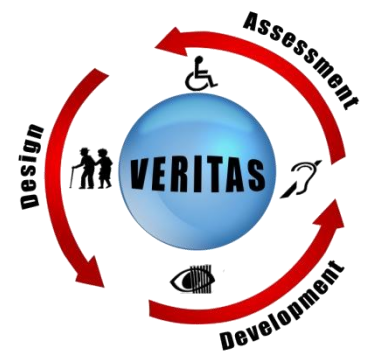




VERITAS project

FP7 247765



The VERITAS Project at a Glance



Manfred Dangelmaier

 **Fraunhofer**
IAO

Short Profile

- Title: **Virtual and augmented Environments and Realistic user Interactions To achieve embedded Accessibility designS**
- Programme: 7. Framework
- Theme: FP7-ICT-2009.7.2
Accessible and Assistive ICT
- Type: IP (large-scale integrating project)
- Subprojects: 4 (Models – Tools – Applications – Horizontal activities)
- Duration: 48 months (01/2010 - 12/2013)
- Partnership: 31 partners from 11 European countries (Industry, Research Institutes, Universities, Associations)
- Budget: 11,7 Mio € total / 8 Mio € funding



Consortium



FhG/IAO



INFORMATICS & TELEMATICS INSTITUTE
centre for research and technology - itelias



CERTH/HIT



FIMI

ITACA



CENTRO RICERCHE FIAT

CRF



FORTH



CAF



UNEW



PERCRO Perceptual Robotics Laboratory

Centro di Eccellenza per l'Ingegneria dell'Informazione, della Comunicazione e della Percezione

CRF



AGE



BYTE



RELAB

unitn.it

UNITN



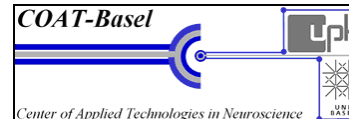
VRMMP



MCA



CVUT



COAT



INDESIT



DOMOLOGIC



LMS



ATOS



AIJU



PIAGGIO



SMARTEX



HUMAN SOLUTIONS



BAUUNION



HYPERTECH



I+



UNISALZBURG



UNIBRUNEL



UPM



USTUTT



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Motivation and Background

- 16% of the population over 65 in the 27 EU countries
- Up to 15% of the population across the European Union have a disabilities, such as a visual, hearing, speech, cognitive, or motor impairment
- Around 20% of people over 50 experience severe physical disabilities
- Spending on pensions, health and long-term care will rise sharply over the next 20 years

