Transparently Safeguarding Good Research Data Management with the Lean Process Assessment Model

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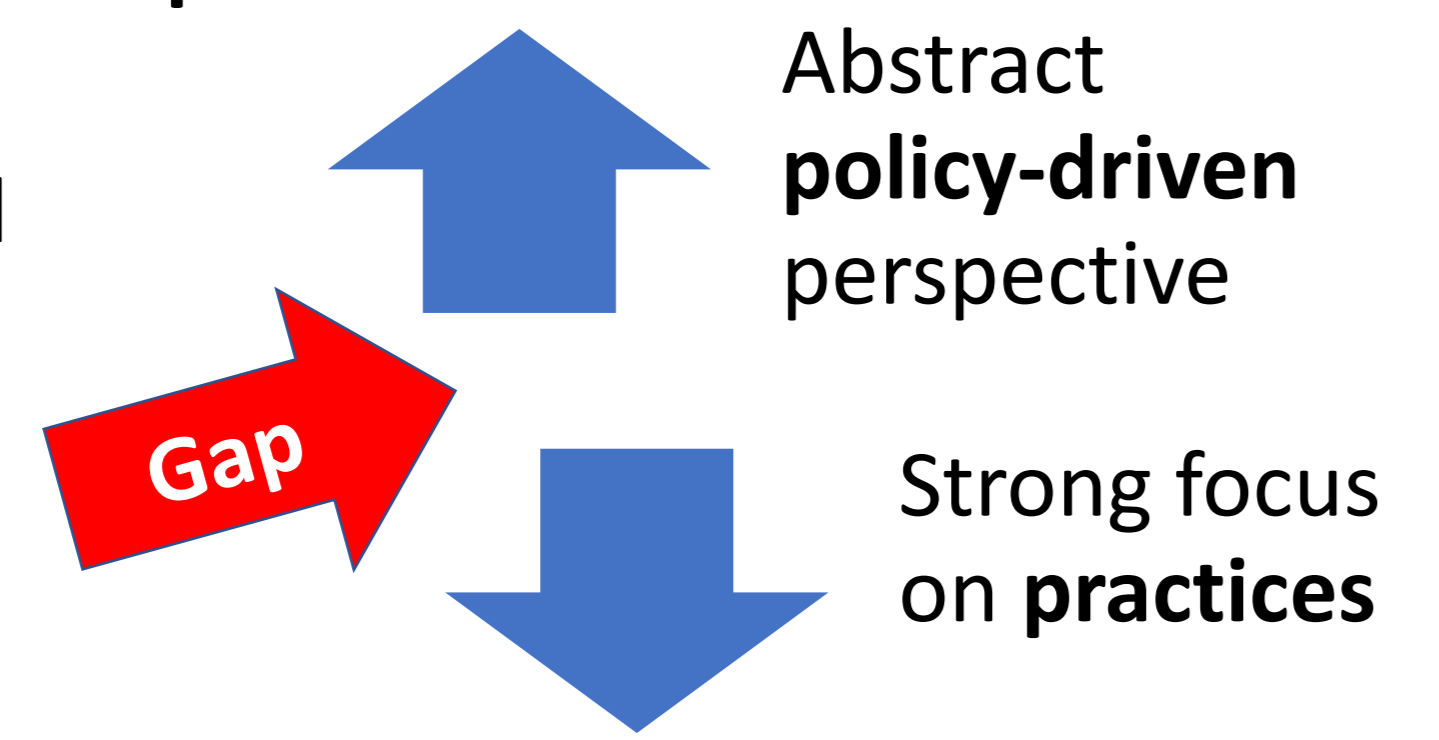**SFB 1294**
Data Assimilation

Project Z03

Problems to Solve

Research Guidelines: Status quo

- Abstract guidelines cannot be implemented directly
- Practices without principles quickly become obsolete

