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Pisa, March 2011
- Presentation
- Introduction
- NDT- Navigational Development Techniques
- NDT-Suite
- Practical experiences
- Conclusions and future works
✓ My group, IWT2, is composed by:

Dr. Juan Manuel Cordero
Francisco J. Domínguez
Dra. María José Escalona
Javier Gutierrez
Dr. Manuel Mejías
José Ponce
Dr. Isabel Ramos
Arturo Henry Torres
Dr. Jesús Torres
Gustavo Aragón
Fernando Ramos
Laura García

✓ Our main research lines:

Software and Web Engineering (mainly requirements)
Model Driven Engineering
Testing (early)
Simulation
User interfaces
e-learning
Who we are?
IWT2 (Web engineering and Early Testing)

- National Projects
  - SOAQTest (Univ. Oviedo, Univ. Cádiz) (2007-2010)

- Project with companies
  - Culture Government in Andalusia (2004-..)
  - Andalusian Health Service (2007-..)
  - Public company for water supplies (Emasesa) (2008-..)

- Ph thesis:
  - Test cases from functional requirements. Javier Gutierrez
  - Navigational test cases using MDE. Arturo H. Torres
  - Project estimation with MDE. J.A Váquez
  - Test phases in GIS environment. José Ponce
  - QuEF. A framework to compare MDWE method. Francis Domínguez
  - NDTQ-Framework. Gustavo Aragón

- Relation with:
  - Munich, Nice, La Plata, Galway, Valencia, Pisa, Oviedo, Cádiz, Milano, …
Who we are?

MJ Escalona

- Teacher at the University of Seville since 2000.
- Director of the Web Engineering and Early Testing Group
- Manager of the Quality Office of Culture Andalusian Government and Andalusian Health Government.
- Deputy Director of University Extension and International Relations

www.iwt2.org
- The **model-driven paradigm** is offering a new way for software building.

- The importance of **models and concepts** and the **systematic derivation with transformation** offer a robust and efficient software development.

- Web engineering, testing of software product lines are only some examples of its application.
Platform Specific Models (PSM): "Big Picture"

Platform Independent Design Models (PIM):
- :Requirements Models
- :Content Model
- :Navigation Model
- :Process Model
- :Presentation Model

CIM to PIM Transformation

PIM to PIM Transformation

PIM to PSM Transformation

Platform Specific Models (PSM):
- Model for J2EE
- Model for .NET
- ...

PSM to Code Transformation

Introduction

MDA environment
However, some questions can be asked:

What about practical experiences?

Could I used MDE for other aspecto like QA?

Are that useful for enterprise environment?
NDT-Navigational Development Techniques

Metamodels for the requirements phase

Metamodels for the analysis phase

- Basic models
- Final models

Systematically

Controlled

NDT (Navigational Development Techniques)
NDT-Navigational Development Techniques

Métrica V3 && UML 2.2 && UTP2

Model Driven Engineering

Web Engineering: NDT & UWE
NDT-Navigational Development Techniques

- Requisitos
- Análisis
- Diseño
  - Construcción
  - Mantenimiento
- Testing (ISO EN 29119)
MOF

Requirements metamodel (ocl constraints)

QVT Rules

Analysis metamodel (ocl constraints)

<<instantiates>>

<<instantiates>>

<<instantiates>>

<<instantiates>>

<<uses>>

<<uses>>

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<<instantiates>>

Requirements model

Transformation Engine

Analysis model

source

target
NDT-Quality

Navigational Development Techniques

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<th>Description</th>
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Print
Metamodels for the requirements phase

Metamodels for the analysis phase

NDT (Navigational Development Techniques)
Conclusions

- NDT-Suite assumes other way to improve software development using MDE.

- Empirical experiences demonstrate that it is useful in quality assurance.

- It includes both QVT and OCL constraints.

- SOA environment

- Project estimation
Future Works

- NDT-Profile 2.0
- More early testing inclusions
- NDT-Glossary
- NDT-Prototypes
- Empirical transfersences