Towards Effective Governance of the National Data Service (NDS) and NDS Consortium

October 2014

What is to be governed?

- Development and operation of tools and services in a federated array of technical and social environments – a layered ecosystem
- Sample functional activities:
  - Development of new software tools and services
  - Integration of existing and newly developed software tools and services
  - Coordination of application across diverse fields and disciplines
  - Engagement of user communities – needs assessment, service delivery, impact assessment
  - Relations among individuals, organizations, and consortia

Who are the stakeholders?

1. Individual scientists, scientific teams, and large-scale science projects
2. Government agencies (international, national, state, local)
3. Consortia and initiatives centered on open data
4. Data Centers, including Federally Funded Research and Data Centers (FFRDCs)
5. Advanced computing infrastructure providers
6. Professional societies and associations
7. Standard setting organizations
8. Software developers
9. Universities and colleges
10. Scholarly publishers
11. Libraries, museums, and archives
12. K-12 education
13. Commercial organizations
14. Citizen scientists

How is success measured?

Short-term measures of success include . . .

- The establishment and operation of pilot projects
- The development of a formal governance structure
- The engagement of initial charter members
- Growth of new members
- Partnership agreements with related consortia
- Documentation of lessons learned from pilot service offerings

Longer-term measures of success include . . .

- An increase in absolute numbers and relative proportions of research data that is shared and reused in scientific fields and disciplines
- New collaborations that are enabled by reuse
- Adoption and use of common methods for citing data and providing credit for use
- Documented progress on scientific and societal challenges that would not otherwise have occurred.

Governance design challenges

- Neither over-specifying nor under-specifying
  - Enabling effective engagement of a diverse array of individuals, organizations, disciplines, and consortia
  - Ensuring communication and coordination among multiple consortia – newly formed and long-standing – at a time of accelerating change

- Balancing predictable tensions:
  - Cooperation & Competition
  - Deliberation & Action
  - Technological clock-speeds & Institutional clock-speeds
  - Centralization & Decentralization
  - Discipline-specific & General use
  - Creating value & Mitigating harm

Underlying operating assumptions

- True North: Transformational advances addressing grand challenges facing science and society

- Rapid proto-typing/agile development

- Credit reinforcing new behaviors

- Demonstrated use in disciplines leads broader applicability

- Continuous improvement in operations

- Collaboration among consortia

National Data Service (NDS) and NDS Consortium

Normal and Transformational Research Challenges Facing Science and Society

Supporting Stakeholders Include. . .

- Government Agencies
- Public/Private Funders
- Open Data Consortia
- Science Initiatives
- Data Facilities & Archives
- HPC Infrastructure
- Developers
- Publishers
- Associations & Societies
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Scientific Work Flows

- Training & Development
- Data/Model Collection & Generation
- Analysis, Presentation, Calibration
- Publication, Curation, Re-use & Credit
- Contributions to Science & Society

