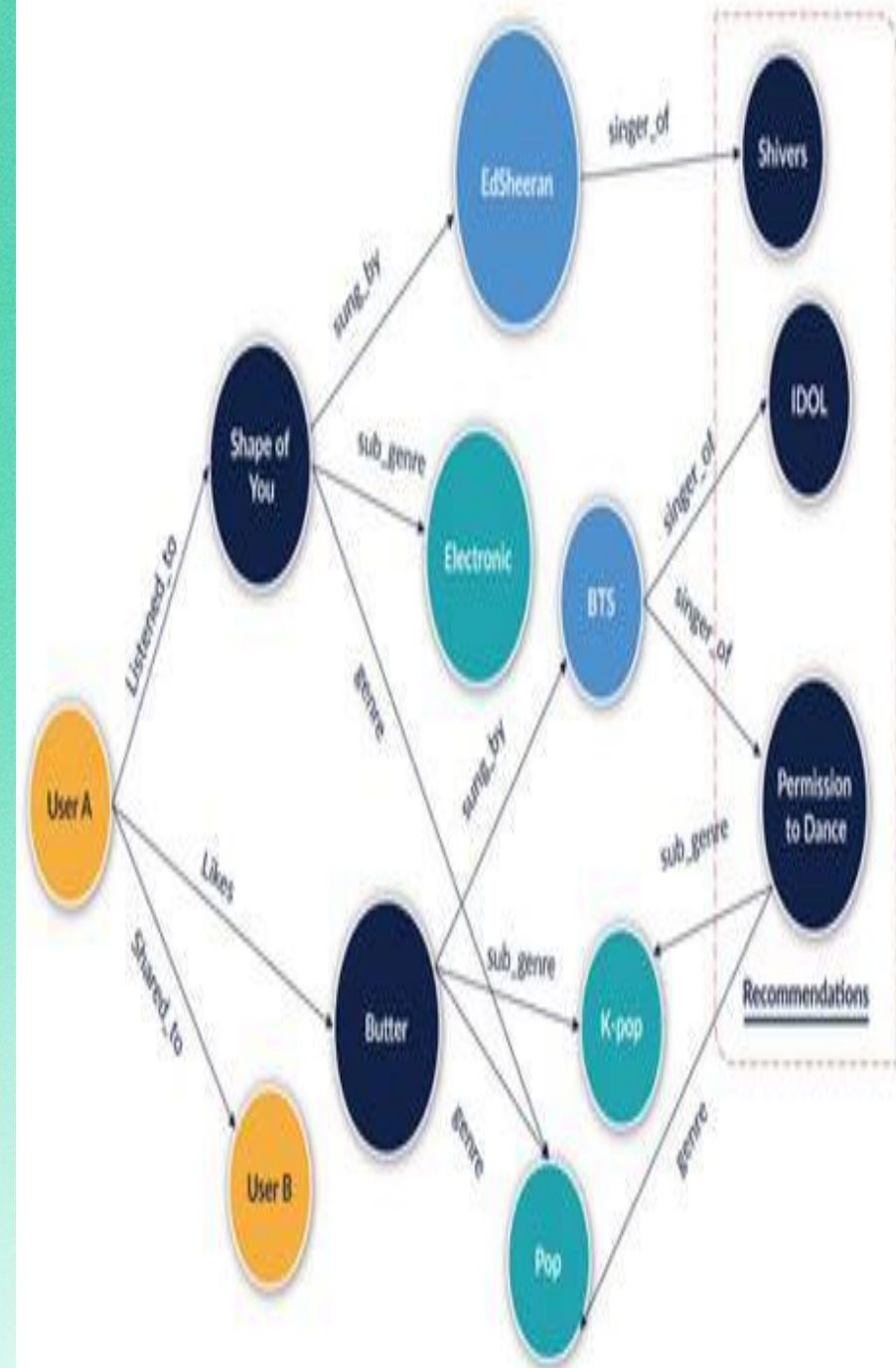


Knowledge graphs: The future of integration in CRIS systems for scientific reasoning

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Section 1

Introduction



The Growing Significance of Knowledge Graphs

01

Background

The management and utilization of vast amounts of data have become increasingly crucial in academic research and scientific inquiry.

