

# The Ubiquitous Computing Paradigm - An Emergent Operational Ecology

Silicon Valley  
WORLD INTERNET CENTER

Ubiquitous Computing Forum  
July 2000

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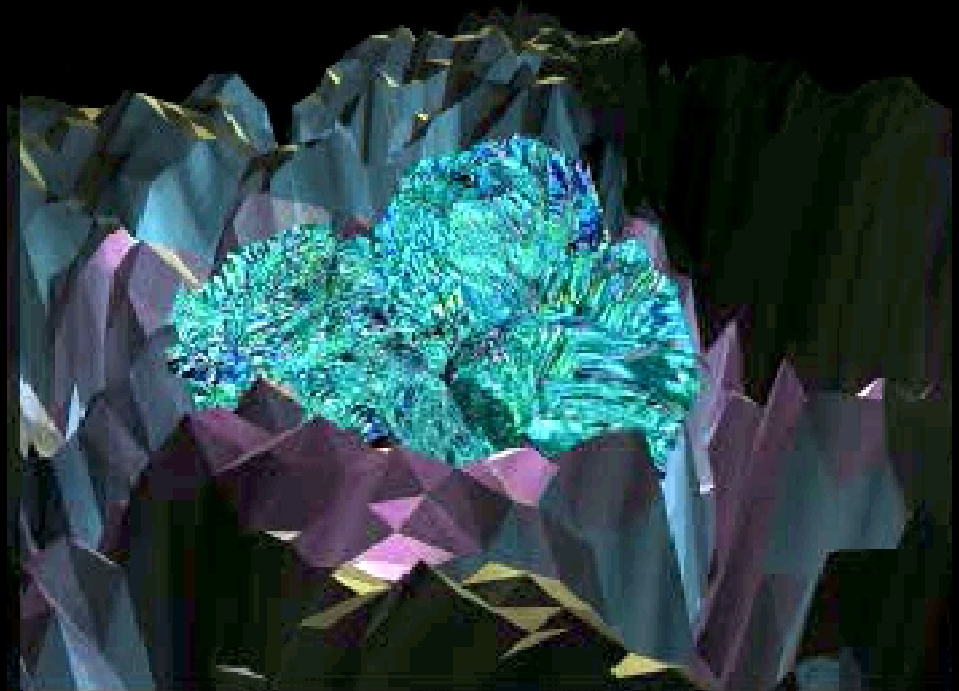
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# Evolution Into the Next Millennium

- Technology Convergence
- Economic Drivers
- Belief Systems



# The human / ubiquitous computing symbiosis - Key Phenomena

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- “Spawning” of infinitely scalable, distributed, process brokeraged resources, and their respective modes of communication.
- Adaptation to an integrated, operational ecology in which indices of value are established as process epicenters
- Process complexity, scale, and velocity are evolving toward a realtime, JIT process distribution architecture
- Epicenters of value are being extended into a seamless, contiguous fabric of bi-directional transactional process brokeraging - *if it isn't connected, it isn't real*

Persistent  
Objects

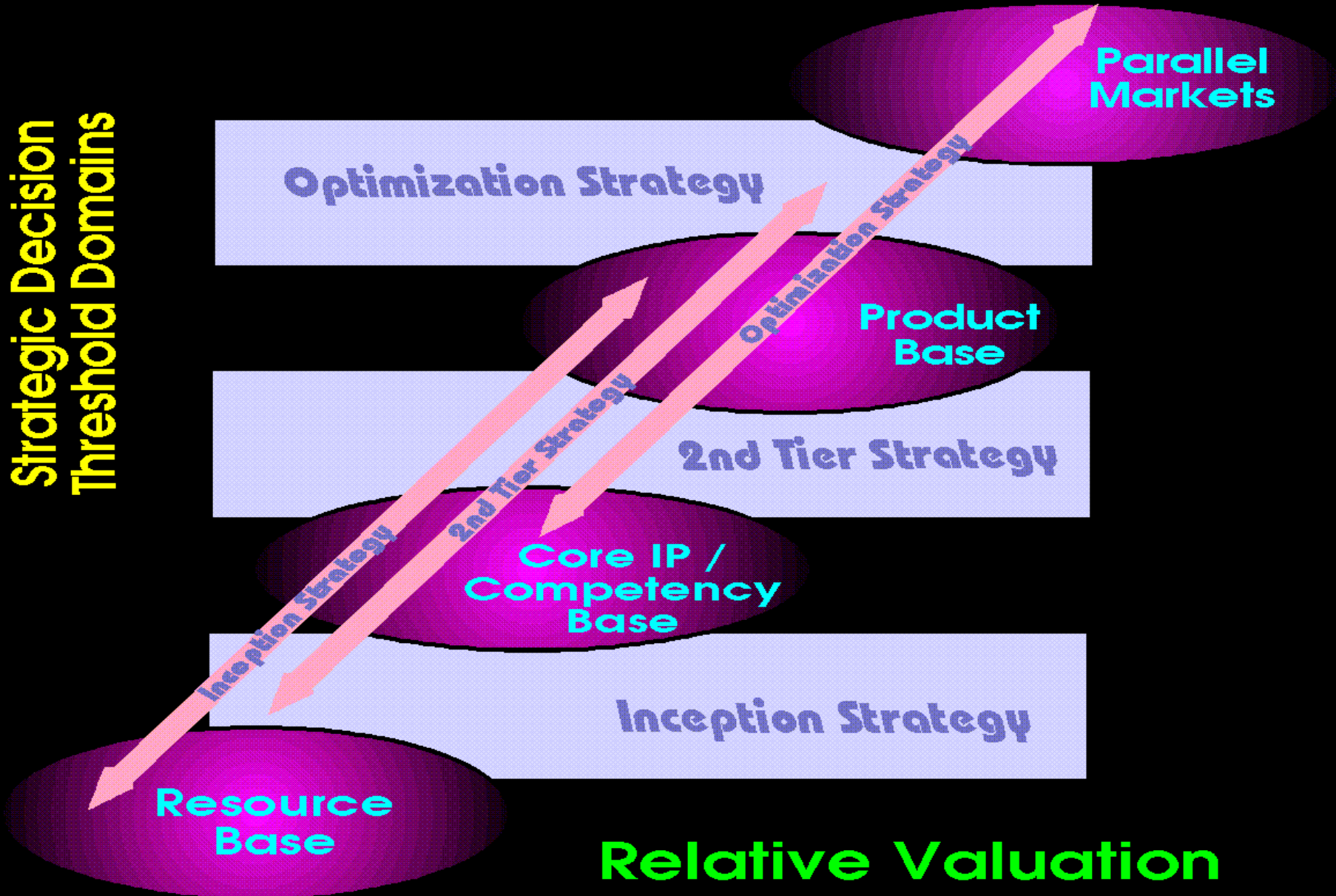
Ubiquitous  
Fabric

**Primary elements  
of the emergent  
operational  
ecology**

Process  
Nodes

Transaction  
Portals

**Strategic Decision  
Threshold Domains**



# Evolutionary Trends in the Emergent Operational Ecology

Global  
Orientation

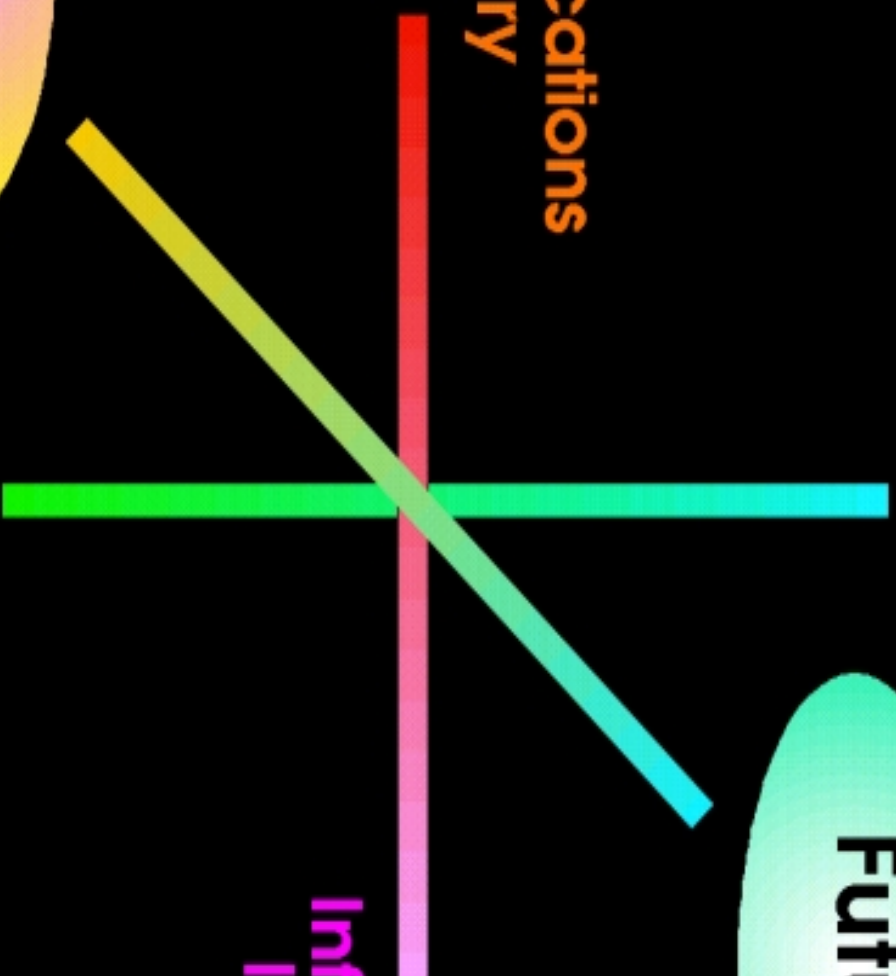
Future

Communications  
Industry

Information  
Industry

Domestic  
Orientation

Past



# Epiconers of Value

- > Granularized JIT Virtual Resource Distribution
- > Combinatorial Realtime Virtual Resource Assets
- > Computing "Fabrics" - Access and Brokeraging
- > Integrated Process Transaction Architectures
  - > Persistent Objects, Object Hierarchies
  - > Access Convergence



# Search

## Collaboration

Microsoft Exchange

Lotus/IBM

Radnet

## ERP

mySAP

Peoplesoft

J.D. Edwards

Ariba

## Business Intelligence

Information Advantage

## Document Management

Excilibur

PC DOCS/  
Fulcrum

Dataware

Semio

Verity

Autonomy

Plumbtree

InfoImage

Corechange

Top Tier

Viador

Hummingbird  
Scribe

Documentum

# Search

## Knowledge Management

grapeVine

Hyperwave

Intraspect

Meta-Systems Guild

Verge

Perspecta

Datachannel

## Information Aggregation & Publishing

Sagemaker

Powerize.com

Aeneid

Glyphica

Epicentric  
Portera

Inktomi

Infoseek  
AOL/Netscape  
Yahoo!

## Internet

Source: The Delphi Group

PORTAL APPLICATIONS



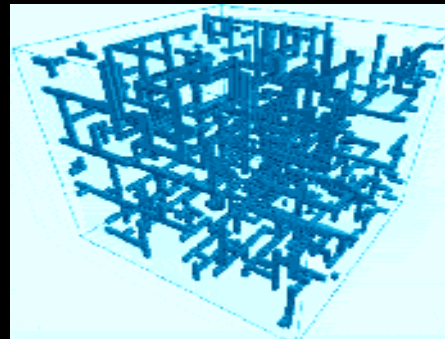
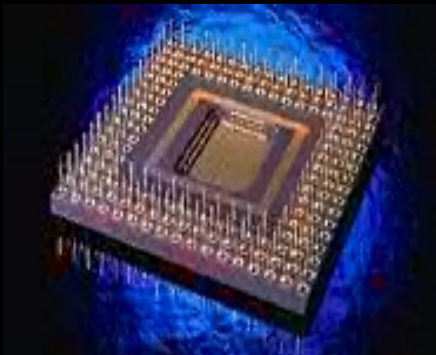
# Process Transactions - Universal Trends

- > Goods & Services Merging into Process Management
- > Process Management is Becoming "Process Deliverables"
- > Hardware & Software are Converging into New Type of Asset
  - > ASP's are evolving into PSP's - Process Service Providers
    - > Computing Fabrics are the Environmental Terrain
    - > Persistent Objects are the Process Organelles



# The New Economy - Virtual Asset Technologies

- “Gel” Ware
- Evolvable Systems
- Virtual “Intelligent Entites”
- Intelligent Agents and Agent Colonies
- Synthetic Sentience as a Strategic Resource



# Virtual Humans - This is “Sylvie”

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- She can market products, be a secretary, a help aid
- She can have any face, a programmable personality
- She is a connection interface to a higher, scalable intelligence

