

# Interoperability Lessons and Questions

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# Categories of HIEO Services

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- Trust
  - (Delegated interHIE Trust)
- Security
- ID Management
- Transportation
- Choreography
- Semantic Normalization
- “Doing, not recommending, not always standardizing”

# Mythical Report, Real Patient

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“Patient is a 66-year old, obese, male diabetic with A1Cs under 7.0 for 9 years and a proclivity to buy and use gadgets. After routine testing showed an A1C of 7.5 he visited his PCP seeking interventions.”

# Mythical Report, Real Patient

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# What I've Learned

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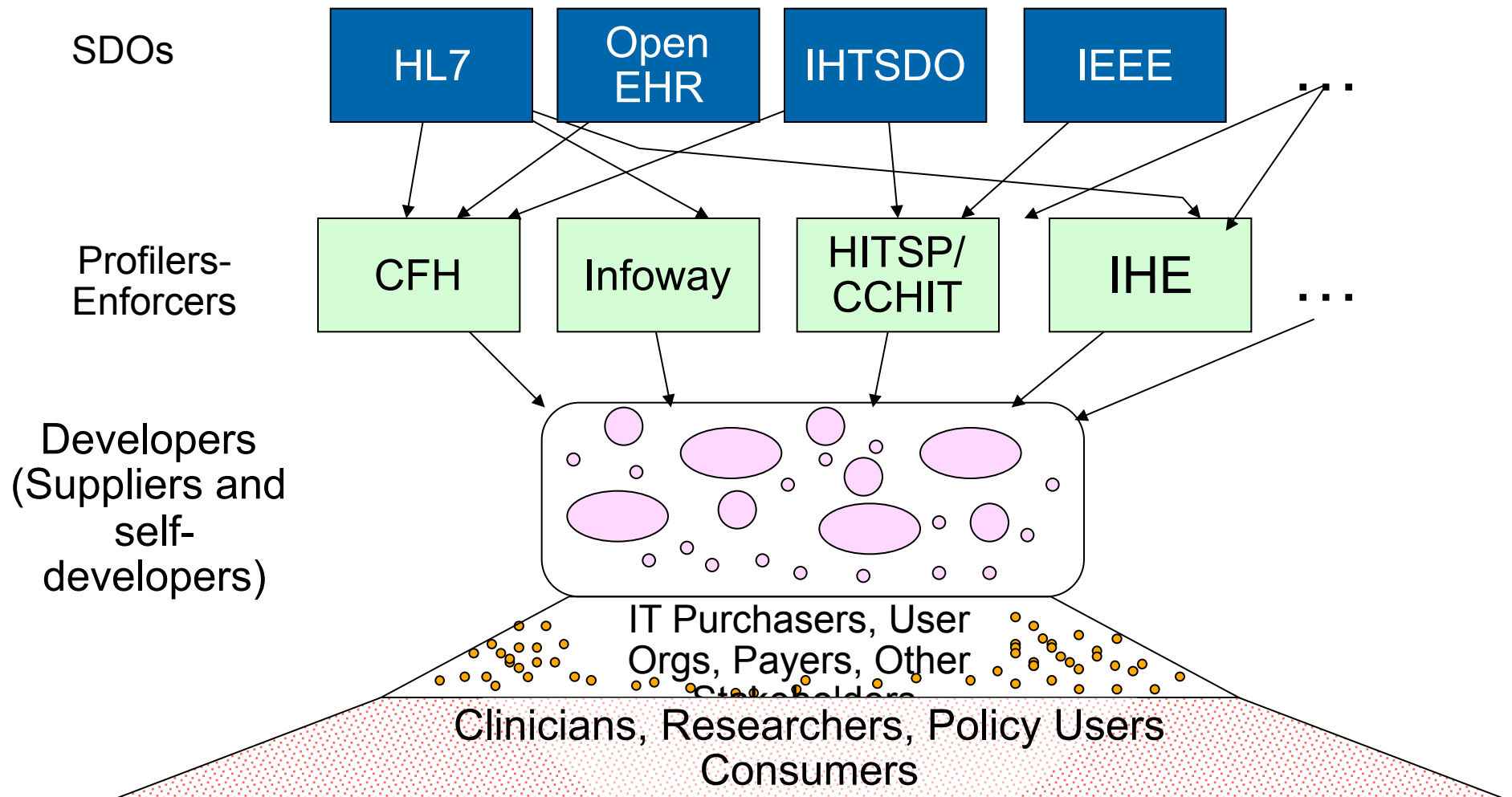
- When the driver is the market, standards development has a hard time keeping up.
- When developing a stack takes a long time the underlying technology assumptions drift.
- Developing a tall stack takes a long time.
- Freezing stacks through HIE protectionist laws will inhibit development.