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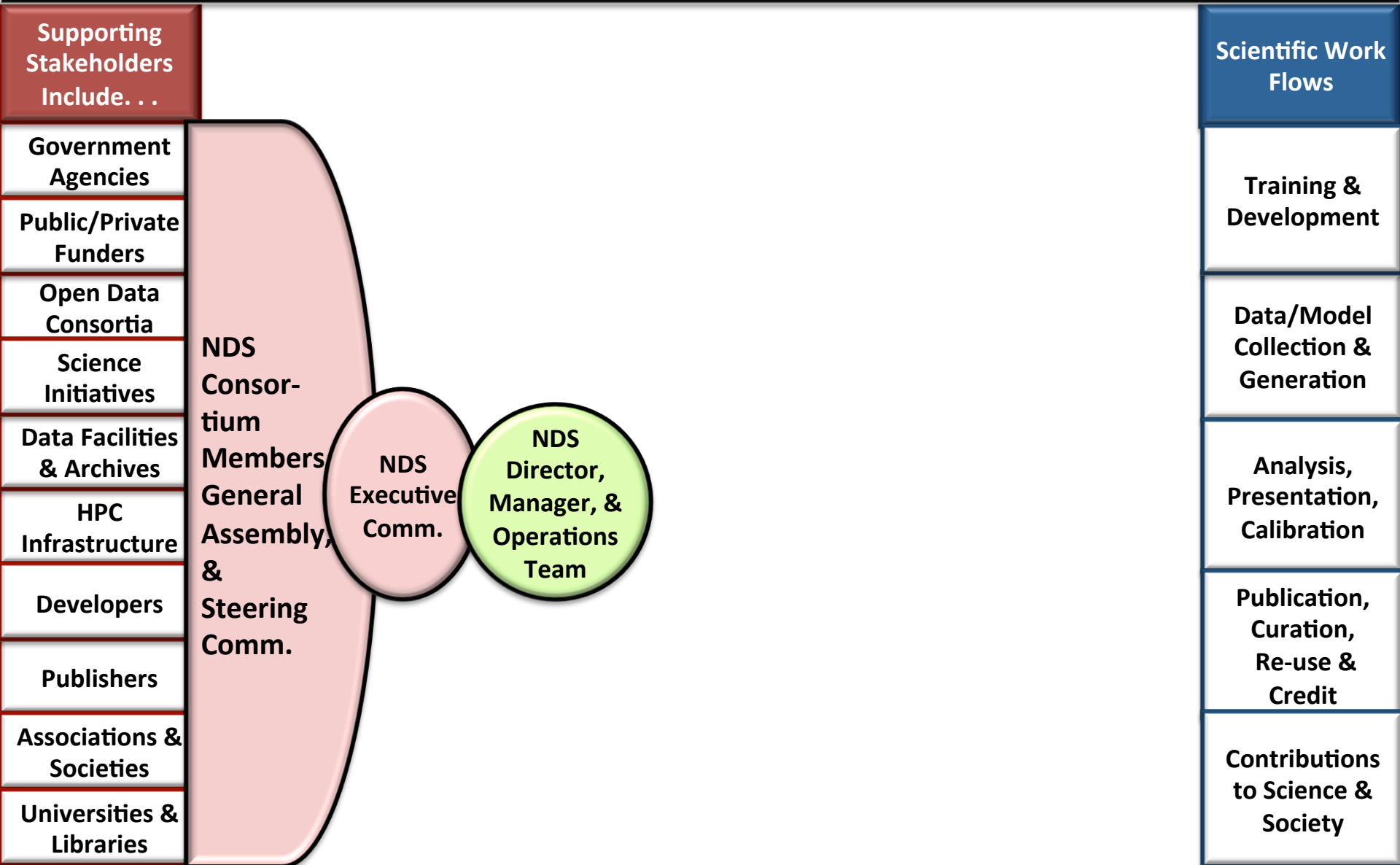- Data/Model Collection & Generation
