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DISCUS: Distributed Innovation and Scalable Collaboration in Uncertain Settings

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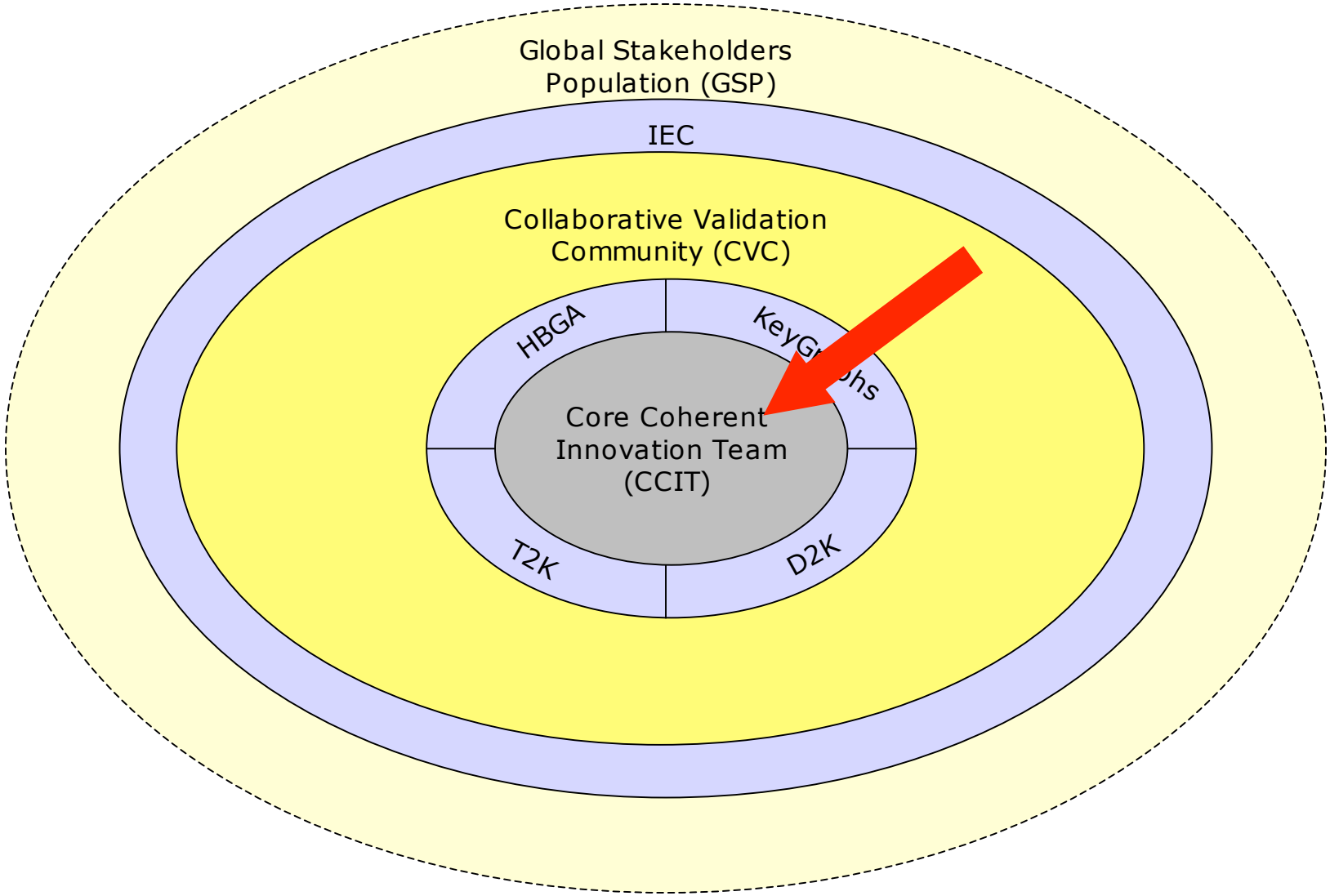
DISCUS Outline

- Innovation technology for creative collaboration, and decision-making.
- Combine HHC (human-human collaboration) and HMC (human-machine collaboration) to form powerful system.
- Envision both synchronous and asynchronous collaboration for continuous innovation.
- Overcome superficiality of online interaction through augmented reflection