# Five Categories of HIE Services vs Mass-Market Personal Health Devices/App

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- Trust (Ad hoc; Co authorization, increasingly OAuth2)
- Security (Ad hoc, based on common “big Web” protocols)
- ID Management (Patient initiated)
- Transportation (Ad hoc, based on common “big Web” protocols)
- Choreography (Ad hoc, based on common “big Web” protocols)
- Semantic Normalization (Ad hoc)

# What's Wrong with this Picture?



Rishel, The Important Role of the Profiler-Enforcer Organization (Gartner, 2007)

# What I've Learned

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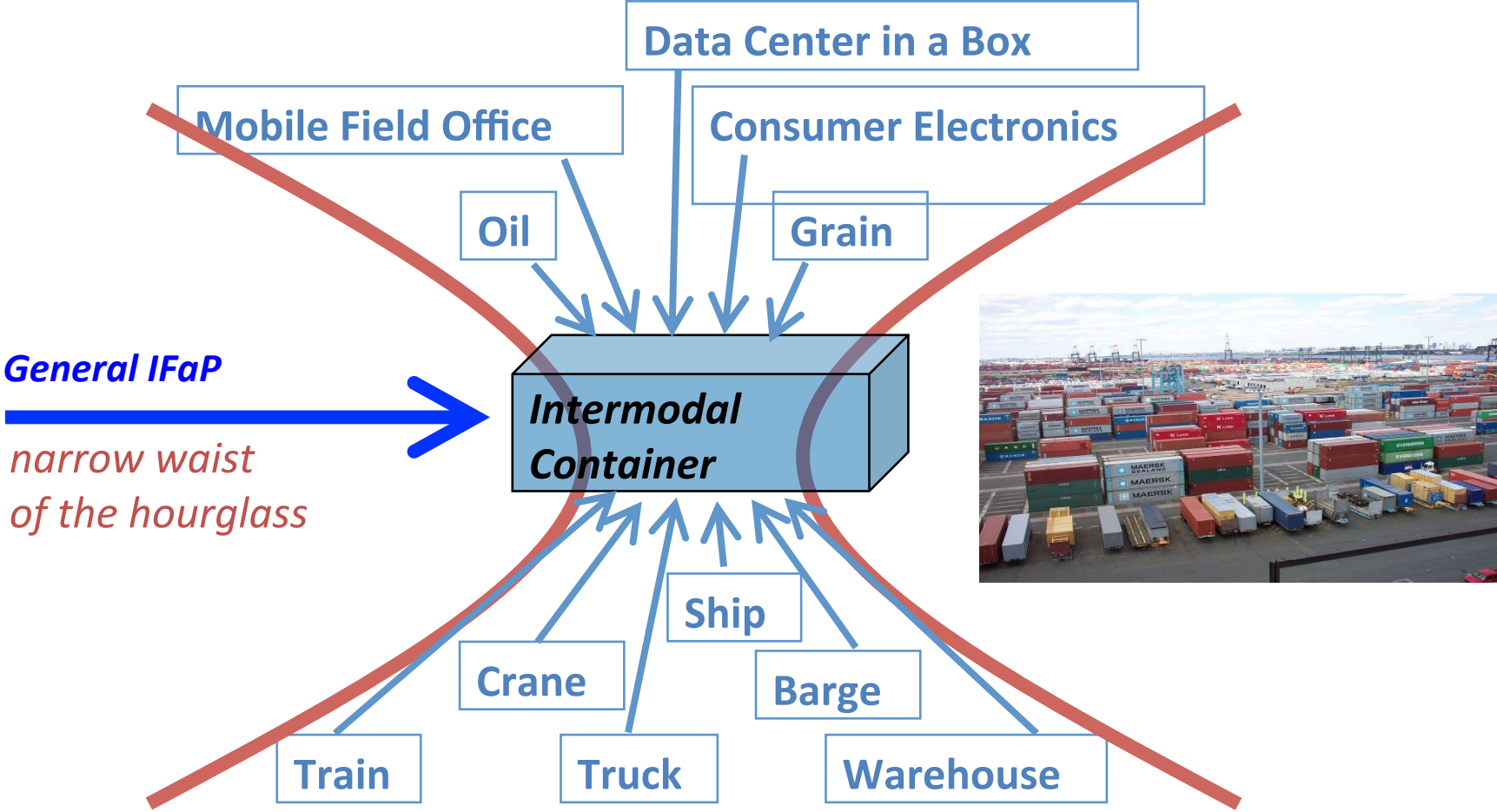
- Interoperability doesn't work unless both players want it really a lot.
- Standards development is an iterative process.
- Real iteration doesn't begin until there are users who need what you have.
- Iteration reaches all the way back to use cases and workflows



