# 25 years of ITEA
# Roadshow - Germany
# NLP4SDLC

15 June 2023 | Online
Robin Gröpler (ifak Germany)
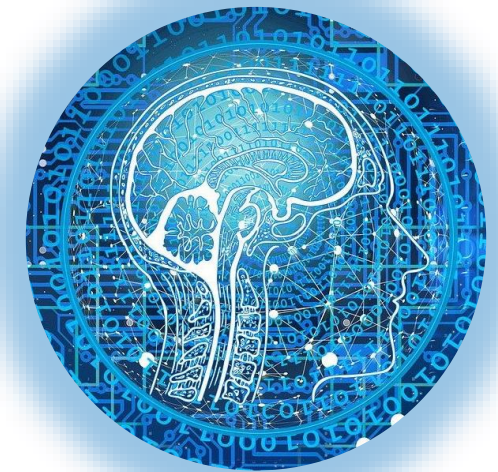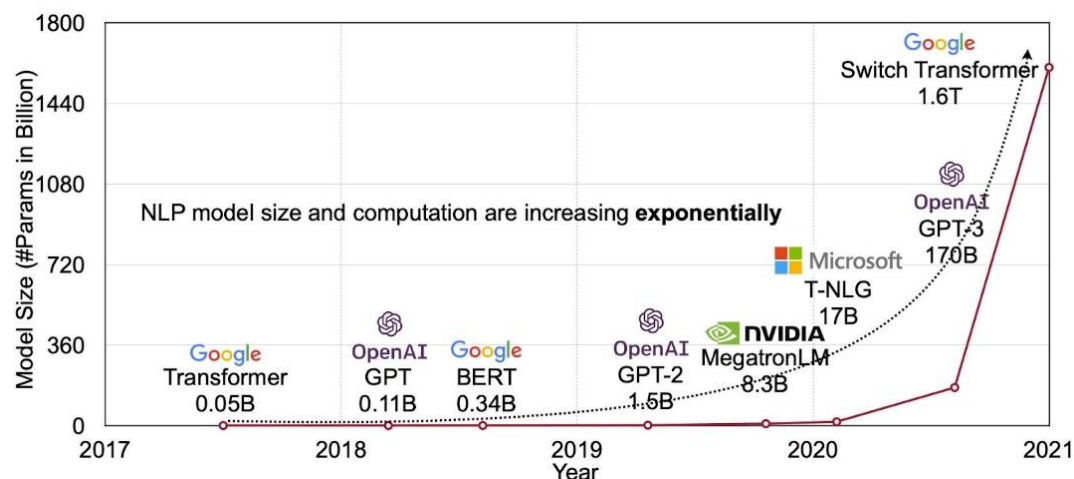
# How can Natural Language Processing (NLP) support the Software Development Life Cycle (SDLC)?

- **ChatGPT** is a breakthrough in AI! Applications in many fields for:
  - Human knowledge acquisition and learning processes
  - Conversational search (no keyword search)
  - Fast human-like feedback
  - → **Strong business impact** in the next decade expected

- State-of-practice in Software Engineering:
  - Mainly manual work of developers and test engineers
  - Some domain-/task-specific ML and NLP models
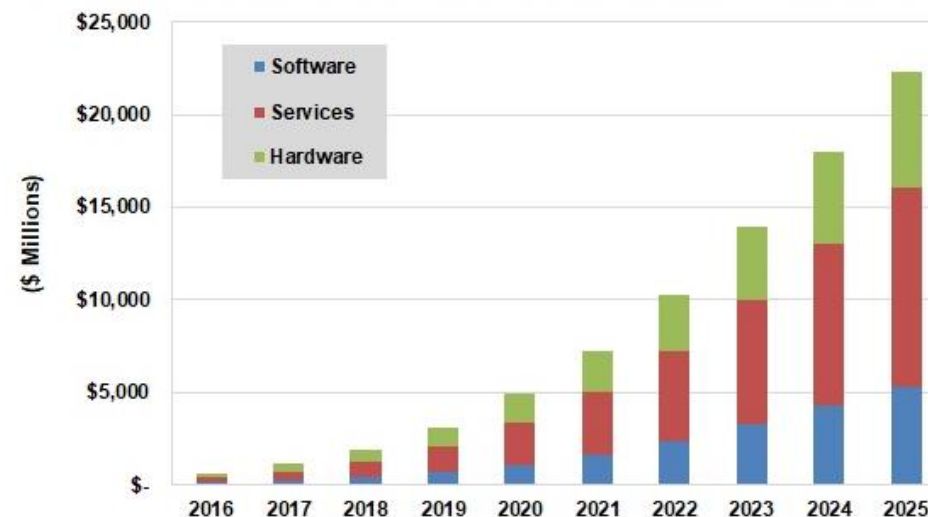  - → **Huge improvements** in programming and quality assurance possible

