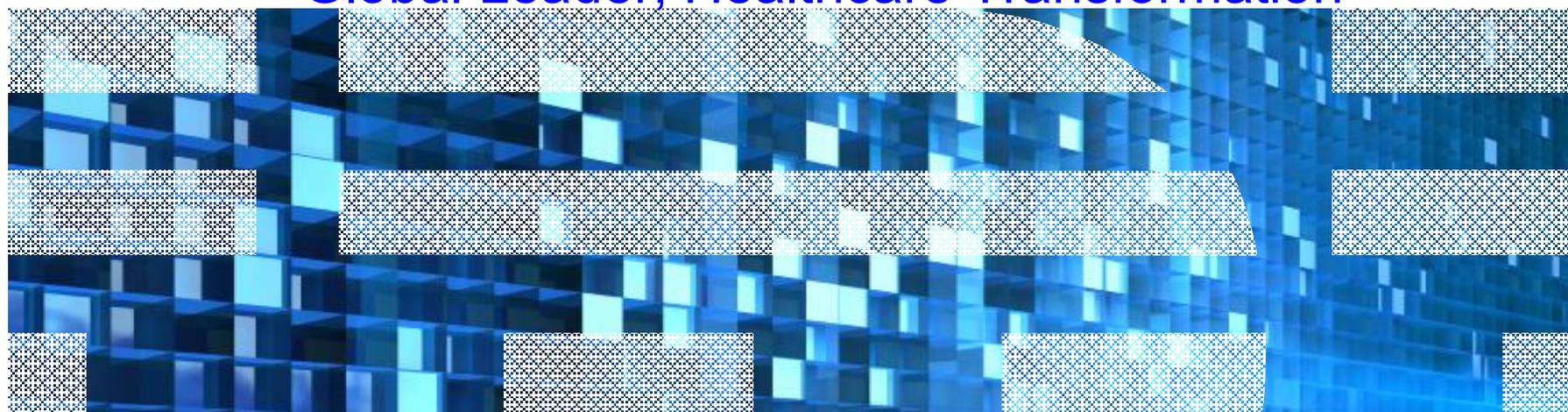


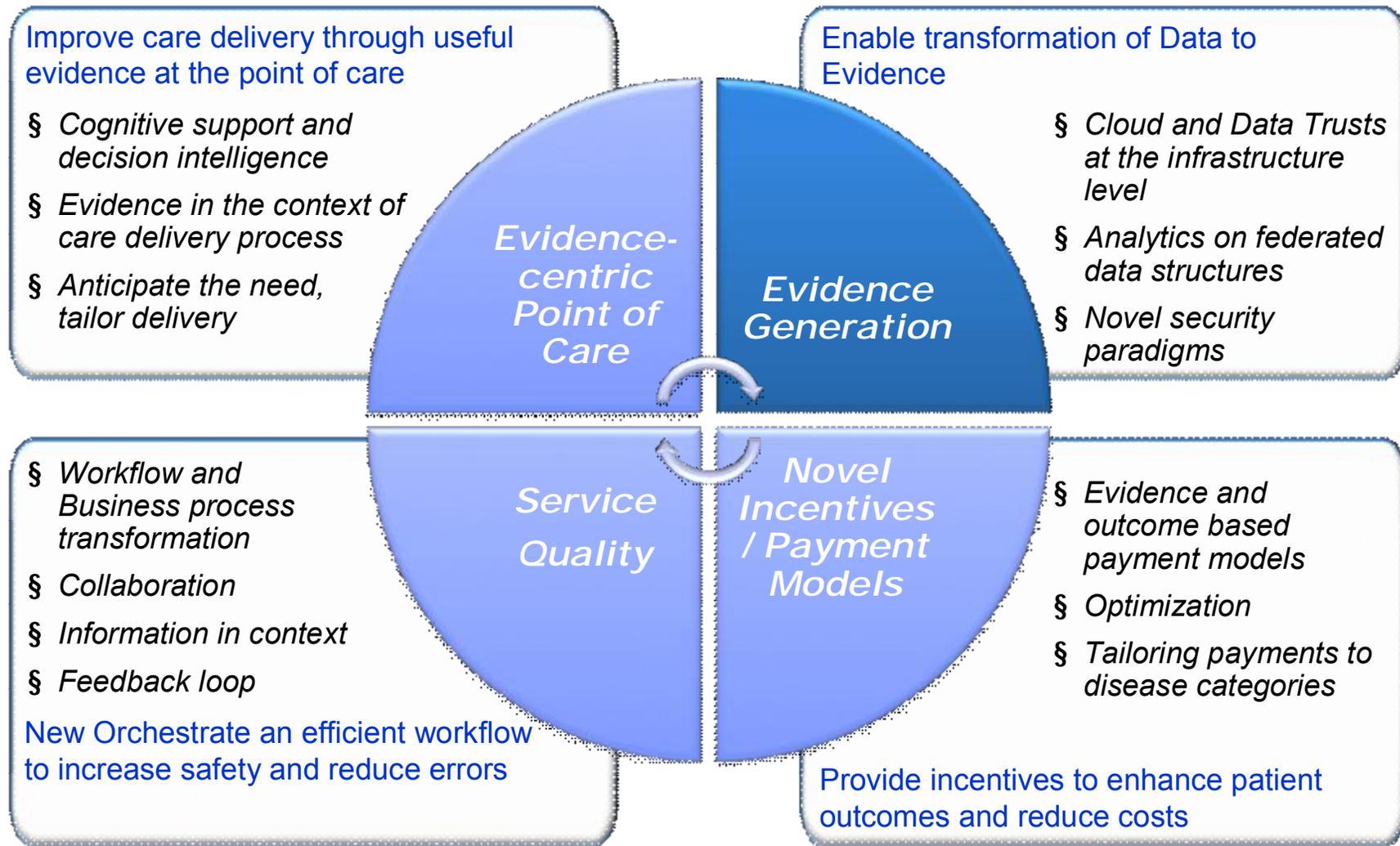


# Healthcare Transformation

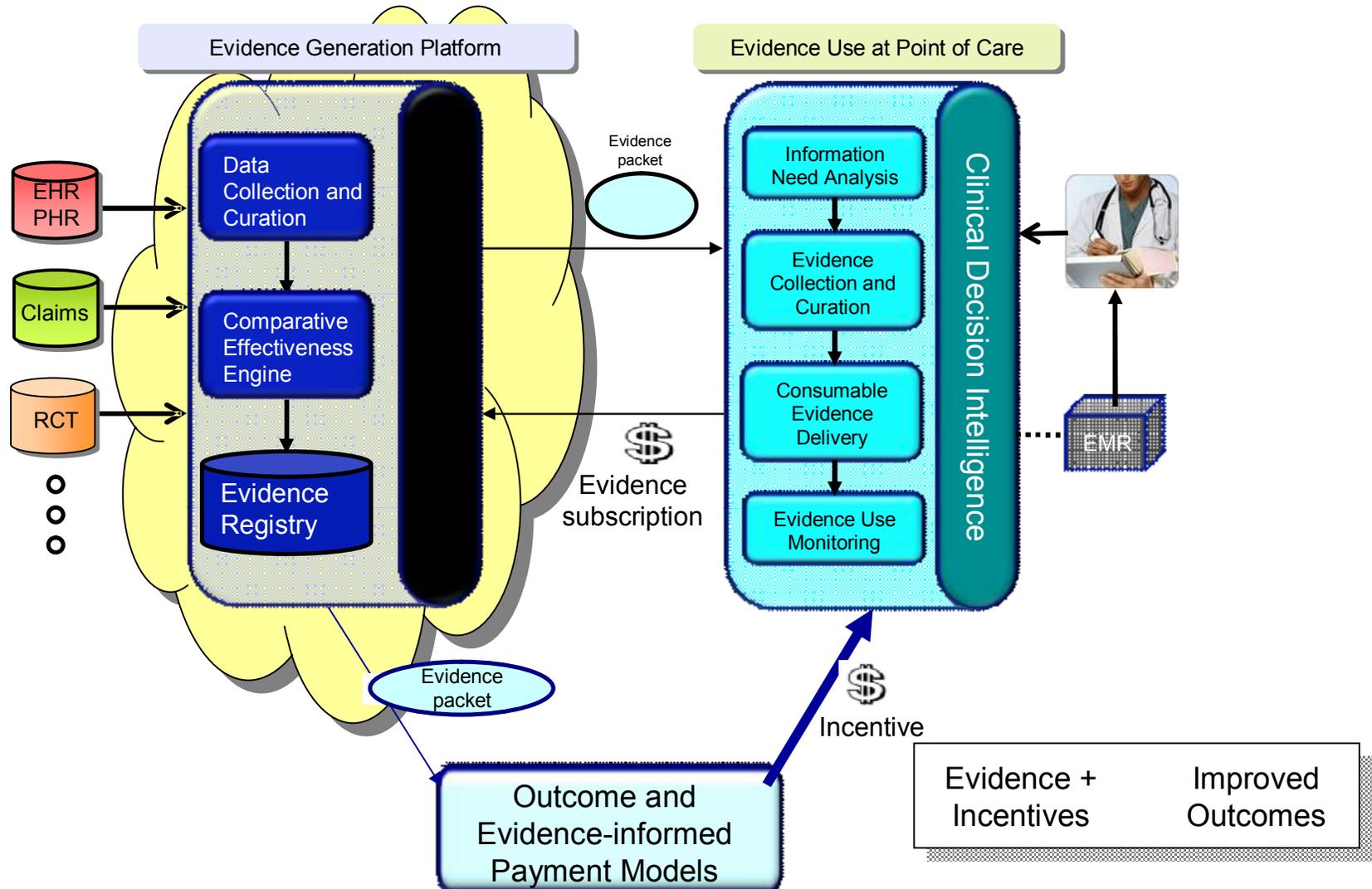
Chalapathy Neti,  
Global Leader, Healthcare Transformation



# Key components enabling transformation to an evidence-centric ecosystem



Outcome based payment incentives lead to improved outcomes and demand for evidence at point of care. This requires large scale evidence generation and comparative effectiveness clouds.