02

Rising Prominence

Knowledge graphs (KGs) have emerged as pivotal tools for data integration and knowledge representation within Current Research Information Systems (CRIS) Systems.

03

CRIS Systems

Central repositories for organizing and disseminating research-related information, including publications, grants, projects, and collaborations.



Section 2

Related Work



Advancements in CRIS Systems

01

Significant Advancement

The incorporation of KGs into CRIS systems has garnered increasing attention, offering promising avenues for enhancing data integration and assisting scientific reasoning.

02

Efficiency of KGs

KGs have shown remarkable efficiency in addressing the complexities of scientific data within CRIS systems.

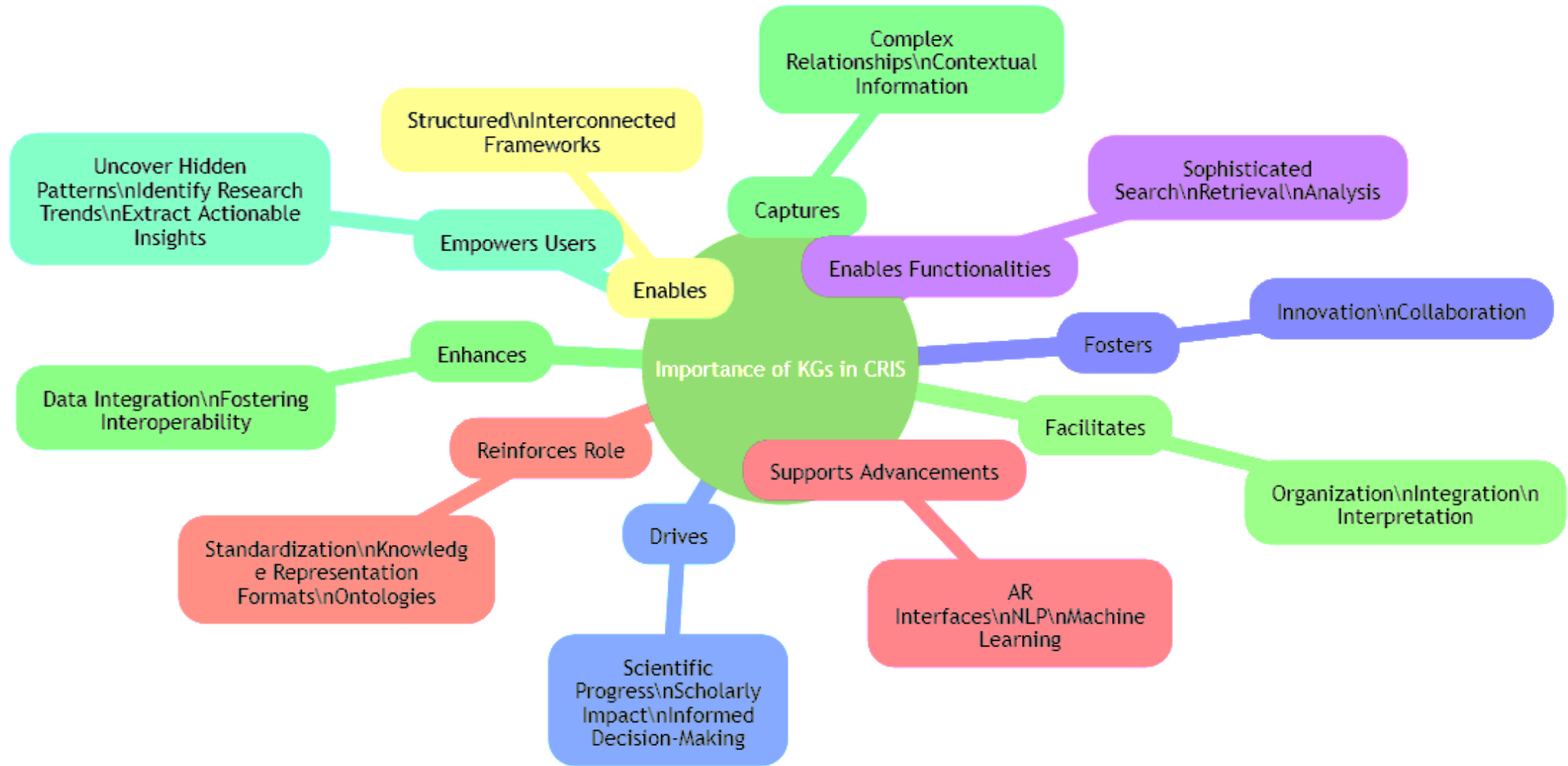


Section 3

Importance of KGs in CRIS Systems



Meaning of KGs in CRIS



KGs as Indispensable Tools

01

Central Role

KGs have evolved into indispensable tools, playing a crucial role in organizing, integrating, and interpreting research-related information within CRIS systems.

02

Significance

KGs offer invaluable benefits in structuring information, enabling a deeper understanding of the research landscape.



Section 4

Rise of KGs as Key Tools



Transformative Development

01

Paradigm Shift

The emergence of KGs as key instruments in the field of information management represents a transformative development in data integration and knowledge representation.

02

Versatile Frameworks

KGs have evolved into versatile frameworks for organizing, integrating, and analyzing data across various domains.



Section 5

Efficiency of KGs in Data Integration and Knowledge Representation



Data Integration, Knowledge Representation, Analytical Capabilities

Data Integration

- KGs enable seamless integration of data from various sources, including structured databases, unstructured texts, and multimedia content. This flexibility facilitates the merging of heterogeneous data and contributes to the creation of a comprehensive data ecosystem.

Knowledge Representation

- By representing entities as nodes and relationships as edges, KGs provide an intuitively understandable way to model complex relationships between data points. This allows for a precise and meaningful representation of existing knowledge, which in turn enables improved analysis and interpretation of the data.

Analytical Capabilities

- KGs support advanced analytical functions by facilitating semantic queries and reasoning. They enable users to pose complex queries and identify hidden patterns or relationships between different data points. This helps to gain deeper insights into the data and make informed decisions.

Unparalleled Efficiency

01

Robust Framework

KGs offer unparalleled efficiency in data integration and knowledge representation, providing a flexible and dynamic approach to information organization.

02

Semantic Queries

KGs support semantic queries and reasoning, enabling users to derive meaningful insights from interconnected data.

