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## Methods and Tools for Working with Sustainability Aspects in Product and Production Co-Development from a Requirements Management Perspective

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### Background

The urgency to stay within planetary boundaries has accelerated sustainable product and production development in both industry and research. Numerous methods and tools are emerging rapidly, yet practical implementation faces challenges due to evolving requirements, regulations, and the overwhelming variety of approaches.

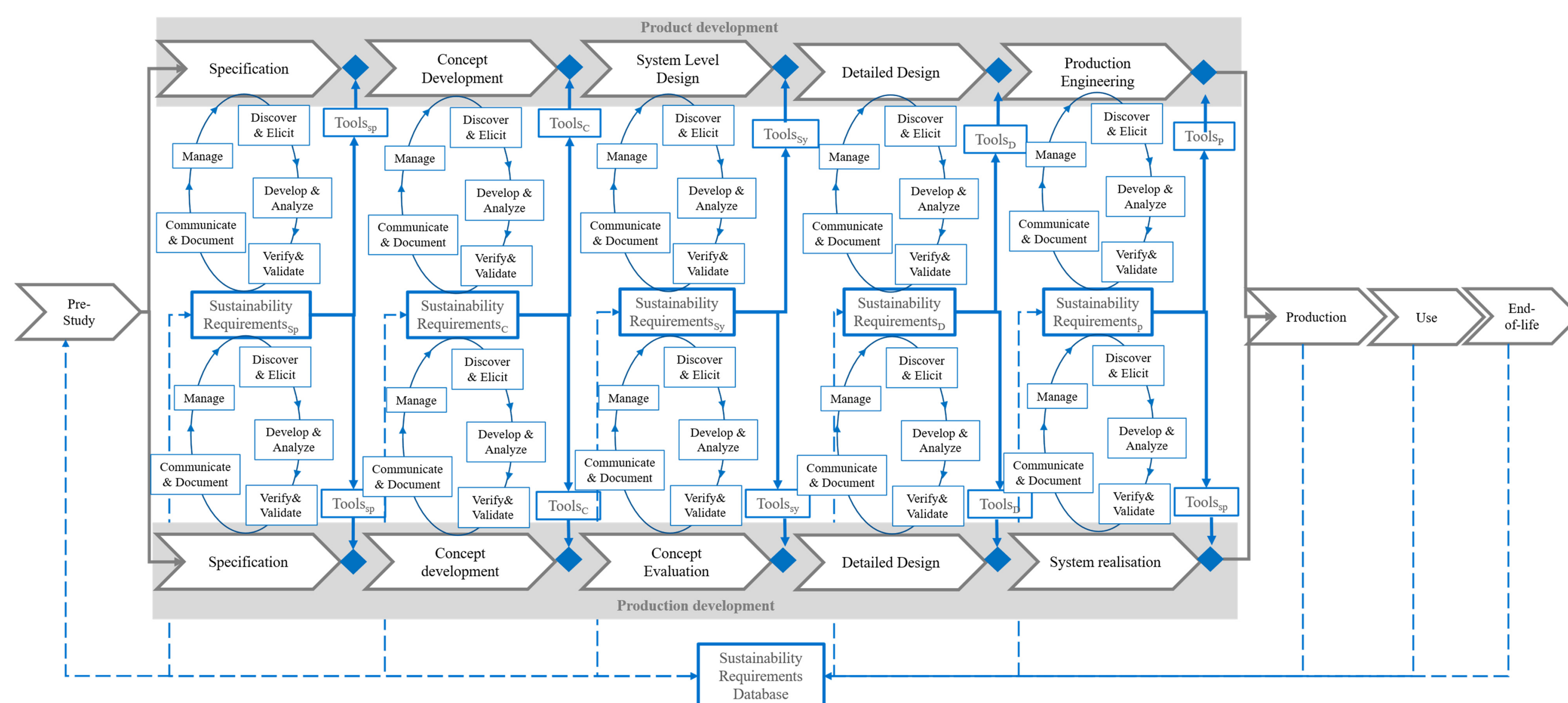
### Key Findings

- **Gap in Knowledge & Guidance:** Limited support exists for addressing sustainability risks during development.
- **Focus on Product Development:** Most methods target products, with minimal support for production development or product-production co-development.
- **Stakeholder Challenges:** Current tools mainly assist design engineers, leaving other stakeholders without adequate means to identify and communicate sustainability requirements.
- **Lifecycle Risks:** Missing sustainability aspects across phases can compromise overall impact.

### Proposed Solution

A requirements management-based framework to:

- Integrate sustainability requirements from all lifecycle phases into a central database.
- Enable reuse of sustainability knowledge and foster stakeholder collaboration.
- Support evolving requirements and alignment for product-production co-development.



### Impact

This framework aims to unify diverse methods, streamline sustainability integration, and serve as the foundation for future research and evaluation.