Abstract **policy-driven** perspective

Gap

Strong focus on **practices**

Industry Approach: Reference and Assessment Models

- Process / life cycle perspective
- Clear goals, target-oriented practices
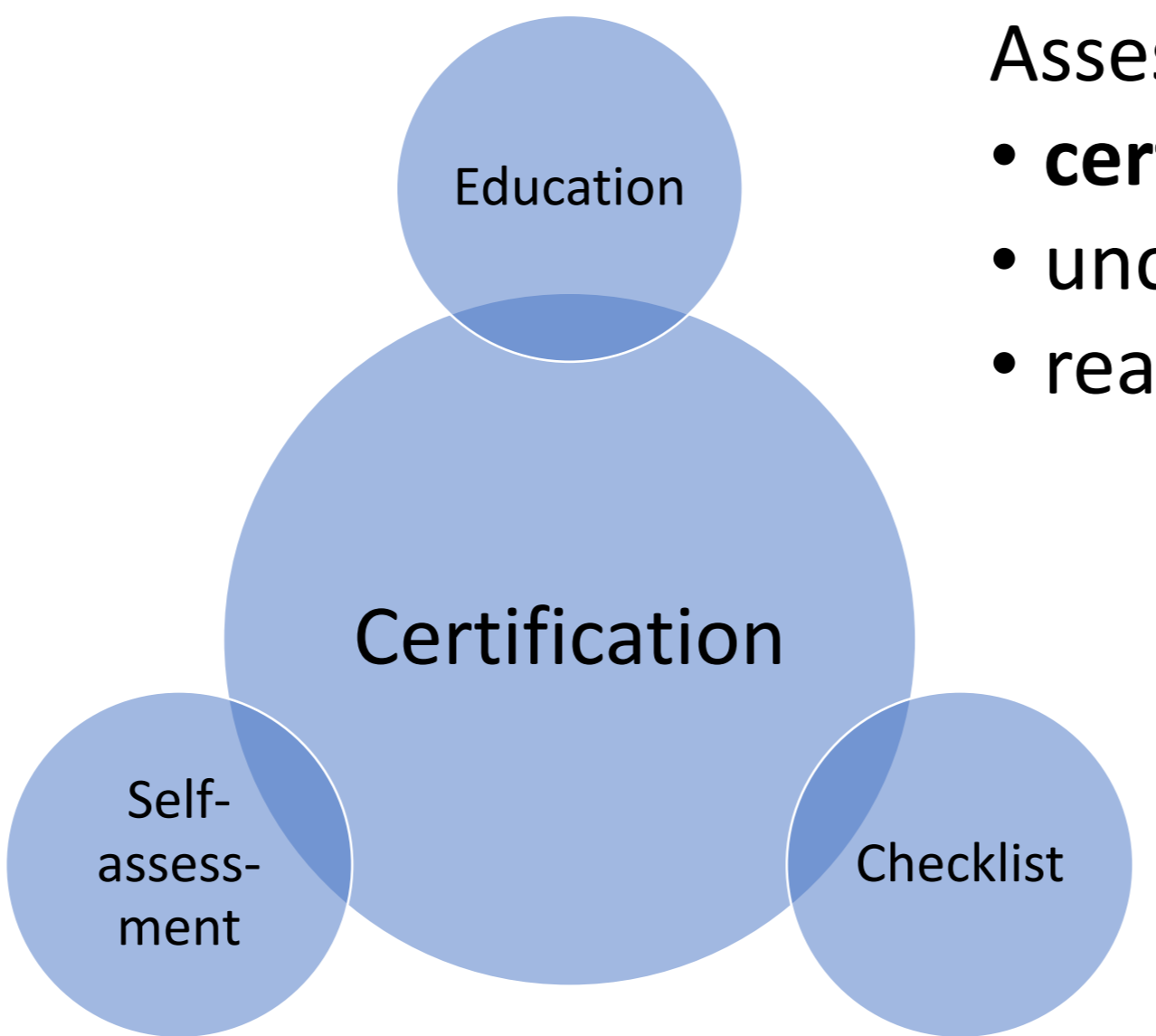- Created for industry, not directly applicable for research

Solution: Combining Both Worlds

Industry model CMMI **+** Research guidelines and practices **=** Lean Process Assessment Model

Development and Sources

Guidelines	Funding agencies
	RDM handbooks
Practices	Existing literature
	Knowledge bases
Interviews	Research projects
	RDM experts
Discussions	DFG reviewers
	RSE conference

