



University Medical Center Groningen

My FHIR Journey *Clinical Modeling* Michael van der Zel

UNIVERSITAIR MEDISCH CENTRUM GRONINGEN

4 dicembre 2015

**I° HL7 Italia FHIR[®]
workshop**
potenzialità e prospettive comuni

Firenze - Villa La Quiete - Via di Boldrone 2



CON IL
PATROCINIO
DI





Why in English?

People no longer laugh
when you order penne

How standards we work together



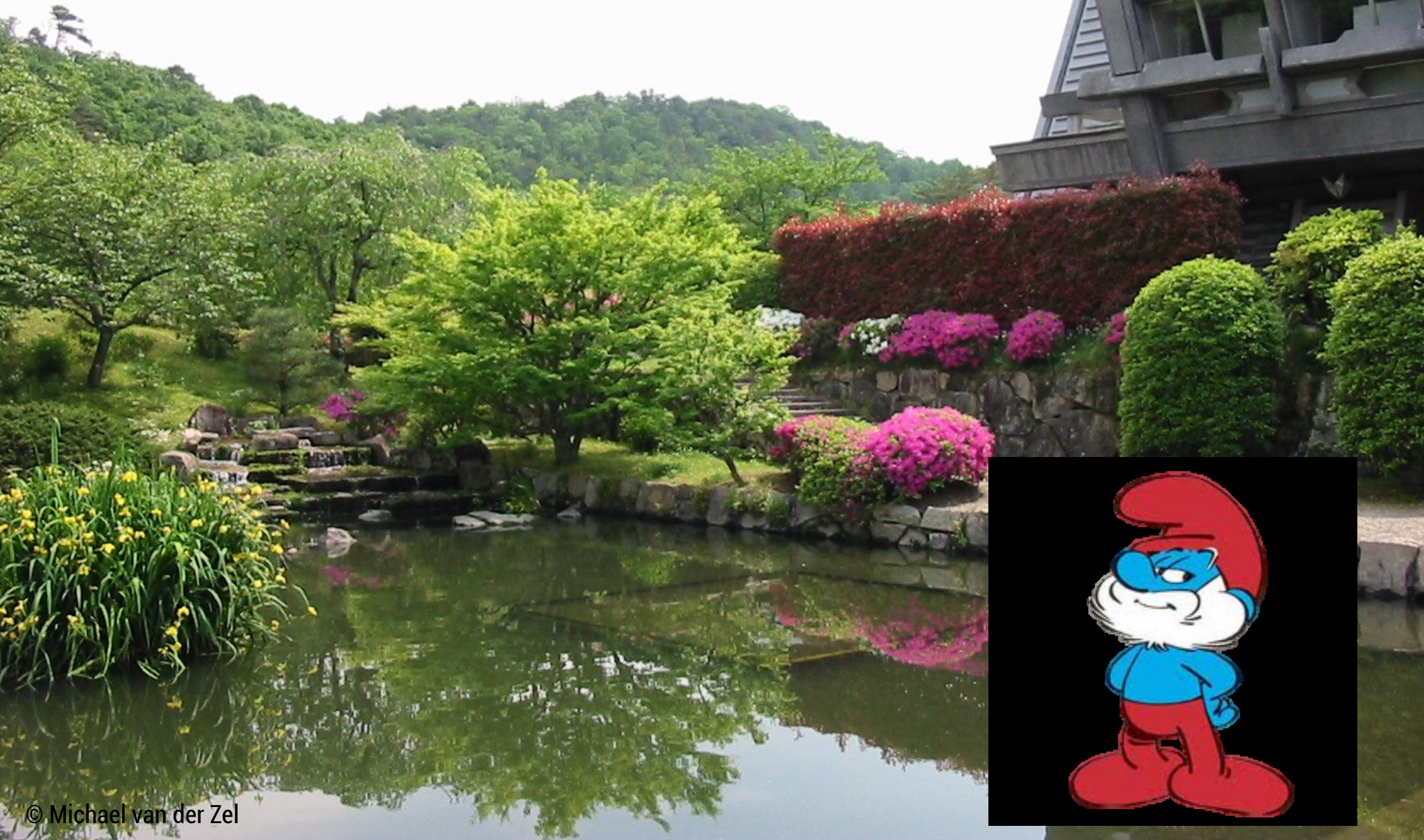
<https://www.youtube.com/watch?v=LVJOedTBogU>

