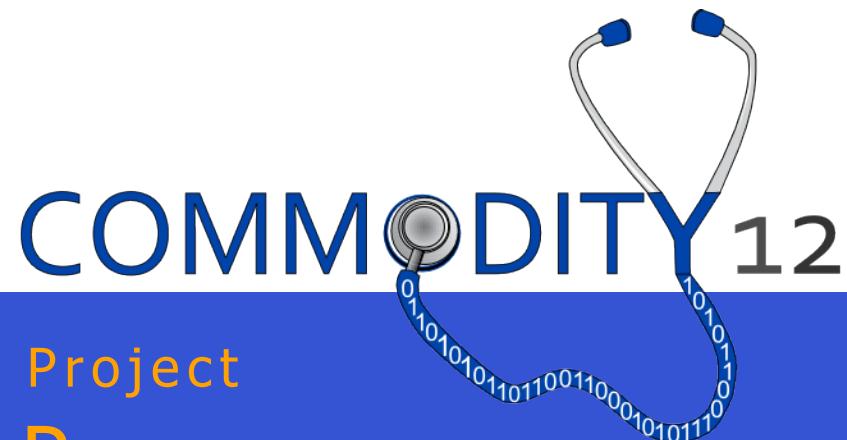


Vendor feedback on CIMI & SHN

Brussels, March 14th, 2014

Evert Jan Hoijtink



Collaborative Project
7th Framework Programme
Priority FP7-ICT-2011-7
Information Society Technologies
Proposal No 287841

<http://www.commodity12.eu/>

Introduction Evert Jan Hoijtink

Work

- Portavita BV – CEO & Founder
- MGRID BV – Founder & Director
- eMbrace Institute – Founder & Vice-Chairman

Functions / Standardization

- OIZ (Health IT Suppliers) – Former Vice Chairman (standardization)
- NEN (Dutch ISO chapter) – Policy Committee 303 Health IT
- IHE & HL7 – member / CIMI – supporter

EU FP 7 Research Projects

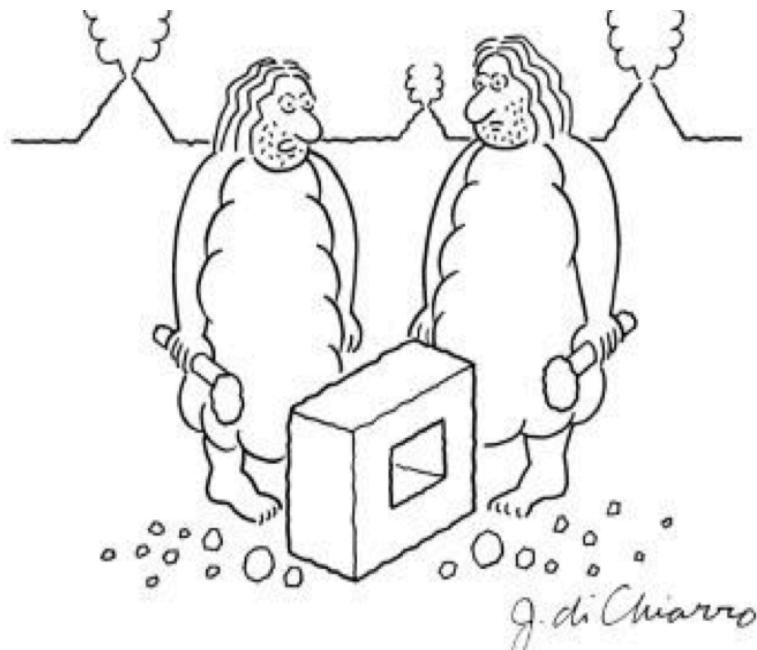


- **COntinuous Multi-parametric and Multi-layered analysis of DIabetes TYpe 1 & 2**
- **Advanced Analytics for Extremely Large European Databases**
- **Future Internet - STAR, Stakeholder**



COMMODITY12 work & relation CIMI & SHN

COMMODITY12 aims to design, build, and validate an intelligent system for the analysis of multi-parametric medical data. It will uptake the existing cutting-edge technologies and extend these technologies by combining state-of-the-art networks, software inter-operation, and artificial intelligence techniques in order to realize the concept of translational medicine by means of a Personal Health System.

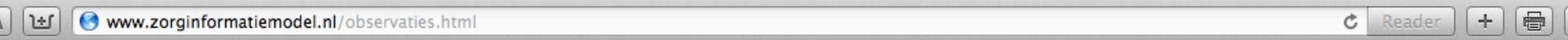


"Still needs work."