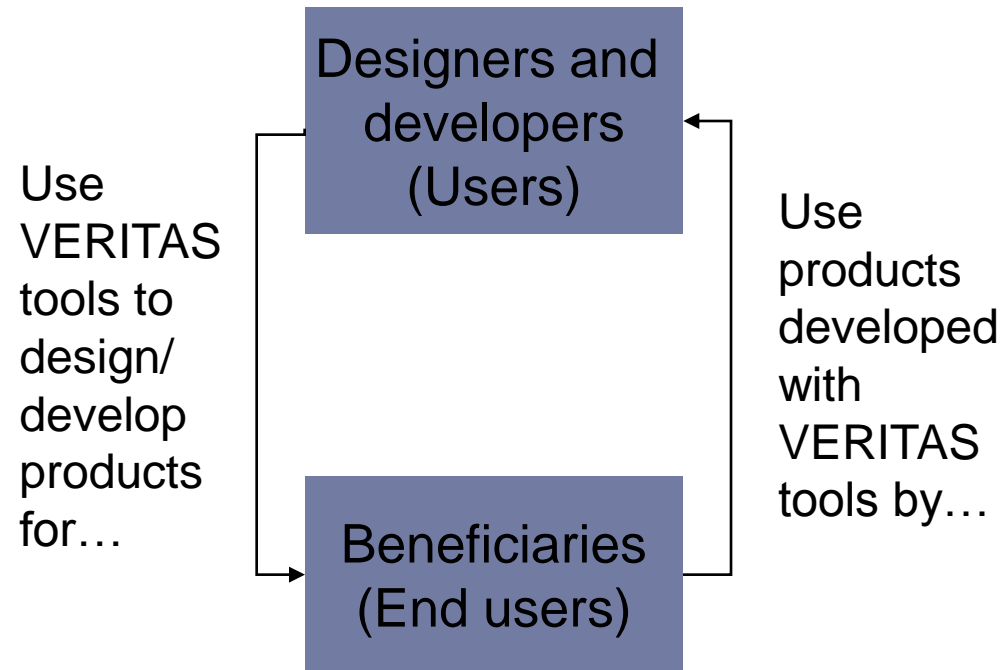


Targeted Application Domains

- Automotive
- Smart Living Spaces
- Workplace
- Infotainment
- Personal Health Care and Wellbeing



Who benefits from VERITAS?



Addressed Impairments

- Blind and low-vision impairments
- Motor impairments
- Cognitive impairments
- Hearing impairments
- Speech impairments



VERITAS Approach

- User Centered Design
- Iterative development and testing
 - **Virtual user models:** Iterative development using feedback from a multisensorial platform
 - **Simulation models:** Iterative development with feedback from real developers from the five VERITAS application sectors
 - **Iterative pilots:** Feedback from real users
- Comprehensive risk analysis and mitigation strategy.
- Involvement of key industrial partners in all stages so as to ensure the applicability of the developed algorithms and systems