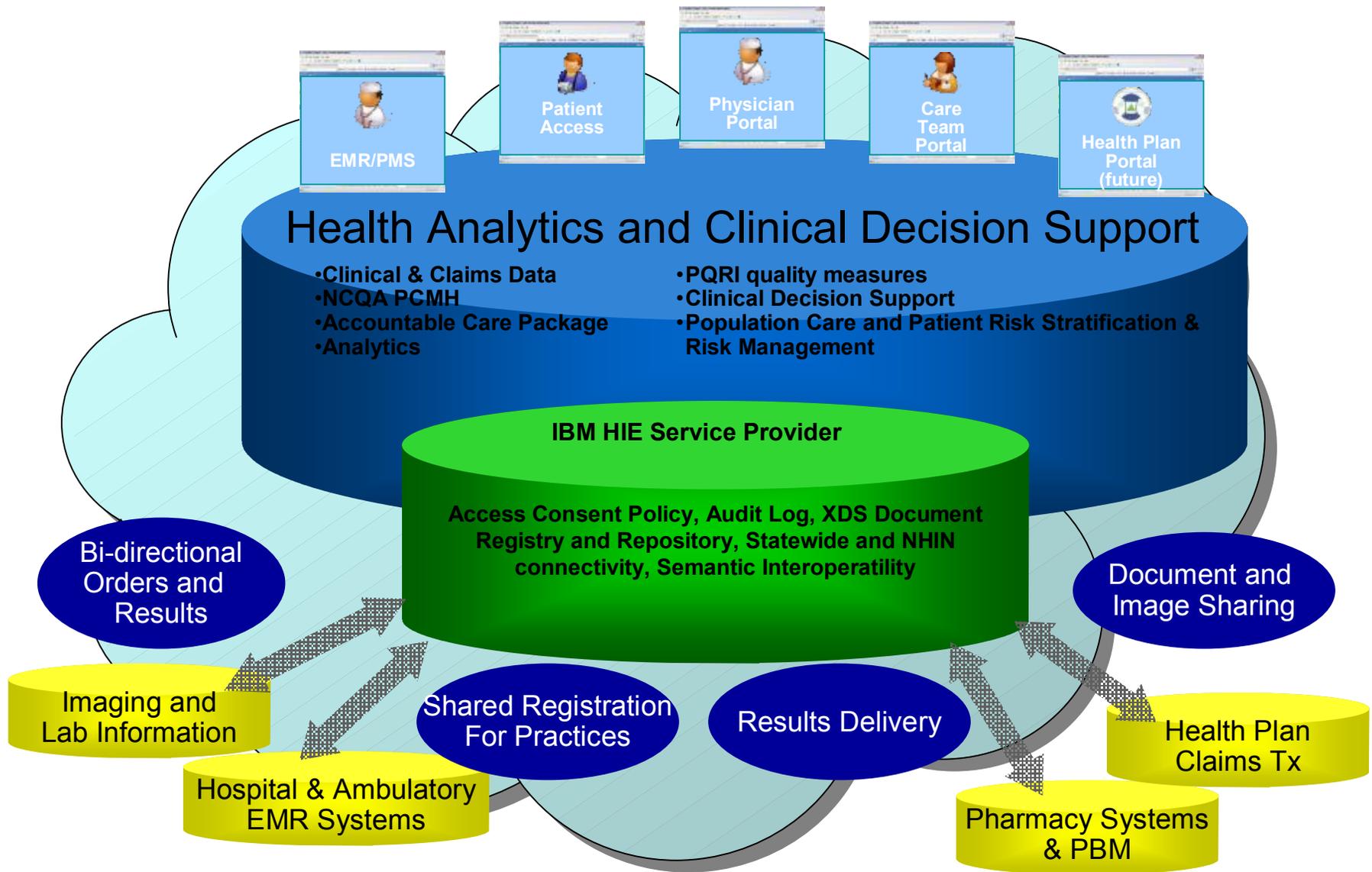




# EVIDENCE USE



# IBM/AHM Collaborative Care Solution





# Evidence Use: Enhancements to IBM/AHM Collaborative Care Solution

Watson

Haifa

Decision Intelligence for Improved Care Delivery  
(Collaborative Care Analytics)

Clinical Guidelines Representation & Delivery (ePC3)

China Research

Extensions for Wellness Management

China Research  
Collaborative

CCS

IBM/AHM Collaborative Care Solution

- Announced jointly with [AHM](#) (development partner) and [SCMG](#) (customer) on August 5<sup>th</sup>, 2010



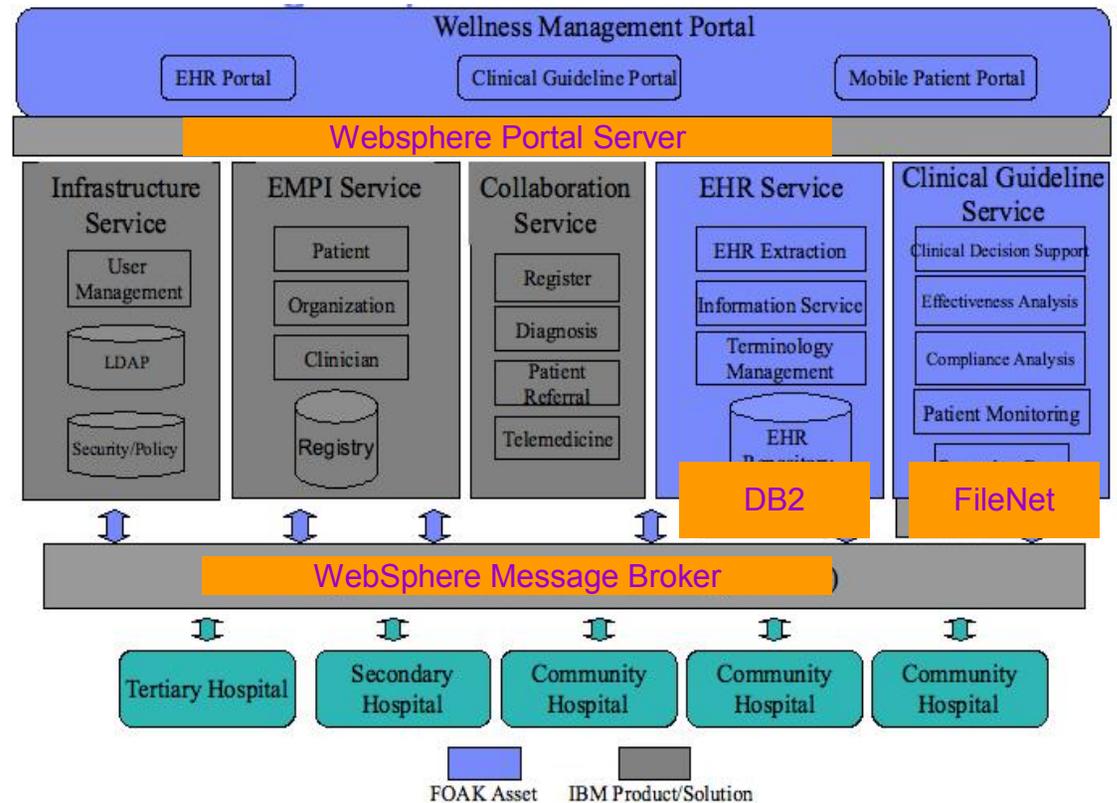
## Evidence-Based Patient-Centered Care (ePC3)

The solution provides evidence-based patient-centered collaborative care to improve the care quality while reducing the cost, with a focus on **chronic disease management** enabled by