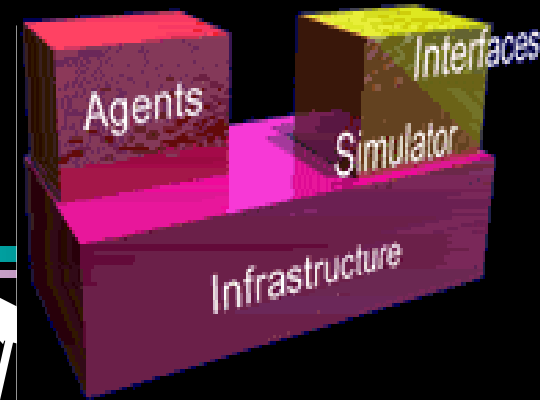




**“Virtual Human”  
Entity Interface**



**Ubiquitous  
Access Portals**



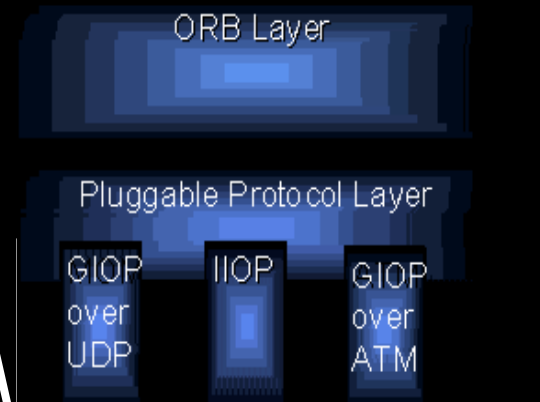
**Intelligent Agent  
Hierarchies**



**Smart Sensors  
Everywhere**

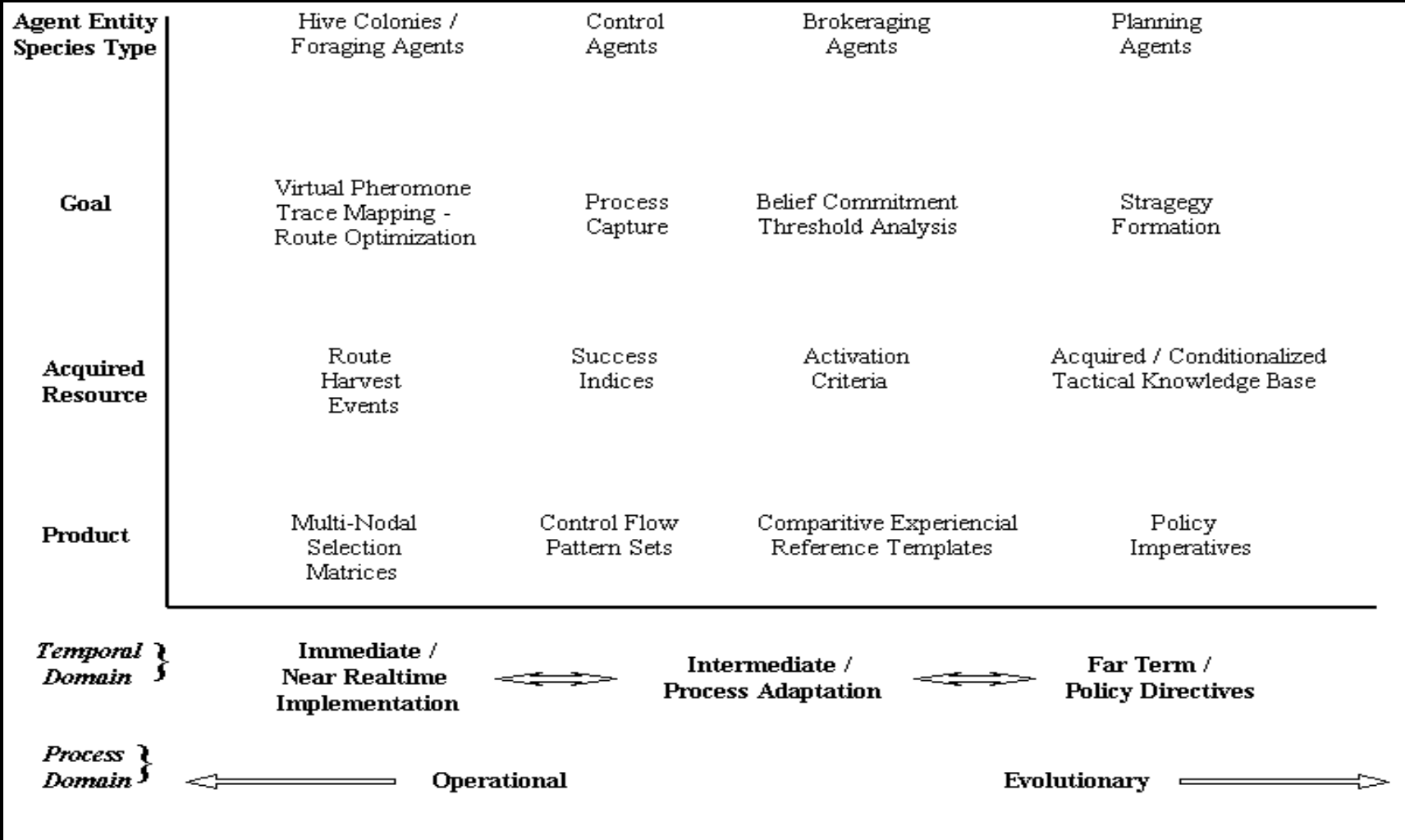


**Digital Process  
Convergence**

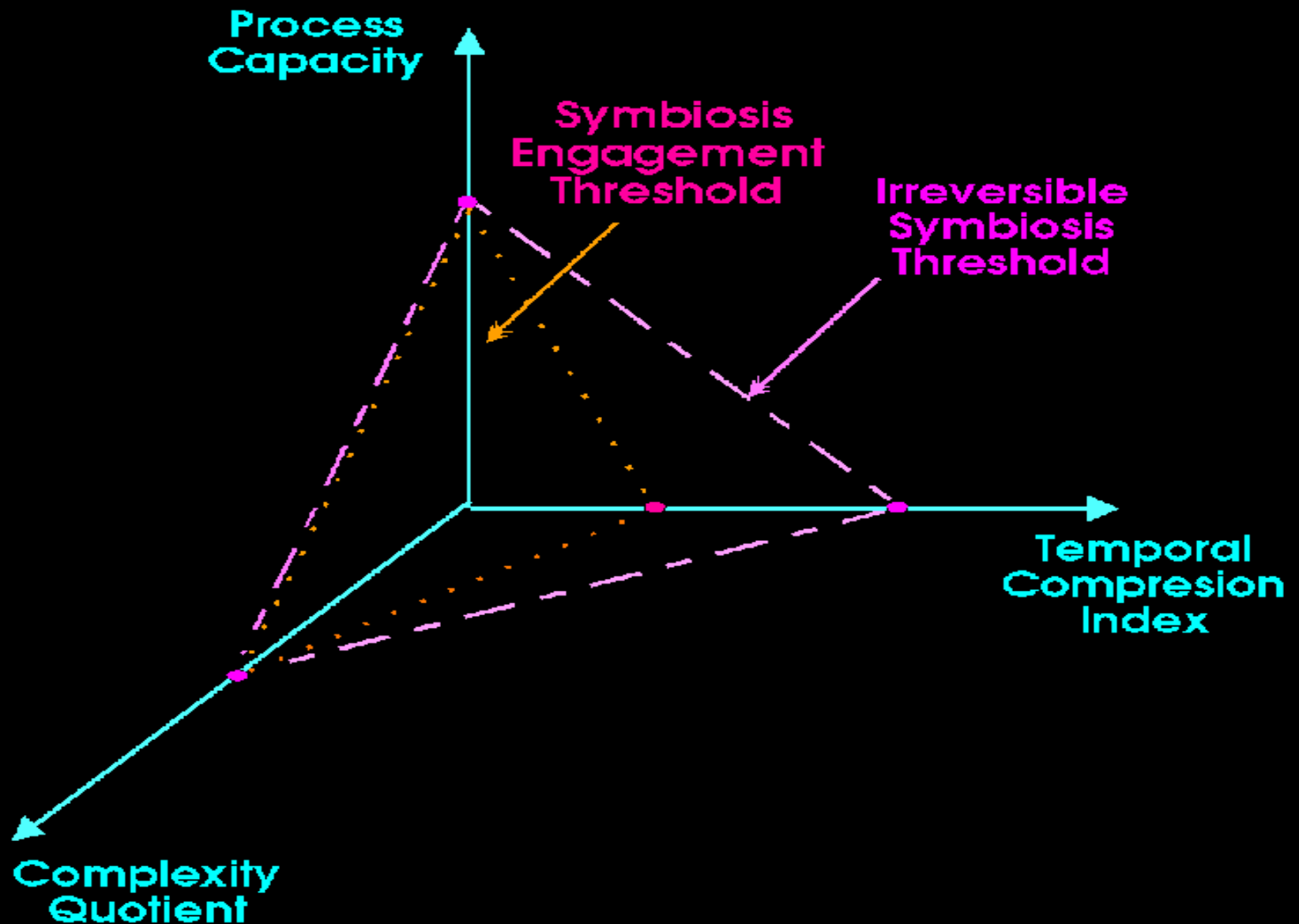


**Process  
Brokeraging  
Architectures**

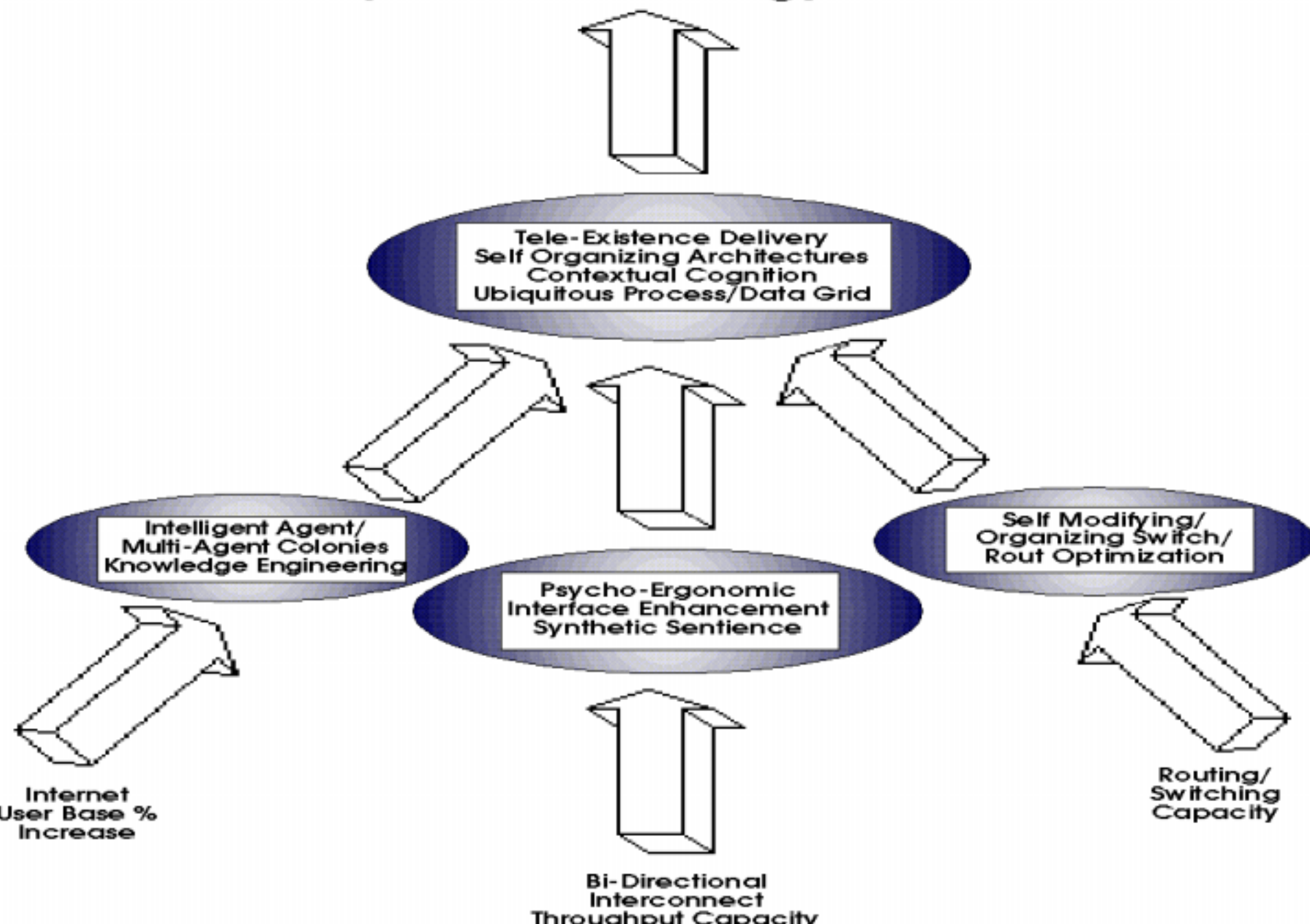
# Autonomous Agent Hierarchy - Collective Organism Entity



