

Estonian ICTP project no 3.2.1201.13-0026

Model-based Java software development technology

Jaan Penjam, Institute of Cybernetics at T(allinn)UT

Project meeting, Laulasmaa, 28 October 2013

MBJSDT in one slide

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- One of the 14 projects selected for funding from 29 proposals.

Financing

- Budgeted **eligible cost** for the structural funds during the 29-month duration is 620 477.58 euro (~9.8 MEEK).
- **Structural assistance** comes from the European Regional Development Fund, ERDF, and amounts to 86.84 pct, i.e., 538 822,73 (ca 8.4 MEUR).



Euroopa Liit
Euroopa
Regionaalarengu Fond



Eesti tuleviku heaks

- Self financing by partners:
 - loC – 27 675.11 euro (= 5.6%)
 - Aktors – 8 996.62 euro (= 40%)
 - Bole – 44 983.12 euro (= 40%)
- Budget contains also some non-eligible costs – 8 045.65 euro for non-refundable **VAT** (loC)
- The sub-measure is administered by the Ministry of Education and Research and the **Archimedes Foundation**.

Objectives

General goals of the project

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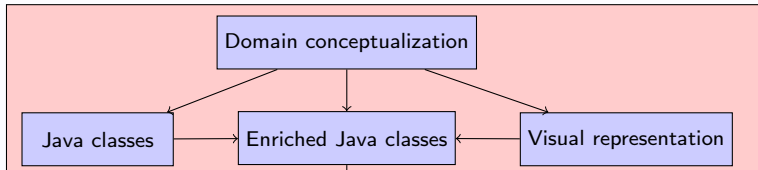
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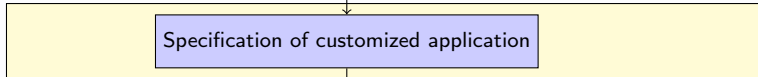
- To develop a model-based Java software **technology** supported by automated program generation and respective methodologies,
- to implement a **tool** for Java applications development based on this technology,
- to validate the **technology** through the development of industrial applications (e.g. fluid power systems and technical chain systems, etc.) and public e-services.

Technology

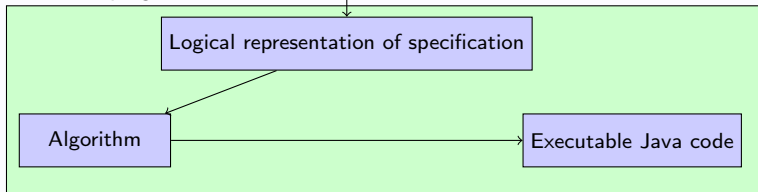
Domain engineering



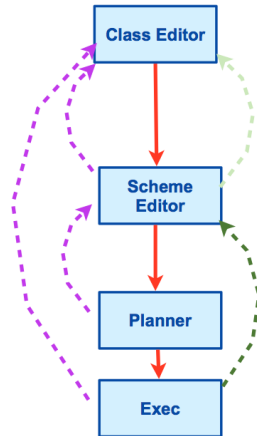
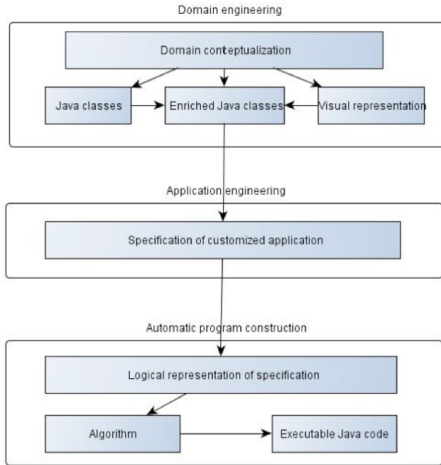
Application engineering