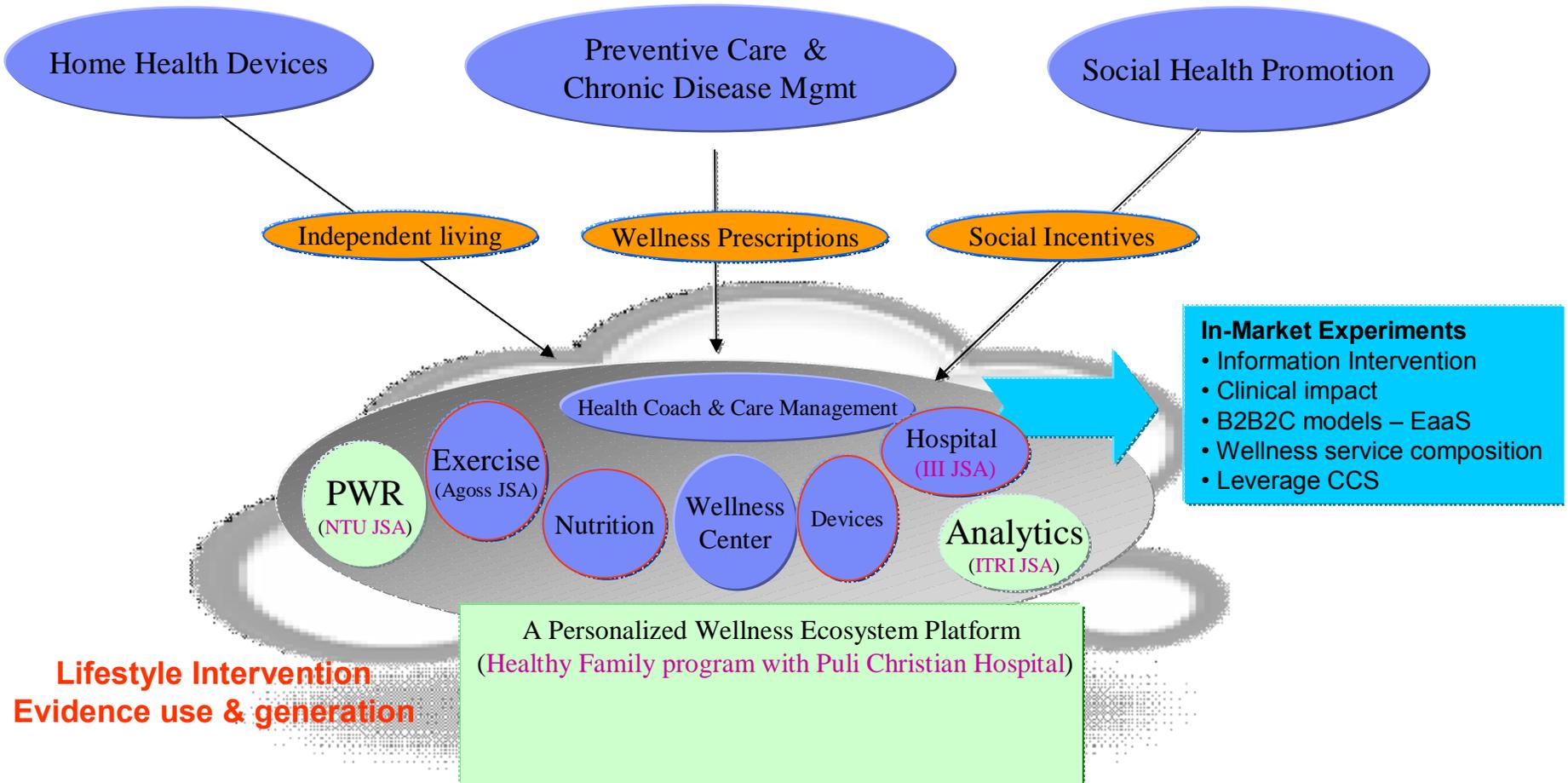
§ **integrated health information**  
(Longitudinal Health Record for Health Risk Assessment)

§ **best medical evidences**  
(Clinical Guideline/Pathway)  
and

§ **better patient interactions**  
(Mobile-enabled Patient Monitoring and Communication).