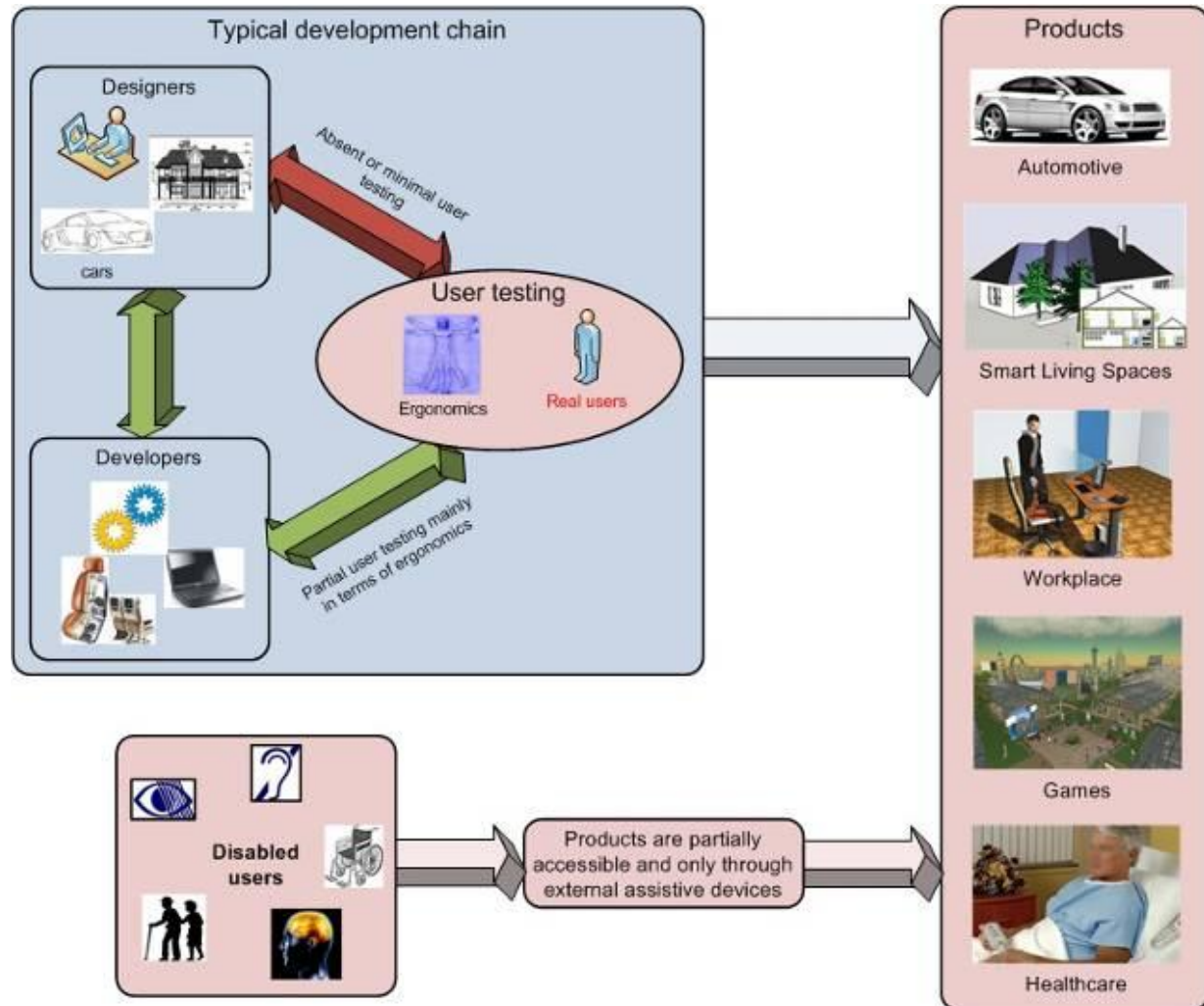


Project Outcomes

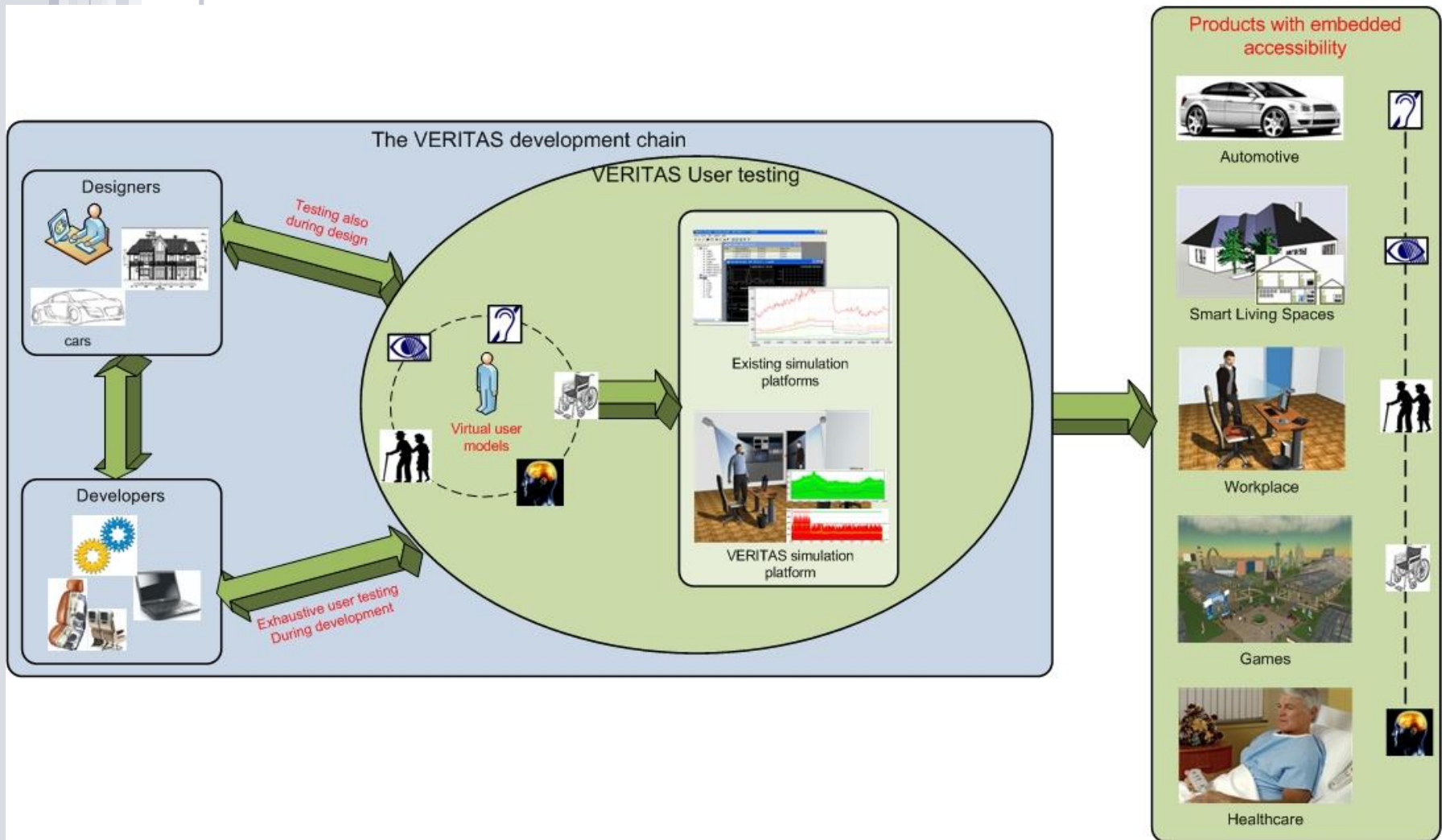
- Open library of user models (incl. VR Models)
- Open Simulation Platform (OSP) for simulation and testing in product planning and development
- Extensive list of tools for supporting accessibility testing at all stages of development for 5 domains
- Methodologies for introducing the VERITAS simulation and testing framework for evaluating ICT and non-ICT products
- Framework for immersive virtual user simulation and testing
- Measures and metrics for software accessibility through VR simulation
- Innovative concepts for ambient, multi-device, universally accessible multimodal interfaces through VR simulation



