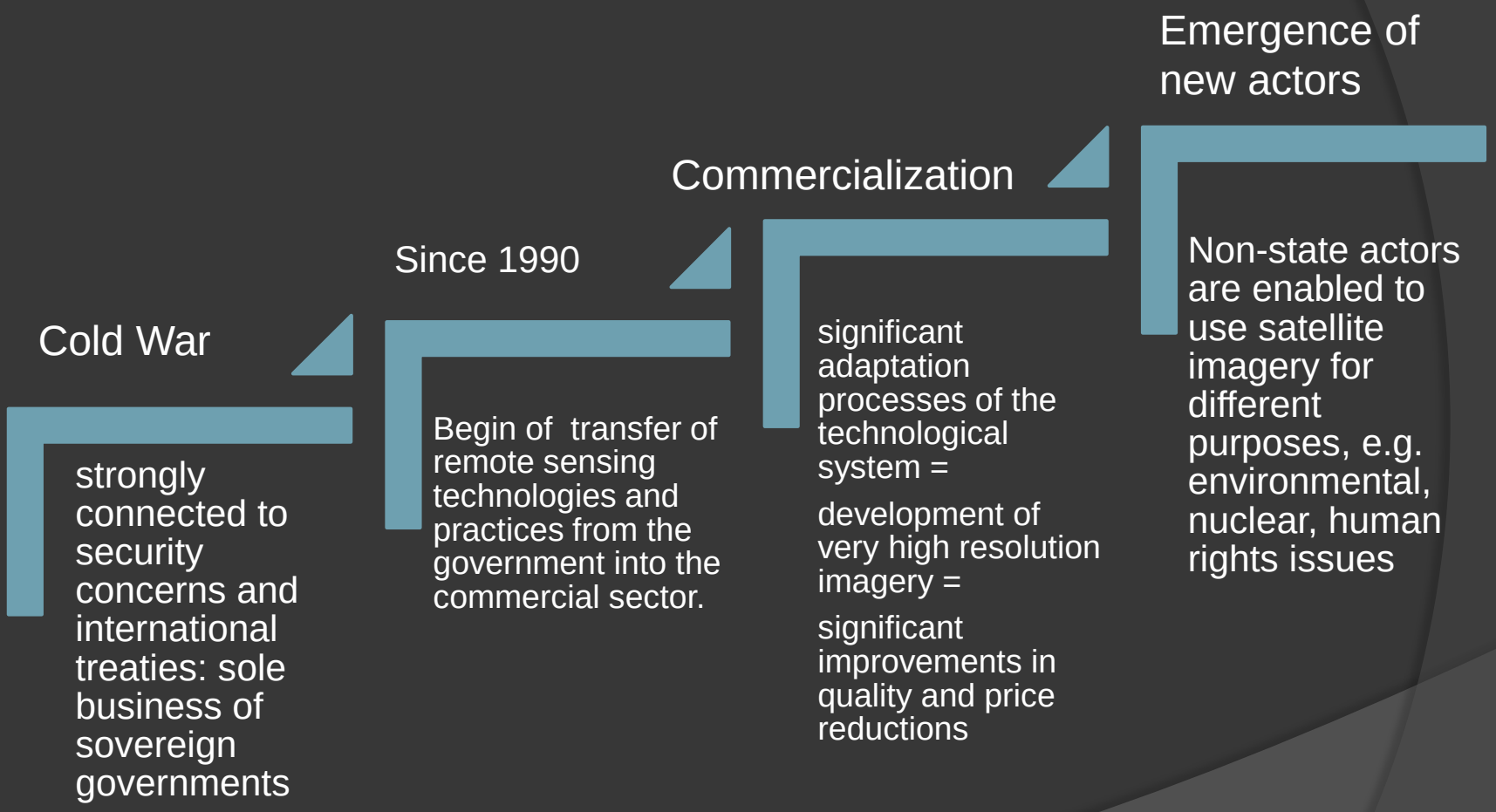
The new landscape of actors in the field of satellite imagery analysis (SIA)

2) Big is beautiful?