# Emergent Synergistic Co-Dependency Manifold

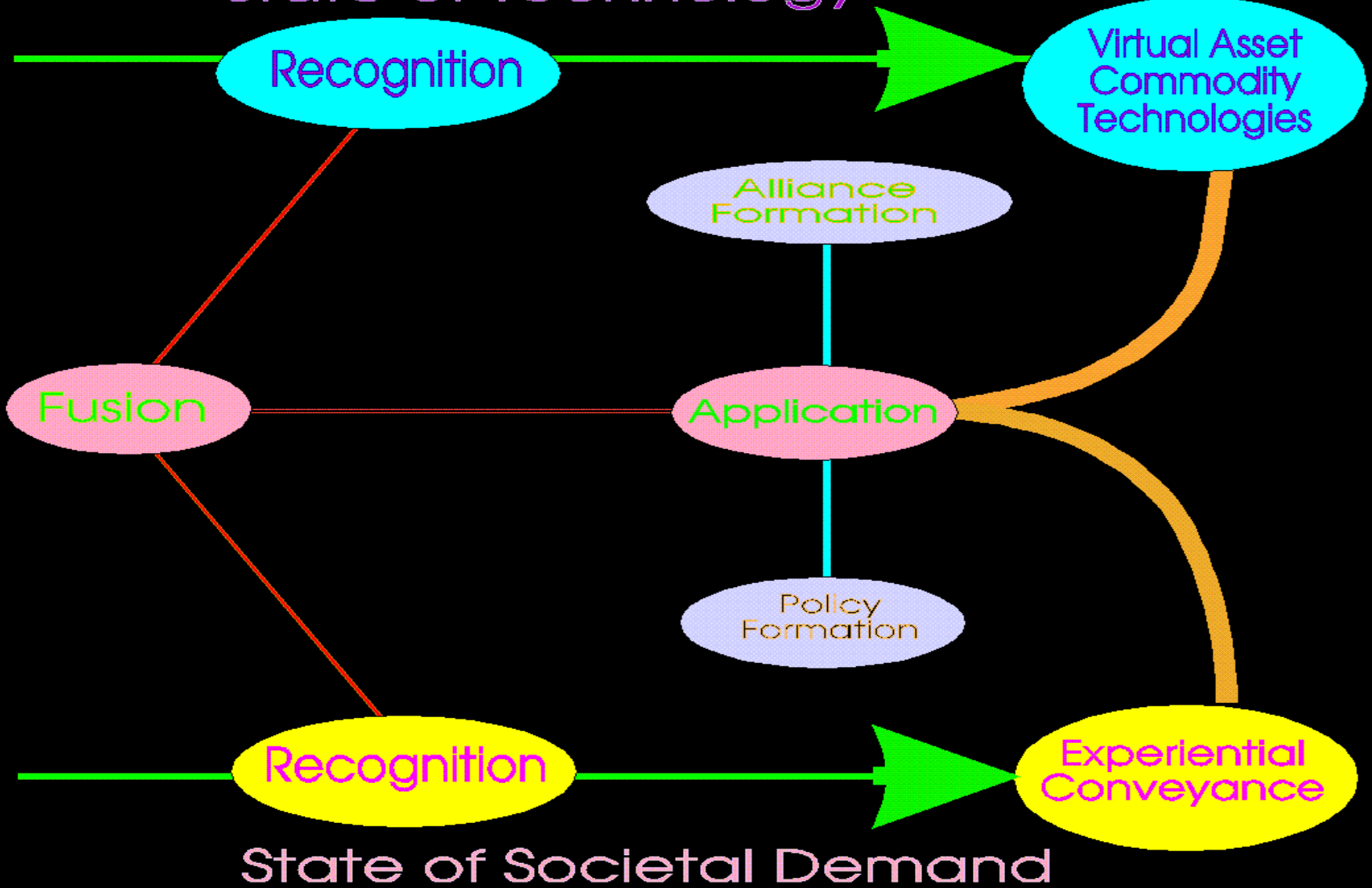


# Ubiquitous Computing Operational Ecology Threshold



# Virtual Asset Commodity Technology Development Process Dynamic

State of Technology



State of Societal Demand



**Revenue Stream**

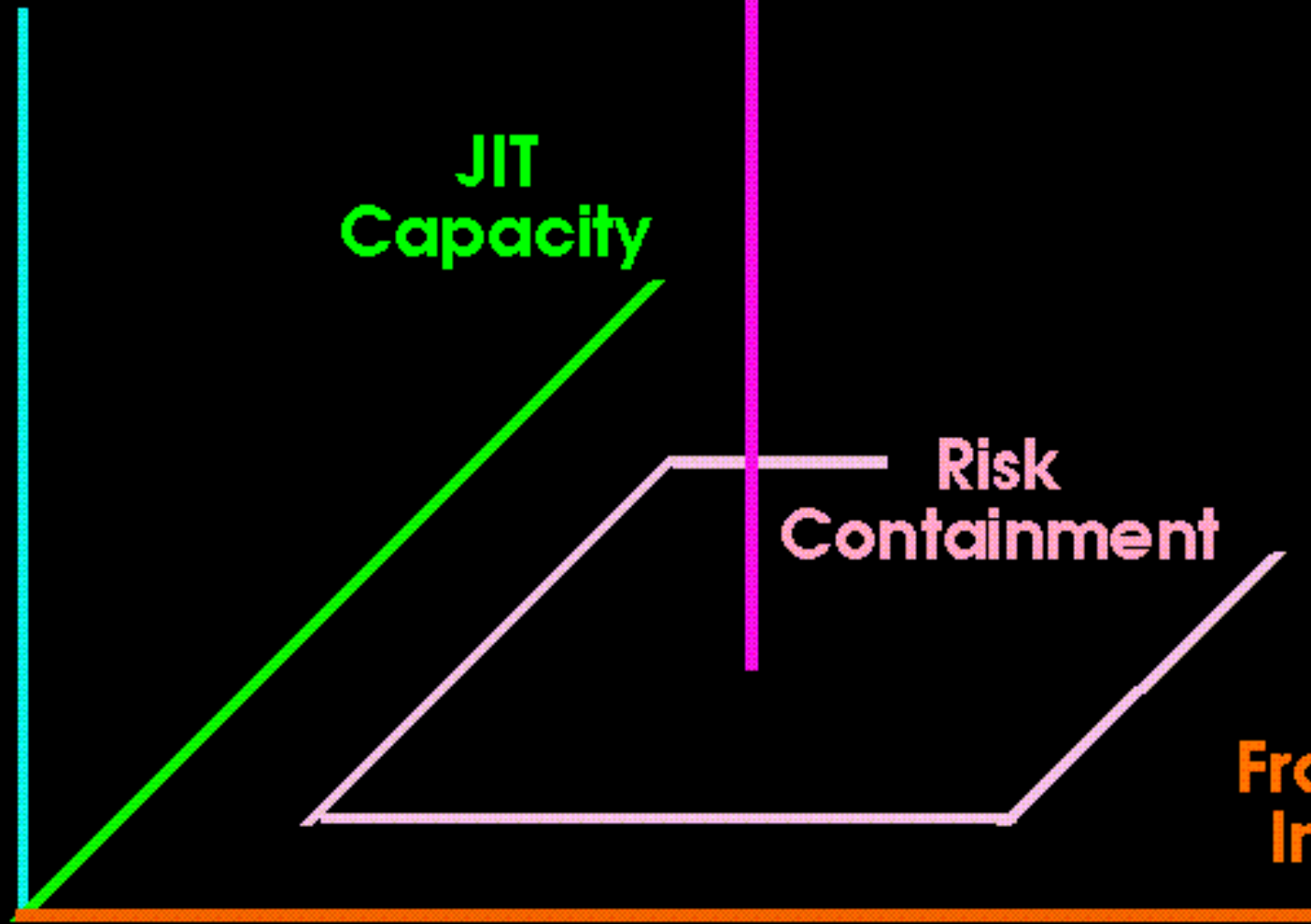
**Optimization Domain**

**JIT Capacity**

**Risk Containment**

**Fragility Index**

**Strategic Operations Assessment Factors**

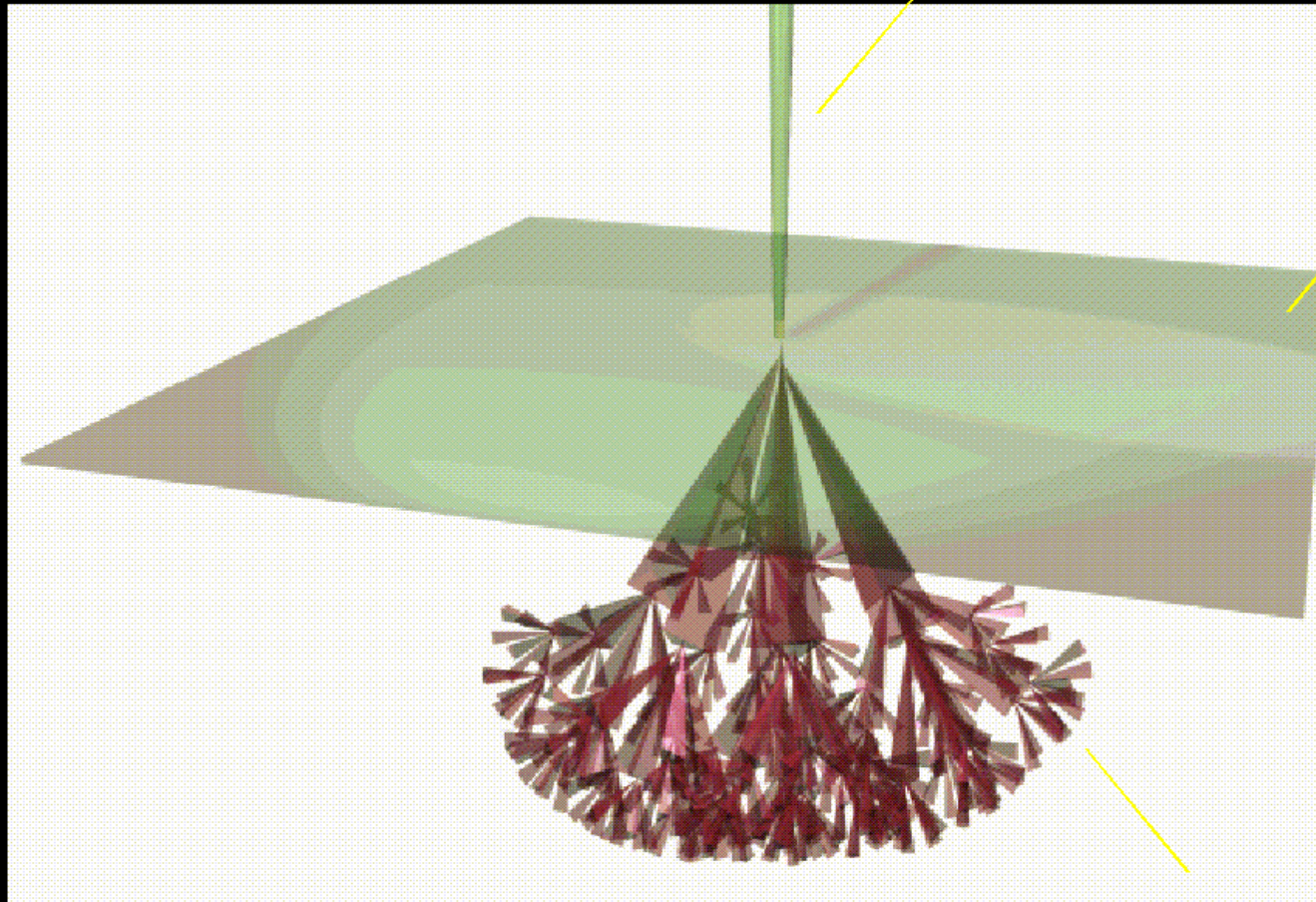


# Collective Sentience Process Engine - Operational Xenomorph Process Dynamic

Cognition  
Space

Conditionalized  
Cognition Vector

Contextual  
Cognition  
Threshold  
Boundary

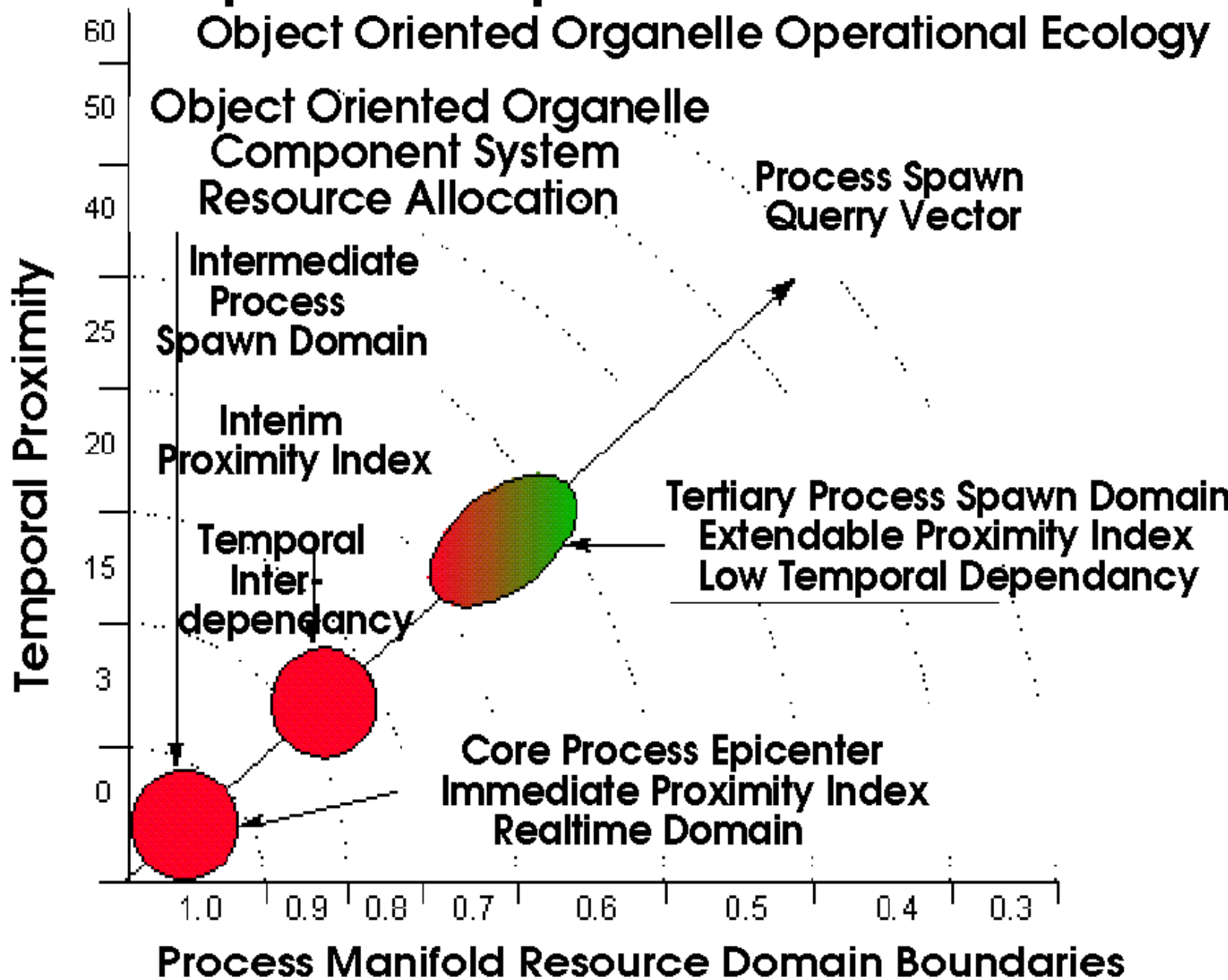


Perception  
Space

N-Dimensional  
Tiered Process Vectors -  
Hierarchical Agent Entities

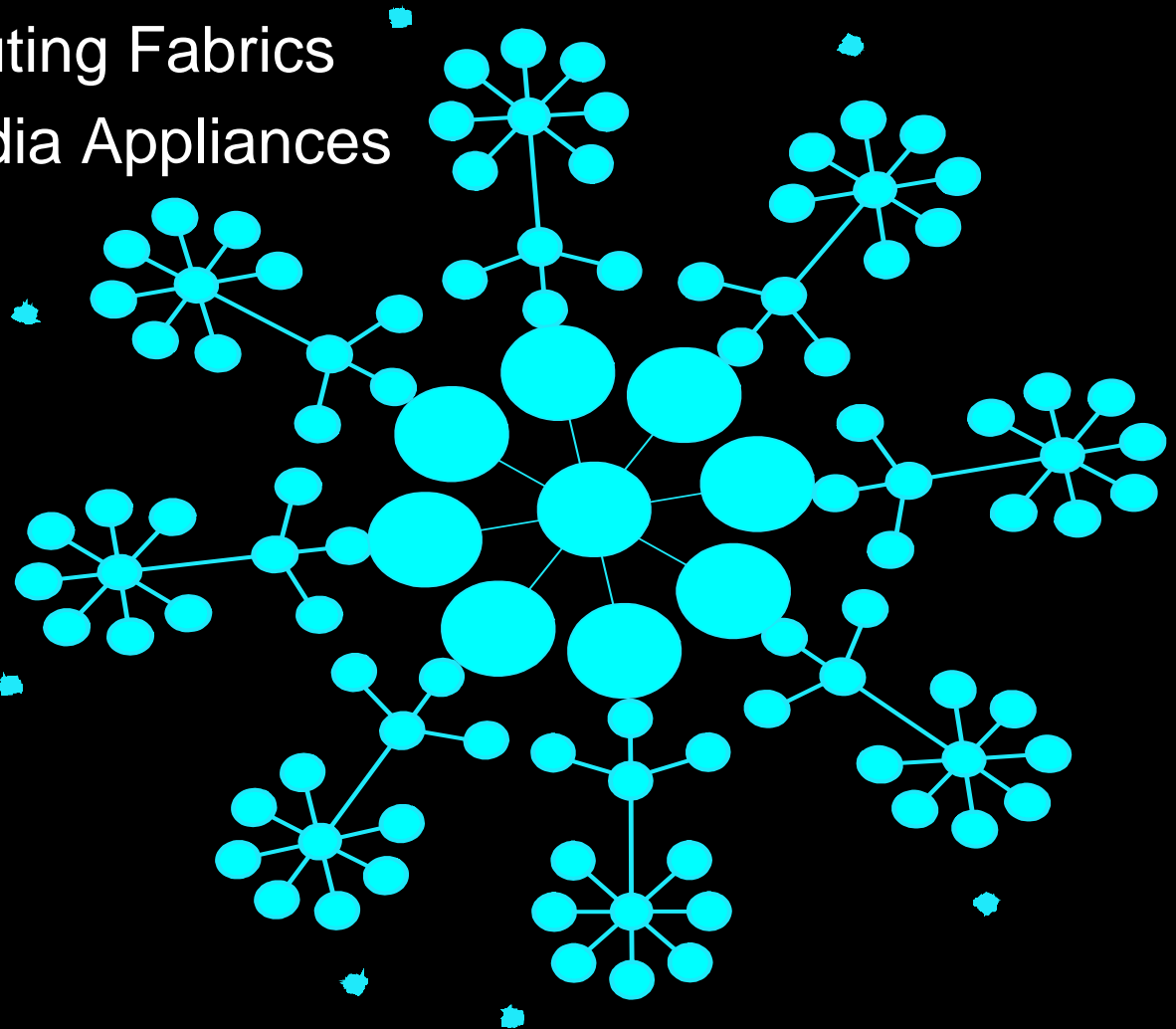
# Spatio-Temporal Process Manifold

Object Oriented Organelle Operational Ecology



# The E-Commerce Ecology

- Scalable Computing Fabrics
- Transaction Media Appliances
- Smart Cards



# Digital Cash . . .

## Define “Money”





WIRELESS INTERFACES  
FOR VIDEO, VOICE, AND DATA



SINGLE-TOUCH ACTIVATION



VOICE AND AUDIO INPUT

SMART CARD SLOT

WRITABLE PLASMA SURFACE

**Smart Cards**  
**Digital Wallet**  
**Ubiquitous**  
**Virtual Currency**  
**Grid Access**

# Smart Sensors Everywhere



# Digital Convergence





# Intuitive Devices



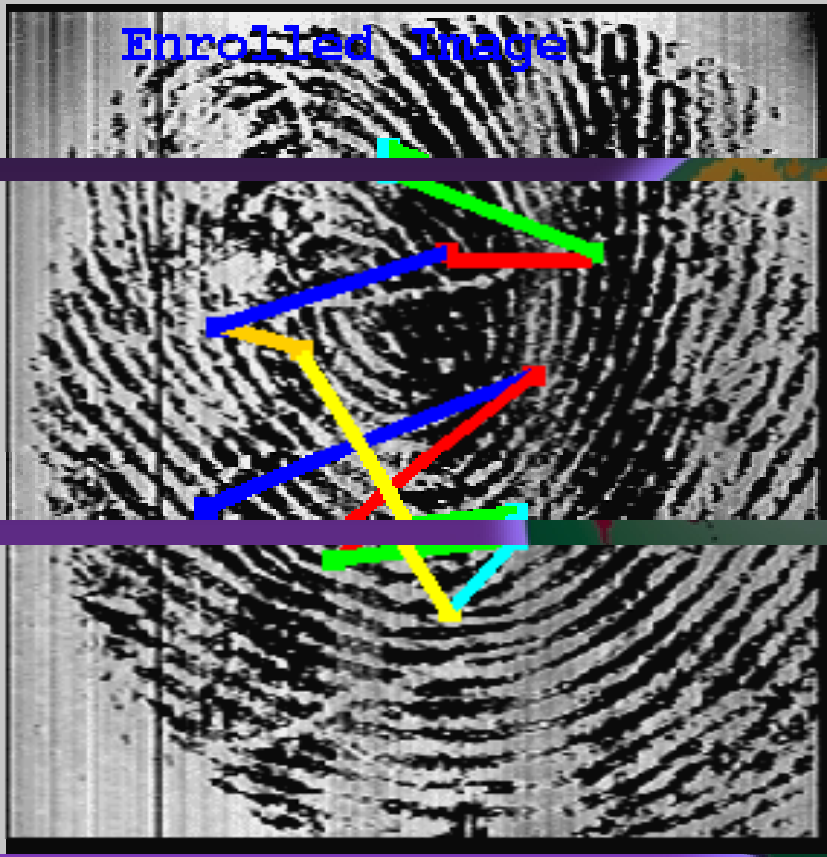
# Info Appliances



# Ubiquitous Distributed Portals



# Biometric Recognition

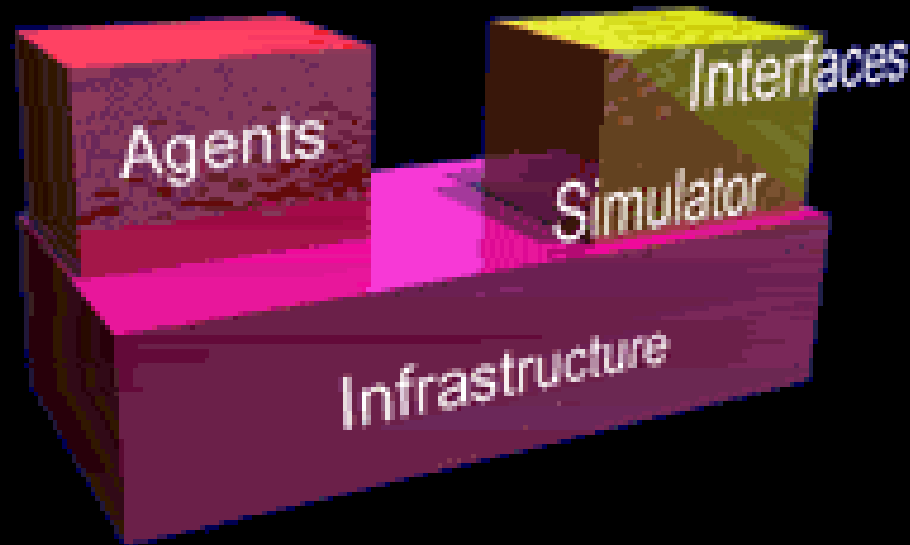


*Rotated -46.51 X*



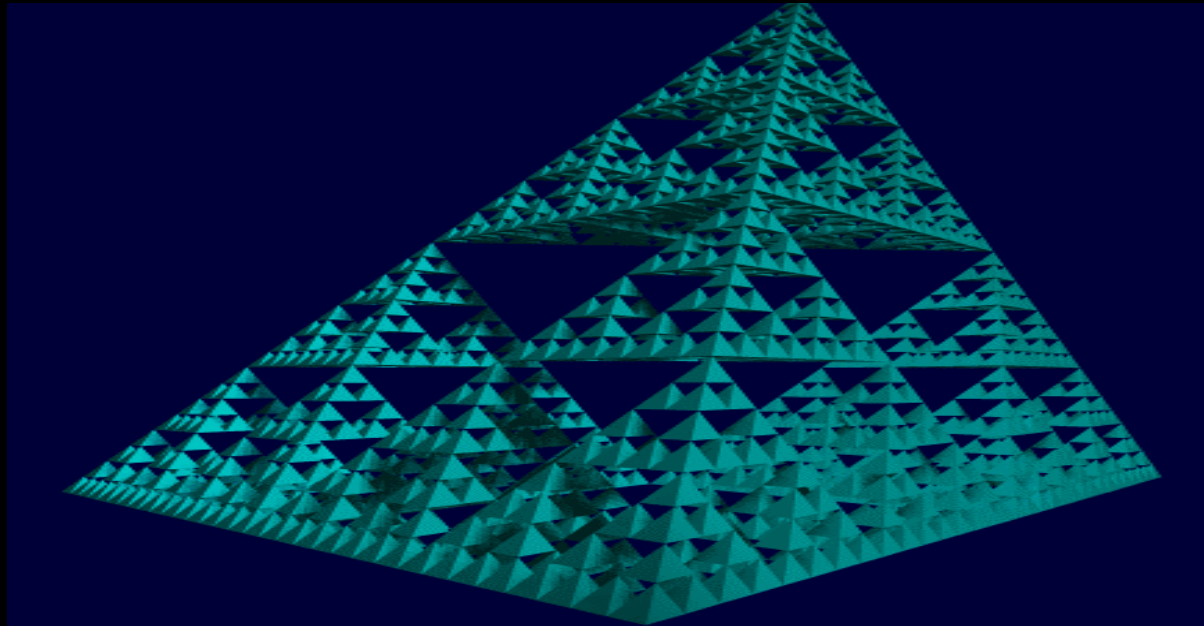
# Example Technology - Agents and Agent Ecologies