C:\Media\Videos\HORNBAACH - Es gibt immer was zu tun.mp4

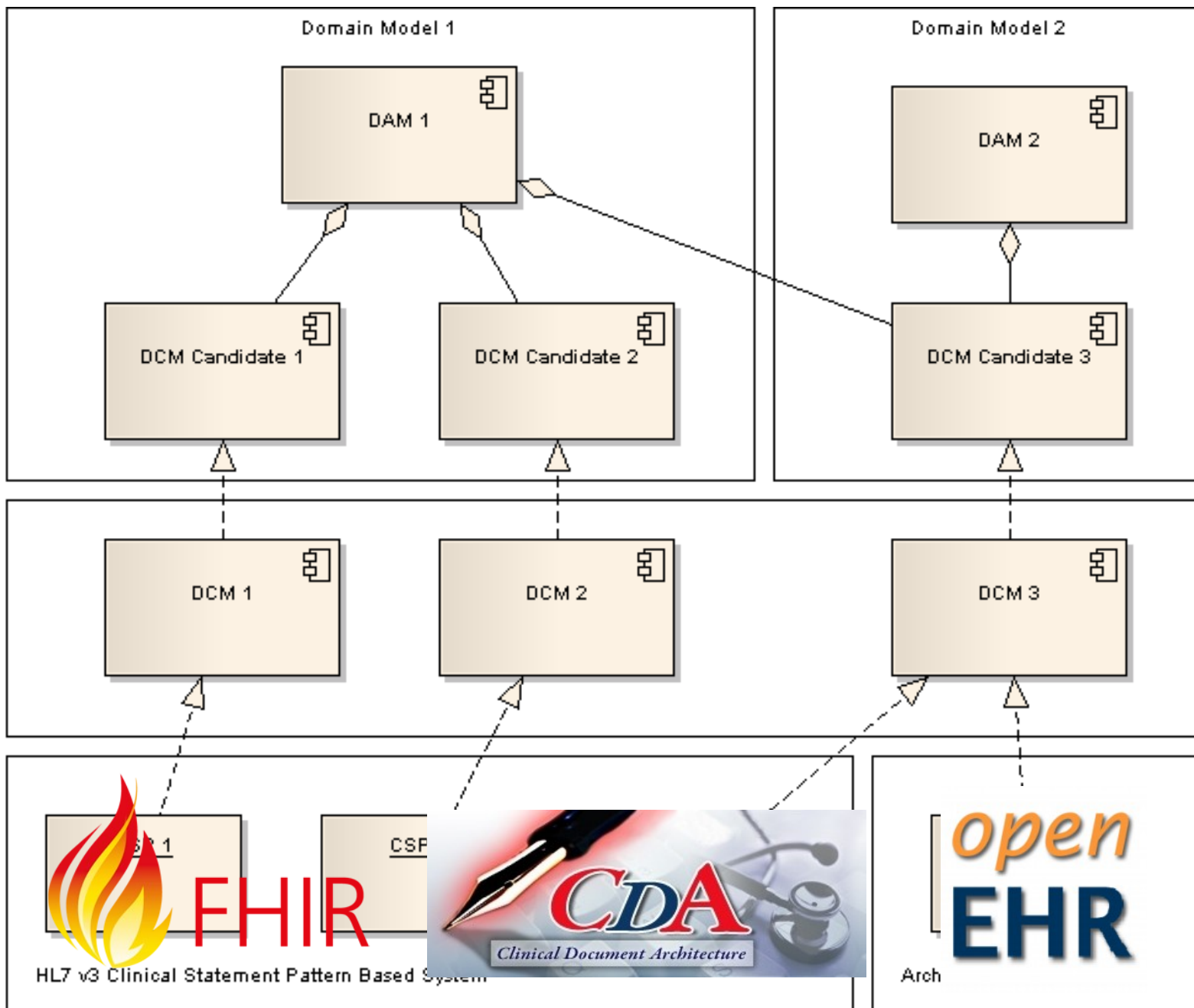
FHIR men vs fighters



HL7 WGM ICC Kyoto *may-2009*



Detailed Clinical Models



Analysis Model

Detailed Analysis Model

Detailed Clinical Modelling

Clinical Knowledge independent from any implementation technology stack

Implementation

with thanks to Luigi and Jay Lyle

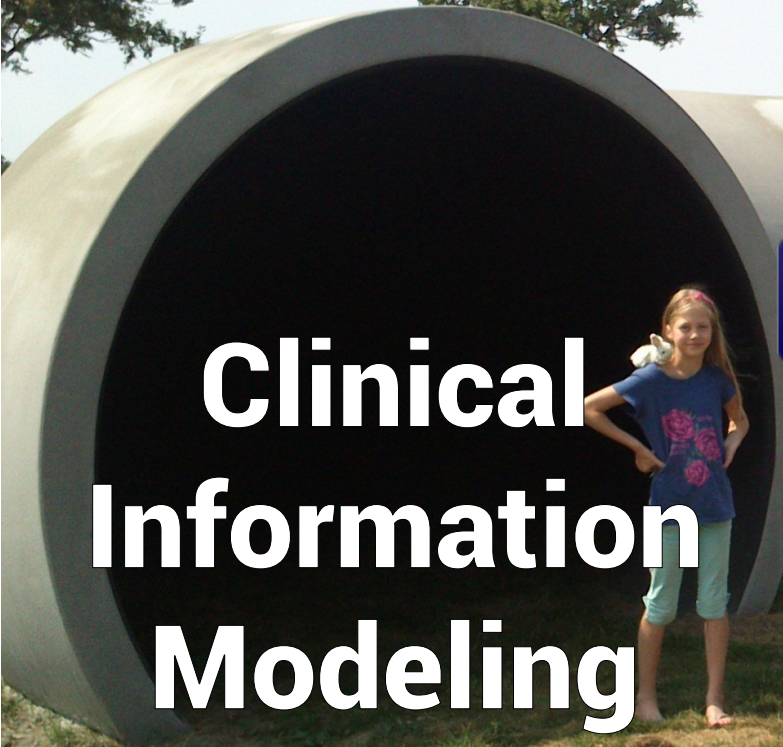
Name: DAM vs DCM
Author: Michael van der Zel (R4C)
Version: 1.0
Created: 29-10-2009 8:36:47
Updated: 18-5-2011 22:21:00





Fresh Look Task Force

sep-2011



**Clinical
Information
Modeling
Initiative**

CIMI



**FHIR
Resources
for Healthcare**

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)



FROM ANOTHER TIME COMES A MAN
OF GREAT POWER.
A MAN OF INCREDIBLE STRENGTH.
AN IMMORTAL ABOUT TO FACE HIS
GREATEST CHALLENGE...