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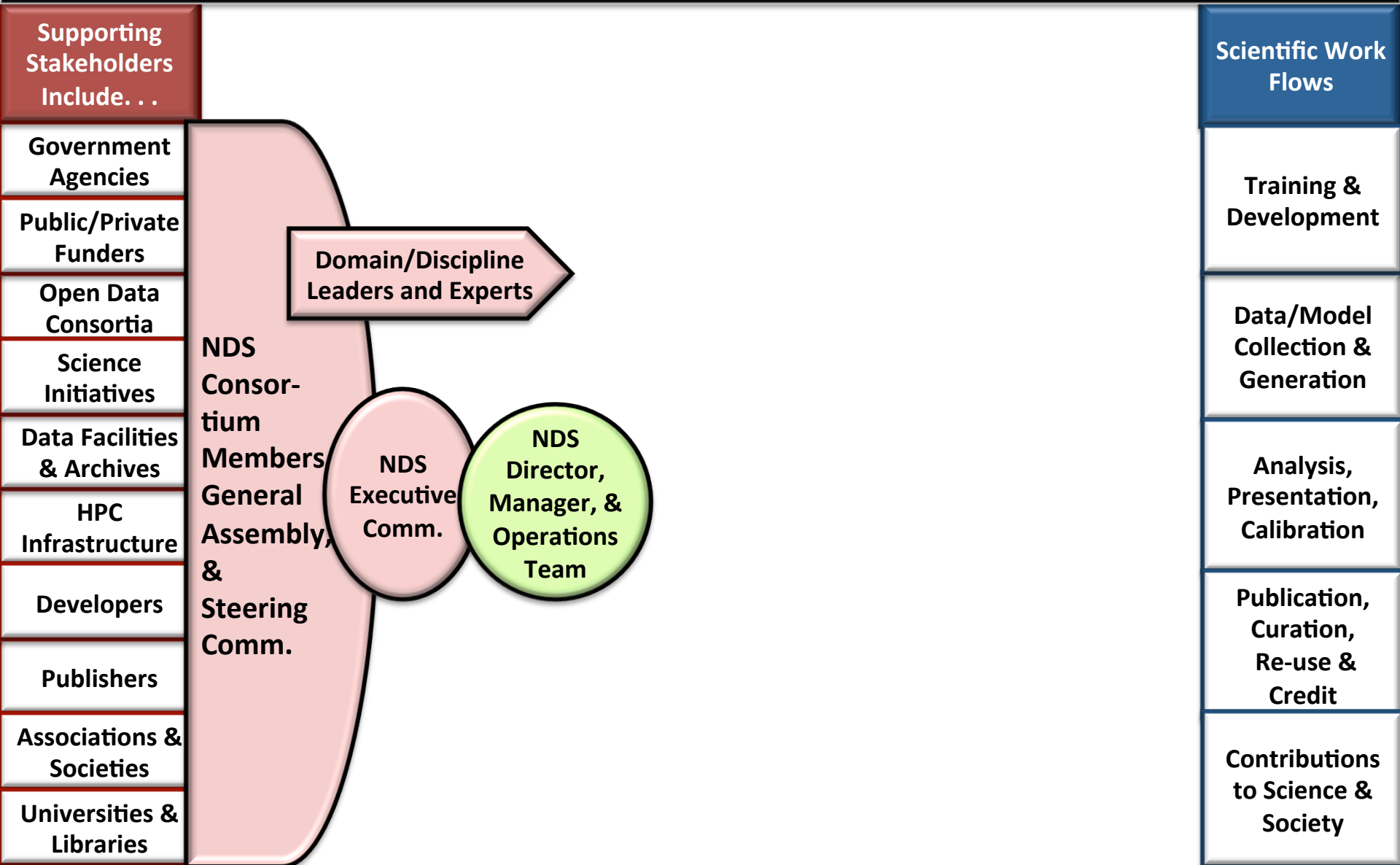- Contributions to Science & Society