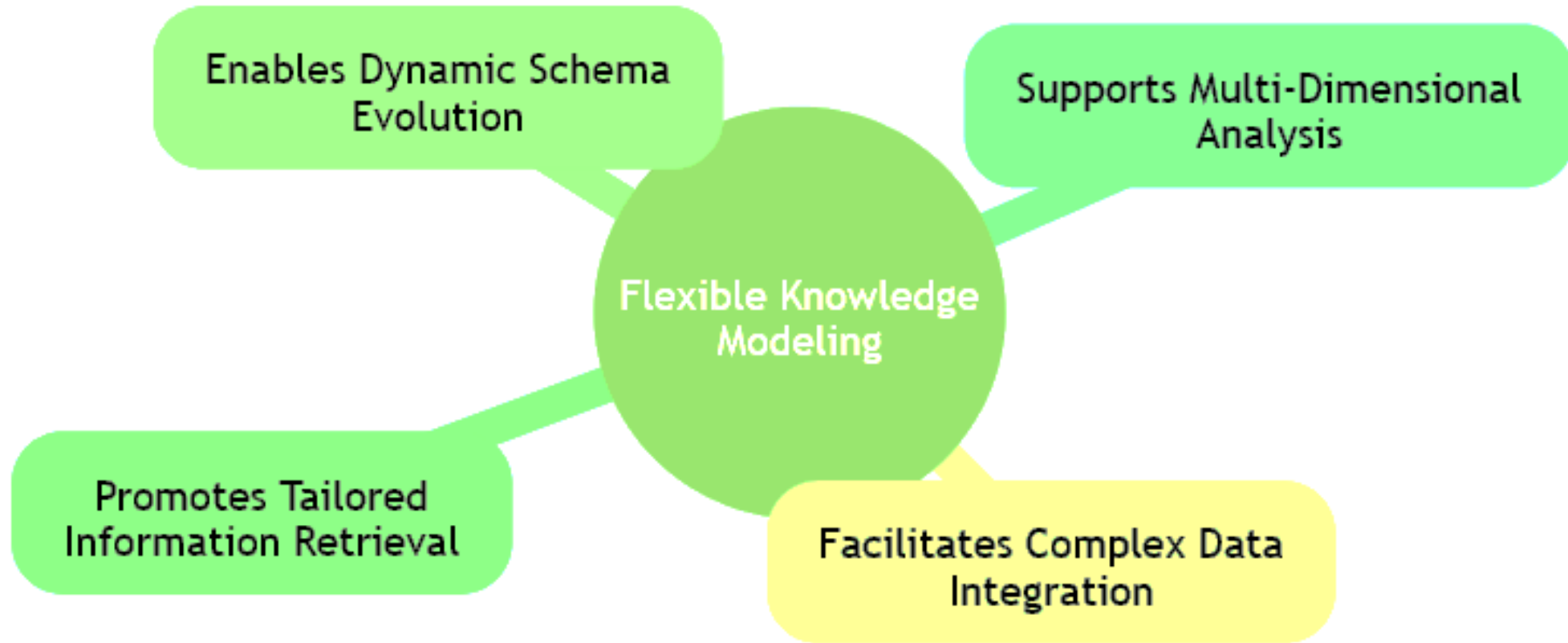


Section 6