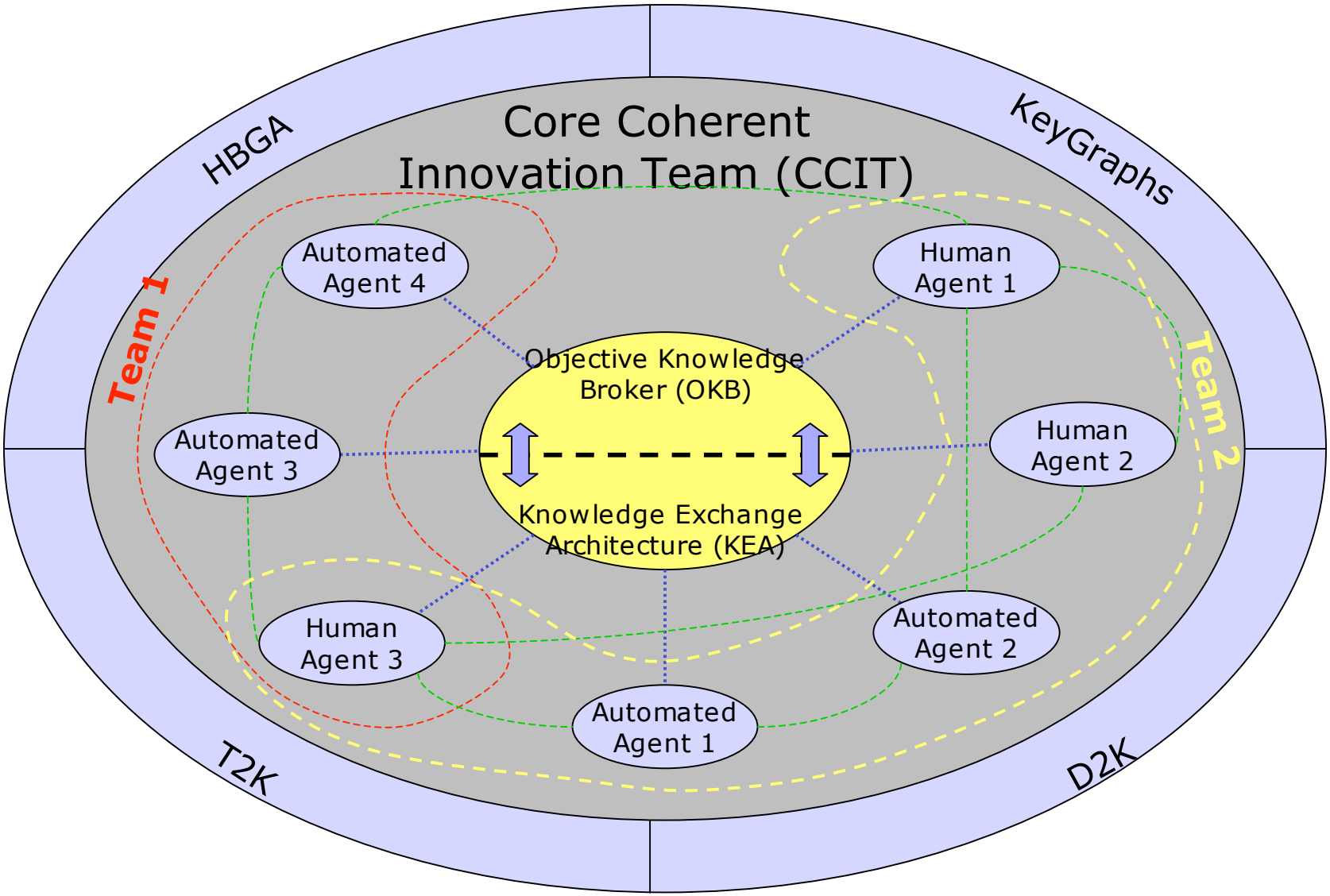
DISCUS Components

- Research
  - Innovation support technologies (IST)
  - Human-based genetic algorithms (HBGA)
  - Interactive genetic algorithms (IGA)
  - Chance discovery (KeyGraphs & IDM)
- Development & Integration
  - Collaboration technologies
  - Heterogeneous data source integration
  - Model integration and analysis
  - Knowledge management
  - Knowledge extractions and data mining