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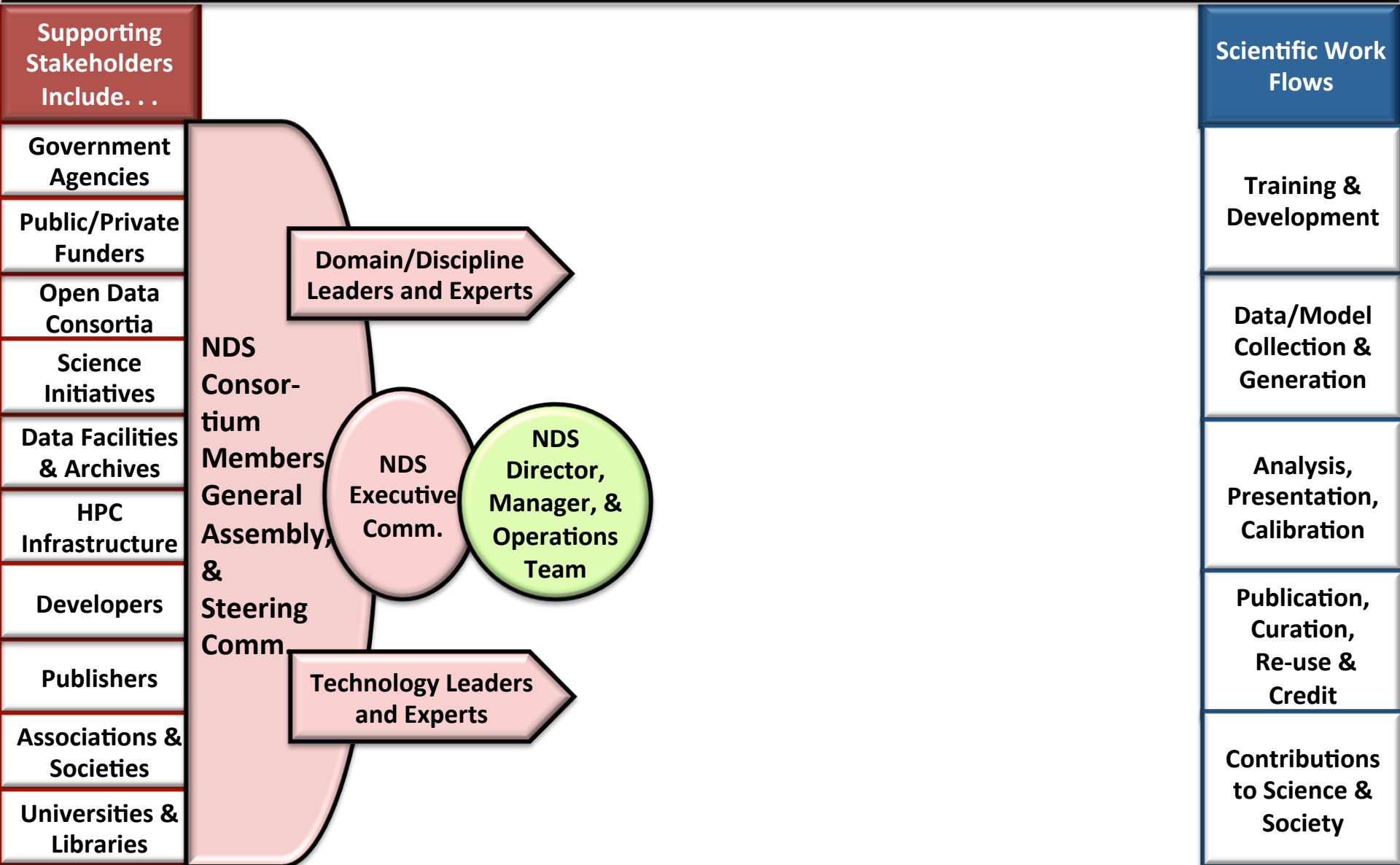## Normal and Transformational Research Challenges Facing Science and Society