- Information / Knowledge Processing Agents
- Negotiation / Brokeraging Agents
- Decision Rendering Agent Systems



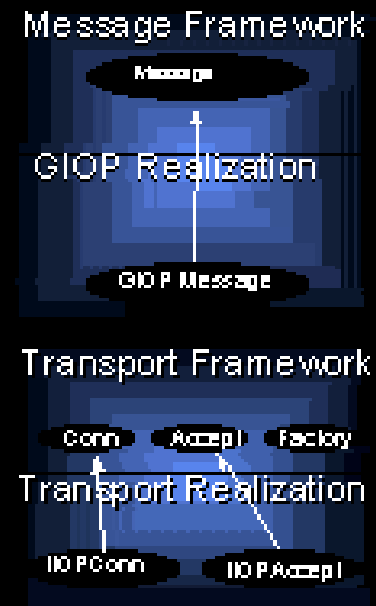
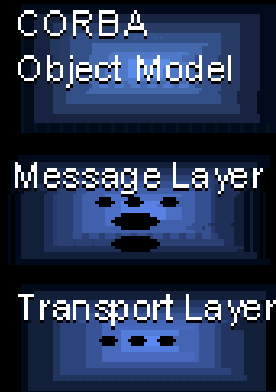
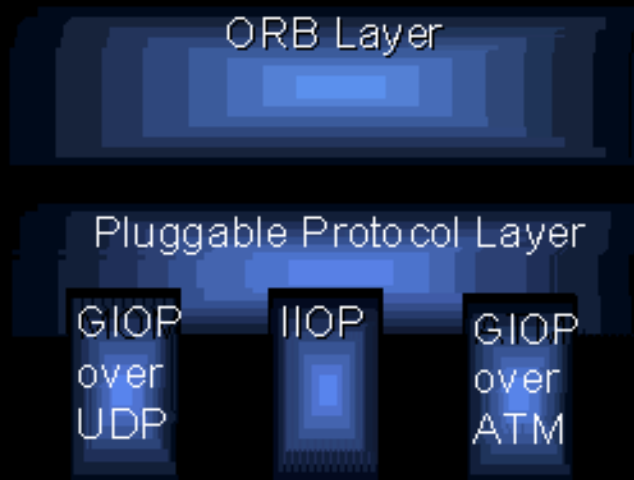
# JIT Process Management Driven Knowledge Engineering

- Emergent Demographics Analysis
- Strategy / Logistics Enhancement
- Operational Process Dynamics
- JIT Value Chain Optimization



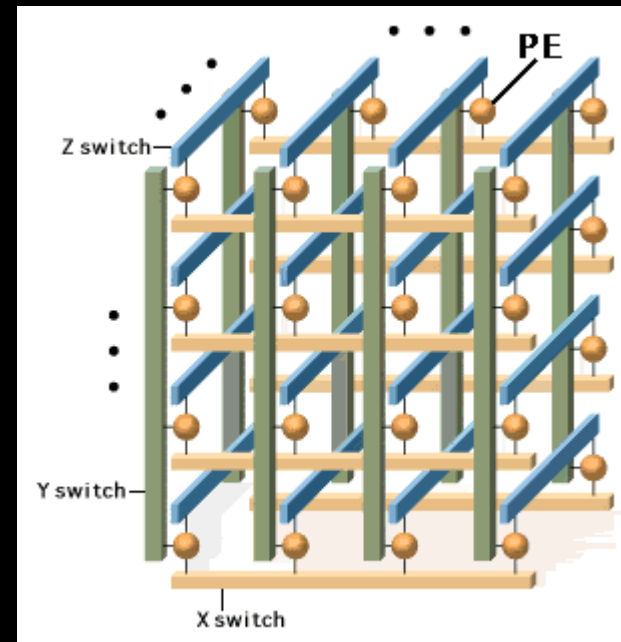
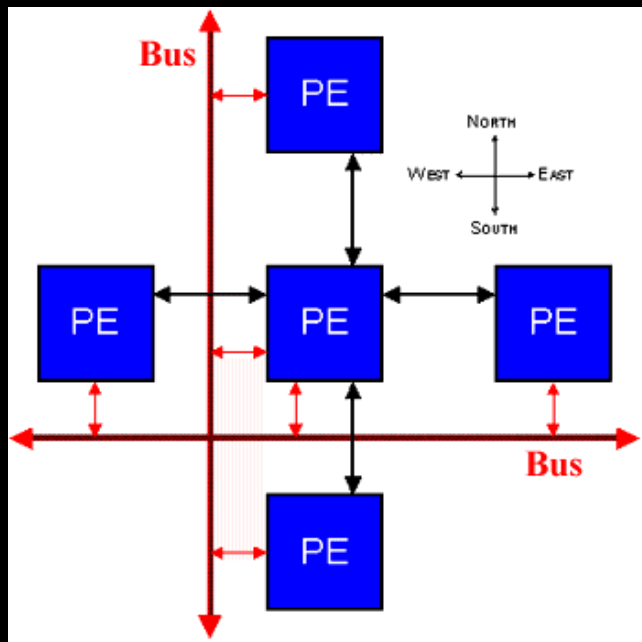
# Example Technology - Distributed Intelligent Objects

- Process Brokerage
- Distributed Intelligence Assets
- Transactional Systems Architectures



# Example Technology - Scalable Computing Fabrics

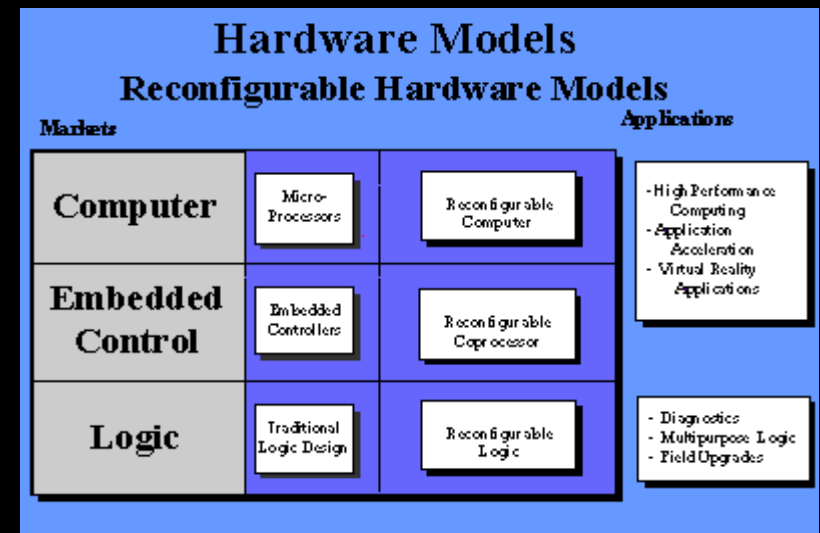
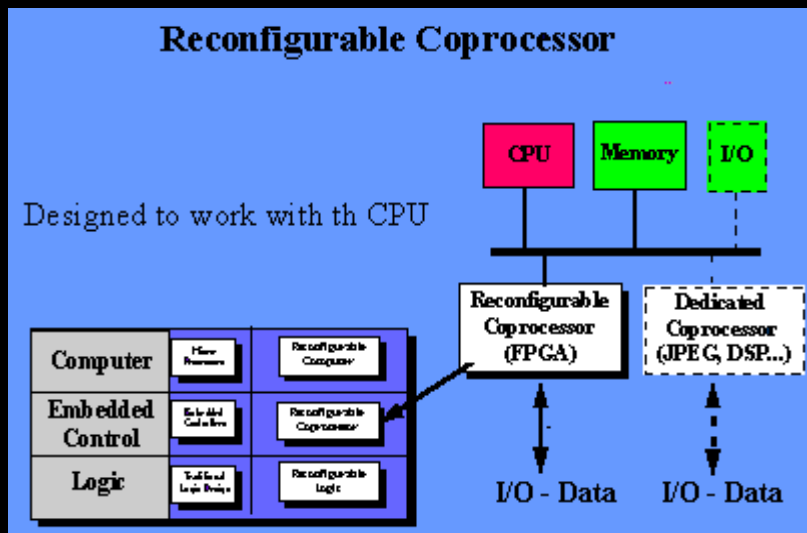
- N-Dimensional Processing Element Networks
- Contiguously Adaptable Architectures



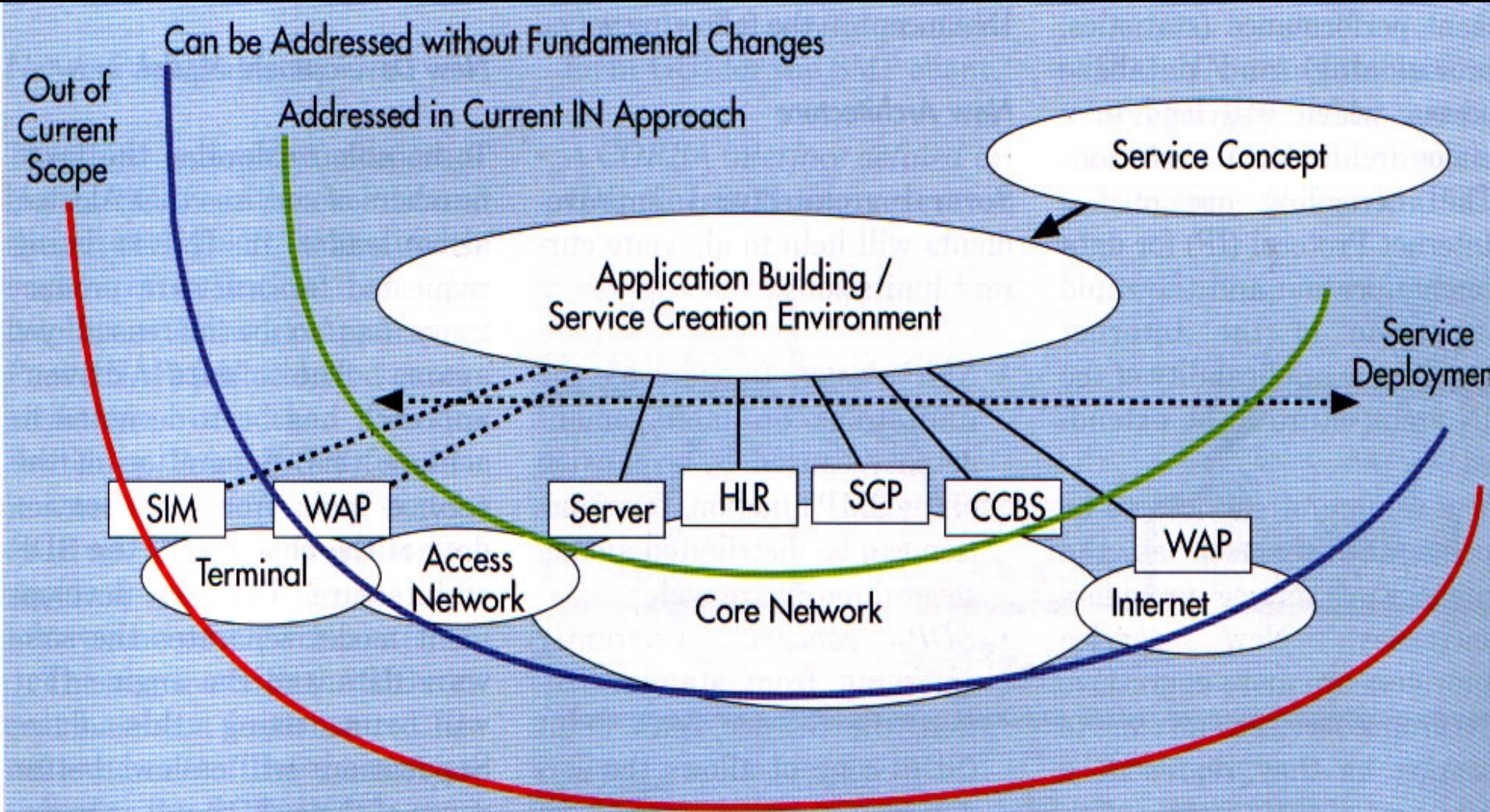


# Example Technology - Reconfigurable Computing

- “Soft” Hardware > Gelware
- Process Brokeraged Value Chain
- Contiguously Adaptable System Architecture



# Current SCE Model - Evolution to Realtime SCE - ASP



# Ubiquitous Fabric Example - Communications Architecture

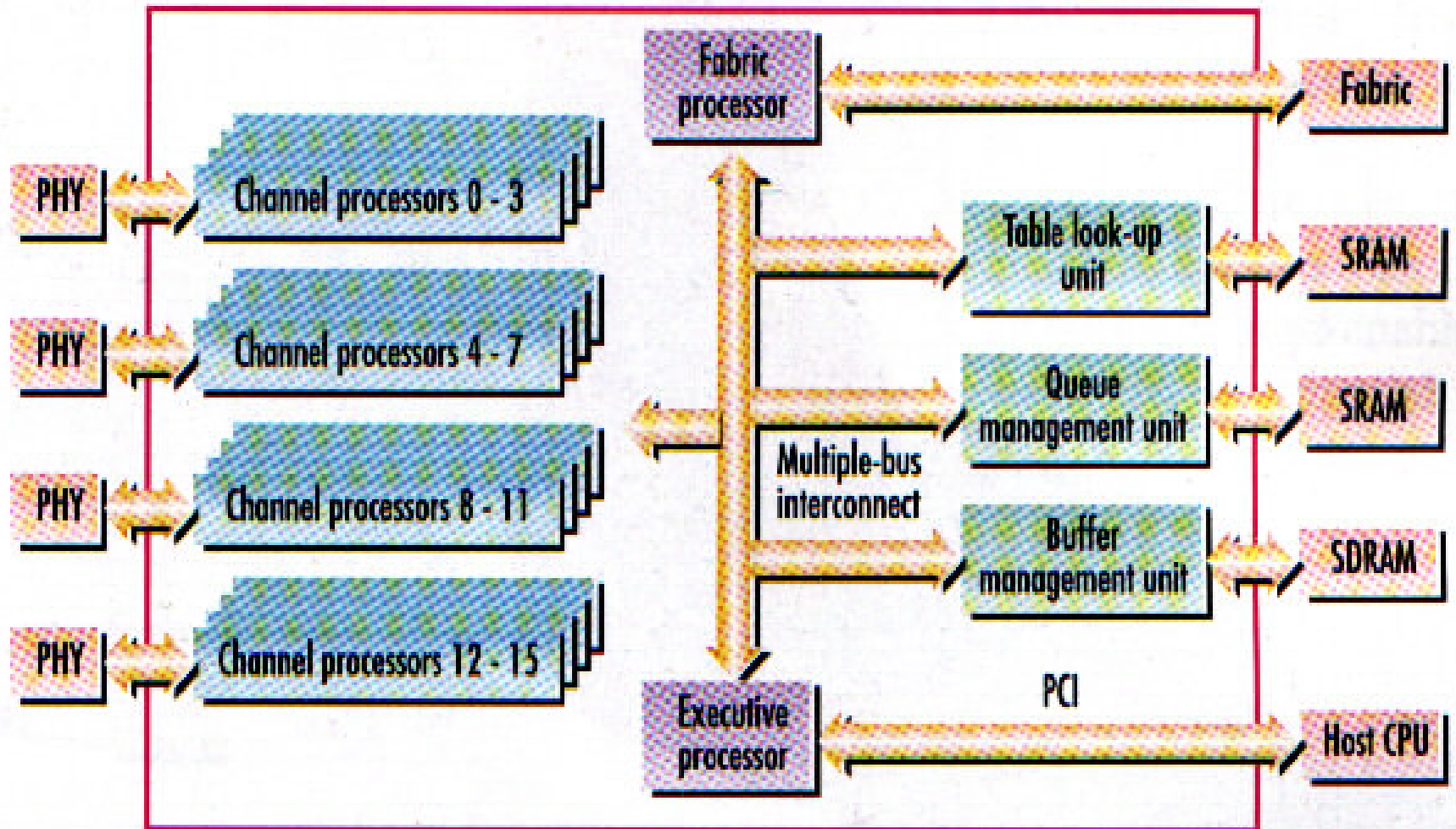
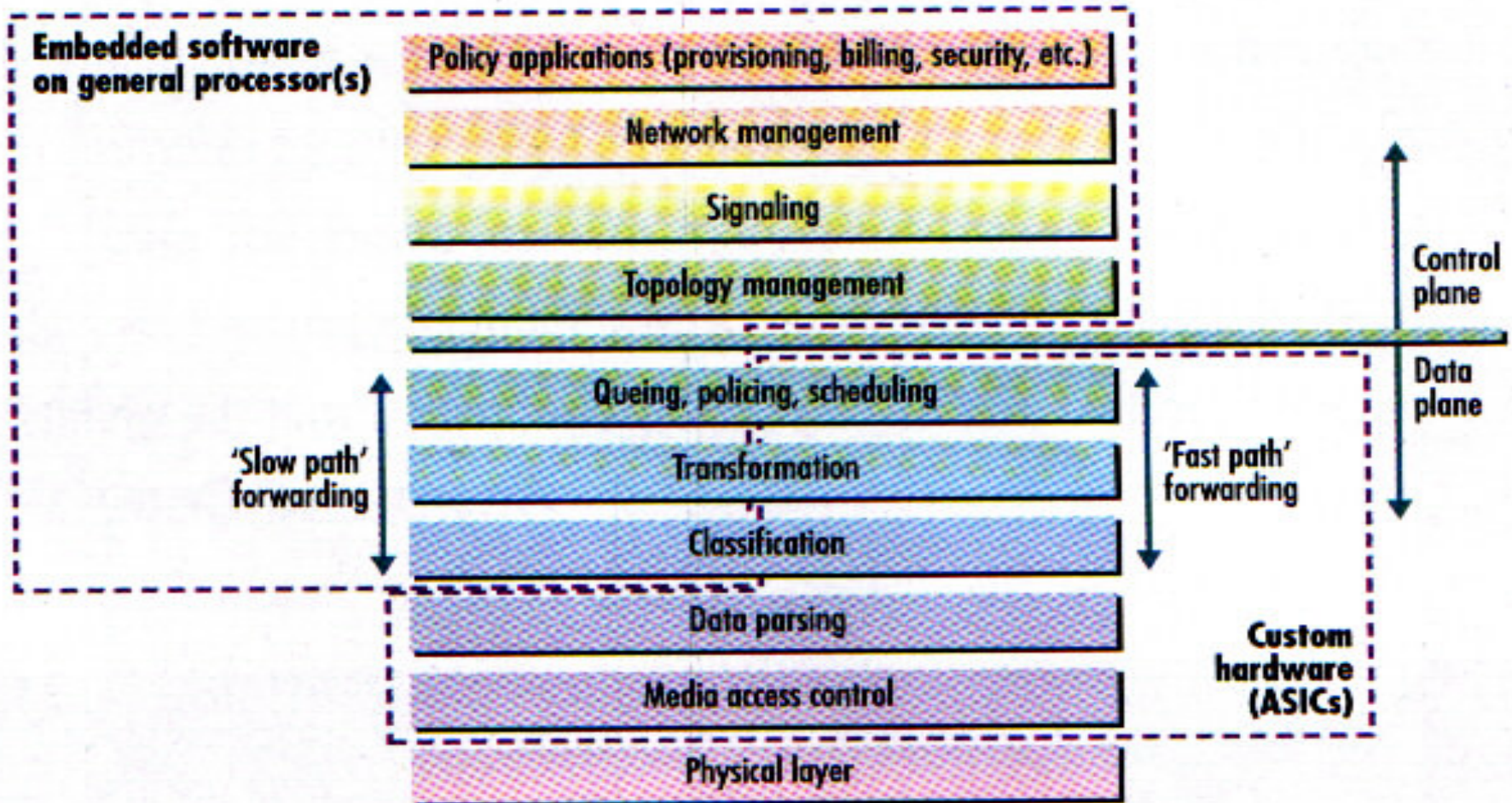