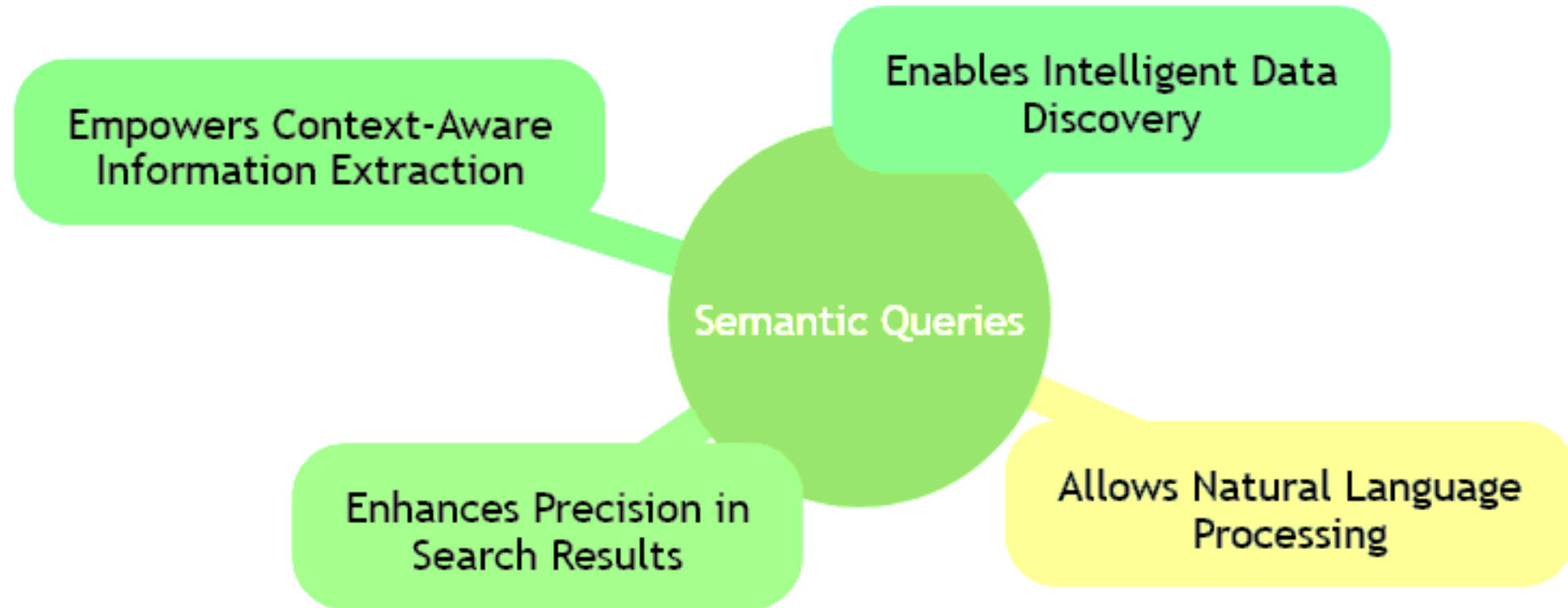
Challenges in Utilizing KGs in CRIS Systems