# The Middle-Out Architecture That Revolutionized Global Trade

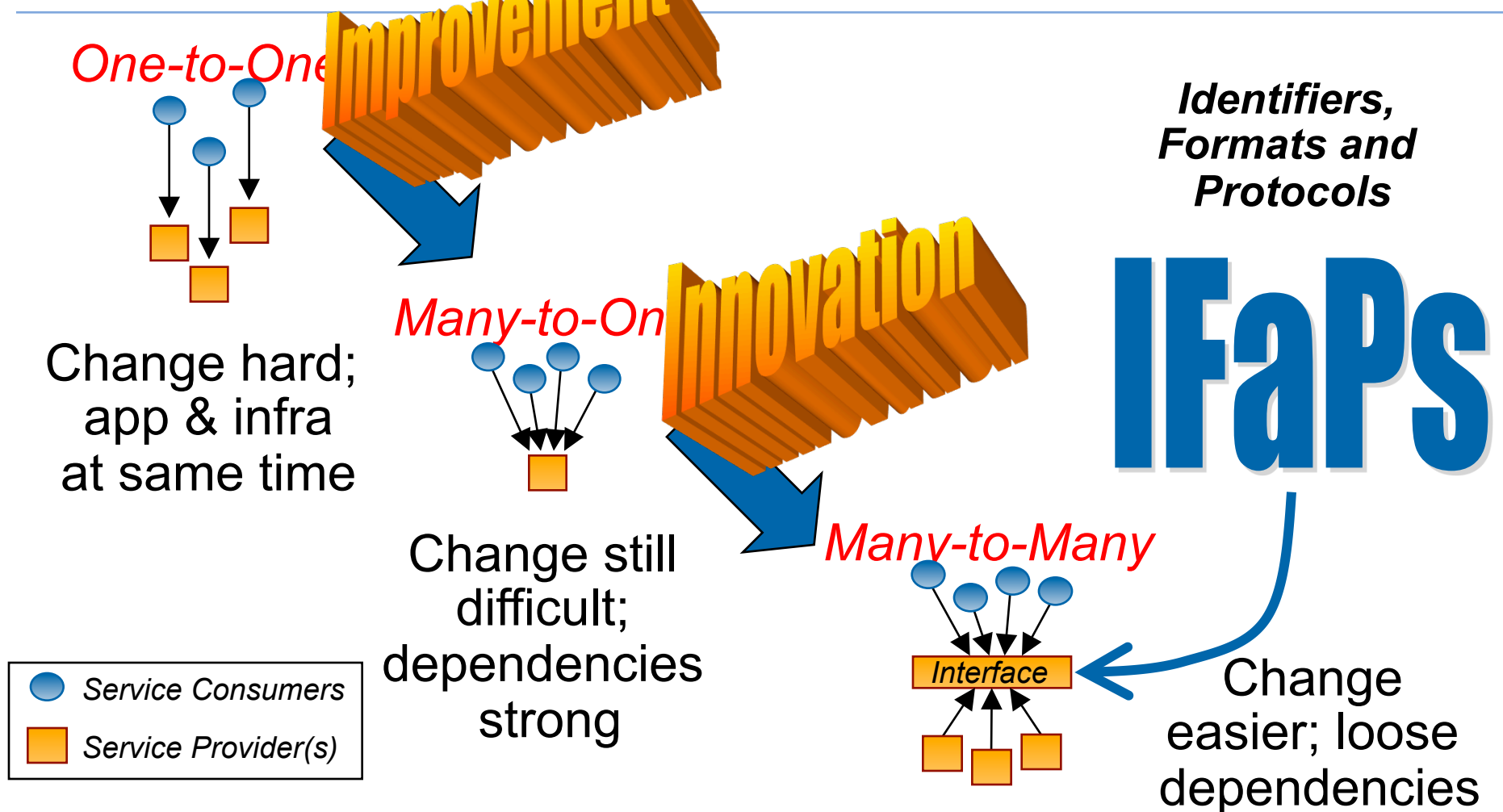


# The Middle-Out Architecture That Revolutionized Global Trade



# Wrong way: Point to Point Interfaces

## Right way: Many to Many Interfaces



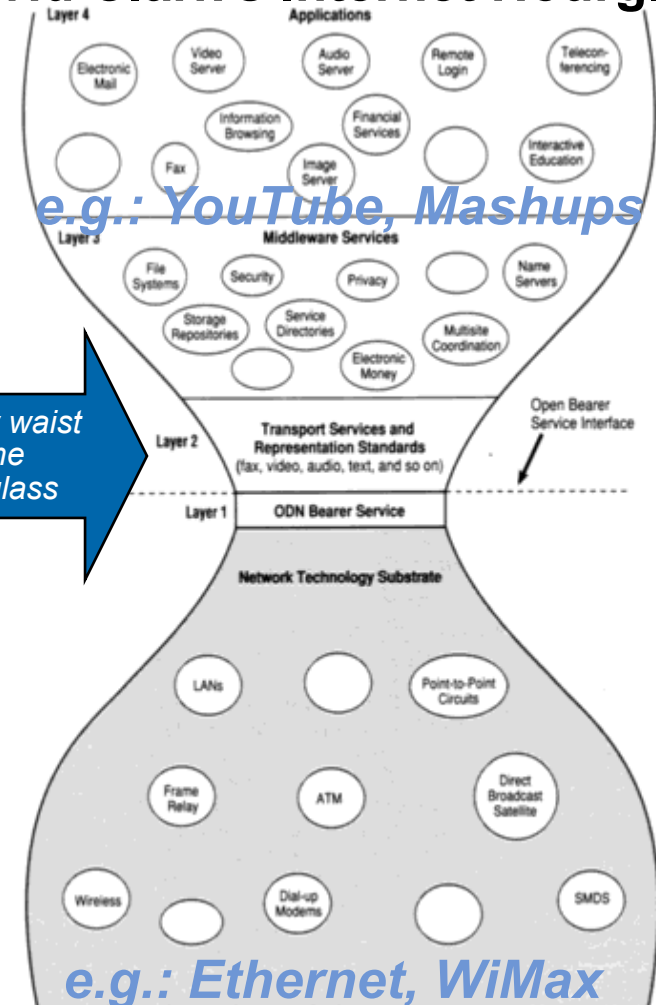
**Truly loose coupling between provider and consumer = TIGHTLY coupling BOTH to a general stable interface in the middle**

# History Lesson: The Stable and General IFaPs That Revolutionized Innovation

## Simple Interface = IFaP Specs

	<b>Identifier</b>	<b>Format</b>	<b>Protocol</b>
<b>Examples</b>	Address Reference Name	Document Message Container	Method Operation Process
<b>IP</b>	IP Address	IP Packet	IP Protocol
<b>E-mail</b>	@ Address	RFC 2822, MIME	Simple Mail Transfer Protocol (SMTP)
<b>Web</b>	Uniform Resource Identifier (URI)	Hypertext Markup Language (HTML)	Hypertext Transfer Protocol (HTTP)
<b>WS-*</b>	URI	SOAP Envelope	SOAP Protocol