Portavita role as SME & member of the EU FP7 COMMODITY12 project:

WP 9.7 task: to converge standardization activities and support international initiatives

First Dutch ZIM Repository 2005 - 2008



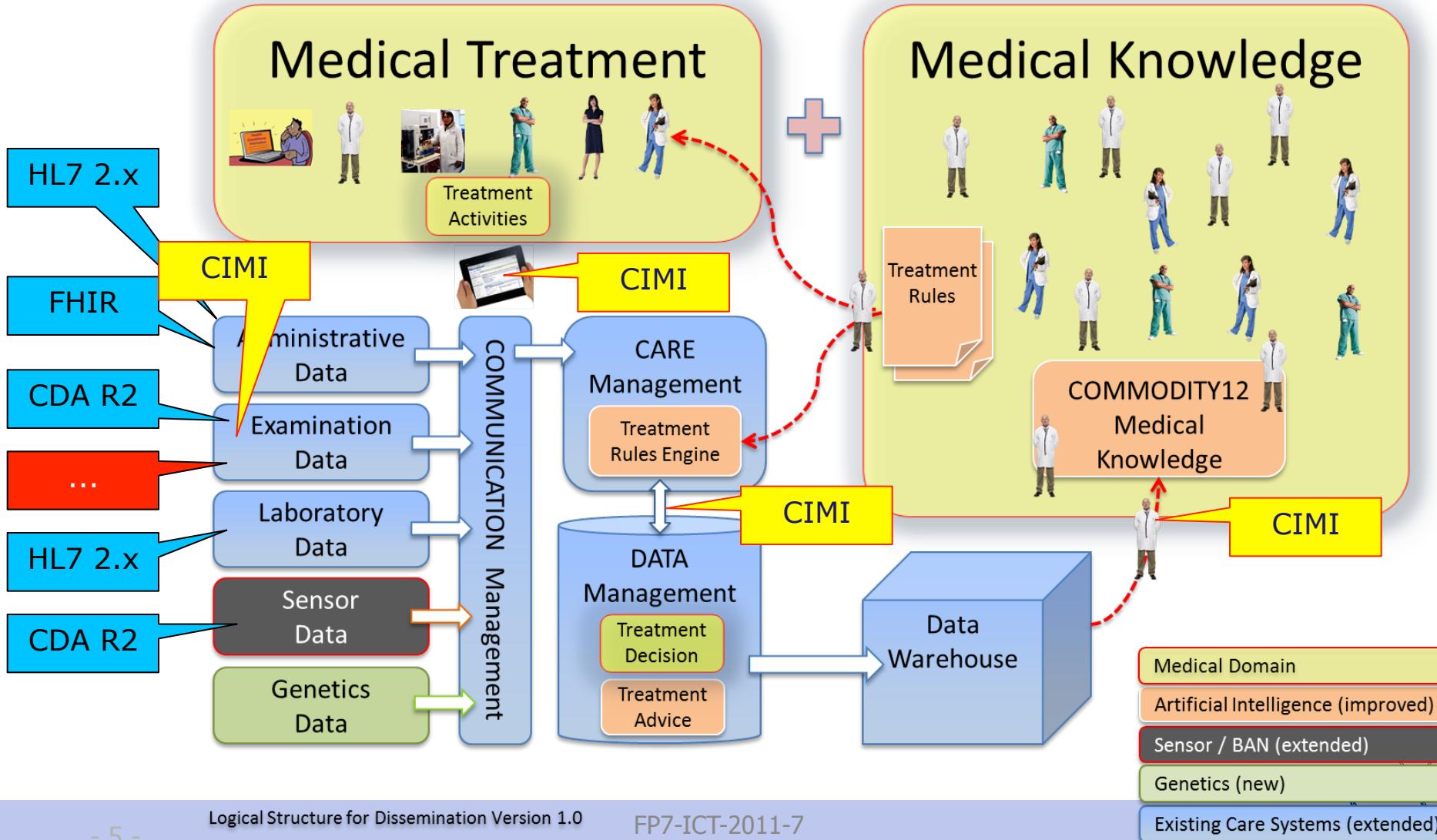
www.zorginformatie**model.nl**

[Home](#) | [Voortgang](#) | **Observaties** | [Links](#) | [Info](#)