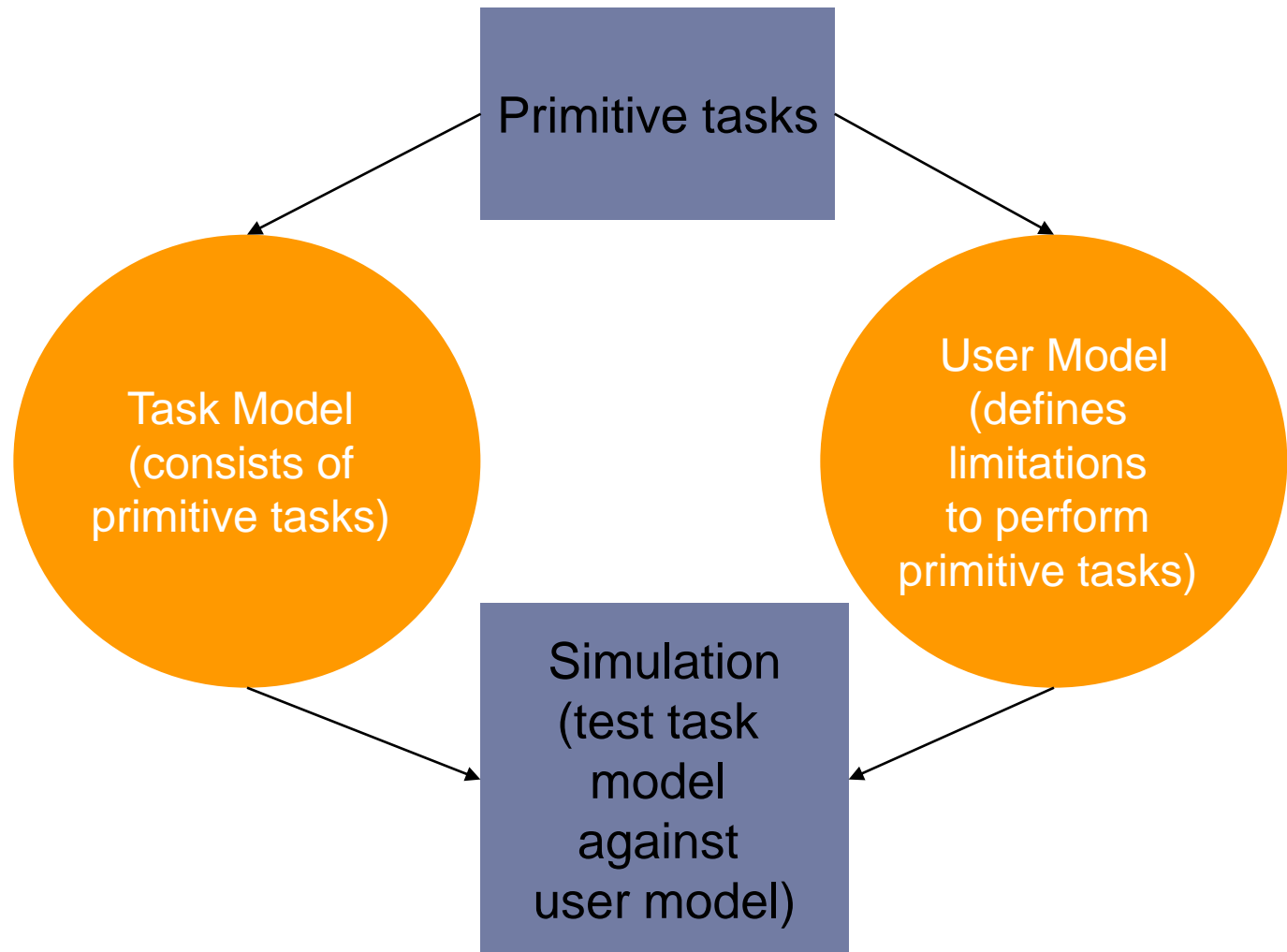
Development chain before VERITAS



Development Chain with VERITAS



Basic Simulation Principle



User and Task Models

○ User Models

● Abstract User Model

- Describes a disability

● Generic Virtual User Model

- Describes the set of users having a specific disability,
- The affected primitive tasks and
- The affected primitive tasks' parameters
 - Binary (ex. Abnormal step rhythm: Yes)
 - **Range of values** (ex. Gait cycle [1.12, 3.22] sec)

