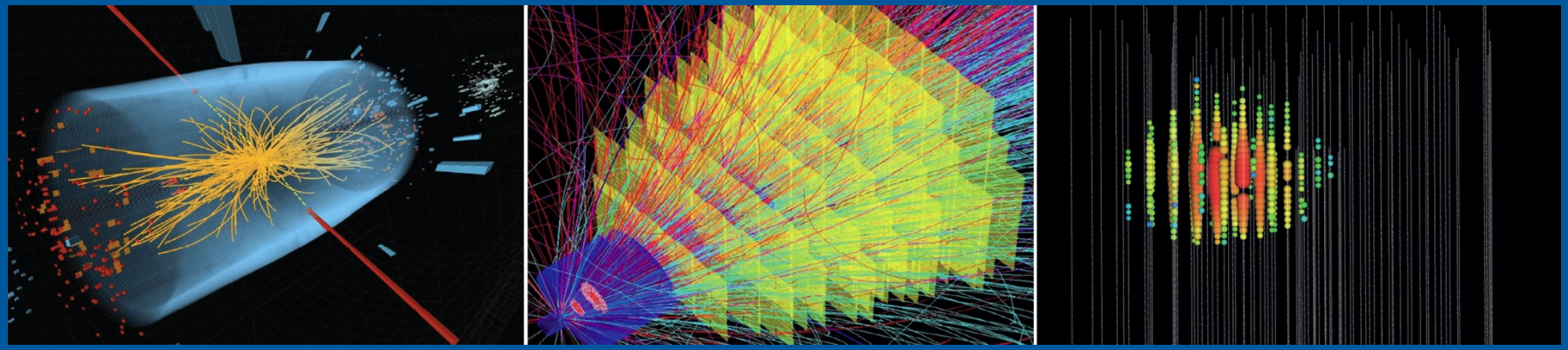
Matter and the Universe

Computing & Big Data
A Cross-Programme Topic



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HELMHOLTZ ASSOCIATION

Computing and Big Data in MATTER

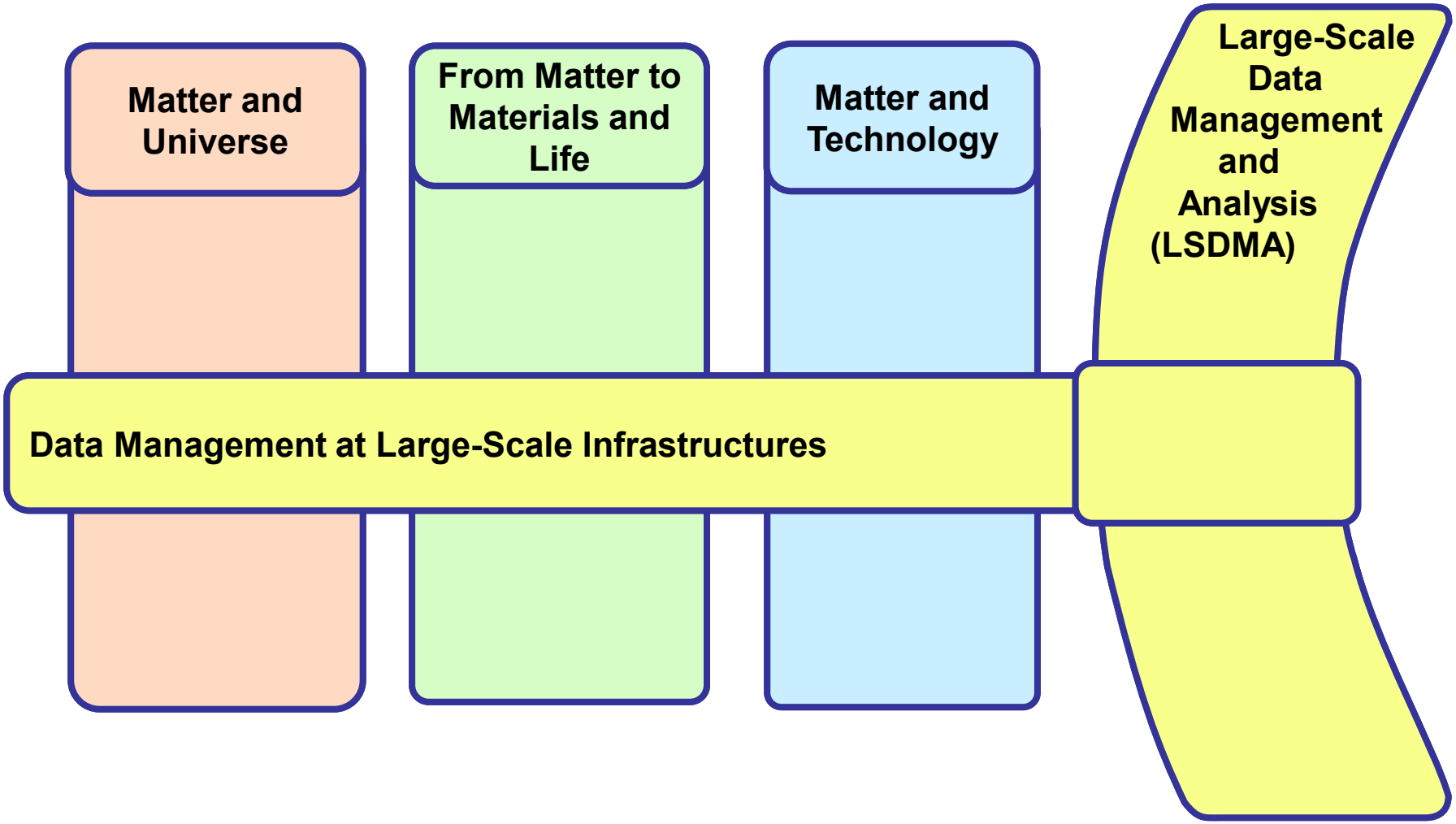
Challenge

- Ever increasing data rates of new detectors
  → need for dedicated, leading edge computing and big data solutions
- NB: large scale data management is nothing new for MATTER

Approach

- Combining resources and expertise between programmes and centres to join forces and utilize synergies
- Make use of expertise in IT groups and data centres, team-up for 3rd party funding, cooperate with industry
- Strong cooperation with cross-programme initiative LSDMA