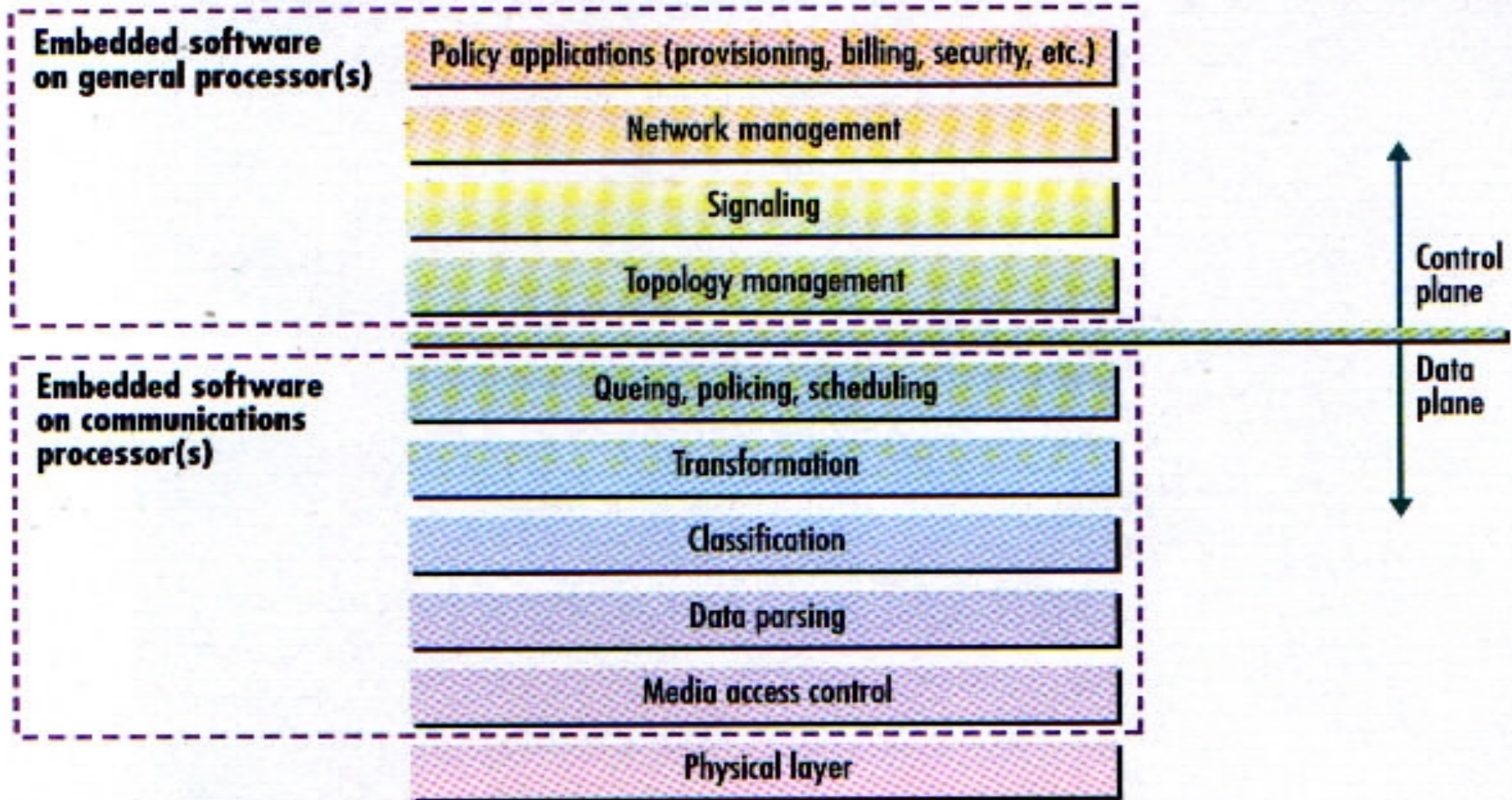
Fig. 1

# Hardware / Software Partitioning - Process Layer Discontinuity



# Hardware / Software Partitioning

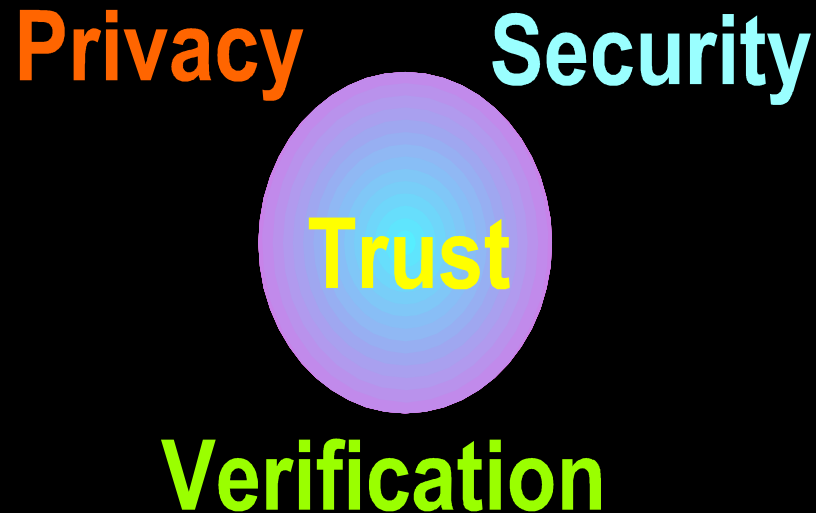
## Process Layer Continuity



# Cultural Imperatives

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- Embedded Intelligences
- Integrated Lifestyle Management
- Ubiquitous Interactive Process Environment



# Operational Imperatives

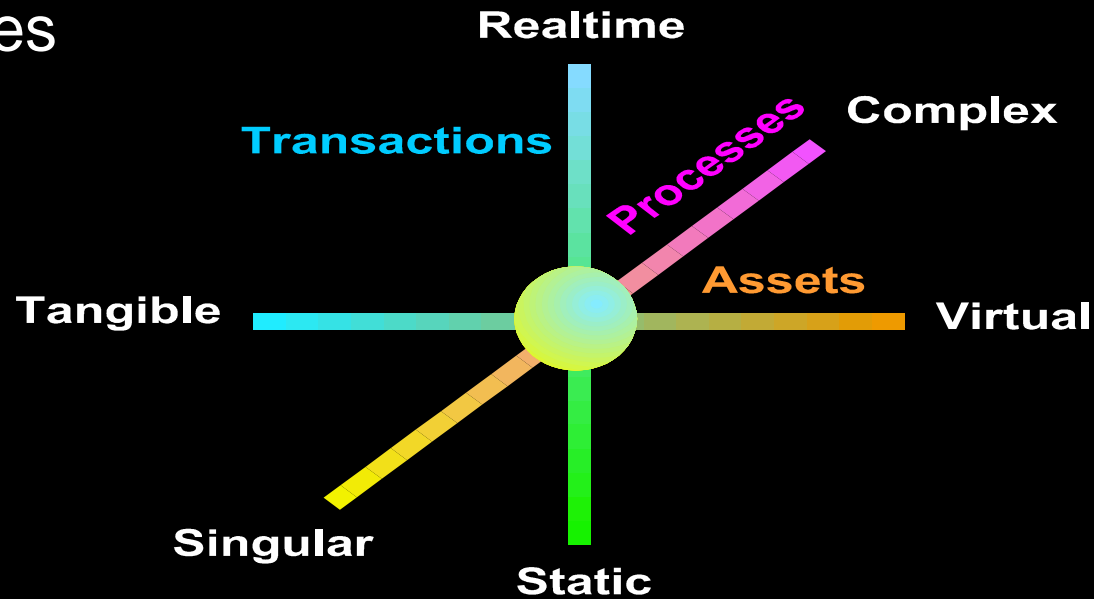
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- People
- Analysis
- Research
- Strategy



# Major Economic Drivers

- Tangible Assets > Virtual Assets
- Technology Vectors > Complex Value Chains
- Intellectual Property > Sovereign Knowledge Domains
- E-Commerce > Transactional Brokeraging Architectures

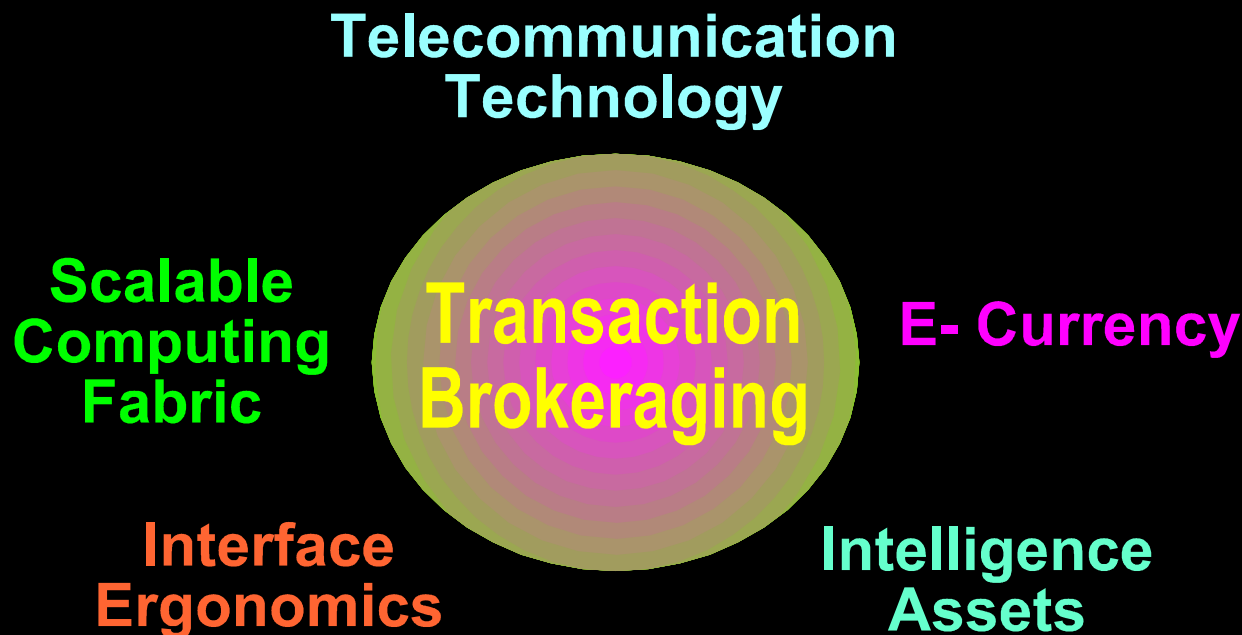




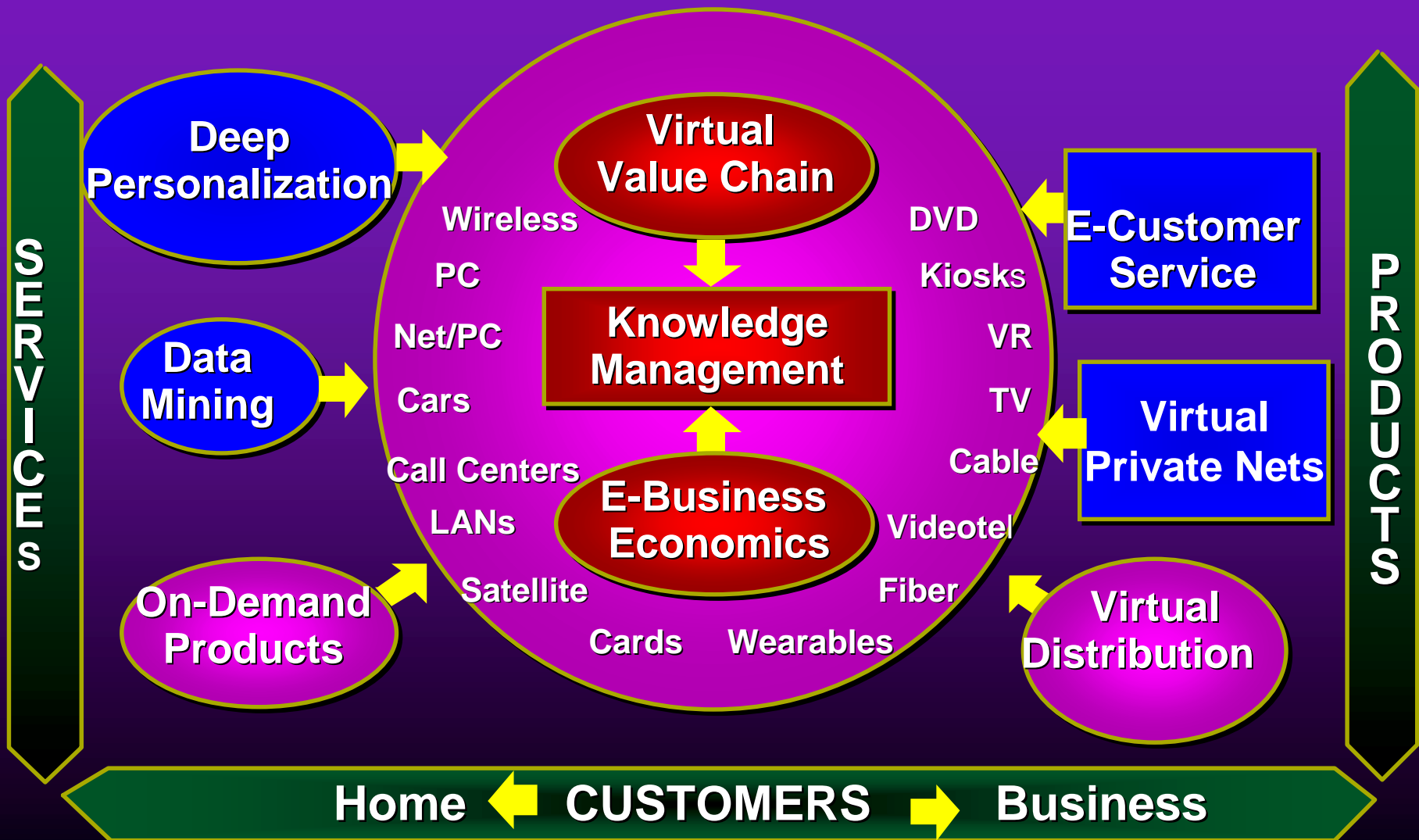
# The Evolving Economic Model

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- Product / Service Delivery > Process Brokeraging
- Currency Instruments > Ubiquitous E-Currency Grid
- Market Analysis > Demographics Topologies