HIGHLANDER™

Not

— THERE CAN BE ONLY ONE —

THE CANNON GROUP INC. Presents A DAVIS/PANZER Production A RUSSELL MULCAHY Film HIGHLANDER
Starring CHRISTOPHER LAMBERT ROXANNE HART GLANCY BROWN and SEAN CONNERY
Songs and Additional Music by QUEEN Music Score by MICHAEL KAMEN Executive Producer E.C. MONELL Story by GREGORY WIDEN Screenplay by GREGORY WIDEN and PETER BELLWOOD & LARRY FERGUSON
Produced by PETER S. DAVIS and WILLIAM N. PANZER Directed by RUSSELL MULCAHY

SOUNDTRACK AVAILABLE ON EMI RECORDS & TAPES

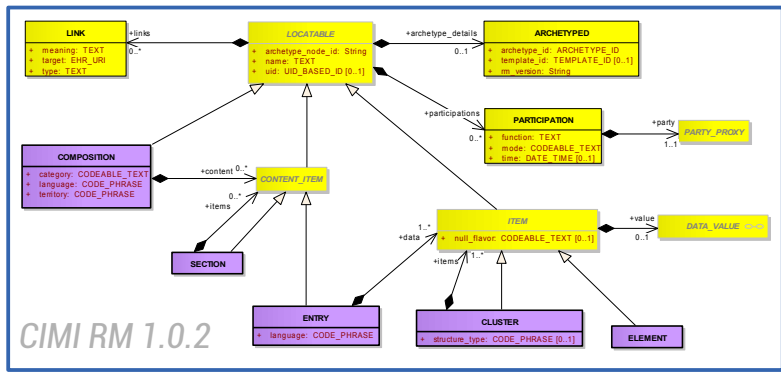
RELEASED BY COLUMBIA-CADDOX-WARNER DISTRIBUTORS LTD

READ THE GRAFTON PAPERBACK

DOLBY STEREO IN SELECTED THEATRES

CANNON

FEATURING ORIGINAL SONGS BY QUEEN



CIMI

Standard Terminologies

Repository of Shared Models in a Single Language

Translators

Initial Loading of Repository

CEN Archetype

- CEMs
- DCMs
- CDA Templates
- openEHR Archetypes
- CEN Archetypes

- LRA Models
- CMETs, HMDs RMIMs


- CEM
- V2 "I" LRA
- V2 XML HTML
- V3 XML
- FHIR
- UML
- openEHR Archetype
- CDA
- OWL
- SOA
- CEN Archetype
- Payload