# Taiwan Collaboratory: A Cloud-Enabled Personalized Wellness Ecosystem

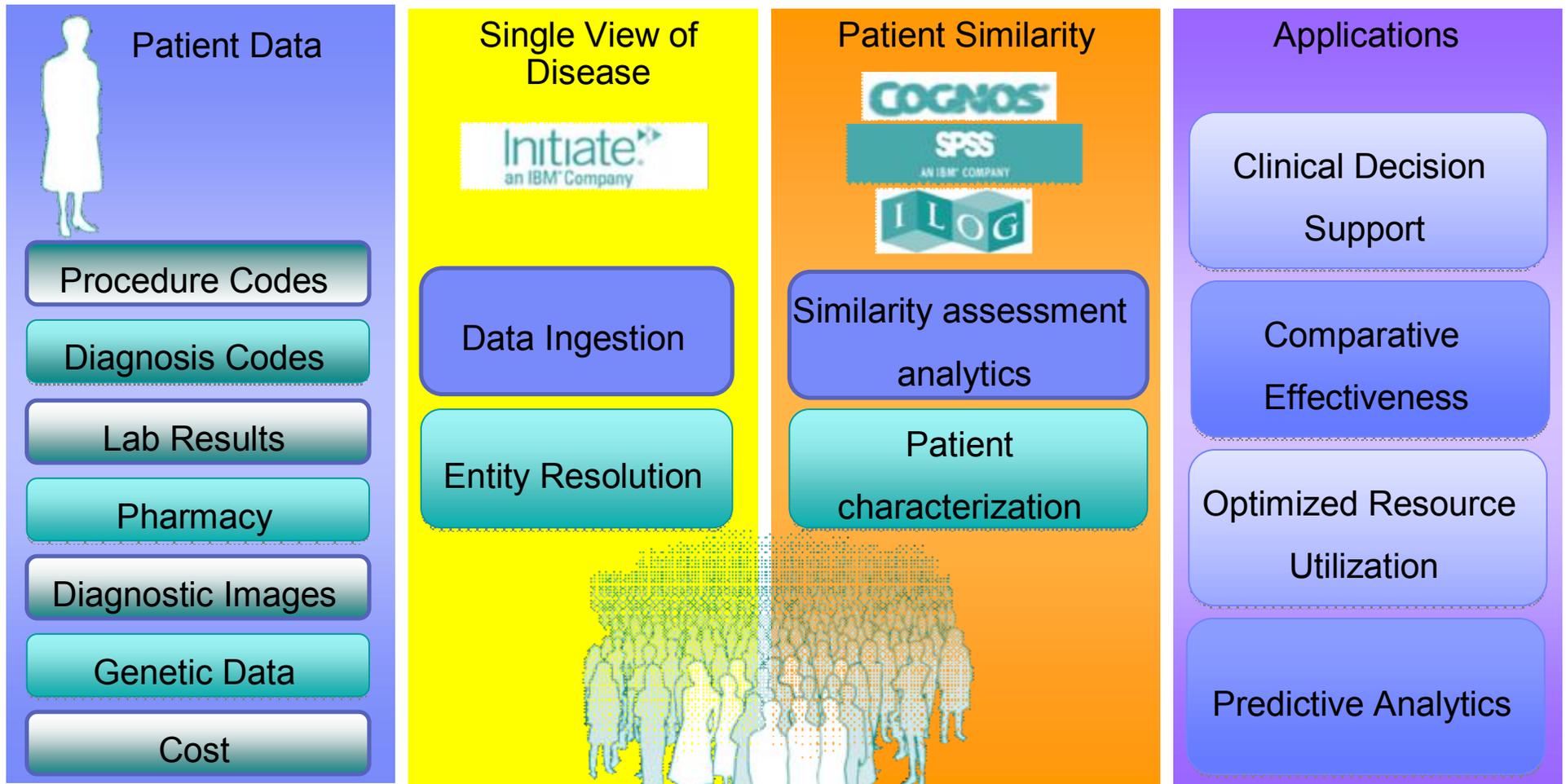




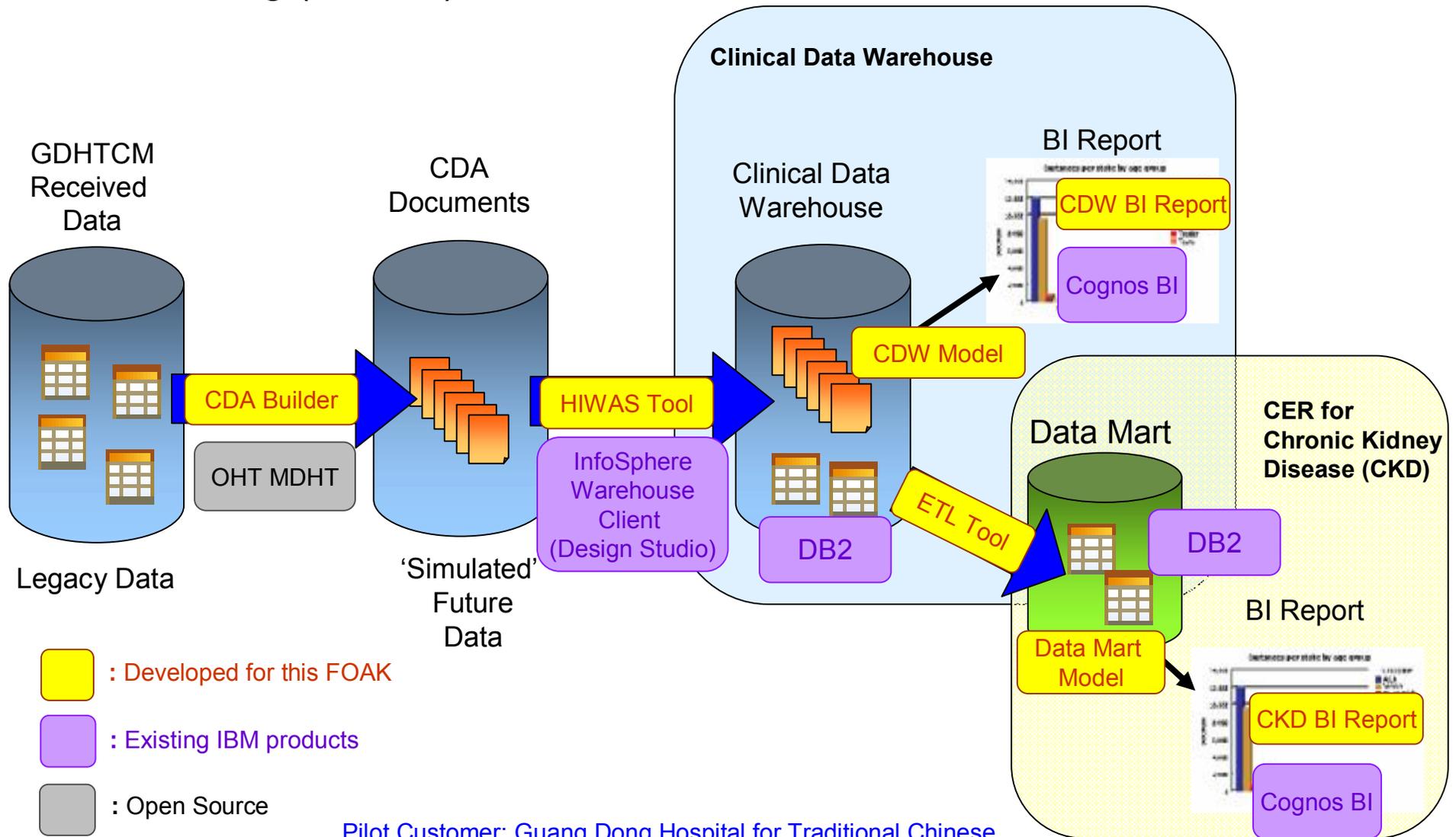
# EVIDENCE GENERATION



# Evidence Generation: Smart Analytics System for Comparative Effectiveness



# Single View of Disease - Healthcare Information Warehouse for Analytics and Sharing (HIWAS)



- : Developed for this FOAK
- : Existing IBM products
- : Open Source