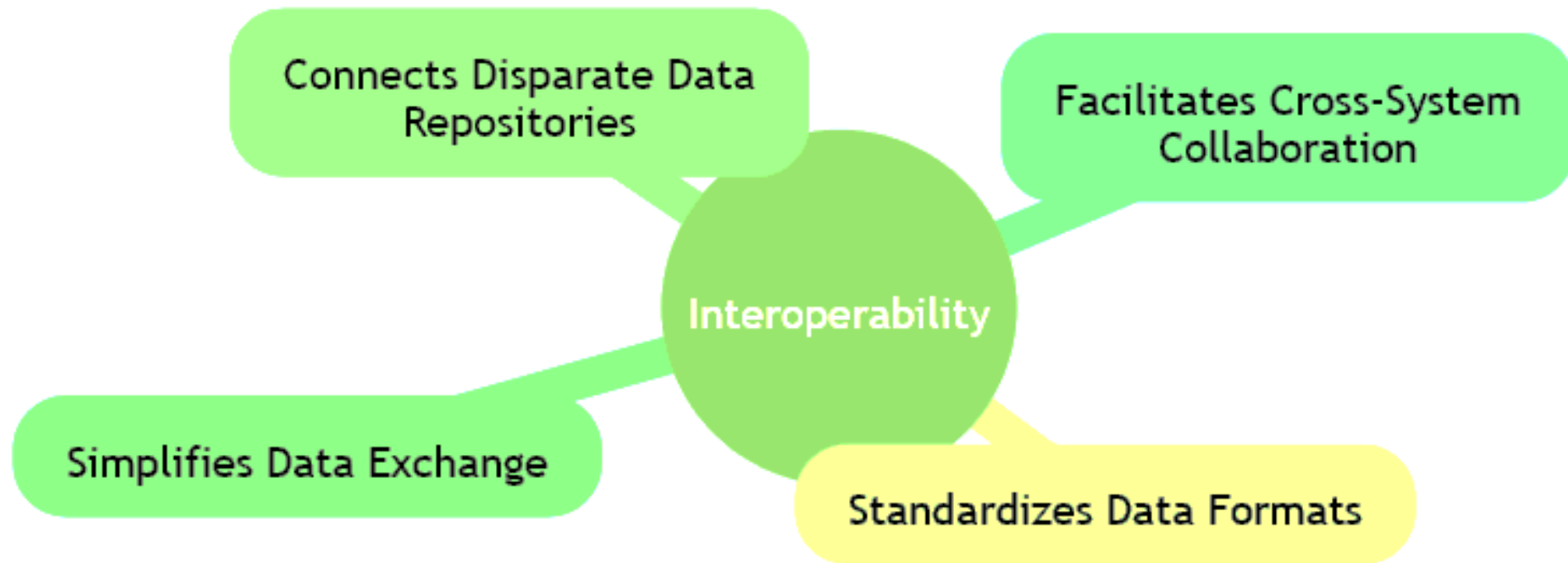
Flexible Knowledge Modeling



Semantic Queries



Interoperability



Systemic Limitations and Challenges

01

Flexible Knowledge Modeling

KGs enable dynamic and agile representation of knowledge, supporting granular and context-sensitive data modeling.