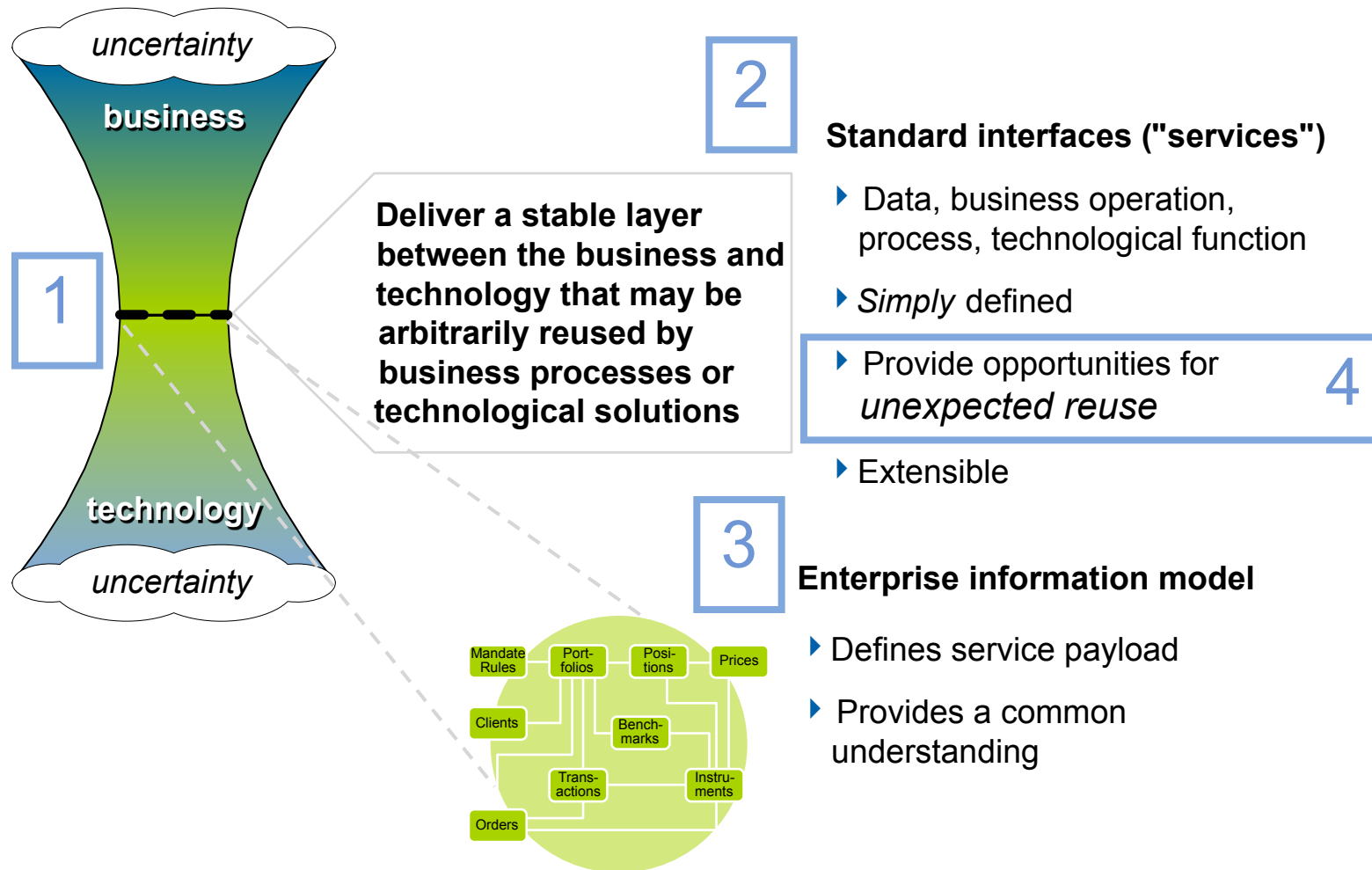
## David Clark's Internet Hourglass:



Not top down, not bottom up, but **MIDDLE OUT** Source: David D. Clark

# Wrong way: Start SOA with Technology Architecture

## Right Way: Start SOA with Information Architecture



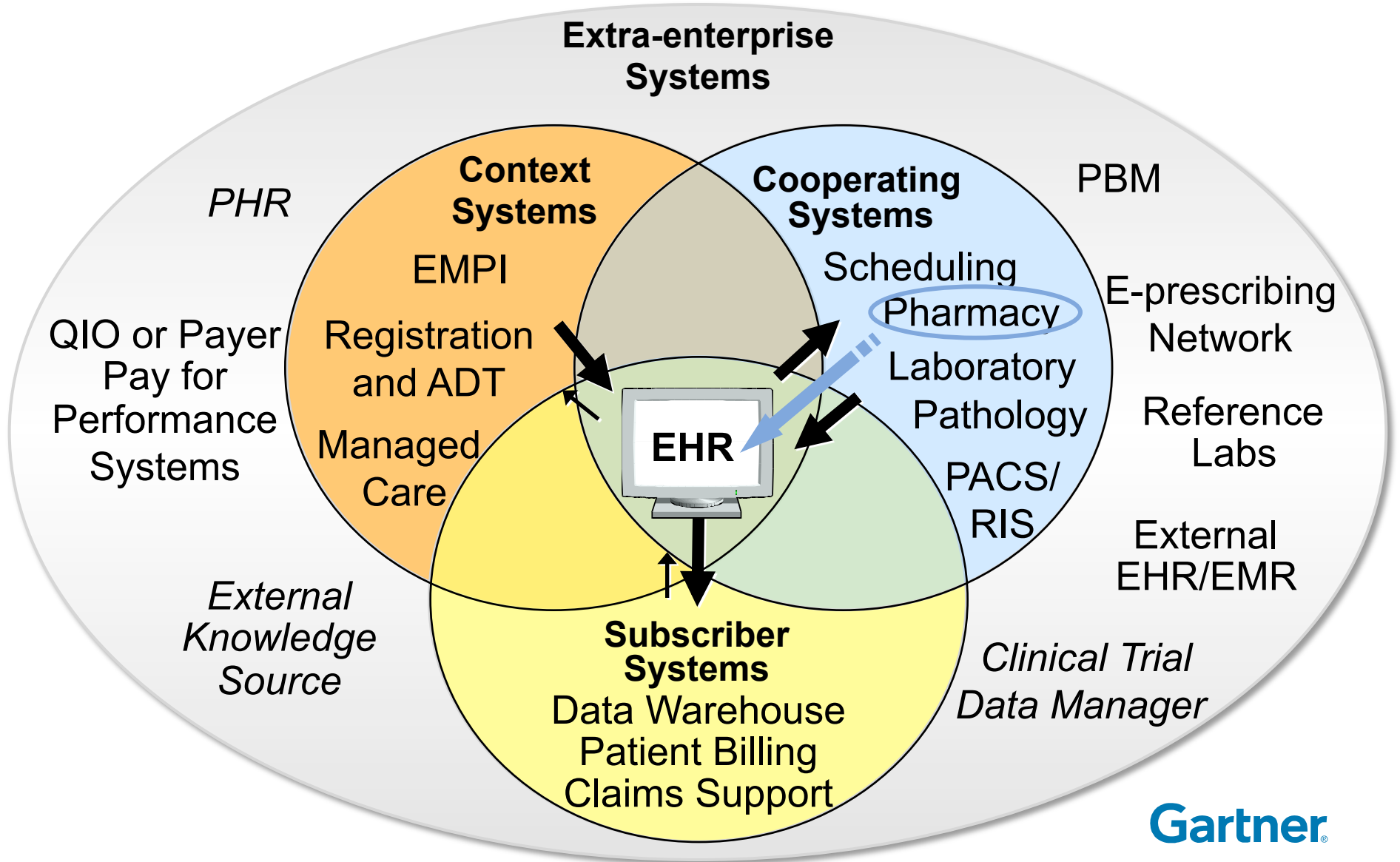
**Feedback from successful SOA initiatives demonstrates that 80% of SOA design issues are EIA issues** **Gartner**