Meanwhile... FHIR in my day job

**LifeLines
Research Data
Infrastructure**

UNIVERSITAIR MEDISCH CENTRUM GRONINGEN

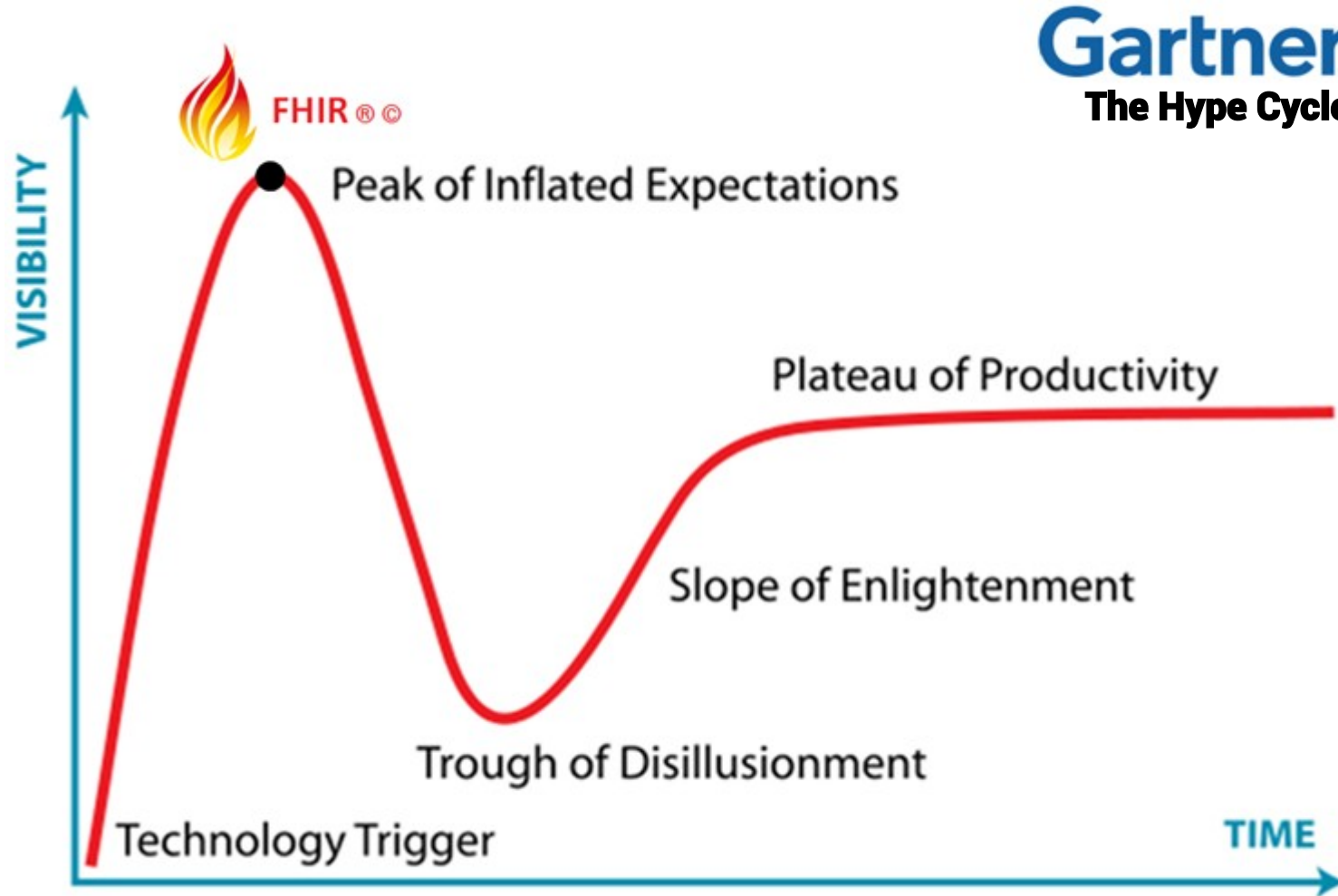


**Data Capture
at the Source
DCM's**



Simplifier.net

FHIR is a “Working” standard



“I look forward to that happening much more rapidly with FHIR than it has with most other technologies because it's lightweight and it's designed for this rapid cycle time and because Grahame and HL7 have really rethought how standards are developed and shared to make use of the modern technologies.”

Wes Rishel – Vice President and Distinguished Analyst, Gartner



The Infostructure in 2013. Will it fly? How long?
With how much effort?

The Future?

H+ "Where information meets biology"

blood flow
heart rate
vascular pressure
adrenal secretion
oxygen intake
digestion
bone growth
circulation
excretion

heart regulation
maintenance of tissue moisture
thyroid secretion
nutrient absorption
salivary secretion
carbon dioxide removal
ocular transmission
cochlear transmission

cellular repair
immune system response
detoxification
protein synthesis
homeostasis regulation
insulin production
nervous system response
respiration



86 NANOMETERS IN DIAMETER
(1000 TIMES THINNER THAN A STRAND OF HAIR)



DIABETES
HEART DISEASE
THYROID DISEASE
PANCREATIC CANCER

PROSTATE CANCER
ALZHEIMER'S DISEASE
PARKINSON'S DISEASE
IMMUNE SYSTEM
DISORDERS

CUSHING'S SYNDROME
MELANOMA
CEREBRAL ANEURYSM
ATOPY

 [nl.linkedin.com/in/michaelvanderzel/](https://www.linkedin.com/in/michaelvanderzel/)
 [m.van.der.zel AT umcg.nl](mailto:m.van.der.zel@umcg.nl)

H+ WebSeries https://www.youtube.com/watch?v=otlbZQ4zv_I