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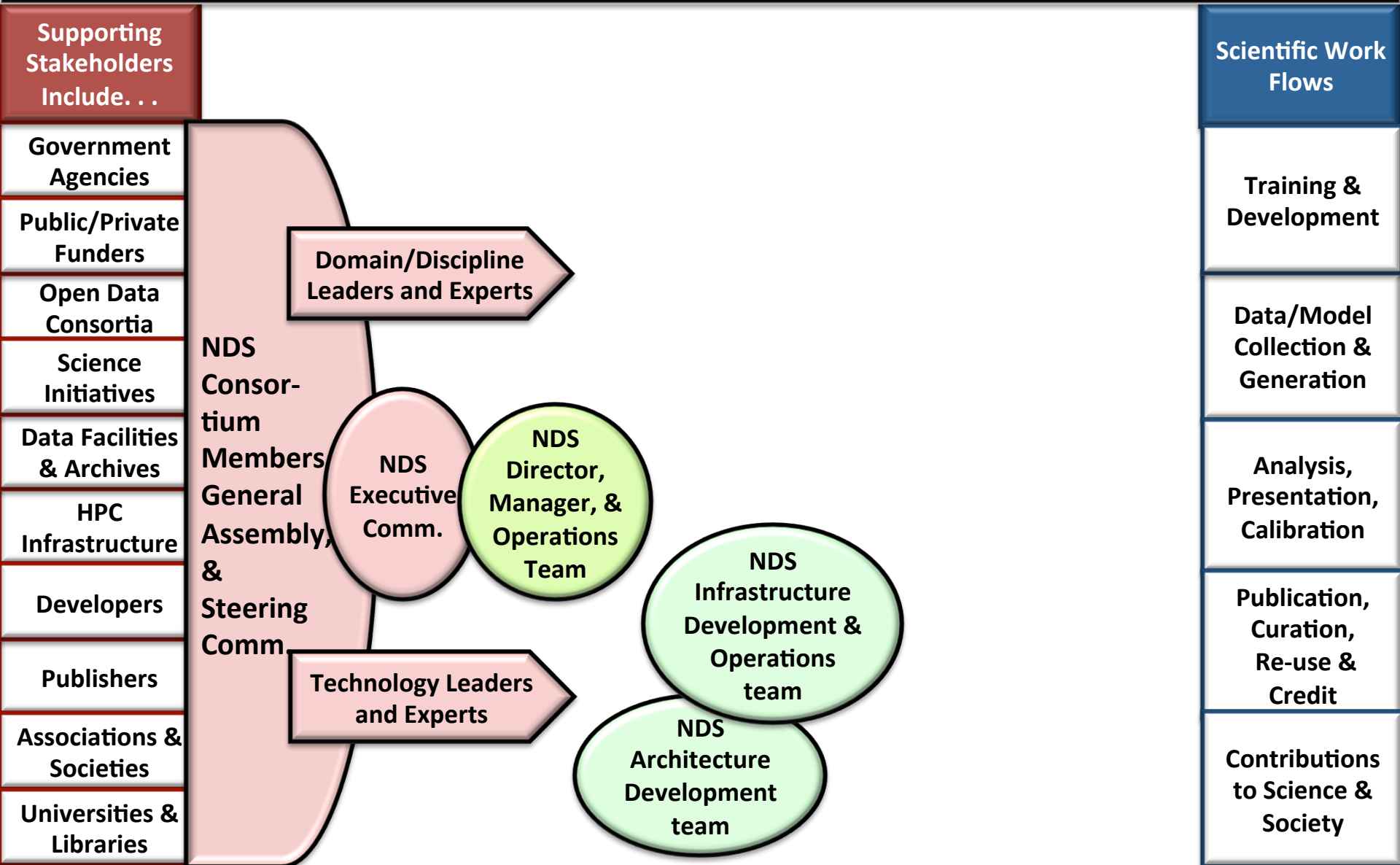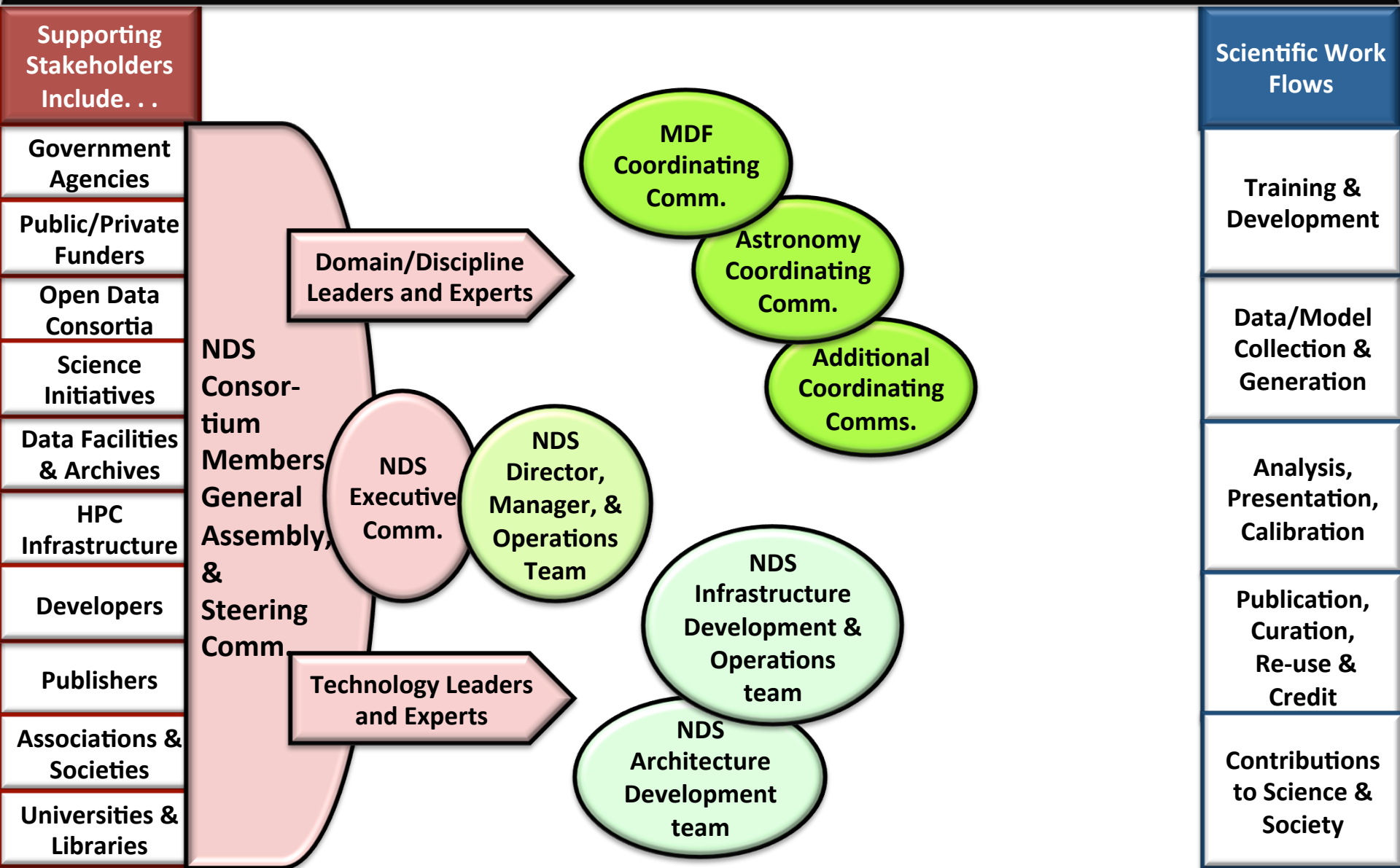## Normal and Transformational Research Challenges Facing Science and Society