# What I've Learned

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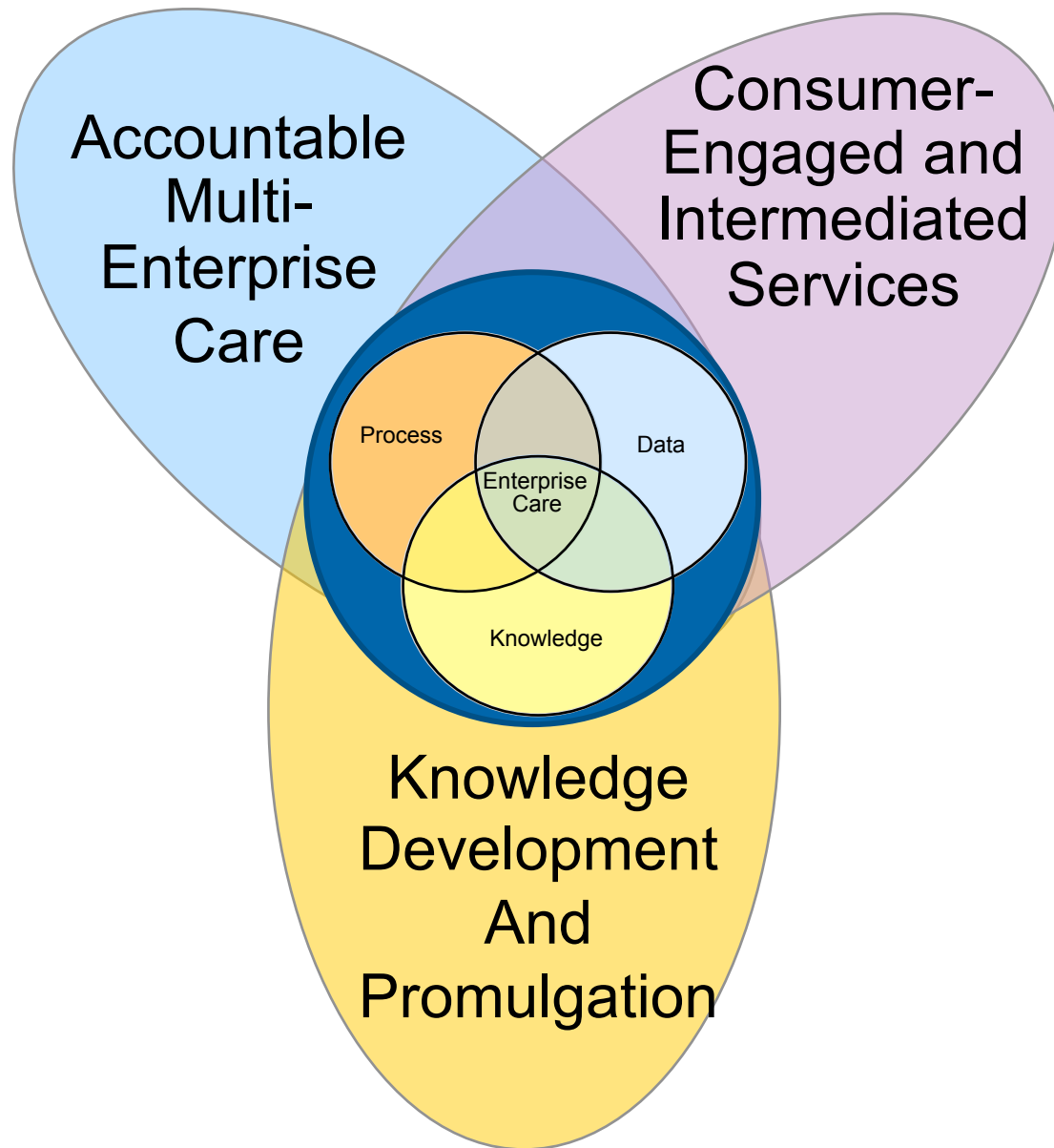
- The principles of Agile Development should imply to standards development: rough consensus, running code, final specifications
- Agility and iteration is a cumbersome process for a tightly coupled stack