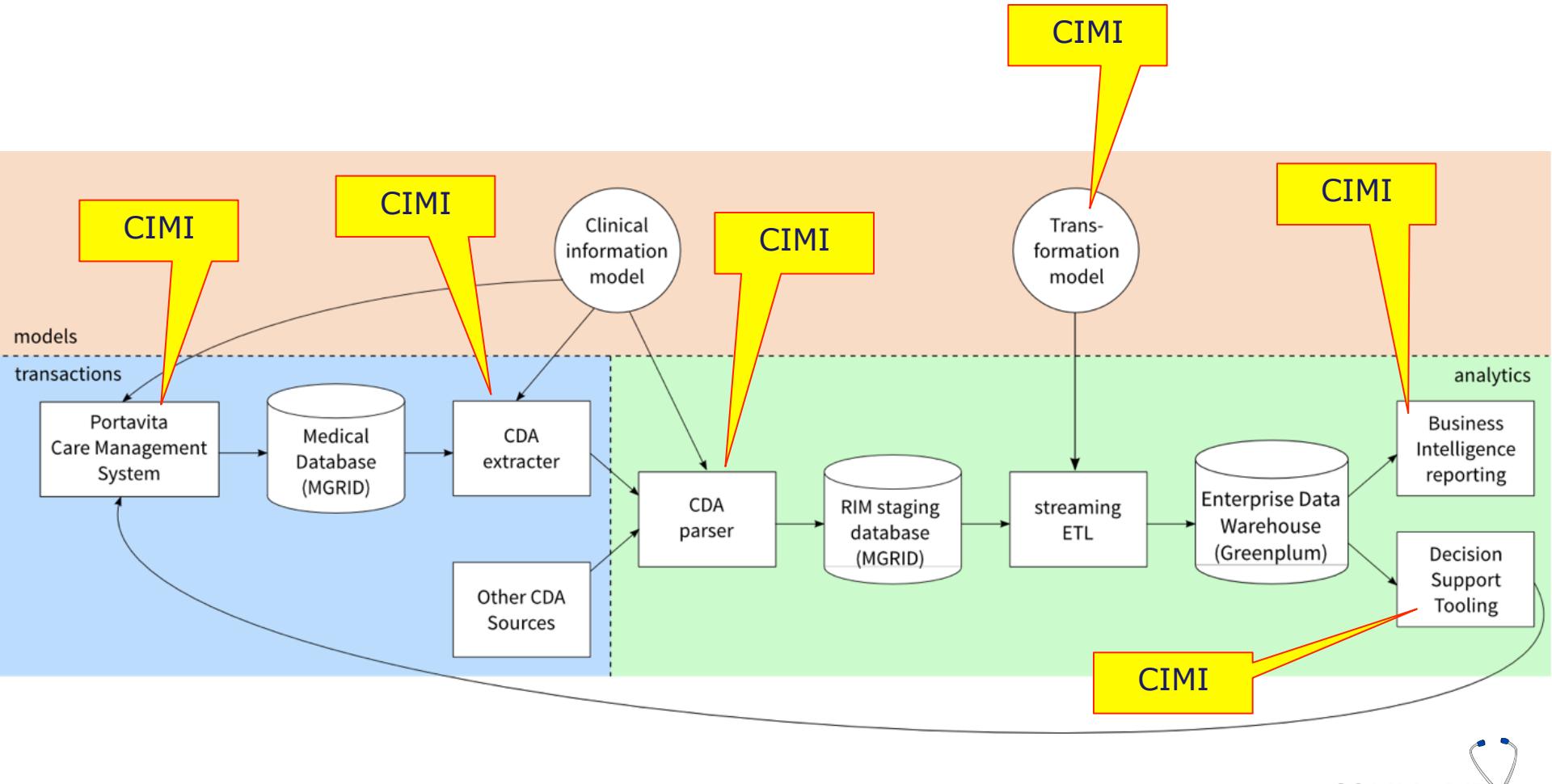
1. Observaties	Groep	Versie	Datum	Status	PDF	Opmerking
Ademhaling	2	V1.1	05-12-05	Final	PDF	
Algemene Dagelijkse Levensverrichting (ADL)	1	V1.1	29-05-06	Final	PDF	
Algemene Anamnese Overig	2	V1.1	24-08-06	Final	PDF	
Algemene Indruk	2	V1.2	24-08-06	Final	PDF	
Allergie	1	V0.91	15-06-06	Draft	PDF	
AMDAS woning	1	V1.0	10-05-05	Final	PDF	
Apraxie	1	V1.1	29-05-06	Final	PDF	
Bamford Classificatie	1	V1.1	05-12-05	Final	PDF	
Barthel Index	1	V1.3	24-08-06	Final		
Bereidheid en Aanwezigheid	1	V1.1	19-04-06	Final		
Berg Balance Scale (BBS)	1	V1.1	05-12-05	Final		
Bewustzijn	2	V1.1	05-12-05	Final		
Bloeddruk	2	V1.0	02-09-05	Final		
CES-D	1	V1.1	29-05-06	Final		
Checklist opname in het ziekenhuis	2	V1.1	29-05-06	Final		
Communicatienniveau	1	V1.1	19-04-06	Final	PDF	

*Work performed in
The Netherlands by
Portavita &
Results4Care
(William Goossen)*

Positioning | Medical Data & Analytics



Model Usage : Model Driven Approach



Model Composition

Portavita examination model:

- Metadata (author, version, status, etc.)
- Purpose
- Background
- Clinical Information Model
- Constraint Model
- Derivation Model

Derivation Model

- Calculations and derivations
 - e.g. $BMI = \text{weight} / \text{height}^2$
 - Also: form scores, e.g. Glasgow Coma Scale
- Expressions/formulas in MathML
- Custom functions to refer to concept values
- XSLT visualizations

XML Models for internal use and MDA

File Edit View Help

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <?xmlstylesheet type="text/xsl" href="/styles/pves-cim.xsl"?>
3 <clinicalInformationModel xmlns="http://portavita.eu/pves-cim"
4   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
5   xsi:schemaLocation="http://portavita.eu/pves-cim ..schemas/pves-cim.xsd">
6
7   <organizer classCode="ORGANIZER" moodCode="EVN">
8     <templateId root="2.16.840.1.113883.2.4.3.31.4.1.24" extension="1"/>
9     <code code="12133-5" codeSystemName="LOINC" codeSystem="1.3.6.1.4.1.12009.10.2.4" displayName="Blood pressure" />
10
11    <actRelationship type="COMP" minOccurs="1" maxOccurs="1">
12      <observation classCode="OBS" moodCode="EVN">
13        <templateId root="2.16.840.1.113883.2.4.3.31.4.1.25" extension="1"/>
14        <code code="8480-6" codeSystemName="LOINC" codeSystem="1.3.6.1.4.1.12009.10.2.4" displayName="Systolic blood pressure" />
15        <value type="PQ" xsi:type="PQ">
16          <min>0</min>
17          <max>400</max>
18          <unit>mmHg</unit>
19        </value>
20      </observation>
21    </actRelationship>
22
23    <actRelationship type="COMP" minOccurs="1" maxOccurs="1">
24      <observation classCode="OBS" moodCode="EVN">
25        <templateId root="2.16.840.1.113883.2.4.3.31.4.1.25" extension="1"/>
26        <code code="8462-4" codeSystemName="LOINC" codeSystem="1.3.6.1.4.1.12009.10.2.4" displayName="Diastolic blood pressure" />
27        <value type="PQ" xsi:type="PQ">
28          <min>0</min>
29          <max>400</max>
30          <unit>mmHg</unit>
31        </value>
32      </observation>
33    </actRelationship>
34
35  </organizer>
36
37  <constraint>
38    <annotation>
39      The systolic blood pressure must be higher than the diastolic blood pressure.
40    </annotation>
41    <formal type="ruleml" href="constraints/CONSTRAINT.12133-5.Blood_pressure.xml"/>
42  </constraint>
43
44</clinicalInformationModel>
45
46
```

View on the XML models we use

Clinical Information Model - Blood pre... +
localhost:8000/clinical_information_models/CIM.12133-5.Blood_pressure.xml

Clinical Information Model - Blood pressure

HL7 Structure

Blood pressure

Template id - Version 2.16.840.1.113883.2.4.3.31.4.1.24 - 1

Code 12133-5 - LOINC

Cardinality 1 .. 1

Class code ORGANIZER

Mood code EVN

COMP

Systolic blood pressure

Template id - Version 2.16.840.1.113883.2.4.3.31.4.1.25 - 1

Code 8480-6 - LOINC

Cardinality 1 .. 1

Class code OBS

Mood code EVN

Observations – CIMI & SHN

- **Complementary**
Both initiatives seem to cover different aspects of modeling
- **Complex**
 - Is the problem we try to solve complex?
 - Are we making it complex
- **Consensus**
I observe common ground and mutual understanding
- **Goals & Scope**
End goal should be implementation – not yet achieved
- **What is missing for the vendors**
 - One preferred stack of Implementable Models
 - Demand side asking for these Models / Standardisation
- **We need CIMI for dummies (FHIR good example)**

European Choices | FI-PPP

FI-PPP = Future Internet – Private Public Partnership (EU FP7)

- FI-STAR Platform for Medical
Defining the strategic choices for the future “cloud” platform

The screenshot shows the FI-STAR website homepage. At the top, there's a navigation bar with links for Home, About FI-STAR, News, Events, Publications, Use Cases, Blog, Contact, and Open Call. Below the navigation is a main menu with Home, Sitemap, Search, and Imprint. The central part of the page features a large image of a medical device, possibly a pulse oximeter, being held by a person. To the right of this image is a red callout box containing the text: "Future Internet will be based upon Open Source Components like XACML, Linux, PostgreSQL, HDFS, ...". In the bottom right corner, there's a logo for "COMMODITY 12" with a stylized stethoscope icon.

Future Internet will be based upon Open Source Components like XACML, Linux, PostgreSQL, HDFS, ...

COMMODITY 12

Thank you very much!