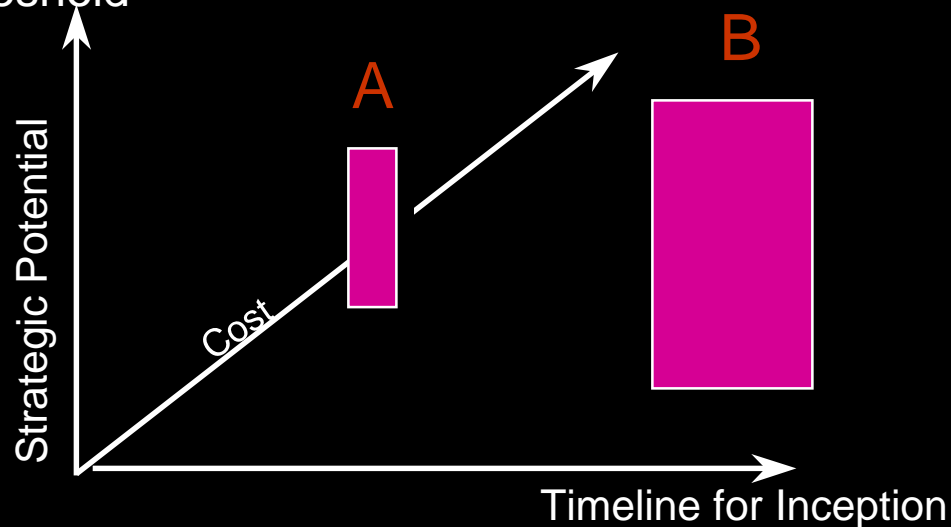


# 21st Century Virtual Entity



# Approaching the Strategic Decision Boundary

- Directive for asset / resource allocation
- Viable alternatives identification
  - A: fixed commitment boundary
  - B: re-adaptability factor
- Cost / time / strategic potential function applied to each alternative
- Prioritize alternatives
- Decision threshold



Resource  
Transactions

Collaborative  
Networking

Data /  
Knowledge  
Content

# Building / Enabling Digital Communities

Member / Group  
Dynamics  
Analysis

Granularized  
Process  
Management

Interactive  
Multimedia /  
Telepresence

# Process Brokeraging Valuation - Realtime IP Resource Boundaries

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- Cross Purposing
- Repositioning Potential
- Granularized Resource Allocation
- Knowledge Access / Distribution
- Definable Boundary Porosity
- Sovereign Knowledge Domains
- Scalable POT (Point of Transaction) Performance Metrics

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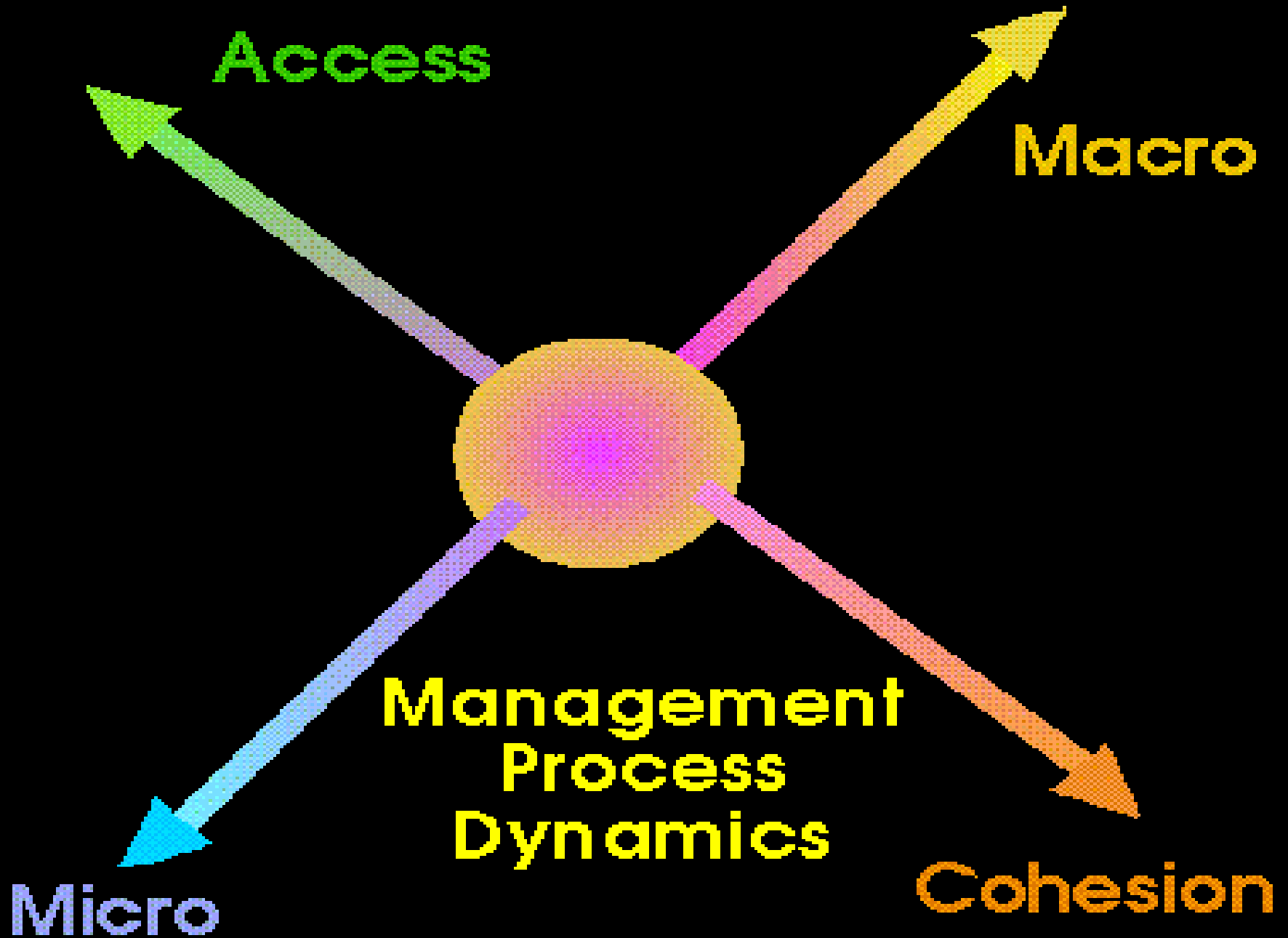
# The Integrated Collaborative Digital Community Value Chain



# JIT Process Management Driven Strategic Decision Rendering

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- Collaborative workspace value-chain models
- Defined vs. Emergent Strategy Formulation
- Information Flow > Process Flow
- System behavior dynamics
- Complexity Management - Bringing Clarity to Complexity
- Task partitioning and modeling - aggregate interdependencies





**All or Nothing  
(Singular)**

**Synchronous**



**Change  
Clustering**

**Asynchronous**

**Nimble  
(Granular)**

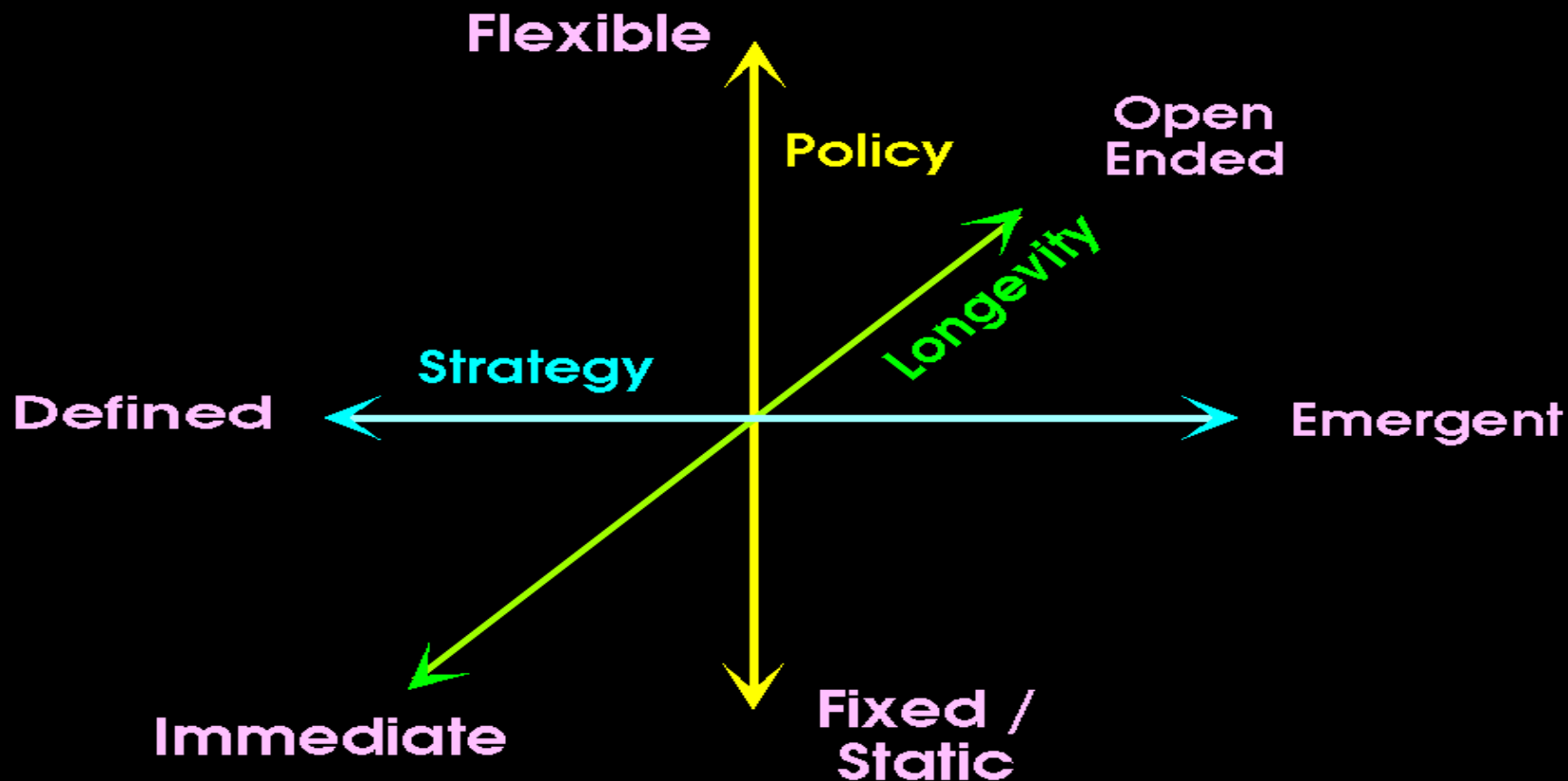
**The New Management Paradigm  
CCF - Chief Change Officer**

# Mission Critical Strategic Resources

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1. Knowledge Architectures
  2. Networked Intelligence
  3. Systems Integration
  4. On-Demand Resource Distribution
  5. Scalable Process Models
- 

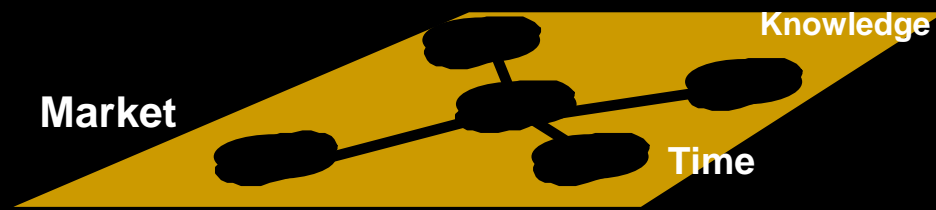
# Knowledge Harvesting - Primary Resource Value Chain



**Contextual Cognition Process Vectors**

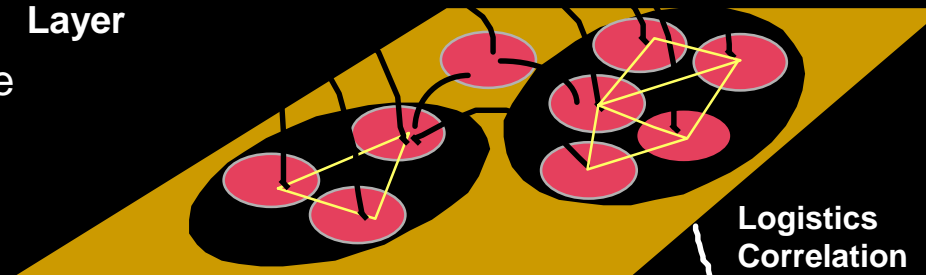
# Decision Rendering Process Map

Resource



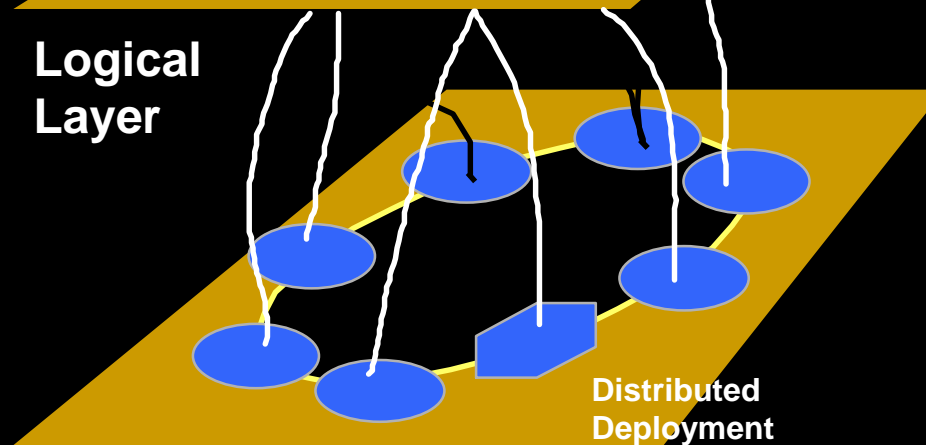
**FUNCTIONAL MAP** - Conceptual partitioning of functional domains

Situational Layer



**LOGICAL MAP** - Functional partitions are separated into localized "process domains"

Logical Layer



**DEPLOYMENT MAP** - Process domains are mapped onto distributed deployment sectors.

Decision Layer

IT Resources & Infrastructure  
- Data / Knowledge Services  
- Process Integration  
- Workflow Management



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# Key Power Shifts

**Physical  
Seller  
Mass  
Human**

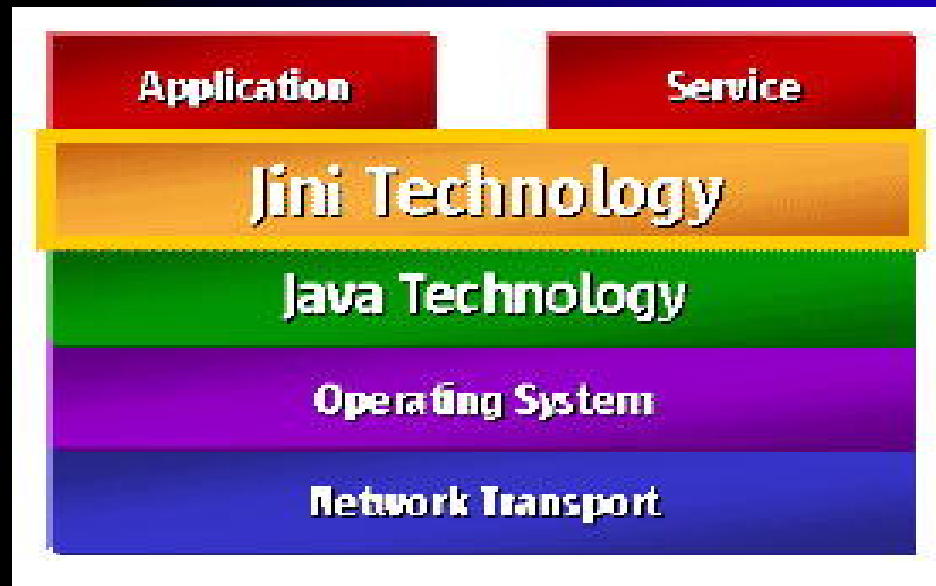


**Virtual  
Buyer  
Targeted  
Machines**

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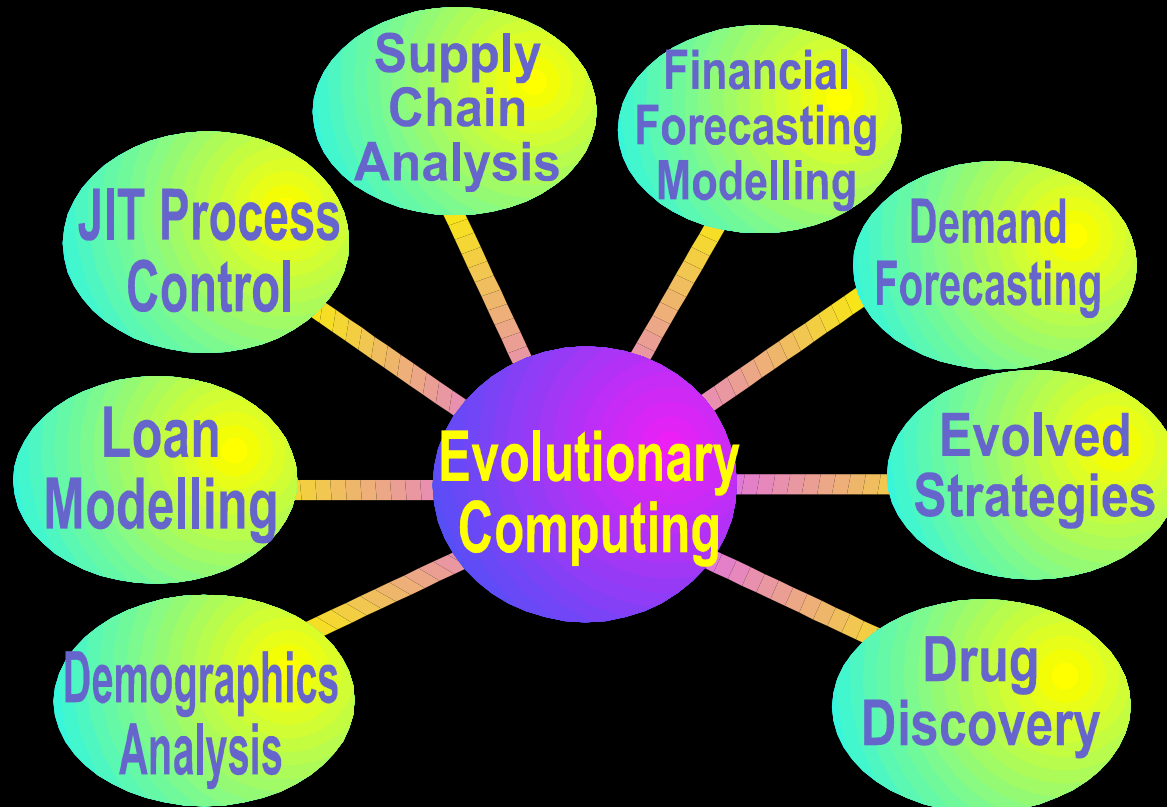
# *The Interconnection Paradigm*