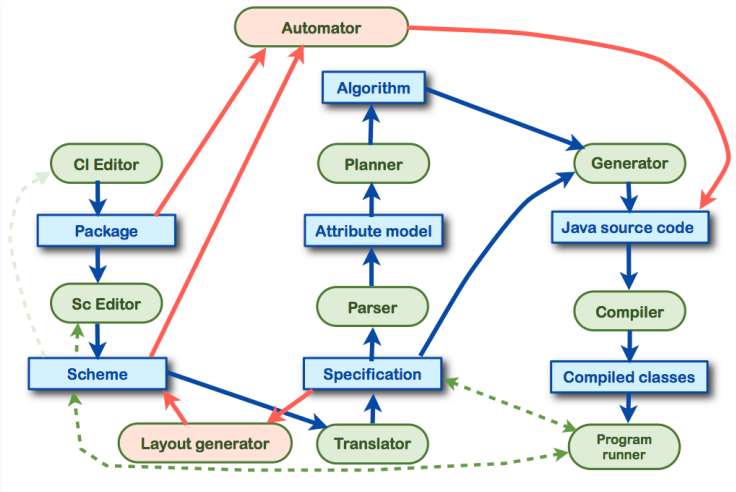
Automatic program construction



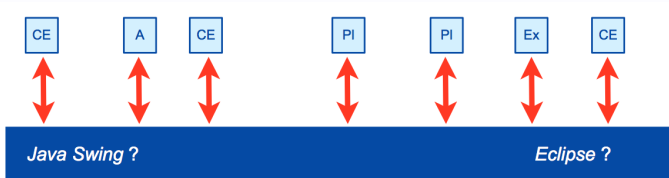
Tool



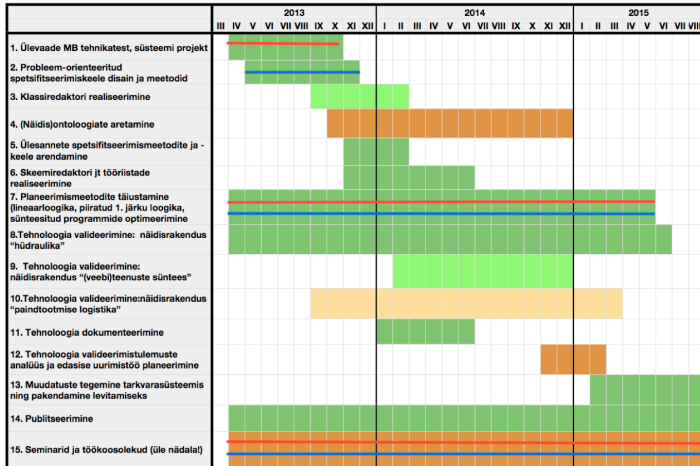
Tool in more details



Architecture



Activities (overview)



- Kübl



- Kübl + Aktors



- Kübl + Aktors + Bole



- Kübl + Bole



- X + Tampere TU



- X + KTH, Stockholm

Activities

1. Overview of well-known model-based development systems, **planning the prototype tool** (04–10/2013) – **IoC**, TUT, **Aktors**
2. Design of domain specification language and methods (05–11/2013) – **IoC**, KTH
3. Implementation of class editor (09/2013–02/2014) – **Aktors**
4. Investigation for developing ontologies in new fields (mechanical engineering, eGovernment services, manufacturing etc.) of design and modelling (10/2013–12/2014) – **IoC**, **Aktors**, **Bole**
5. Development of specification language and methods for applications engineering (11/2013–02/2014) – **IoC**
6. Implementation of a new scheme editor, tools (11/2013–06/2014) – **IoC**
7. Enhancement of planning and algorithm synthesis: applying propositional linear logic and restricted first order logic in synthesis, optimization of synthesized programs. (04/2013–05/2015) – **IoC**, TUT, KTH
8. Application example in fluid mechanics, validation of the technology (04/2013–07/2015) – **IoC**
9. Application example in synthesis of services, validation of the technology (02–12/2014) – **IoC**, **Aktors**
10. Application example in flexible manufacturing, validation of the technology (09/2013–03/2015) – **IoC**, **Aktors**
11. Developing full documentation of the technology (01–06/2014) – **IoC**
12. Analysis of technology validation of the system and planning of further research directions (09/2014–02/2015) – **IoC**, **Aktors**, **Bole**
13. Writing and publishing scientific papers – **IoC**
14. Bi-weekly project management meetings, seminars

Meeting programme



TTÜ KÜBERNEETIKA INSTITUUT



European Union
Regional Development Fund



Eesti Kultuurikaasus

ICTP project no 3.2.1201.13-0026

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Project seminar in Laulusmaa Spa Conference Center 28–29 October 2013

Programme

Monday, October 28

Arrival

13.00–14.00 *Lunch*

13.00–14.00 **Session 1**

- Jaan Penjam
- Pavel Grigorenko
- Kai Koskimies
- Kari Systä

Welcome and Project Status

CoCoViLa – Visual Domain Specific languages and Automatic

Synthesis of Programs

TBA

TBA

~15.30–15.40 *Coffee break*

- Samuel Lahtinen
- Misha Matskin

TBA

Two Experiments with Service Composition: Trust/Privacy

Management and Action Planning for Mobile Robots

Proposal for a new user interface and implementation platform

for CoCOViLa (V2)

Specification of state transition models

- Margarita Spitchakova

18.00–20.00 *Activities (sauna, swimming etc.)*

20.00–21.00 *Dinner*

Tuesday, October 29

8.00–9.00 *Breakfast*

9.00–11.00 *Visit to Bole OÜ factory in Paldiski*

11.15–12.00 *Coffee break*

11.30–13.00 **Session 2**

- Hele-Mai Haav
- Pavel Grigorenko
- Enn Tyugu

Ontology of CoCoViLa

Expert decision tables in CoCOViLa

Synthesis of CoCoViLa

13.00–14.00 *Lunch*

14.00–17.00 **Session 3**

- Hannes Tarn

Modeling of production processes in Bole OÜ