Pilot Customer: Guang Dong Hospital for Traditional Chinese Medicine



# EUResist: HAART Therapy Prediction

Predicts in-vivo efficacy of anti-retroviral drug regimens, i.e., reduction in viral load.

Combines 3 Machine Learning Predictive Technologies

Uses Viral Genome and Patient demographic and clinical data

Outperforms leading available resistance interpretation system

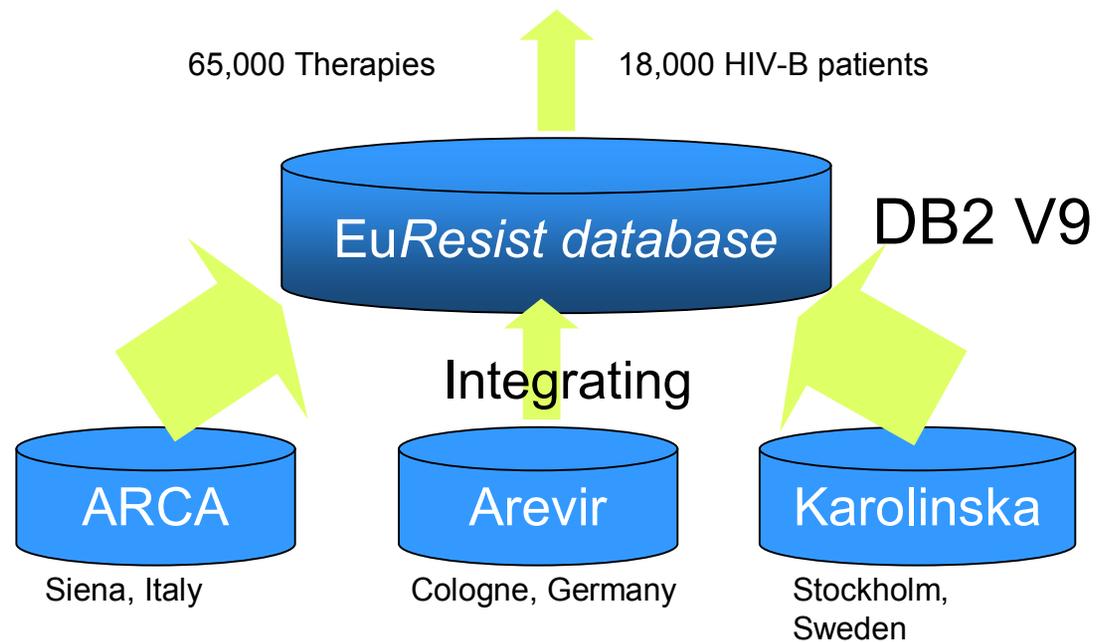
Available on-line at:  
<http://engine.euresist.org>