If It Isn't Connected, It Doesn't  
Exist



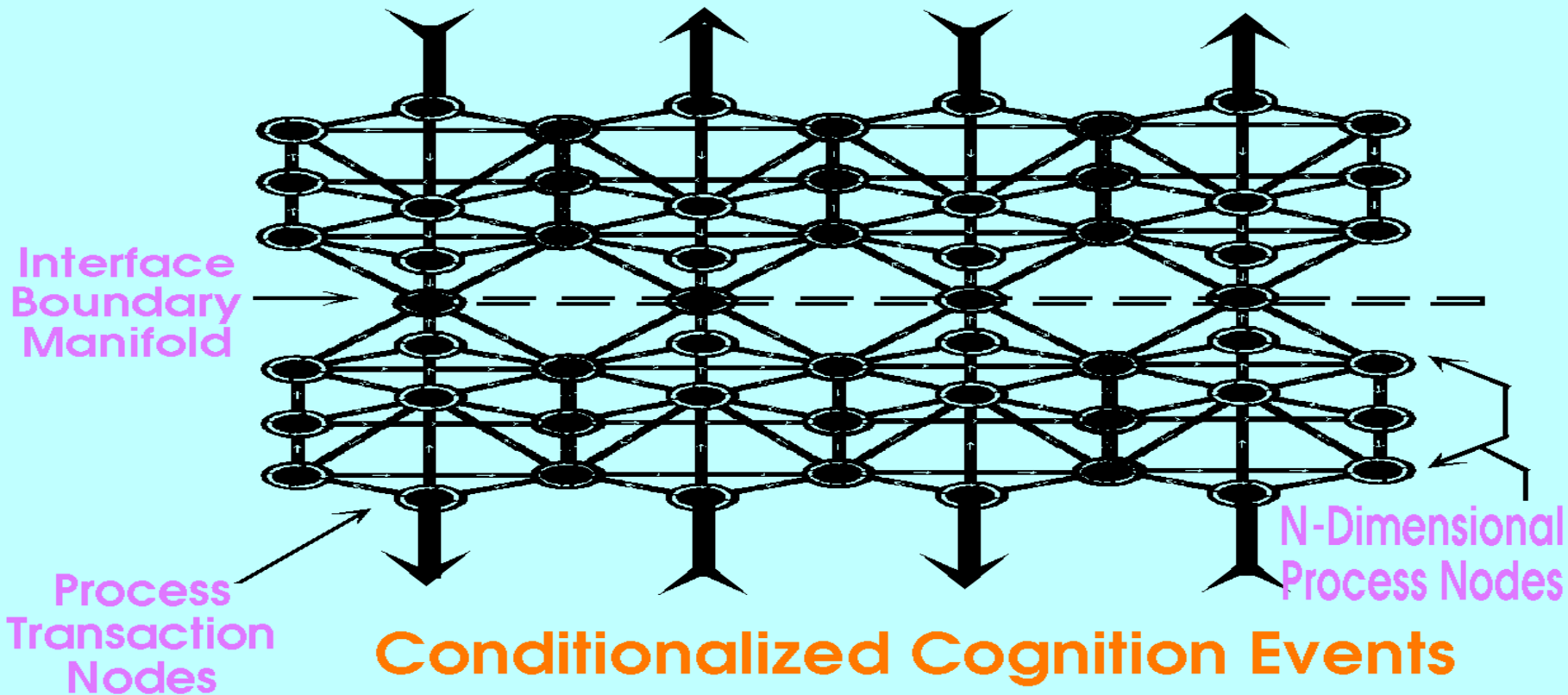
# Convergence Example - Evolutionary Computing

- Biological Algorithms
- Scalable Computing Fabrics



# Autonomous Entity Communication Brokeraging

## Conditionalized Cognition Events

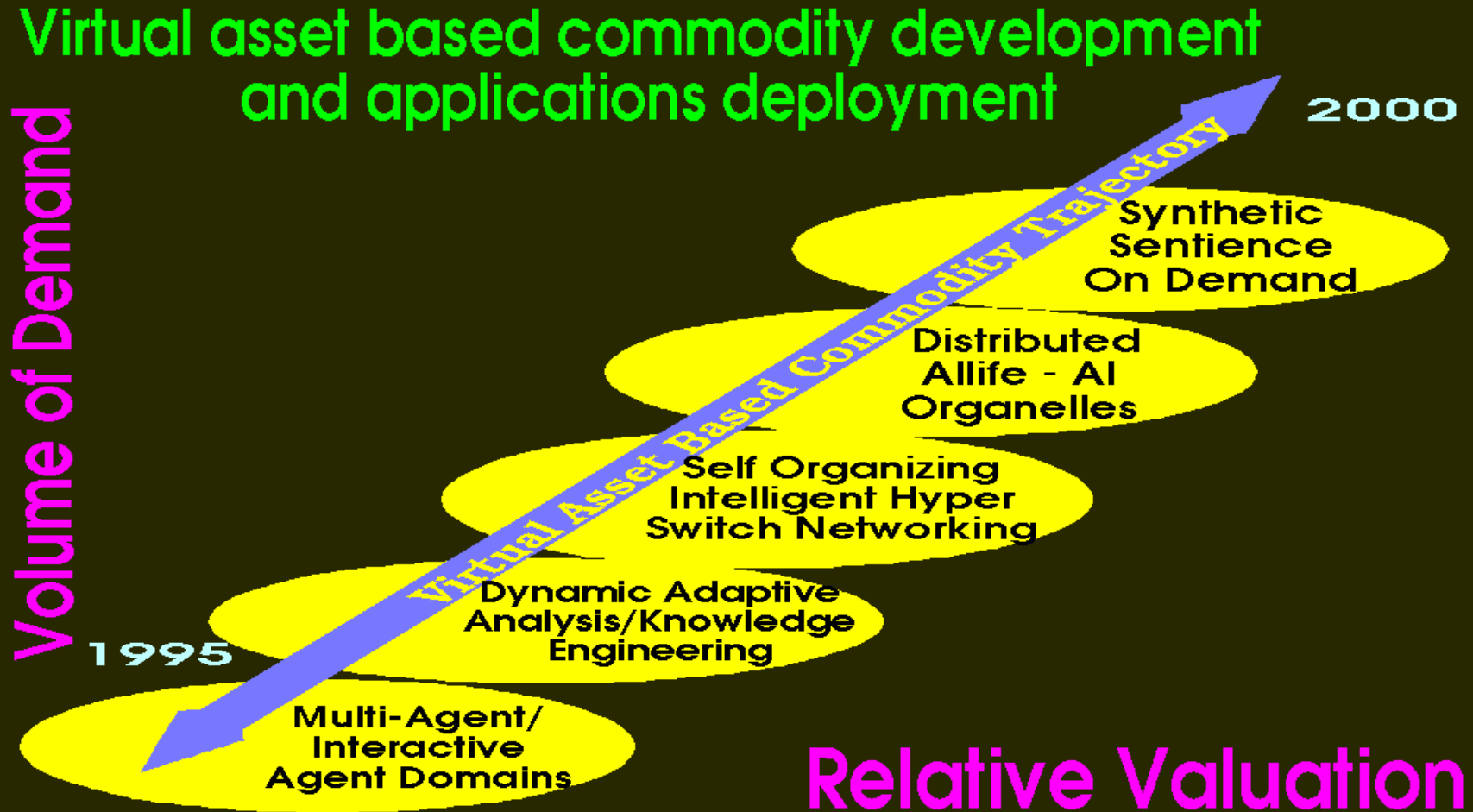


## Conditionalized Cognition Events

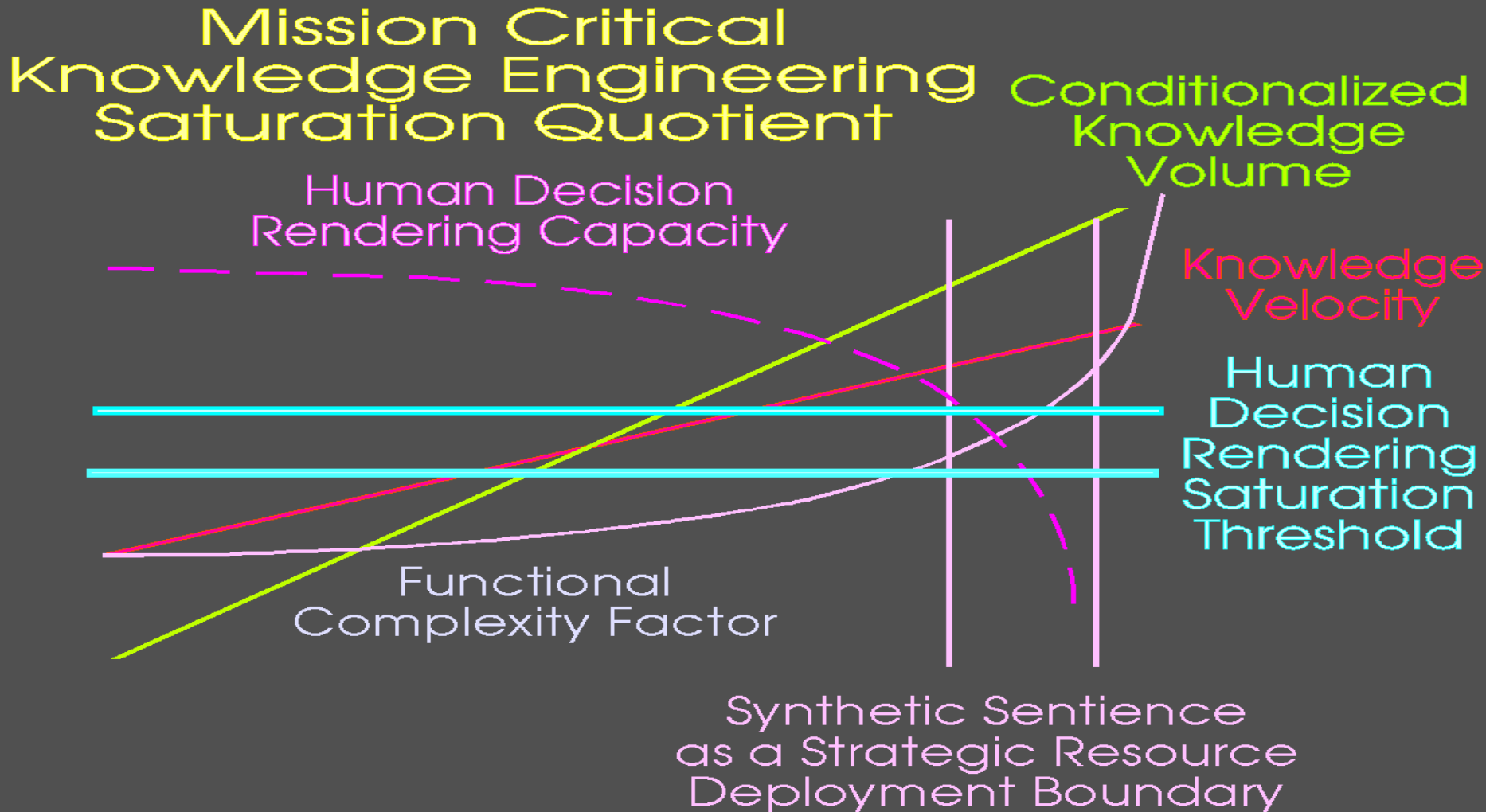
## Communication Transaction Process Brokeraging



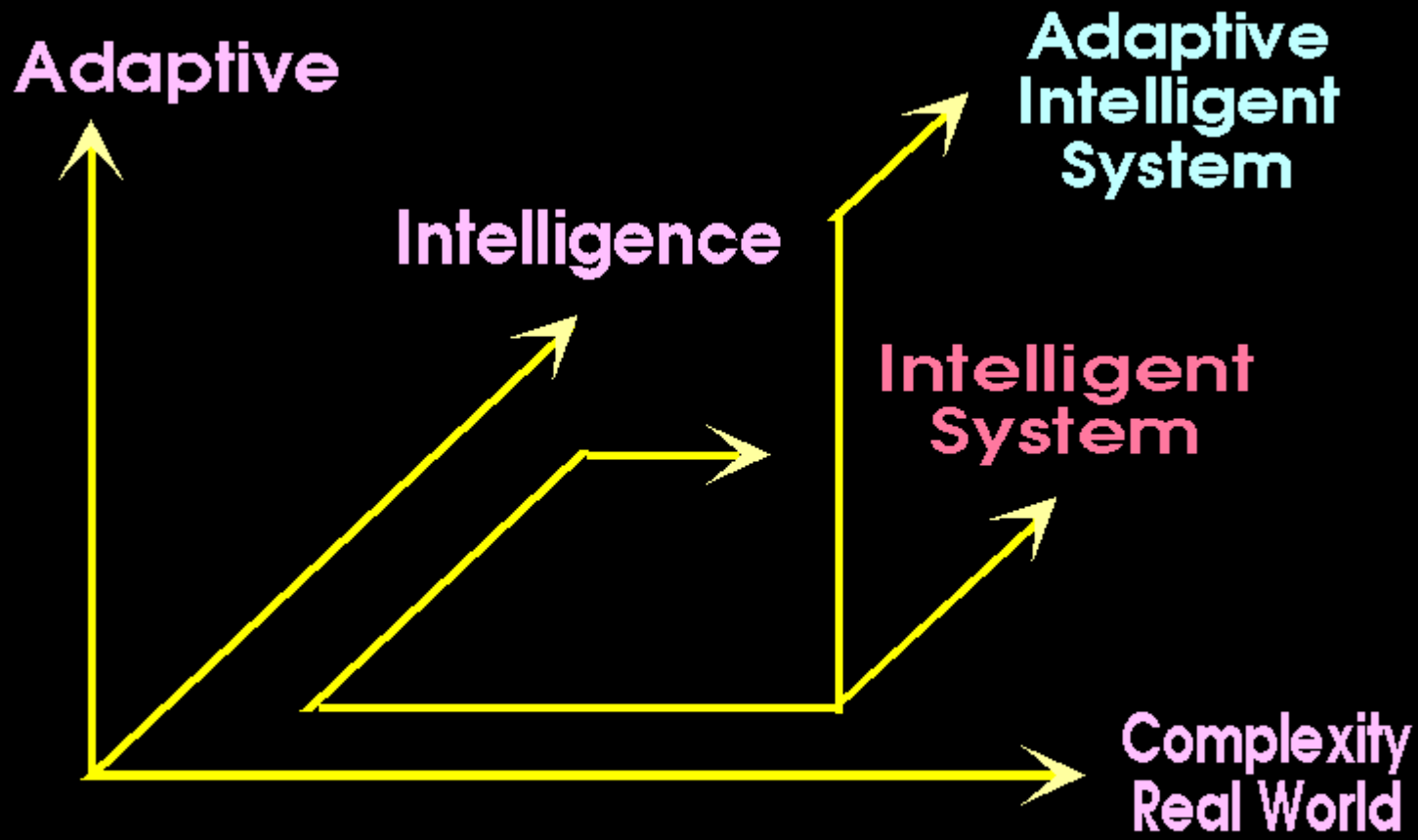
# Virtual Asset Commodity Driven Economic Ecology