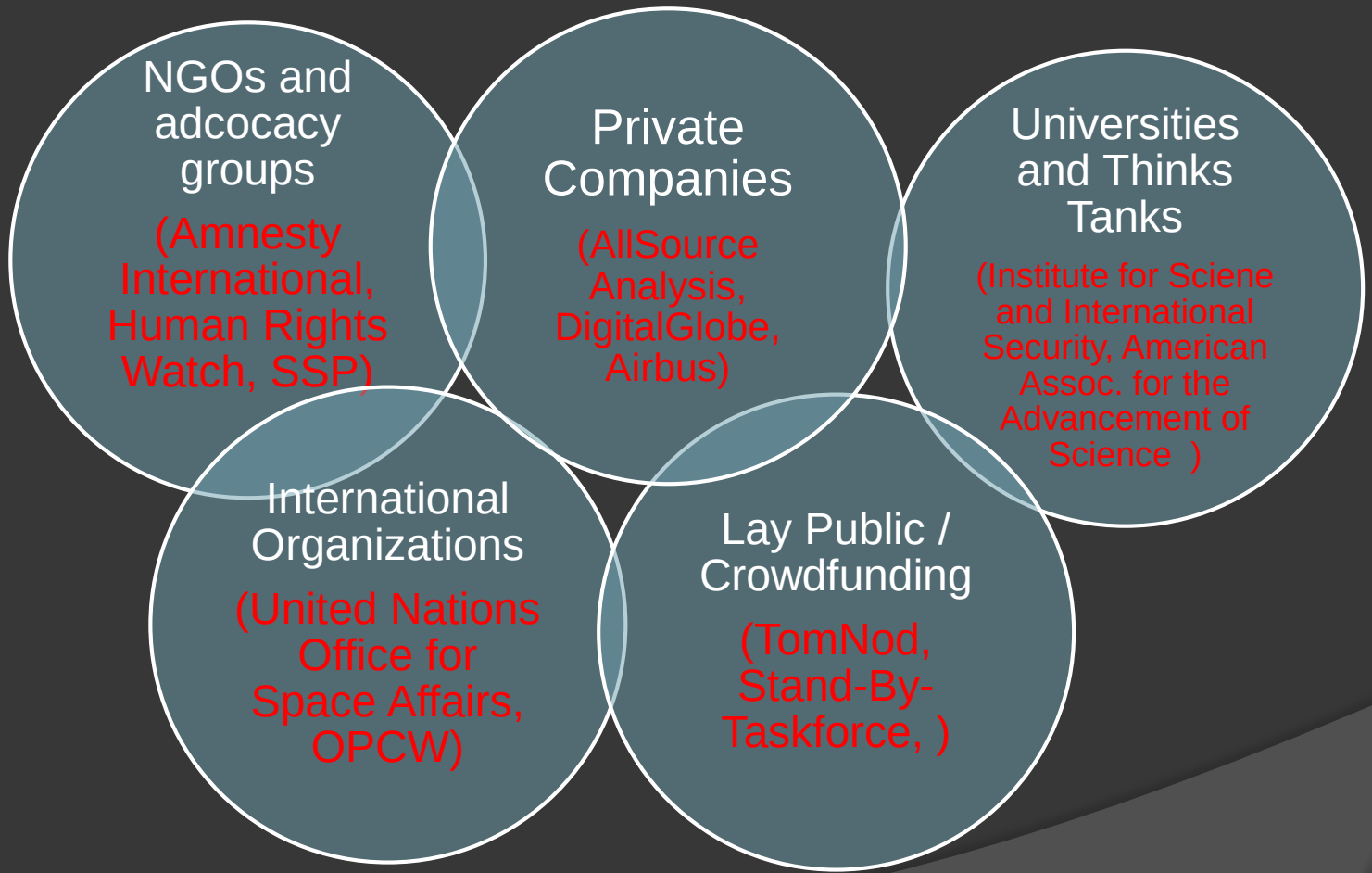
How big data analytics might change Earth observation

3) Conclusions and open questions

The techno-political context...



New actors & diversified knowledge on security threats



Open source satellite imagery analysis: increasing transparency?

‘Our point of view is that civil society needs access to information about nuclear weapons in order for those societies to have a voice. If you don’t know what´s going on and what the basic parameters are in terms of nuclear deterrence then society can’t have much of a say, it´s all left to the privileged decision makers with access to classified information. It’s a tool to have that influence in the public domain’ (6:18).

Consequences?

- Diversification of expertise in the field of security policy
- Increases media coverage of remote conflict zones
- Fact-check claims
- NGOs can point to political concerns inconvenient for current national security strategies.
- Commercial satellite imagery allows spaces to be seen that governments aimed to keep secret
- By disseminating their own interpretations new actors have begun to challenge the government's monopoly on knowledge
- involving public participation in crowd-sourcing initiatives

Adding big data… and stir?

Geospatial Big Data: Promises, expectations and challenges

What are the promises of speed and transparency resulting from the introduction of geospatial Big Data analytics into SIA?

How do actors in the field of SIA envision the ways geospatial Big Data is going to develop in the future?

On the technological level

- Current limitations of commercial satellite imagery will be replaced by a constant influx of high-resolution EO data.
- Ambition to revisit and basically image the globe every single day:
- Micro satellites as carrying out a "humanitarian mission" by creating real-time data of the whole planet for the sake of data democracy and transparency.

- **Vision of condensed temporality**

On the epistemic level...

- Number of people capable of analyzing imagery
  = low compared to amount of data

- Need for sophisticated machine-learning systems to analysts in coping “with large areas of interest and time pressure (IP 9:4)”, deemed “critical for going forward”

- Analysts do not envision fully automated imagery analysis but highlight the importance of being context-sensitive

On the level of security policy

- Geospatial Big Data analytics will allow for more preventive policy measures
- Preparation for, pre-definition and anticipation of events on the ground
- **Vision of prediction:** Instead of monitoring and documenting e.g. human rights violations or troop movements the goal is "to prevent these things from happening in the first place" (IP 10:11)

Conclusions

Commercialisation of satellite imagery has democratized access and increase transparency: non-state actors can use it to assess and highlight security concerns

Knowledge is up to debate & claims can be verified

Introduction of geospatial big data analytics: Vision of condensed temporality and increasing transparency

Value of **predictive information** = opportunity of preventive policy action

But: Imagery still requires subjective interpretation by experts

Need for collaboration between the data experts and satellite analysts, need for Code of Coduct for governing big data

Question to think about…

- making real-time / predictive information public: how to prevent already vulnerable people from being acutely endangered?
- Predictive tools can be powerful enablers of either democracy or oppression
- Satellite imagery are representations of security threats…Who defines what is counted as a threat?
- Access to imagery = not equally distributed on a global scale – who´s the observer and who´s being observed?

Thank you for your attention!

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Big Data

General definition: The 3 Vs of Big Data

- Volume: consisting of massive amounts of data
- Velocity: the speed of data creation and its collection approaches real-time.
- Variety: encompassing structured and unstructured data, different formats and units of analysis
- Big Data from Space