# Application Integration 1997-2007: Data Integration



# Healthcare Integration 2008-2017: The Extra-Enterprise Enterprise

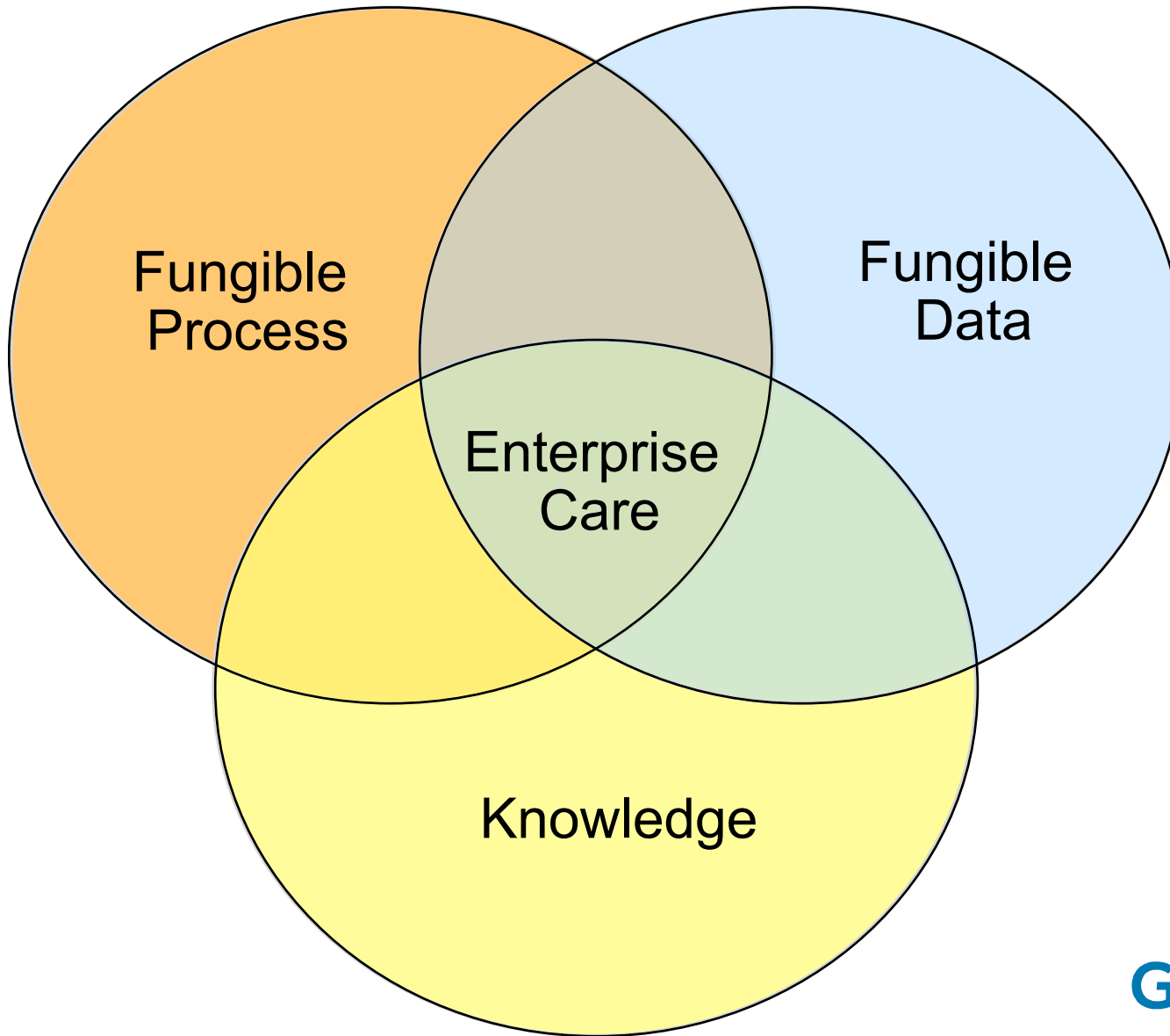
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# Healthcare Integration As the Ideal

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## Some Questions

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- Assume for a while that technical data standards were easy and compliance was mainly DIRTFT
  - Would a “collaborative ACO” be as agile as one that had a single, well-chosen EHR
  - How many practices
- Is our view of standards too EHR-centric?

# Some More Questions

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- How important is Internet-mediated patient engagement really?
- How important is engagement with mass-market devices and apps.
- Are our standardization processes leading to convergence with or divergence from mass-market devices and apps?

# My Stolen Closing

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- Build version 1.0 first
- Do one thing well to demonstrate your capabilities
- Focus on the average user

Mark Frisse summarizing Tennessee Gov. Phil Bredesen's Address to HIMSS 2007