# How can Natural Language Processing (NLP) support the Software Development Life Cycle (SDLC)?

- **Rapidly growing** development and improvement of Large Language Models

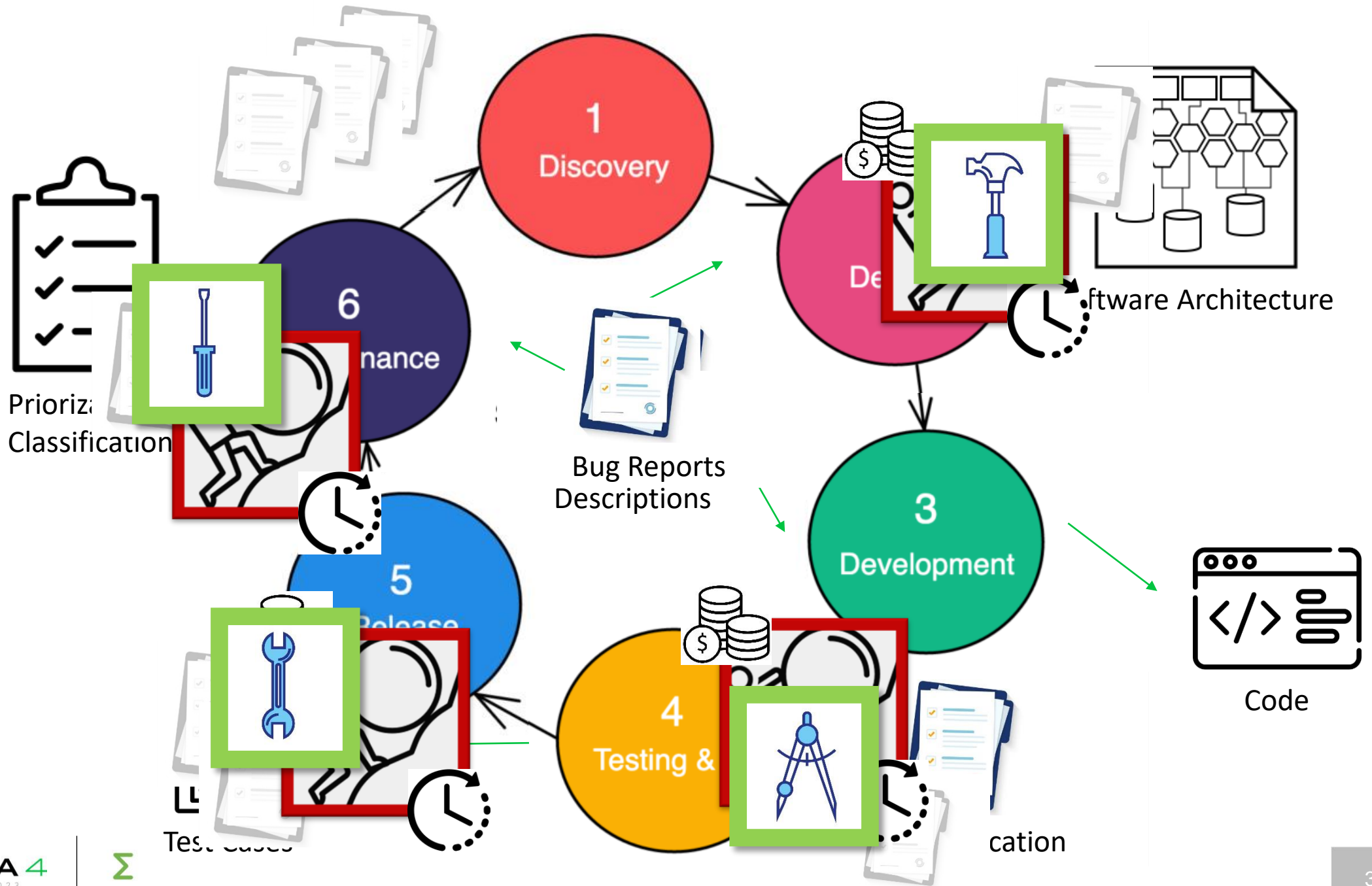- Natural Language Processing Is a Key Engine of **AI Market Growth**



https://indiaai.gov.in/article/the-future-of-large-language-models-llms-strategy-opportunities-and-challenges



Natural Language Processing Total Revenue by Segment, World Markets: 2016-2025

Source: Tractica

1 Discovery

Development

Software Architecture

Priorization Classification

Bug Reports Descriptions

6 Maintenance

3 Development

Code

5 Release
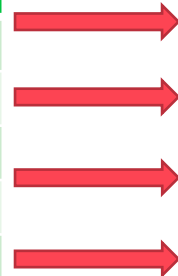
4 Testing &

Test Cases

cation

# How can Natural Language Processing (NLP) support the Software Development Life Cycle (SDLC)?

- **Project idea:** Make use of these emerging AI technologies for the software development process!
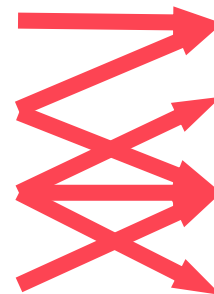
### 1. Analyse

Use Cases of all partners to define requirements and interfaces

| | Part-ner 1 | Part-ner 2 | ... |
|---|---|---|---|
| Requirements → Design | ✓ | | |
| Descriptions → Code | | ✓ | ✓ |
| Test Spec → Test Cases | ✓ | | ✓ |
| Bug Reports → Classification | | | ✓ |
| ... | | | |

### 2. Develop

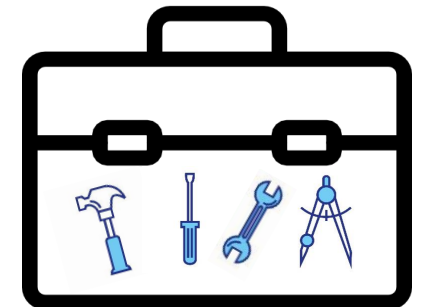Small, invdividual tools to solve distinct NLP tasks

### 3. Integrate

Tools into the SLDC of the partners

### 4. Publish

All tools as Open Source Toolbox

# What are you looking for?

- **Expertise of ifak:**
  - Industrial Automation, Test Automation, Model-Based Testing, ML, NLP
  - Participation in several ITEA projects: TESTOMAT, XIVT, SmartDelta

- **Missing partners / expertise**
  - Industry partners (LE/SME) with interest in utilizing new AI technologies, providing relevant use cases and data
  - ML and Data Science companies and research organizations

- **Partners already involved**
  - In discussion with some German and Turkish industrial partners

# Contact details

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