# Synthetic Sentience Threshold - Strategic Resource

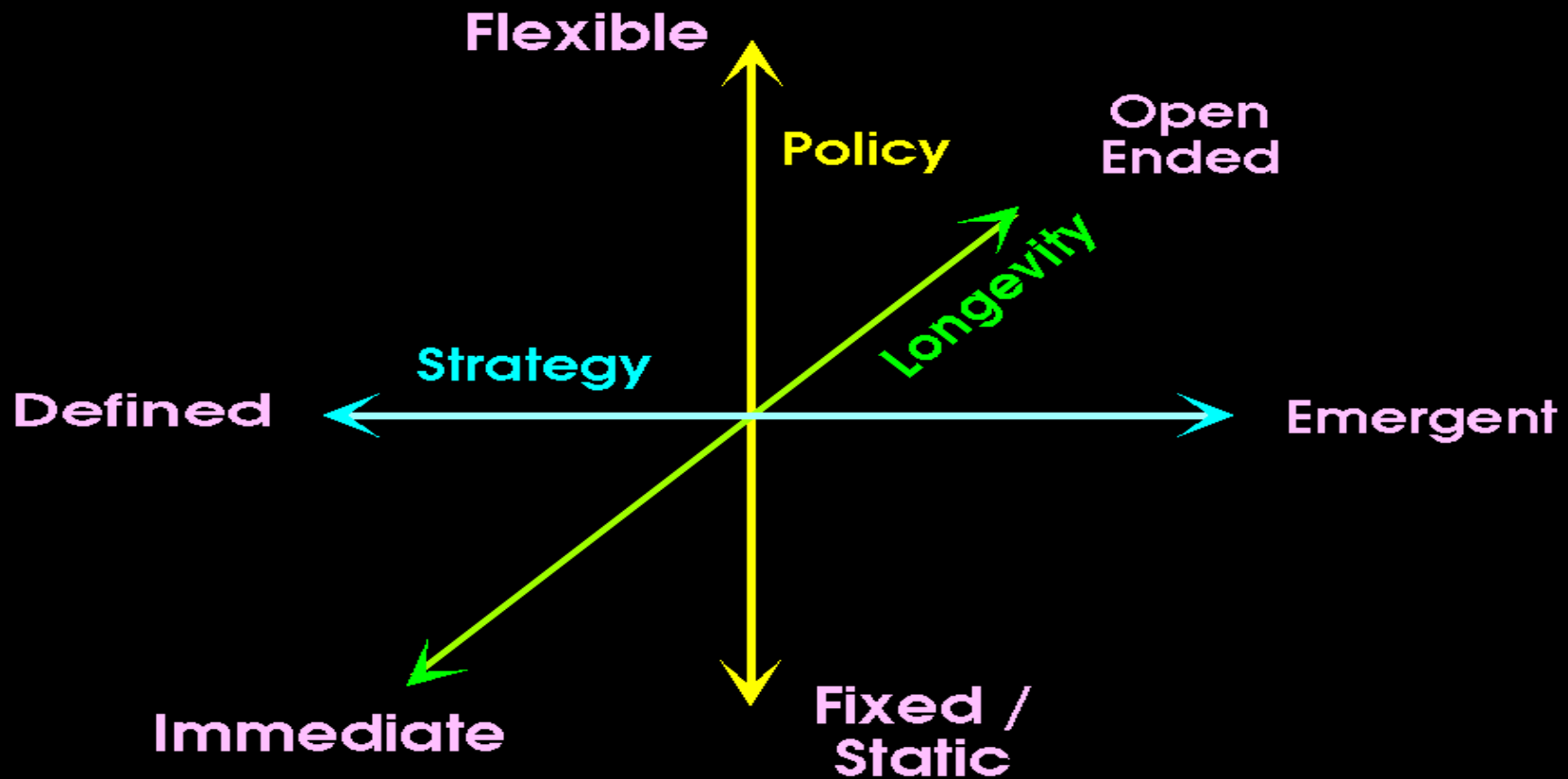


# Ubiquitous Distributed Adaptive Intelligence Resources



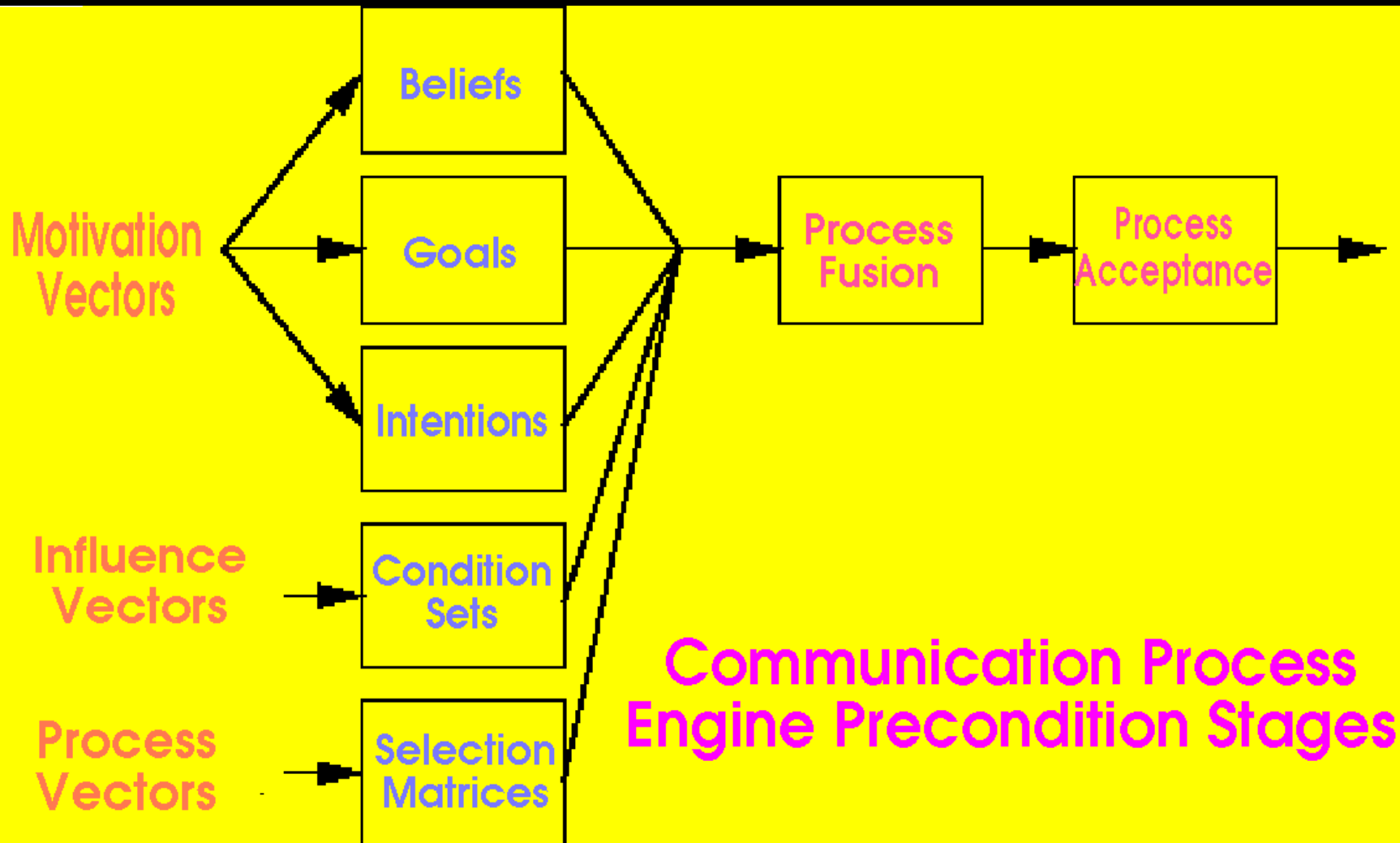
**Adaptive Intelligent System Process Model**

# Knowledge Harvesting - Primary Resource Value Chain



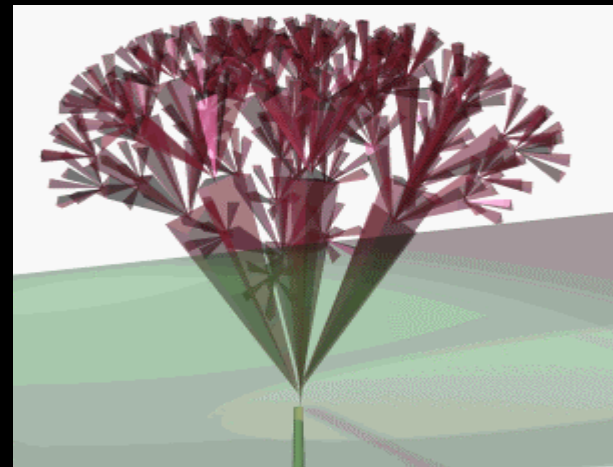
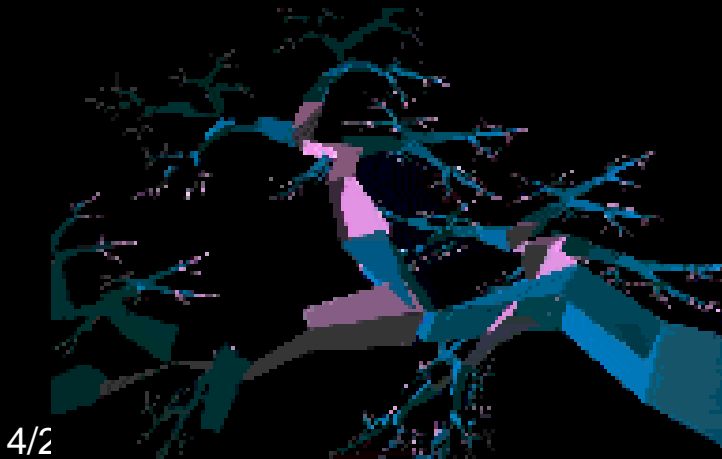
**Contextual Cognition Process Vectors**

# Artificially Enhanced Complexity Management - Process Control

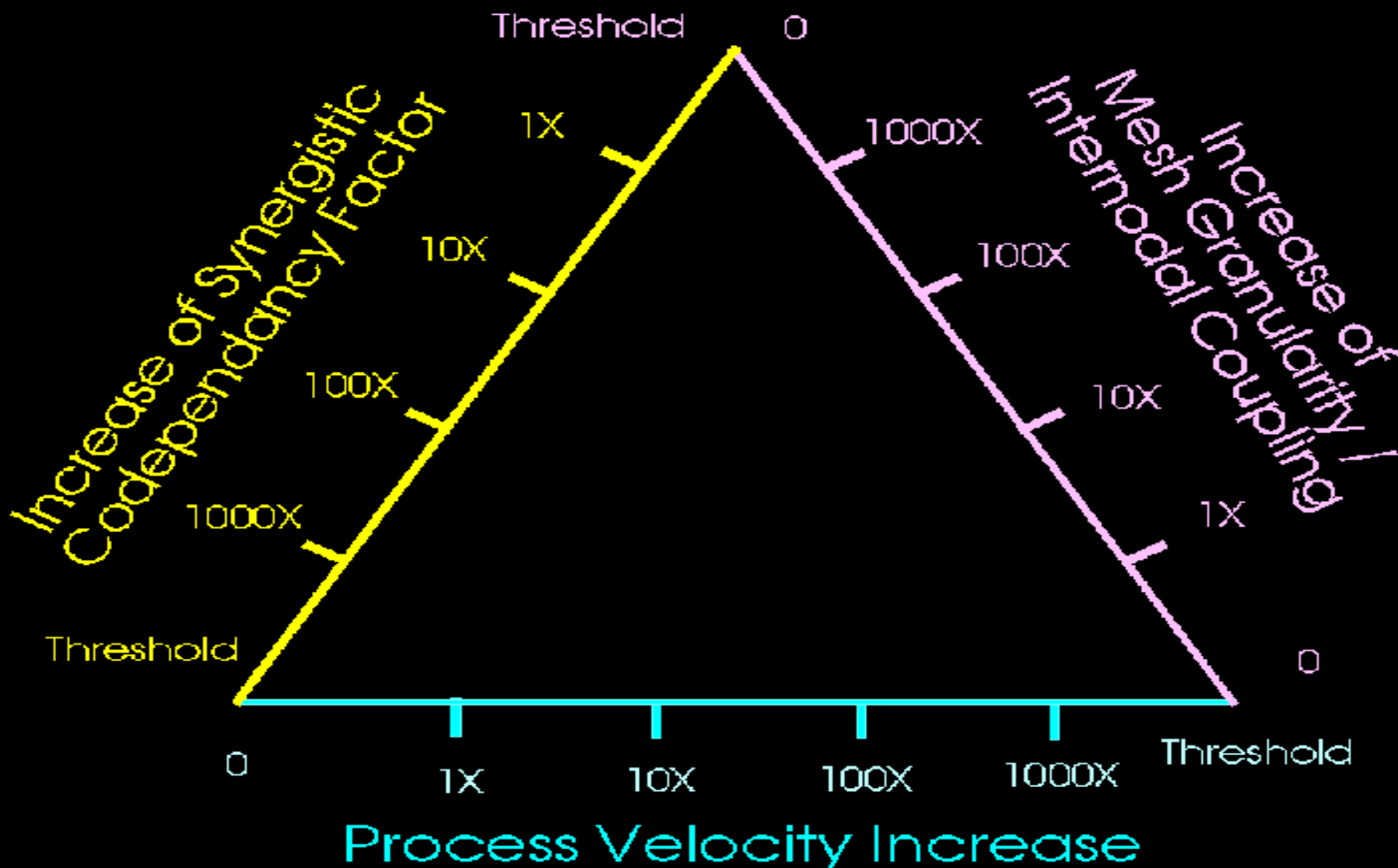


# Virtual Commodity Assets Attributes and Considerations

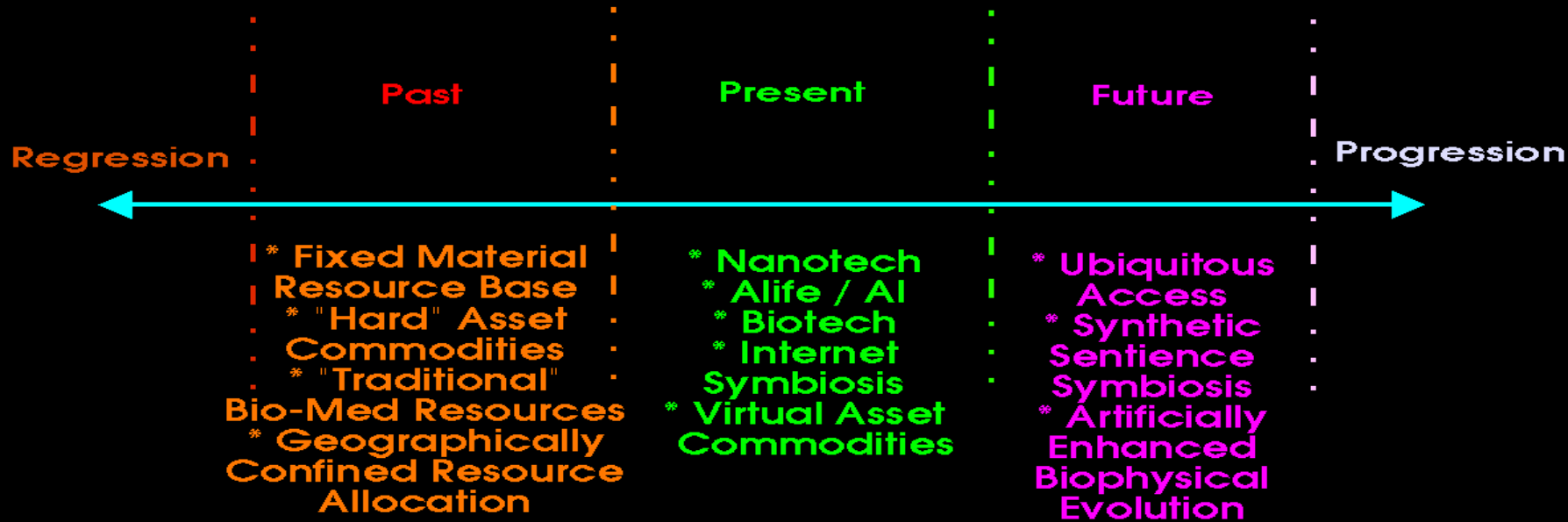
- Process Deliverables
- Access Portals & Computing Fabrics
- Distributed Knowledge & Intelligence
- Fiduciary Carrying Capacity of “VCA”



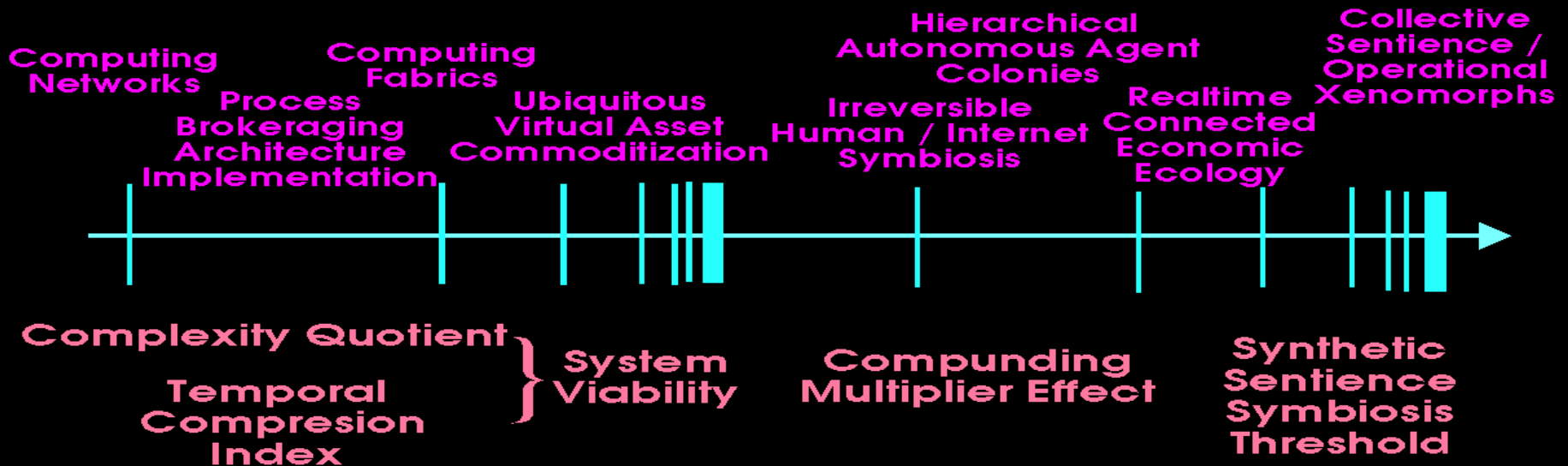
# Convergence Syndrome Triad



# Technology Driven Socio-Anthropological Evolutionary Threshold Domains



## Evolutionary Eventstream Seminal Markers





# Convergence Outcome

- Brokeraging of VCA
- Scalable Computing Fabrics
- Realtime JIT Process Deliverables