02

Support for Semantic Queries

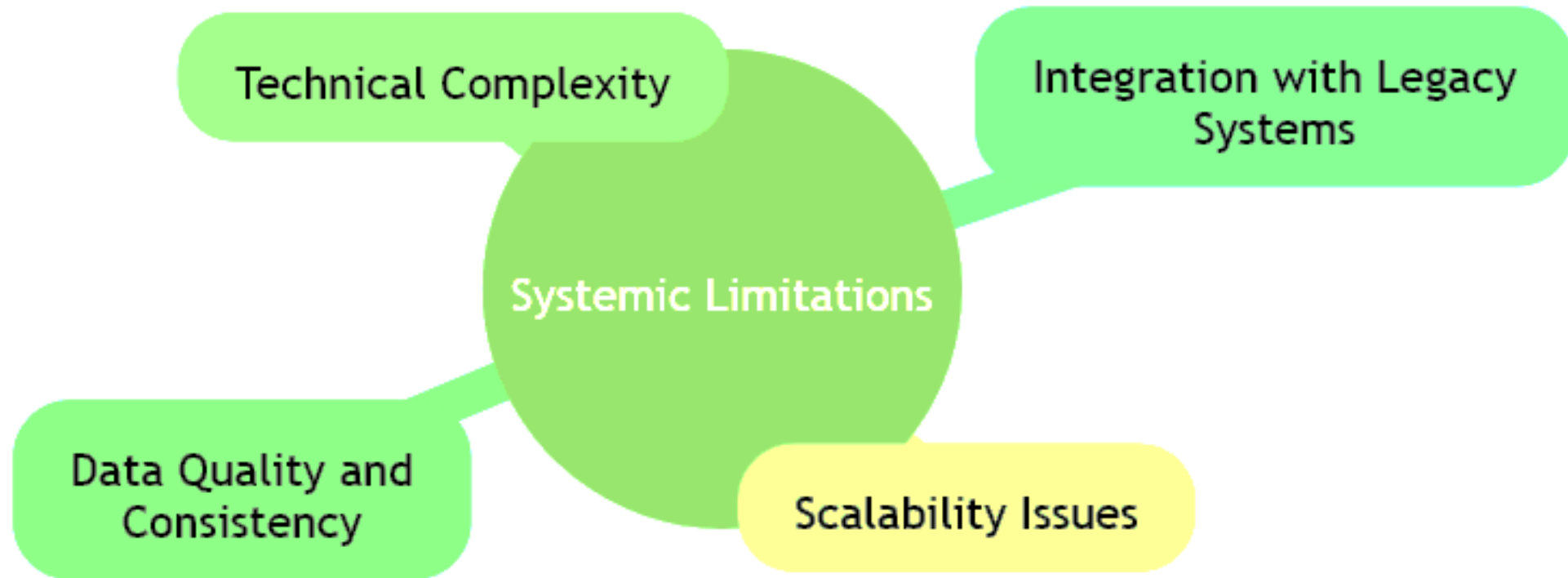
KGs can process and interpret complex queries based on the meaning of terms and their relationships.

03

Interoperability with Various Data Sources

KGs seamlessly integrate with various databases, repositories, and external resources, enabling comprehensive data integration.