Goals of the Lean Process Assessment Model
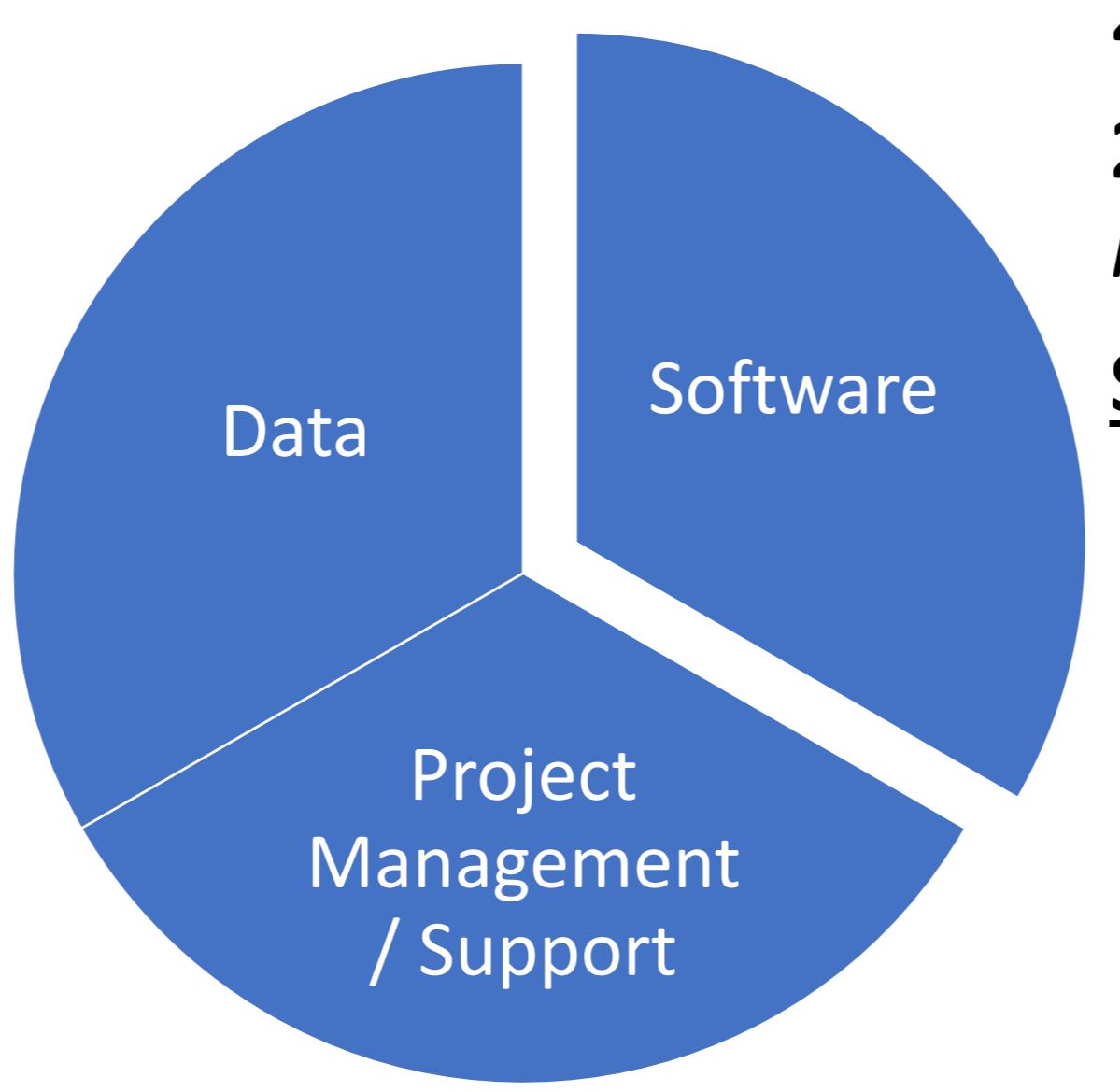
Education

Certification

Self-assessment

Checklist

Assess scientific processes
- **certify** good scientific practice
- uncover **improvement** capabilities
- reach minimum **quality level**

Assessment based on **peer-reviewing** between projects. Three projects serve as pilots.