DISCUS Overall Picture

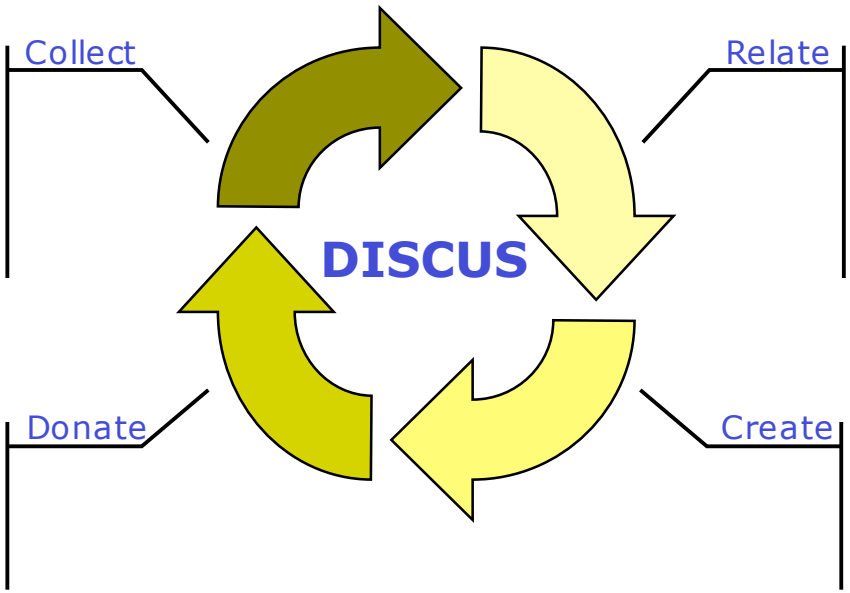


DISCUS Core Innovation Team



DISCUS Process in a Nutshell

- Knowledge Extraction (*Data, Text, & Image Mining*)
- Knowledge Management
- Chance Discovery
- Distributed Cooperation



- Knowledge Sharing
- Collaborative Refinement
- Electronic Brainstorming
- Goal Definition

- Consensus Broadcast
- Summary of the Evolved Solutions
- Feedback Collection

- Innovation-based Decision Support (IDS)
- Innovation-based Solution Creation (ISC)

Extensible DISCUS Architecture

DISCUS Applications | DISCUS Integrated Web Interface (DIWI)

DISCUS Service Abstraction Layer

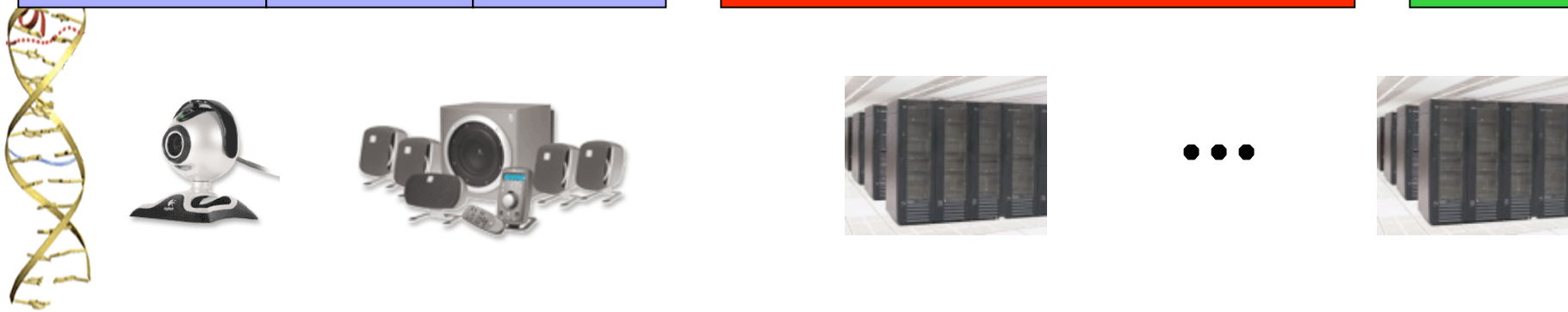
DISCUS Workflow | Functional Scenario Definition | Scenario Engine

DISCUS Abstraction Layer

Collaboration Integration Layer | iGA | Chance Discovery | HBGA | Models | Visualization

On-line archiving | Topic tracking/identification | Core | I2K | T2K | Theme Weaver

Conference Technology | Collaboration Infrastructure | Knowledge Sharing | D2K Engine | Webcrawlers



DISCUS 2.0 Functionalities

- Group management (IlliGAL)
  - User information and profiling
  - Dynamic group formation and management
  - Leader identification (owner)
- Discussions, models, and data sources (D2K+IlliGAL)
  - Flexible discussion definition
  - Grant/revoke access to models and data sources
  - Dynamic management by the discussion owner
- Analysis tools (Theme Weaver + D2K + IlliGAL)
  - Automatic web crawlers
  - Document analysis

DISCUS 2.0 Functionalities

- Collaborative support
  - Asynchronous collaboration (bulletin boards) (KLSG)
  - Documents and results sharing (via attachments) (KLSG)
  - Synchronous collaboration (instant messaging & chat rooms) (KLSG)
  - On-line analysis of the discussions (IlliGAL)
  - Collaborative solution creation (IlliGAL)
  - Automated topic guided search (IlliGAL)
    - Connection to outside search engines
    - Connection to DISCUS archives
  - Multilanguage support for western languages (IlliGAL)
  - Questions and answers + bug tracker (IlliGAL)

Cast of 1000 Characters

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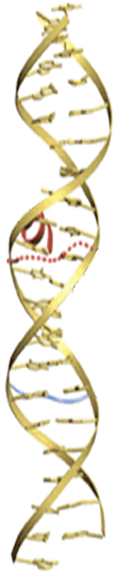

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- Visit IlliGAL web site.
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- Recent book: Goldberg, D. E. (2002). *The Design of Innovation.* Boston, MA: Kluwer Academic, http://www-doi.ge.uiuc.edu/