Systemic Limitations



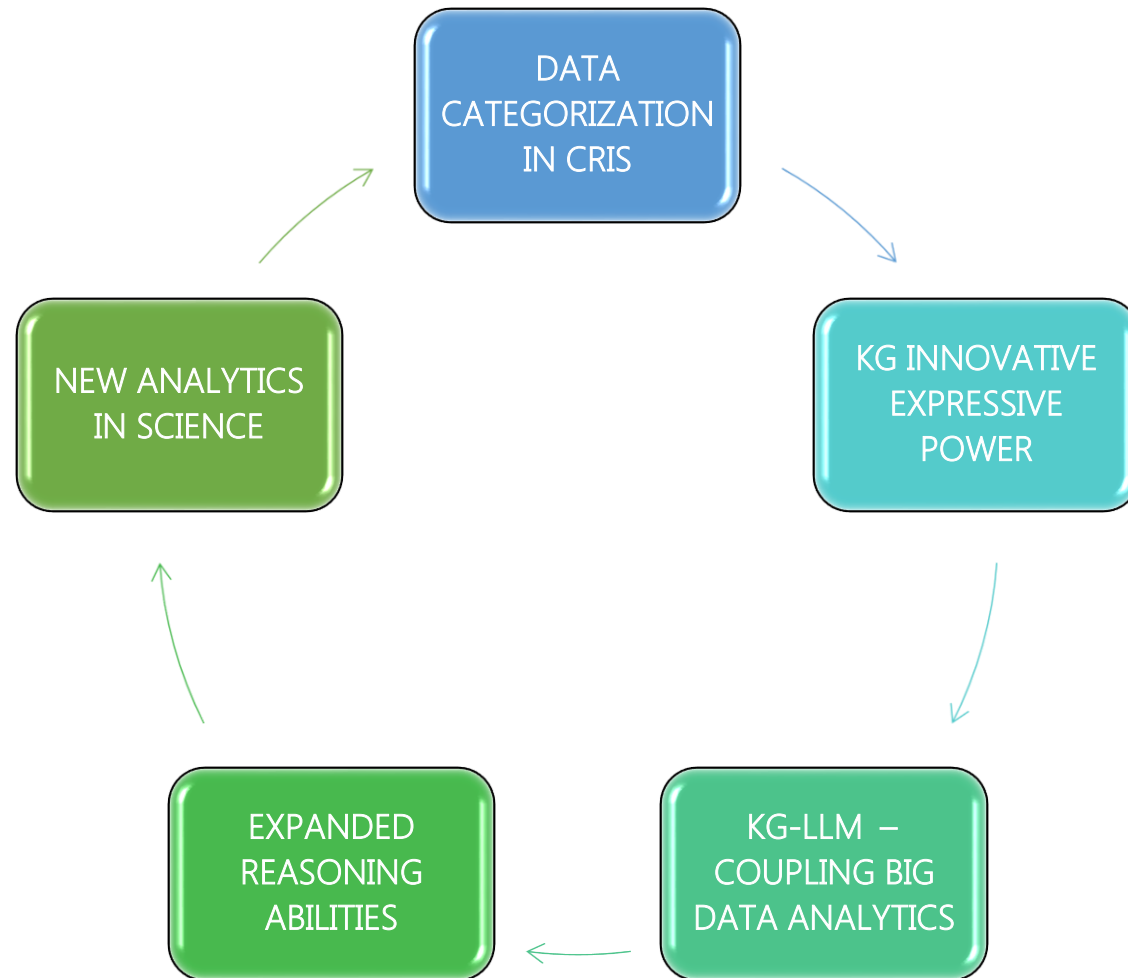


Section 7

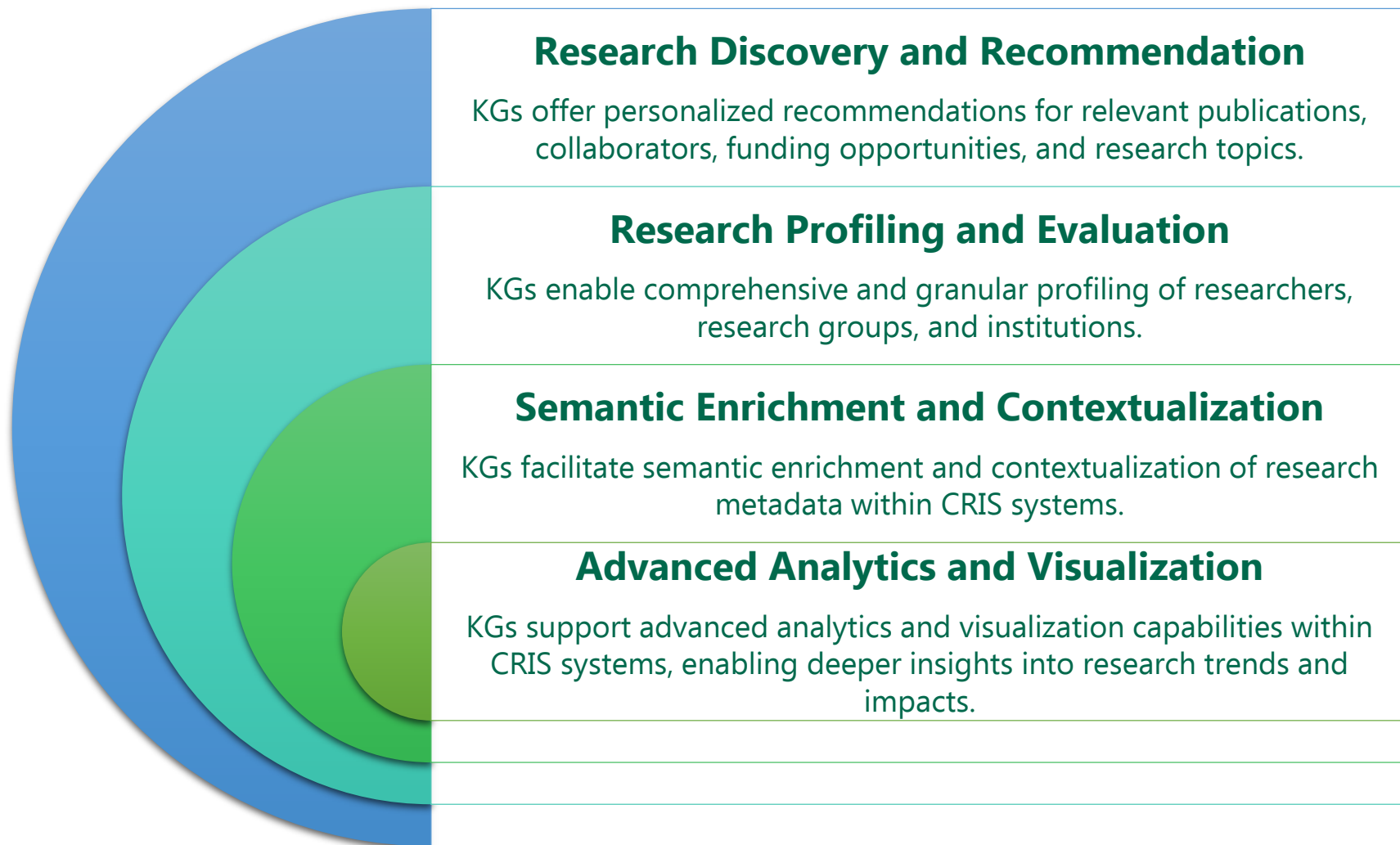
Impacts of KGs on Scientific Reasoning



Science Analytics: New Challenges, New Tools



Application Examples for KGs in CRIS Systems





Section 8

Conclusion and Outlook



Future Outlook

01

Technological Advancement

CRIS systems hold the potential to revolutionize scientific research and expedite discoveries across diverse fields.

02

Challenges and Opportunities

Addressing key challenges and ensuring the adoption of ethical, transparent, and responsible data integration practices are imperative to fully realizing the transformative potential of integration within CRIS systems.

Thank You

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