● Virtual User Model

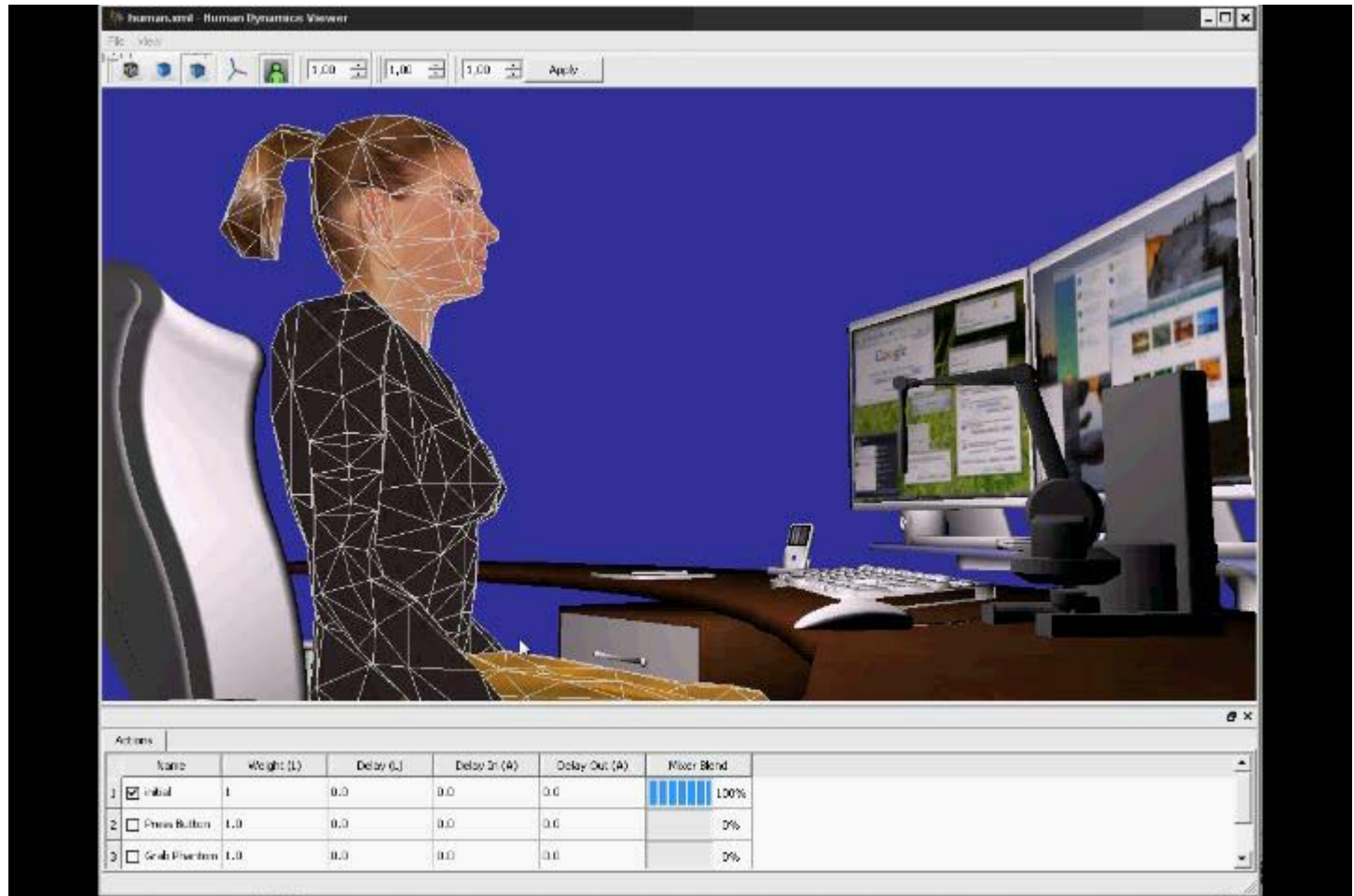
- An instance of a virtual user
- Describes user's disabilities,
- The affected primitive tasks and
- The affected primitive tasks' parameters for the specific user
 - Binary (ex. Abnormal step rhythm: Yes)
 - **Specific values** (ex. Gait cycle : 2.1 sec)

○ Task Model

- Describes how a complex task can be divided into primitive tasks that have to be executed sequentially.



Simulation Platform



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Immersive Experiences for Designers/Developers

- 3rd Person:
 - **Manikin:** Under control of OSP and application specific Simulation model
 - **User:** Observer of Manikin in VR



and

- 1st Person
 - **Manikin = User**
 - Manikin under user's direct control and minimal OSP influence
 - User's interaction filtered to simulate disability



VUMS Cluster

Design for Adaptability



GUIDE

MyUI

VERITAS

VICON



VAALID



Human Models



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VUMS Cluster Objectives

- Support Designers/Developers with tools for inclusive design by
 - Design/development frameworks
 - Adaptable interface technology
 - Human models
 - Simulation platforms
- Make these interoperable
- Support and drive standardization



VUMS Cluster Application Domains and Beneficiaries

Users

Designers
Architects
Engineers
Developers

- AAL
- Brown Goods
- White Goods
- Construction
- Domotics
- Games
- Automotive
- Workplace
- Learning
- ...

Beneficiaries

All
Elderly
Disabled

- Cognitive Impairments
- Sensory
- Physical Impairments
- Motor



VUMS Cluster Achievements

- Common approach in ethical issues
- Glossary for user modelling
- White paper on standardisation of user models (including users with special needs)
- Liaison with ISO SC 36, WG 7 established
- Inclusion in ISO 24751, Part 2 under discussion:
 - Information technology
 - Individualized adaptability and accessibility in e-learning, education and training
 - Part 2: "Access for all" personal needs and preferences for digital delivery



Where is VERITAS?

User models, use cases

Tools

Applications and Evaluation