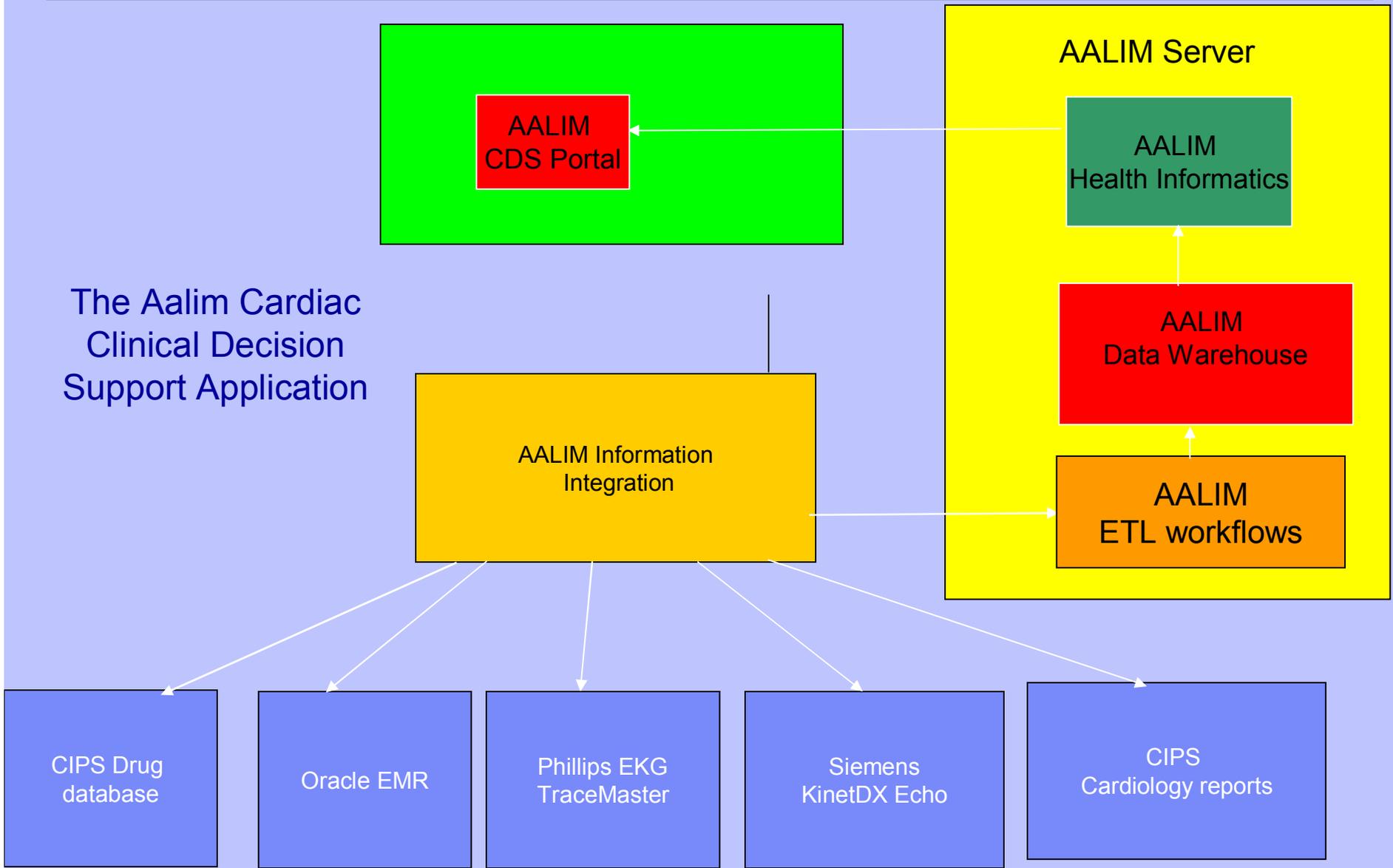
2009 Computerworld Honors Program Finalist

Prediction System



IBM's HRL with EU researchers from Germany, Italy, Hungary, and England.





ARN: 03940-000-07-00001 A fictitious patient  
 Name: KEITH CHAN  
 Gender: M  
 Age: 89  
 Conditions based on:  OSCR  EKG  TEXT  ECHO  
 Key: applies to patient does not apply to patient