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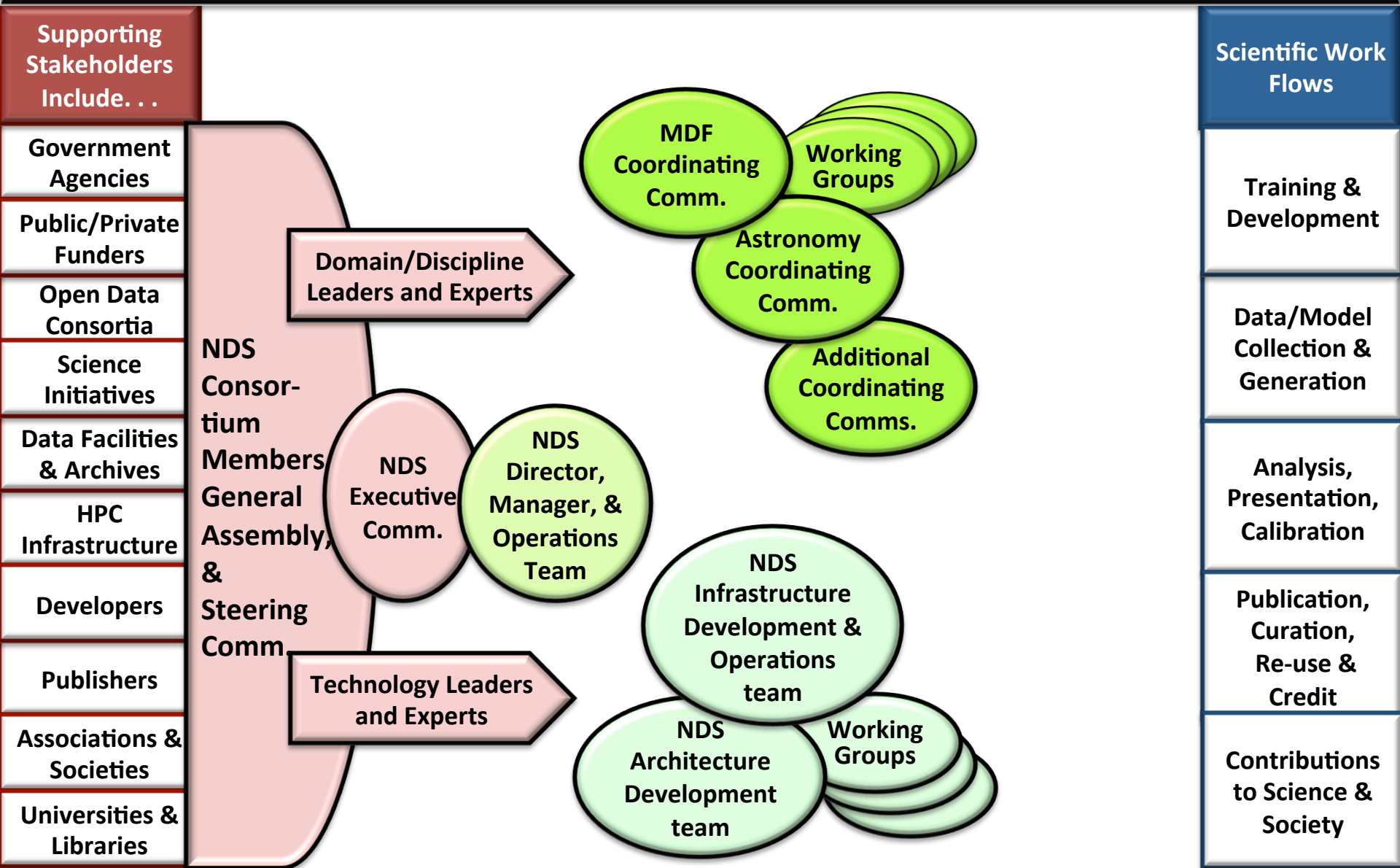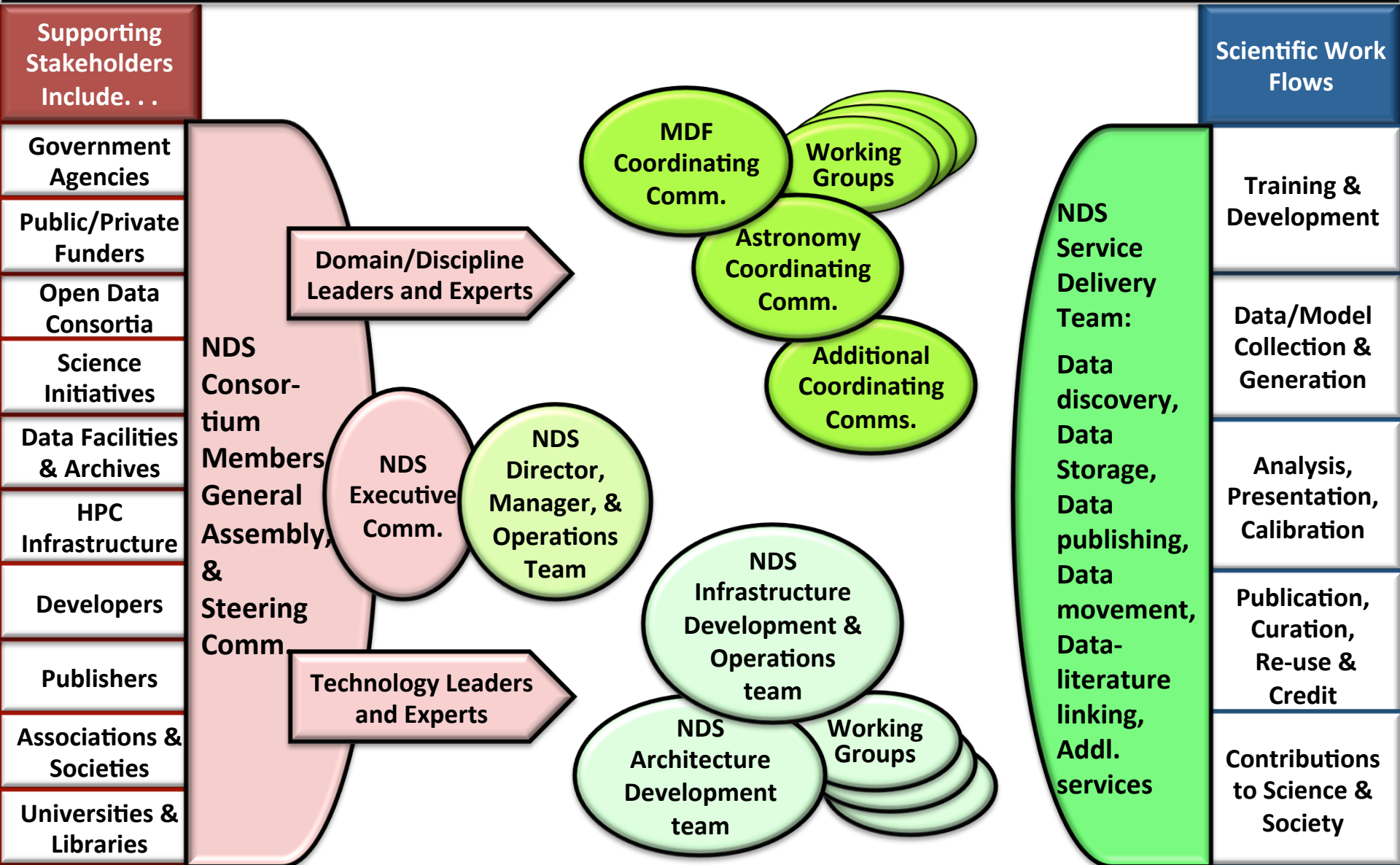## Normal and Transformational Research Challenges Facing Science and Society