Research projects ≠ Industrial software development

Example Structure

Data

Software

Project Management / Support

2 Software

2.9 Minimal Publishing
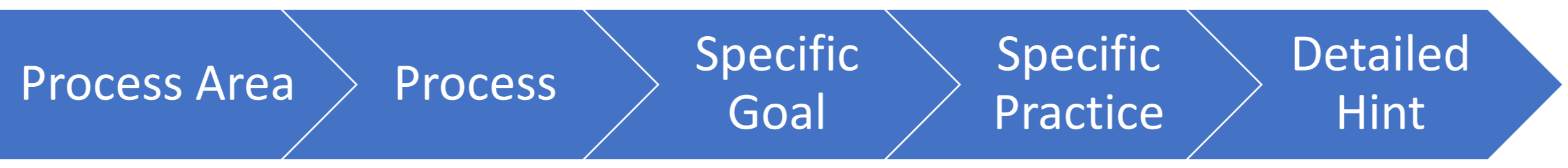*Included in Maturity Level 2.0*

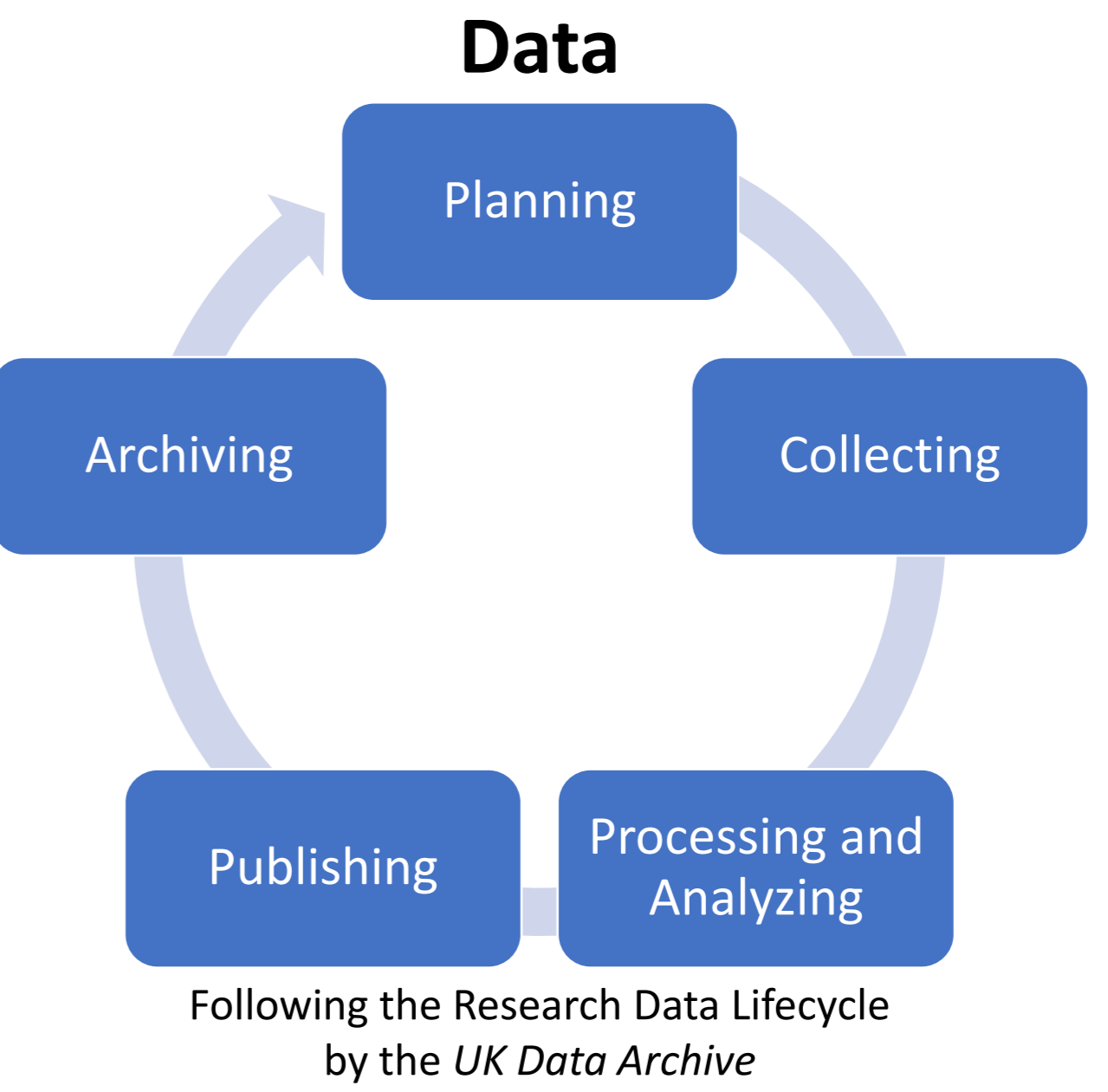**SG1** **Meet the minimal publishing goals of the DFG.** As a rule, the DFG expects researchers to publish […]
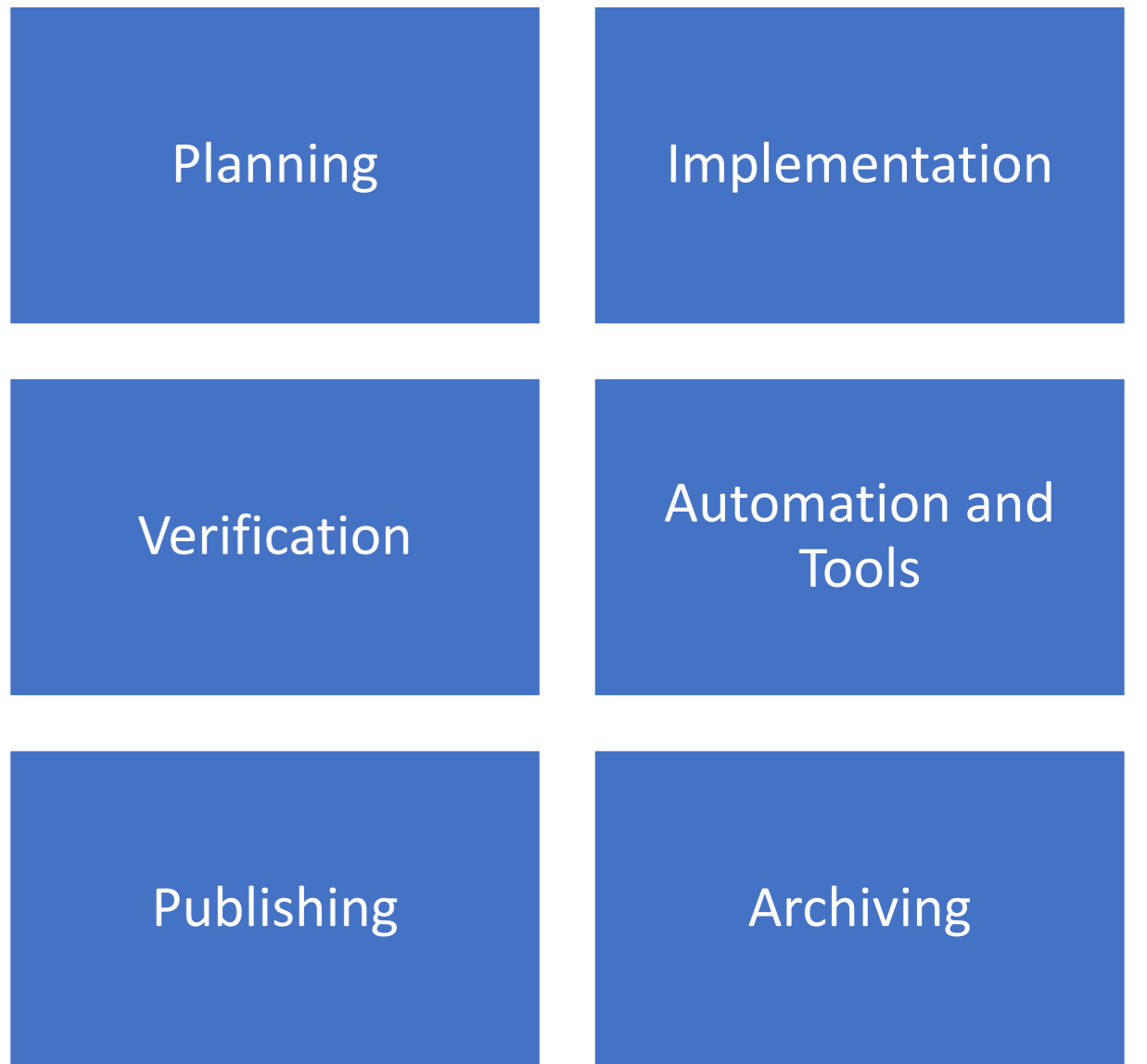
☐ **SP 1.2 Give your software a license.** "A license tells your (potential) users what they are […]"

Process Area ⟩ Process ⟩ Specific Goal ⟩ Specific Practice ⟩ Detailed Hint

Process Areas and Processes

Data

Planning

Collecting

Processing and Analyzing

Publishing

Archiving

Following the Research Data Lifecycle by the *UK Data Archive*

Software

Planning	Implementation
Verification	Automation and Tools
Publishing	Archiving

Maturity Levels

CMMI sorts organizations and their projects into levels. All organizations start at level 1, higher levels are awarded after assessments.

Maturity Levels in LPAM

Level 5.0
Process Improvement

Level 4.0
Quantitative Metrics

Level 3.0
Chairs and CRC projects

Level 2.5
Individual Researchers

Level 2.0
Legal and DFG minimum

Level 1.0
Daily chaos

Maturity Levels in CMMI

Level 5 Optimizing — Focus on process improvement

Level 4 Quantitatively Managed — Processes measured and controlled

Level 3 Defined — Processes characterized for the organization and is proactive. (Projects tailor their processes from organization's standards)

Level 2 Managed — Processes characterized for projects and is often reactive.

Level 1 Initial — Processes unpredictable, poorly controlled and reactive