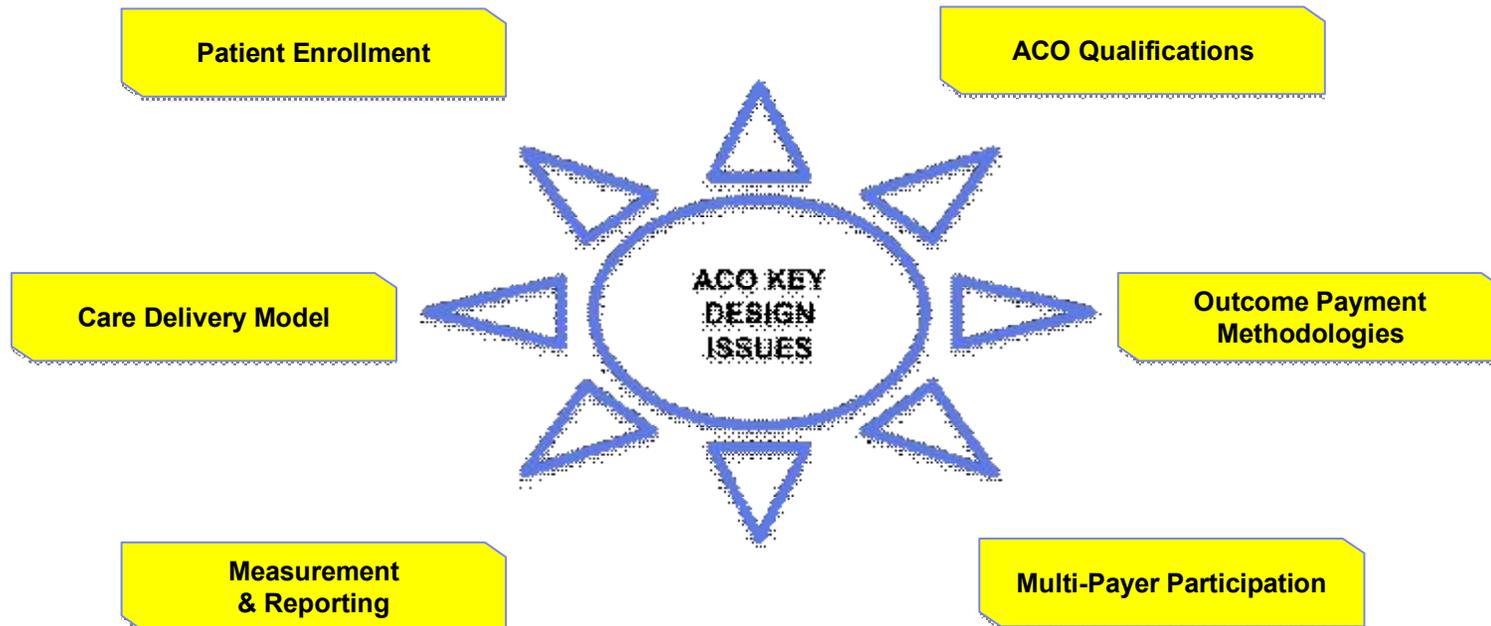
Common Conditions		
<div style="width: 90%; background-color: #008080;"></div> [90%]	401.9	Unspecified (Essential hypertension)
<div style="width: 90%; background-color: #008080;"></div> [90%]	427.31	Atrial fibrillation (Cardiac dysrhythmias:Atrial fibrillation and flutter)
<div style="width: 80%; background-color: #008080;"></div> [80%]	424.0	Mitral valve disorders (Other diseases of endocardium)
<div style="width: 80%; background-color: #008080;"></div> [80%]	424.1	Aortic valve disorders (Other diseases of endocardium)
<div style="width: 70%; background-color: #008080;"></div> [70%]	394.0	Mitral stenosis (Diseases of mitral valve)
<div style="width: 65%; background-color: #008080;"></div> [65%]	428.0	Congestive heart failure, unspecified (Heart failure)
<div style="width: 45%; background-color: #008080;"></div> [45%]	443.9	Peripheral vascular disease, unspecified (Other peripheral vascular disease)
<div style="width: 40%; background-color: #008080;"></div> [40%]	459.81	Venous (peripheral) insufficiency, unspecified (Other disorders of circulatory system:Other specified disorders of circulatory system)
<div style="width: 40%; background-color: #008080;"></div> [40%]	429.9	Heart disease, unspecified (Ill-defined descriptions and complications of heart disease)
<div style="width: 35%; background-color: #90EE90;"></div> [35%]	424.2	Tricuspid valve disorders, specified as nonrheumatic (Other diseases of endocardium)
<div style="width: 35%; background-color: #90EE90;"></div> [35%]	427.9	Cardiac dysrhythmia, unspecified (Cardiac dysrhythmias)
<div style="width: 35%; background-color: #90EE90;"></div> [35%]	424.9	Endocarditis, valve unspecified, unspecified cause (Other diseases of endocardium:Endocarditis, valve unspecified)
<div style="width: 35%; background-color: #90EE90;"></div> [35%]	428.1	Left heart failure (Heart failure)
<div style="width: 30%; background-color: #008080;"></div> [30%]	432.0	Unspecified transient cerebral ischemia

Common Drugs	
<div style="width: 95%; background-color: #008080;"></div> [95%]	angiotensin converting enz inhibitors
<div style="width: 95%; background-color: #008080;"></div> [95%]	cardioselectiv blockers
<div style="width: 90%; background-color: #008080;"></div> [90%]	first generatio cephalosporin
<div style="width: 85%; background-color: #008080;"></div> [85%]	loop diuretics
<div style="width: 85%; background-color: #008080;"></div> [85%]	coumarins an indandiones
<div style="width: 80%; background-color: #90EE90;"></div> [80%]	adrenergic bronchodilator
<div style="width: 80%; background-color: #008080;"></div> [80%]	glucocorticoid
<div style="width: 80%; background-color: #008080;"></div> [80%]	H2 antagonist
<div style="width: 75%; background-color: #008080;"></div> [75%]	macrolides
<div style="width: 75%; background-color: #008080;"></div> [75%]	aminopenicilli
<div style="width: 75%; background-color: #90EE90;"></div> [75%]	nasal steroids
<div style="width: 70%; background-color: #008080;"></div> [70%]	nonsteroidal anti-inflammat agents
<div style="width: 70%; background-color: #008080;"></div> [70%]	quinolones
<div style="width: 65%; background-color: #008080;"></div> [65%]	narcotic analg
<div style="width: 65%; background-color: #90EE90;"></div> [65%]	inotropic ager
<div style="width: 65%; background-color: #008080;"></div> [65%]	phenothiazine antiemetics
<div style="width: 65%; background-color: #008080;"></div> [65%]	Statins
<div style="width: 60%; background-color: #008080;"></div> [60%]	topical steroid
<div style="width: 50%; background-color: #008080;"></div> [50%]	miscellaneous



# PAYMENT POLICY AND SIMULATION

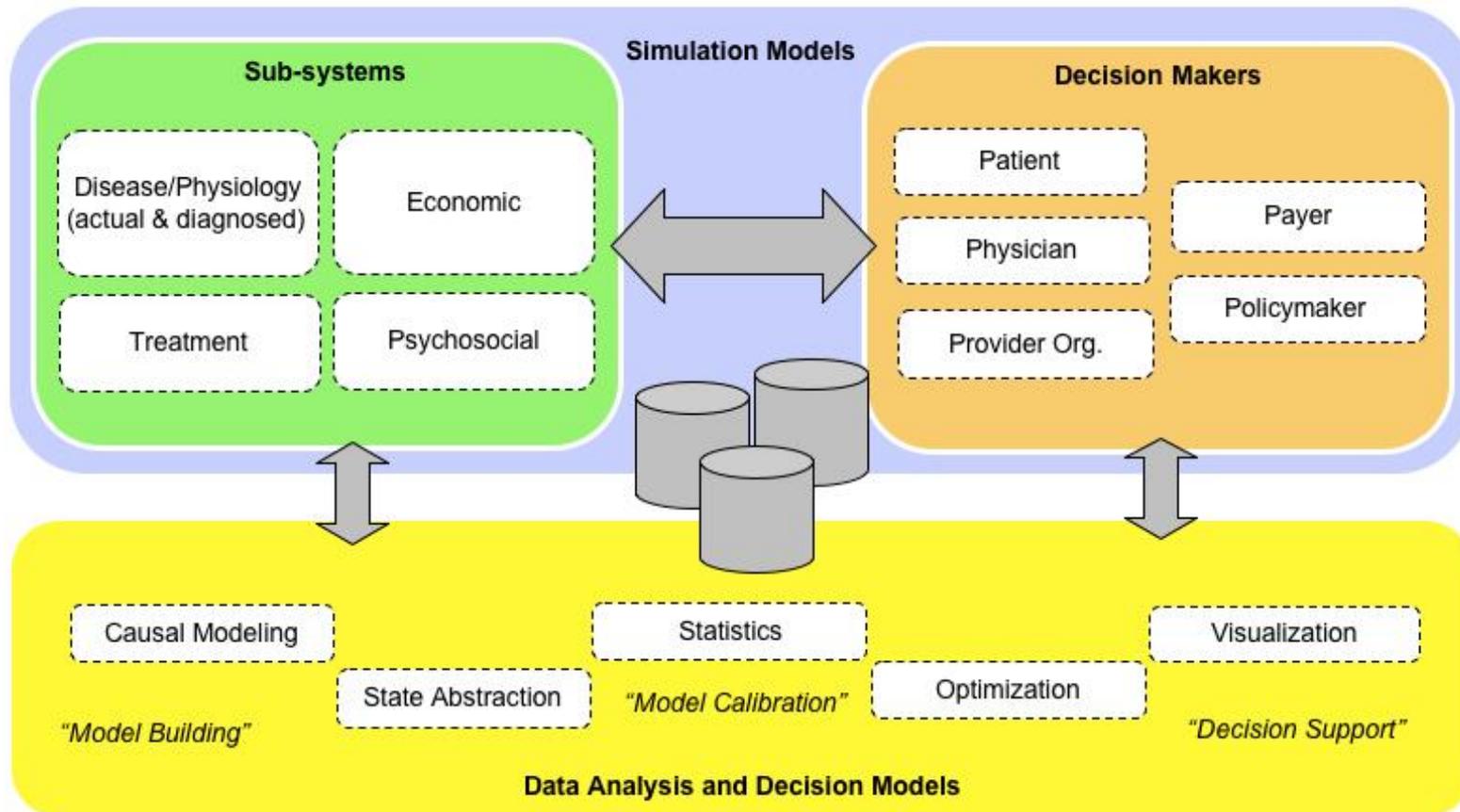
## Payment/Incentives: Enable Accountable Care Organizations:



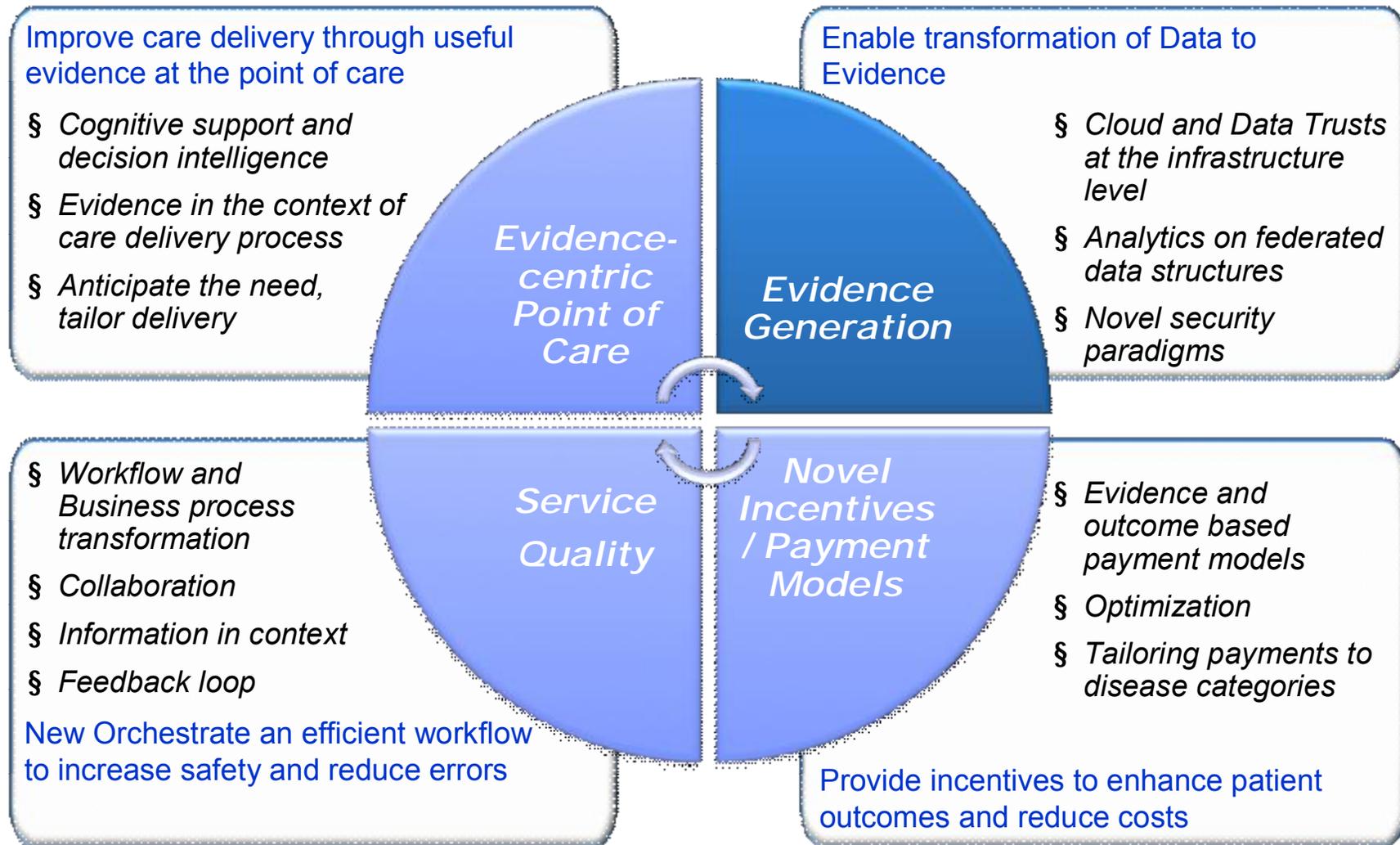
# Simulation Overview

§ A simulation based approach that combines disease modeling with economic and behavioral modeling to predict health outcomes and medical expenses.

§ Flexible framework allows users to 'plug-in' and leverage a library of specialized analytic models.



# Key components enabling transformation to an evidence-centric ecosystem





# Acknowledgments

## ○ Evidence Use Team

Yue Pan & IBM Research Lab, China team, Shahram Ebadollahi & IBM Research, Watson Lab team, Henry Chang & Taiwan Collaboratory team

## ○ Evidence Generation Team

Bill Cody & IBM Research, Almaden team, Haim Nelken & IBM Research, Haifa team

## ○ Payment & Simulation Team

Shahram Ebadollahi, Robert Sorrentino, Murray Campbell & IBM Research, Watson team, Paul Maglio & IBM Research, Almaden team

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