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Data discovery, Data Storage, Data publishing, Data movement, Data-literature linking, Addl. services

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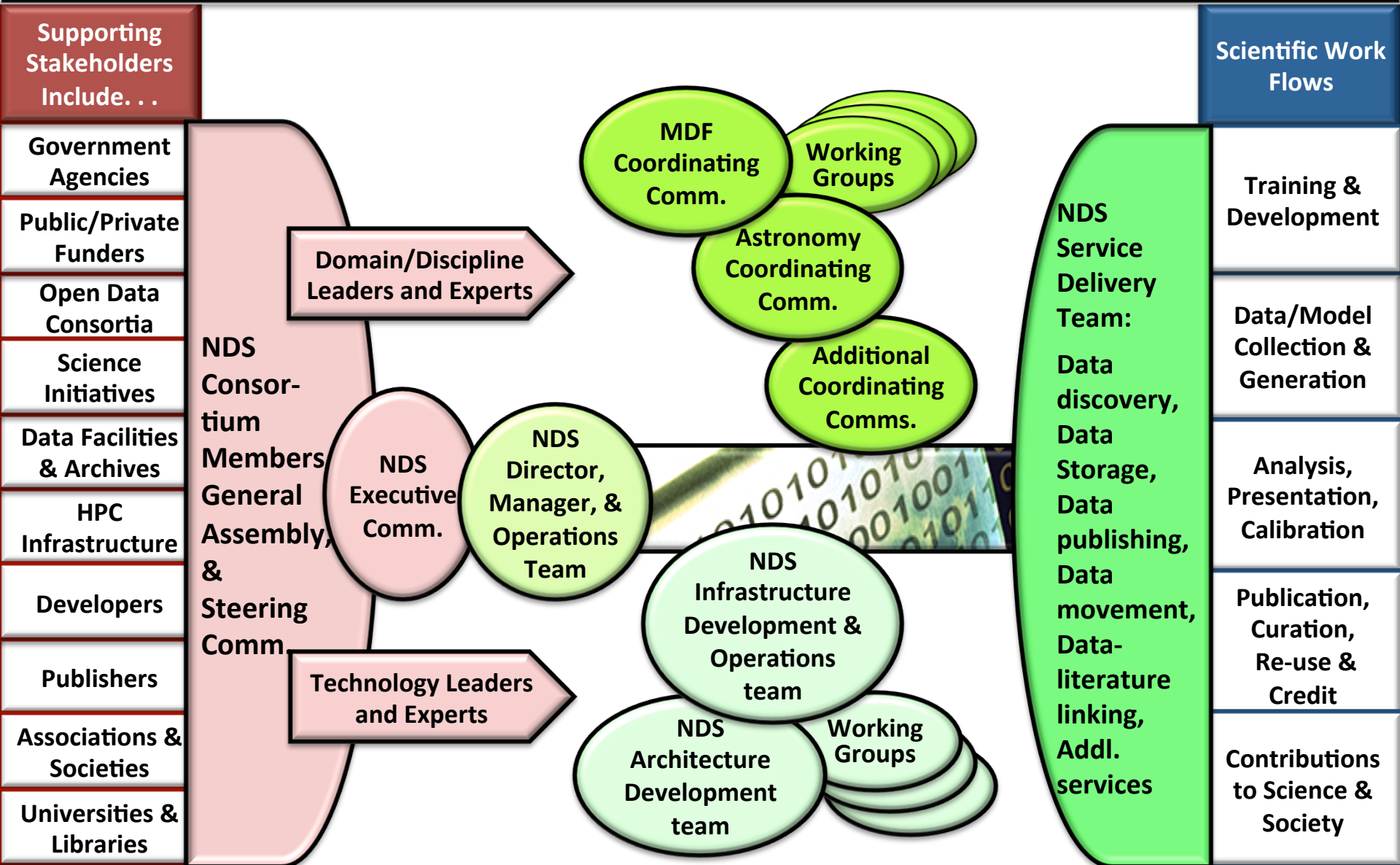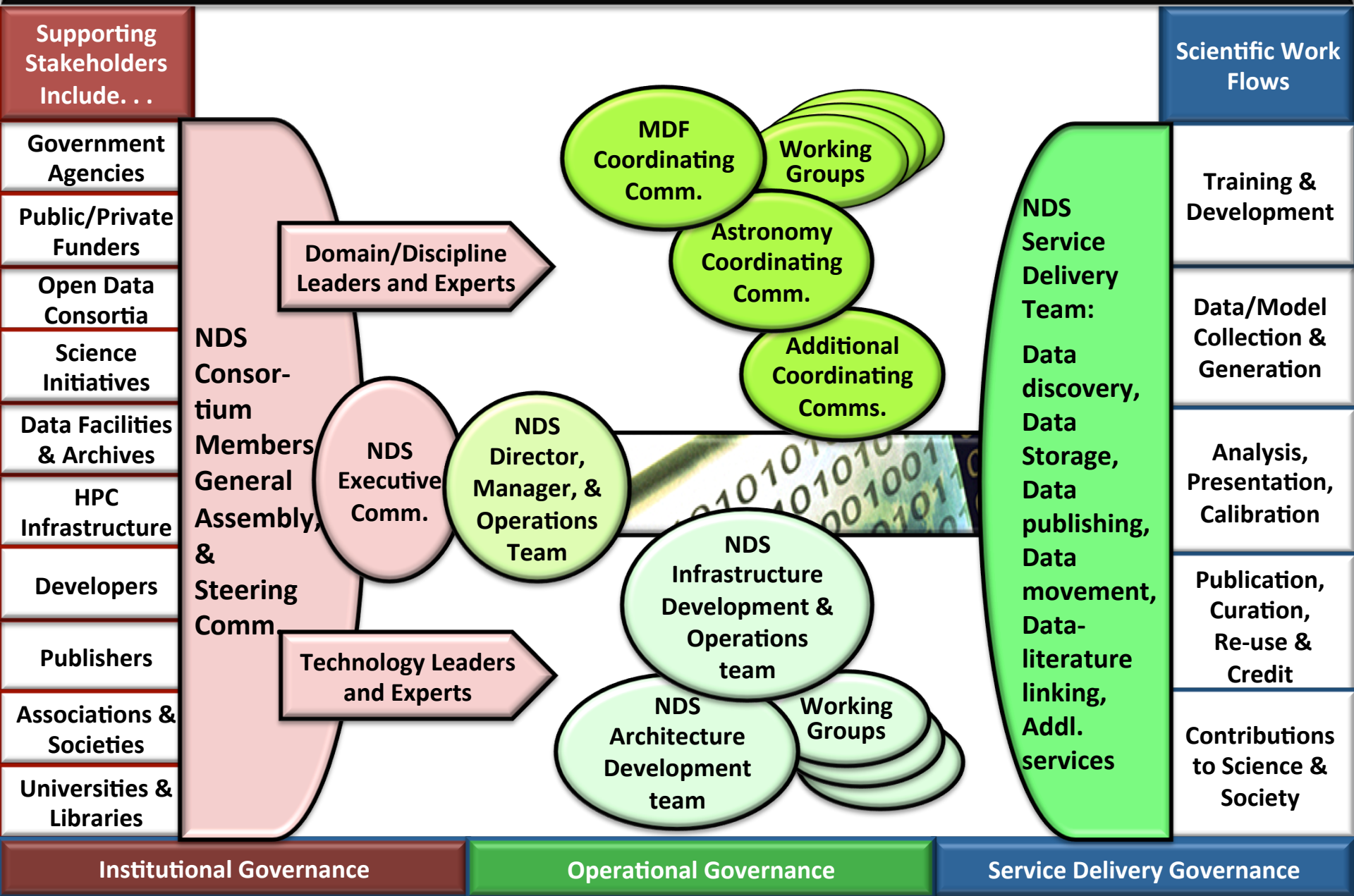## Normal and Transformational Research Challenges Facing Science and Society

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Institutional Governance | Operational Governance | Service Delivery Governance

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- With Additional Working Groups Throughout
- NDS Architecture Development Team
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