A Horizontal Approach



A Horizontal Approach

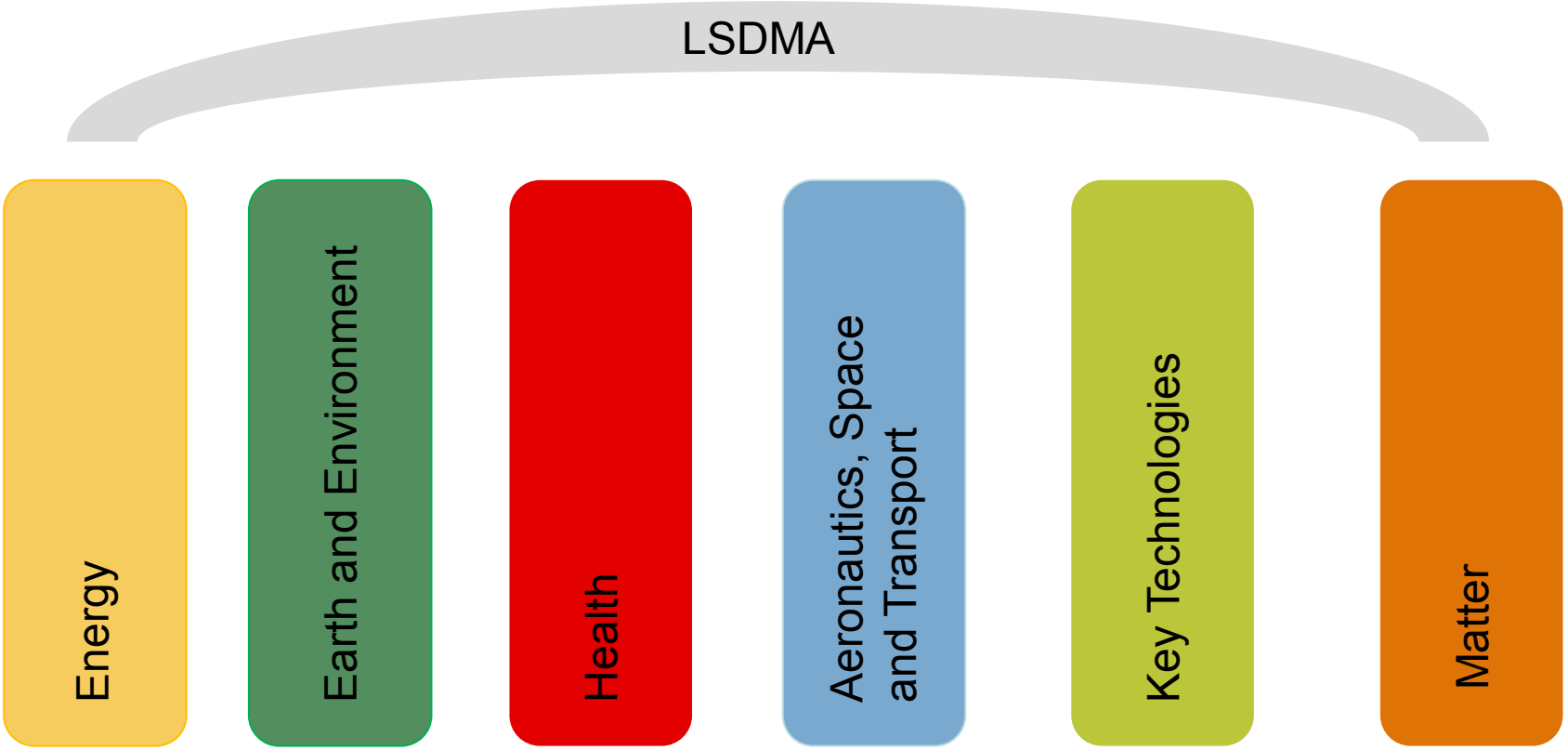
Main Topics

- Data Management (storage, archival, curation, analysis/data mining, metadata, etc.)
- High bandwidth, low latency, intelligent networking
- Common data formats
- Cloud services
- Fast & Secure Access
- Federated ID & Access management

Measures

- Networking of IT-specialists
- Cooperation with scientists in the three MATTER programms
- Joint workshops on specific topics
- Setup of cooperations with industry
- Joint outreach and publications
- Coordination of third party funding proposals

Beyond MATTER:
Large Scale Data Management and Analysis

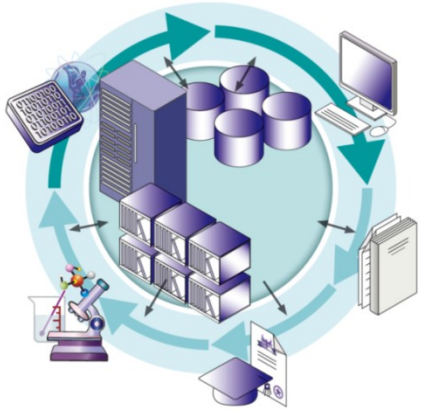


Goal: Research bridge on data-intensive science in Helmholtz and beyond

Cross-Programme Initiative
Large Scale Data Management and Analysis

Means

- Annual events: PhD workshop, community forum, technical forum, international symposium
- Set-up of a “Helmholtz Big Data Coordination Office”
- Organisation of introductory seminars and lectures on Big Data to educate data scientists
- Information market place for events
- Offer to moderate discussions on technical issues

Structure

- 6 programmes in 3 research fields participating
- Cooperation of Helmholtz with universities
- Managed by “Supercomputing & Big Data” (Key-Technologies)