Velibeyoglu, Koray and Yigitcanlar, Tan (2008) *A quest for knowledge-based (urban) development : knowledge assets and networks of Istanbul, Turkey.* In: The 3rd International Symposium on Knowledge Cities, 17 - 19 November 2008, Turkey, Istanbul..

A quest for knowledge-based (urban) development: knowledge assets and networks of Istanbul, Turkey

Dr Koray Velibeyoglu &
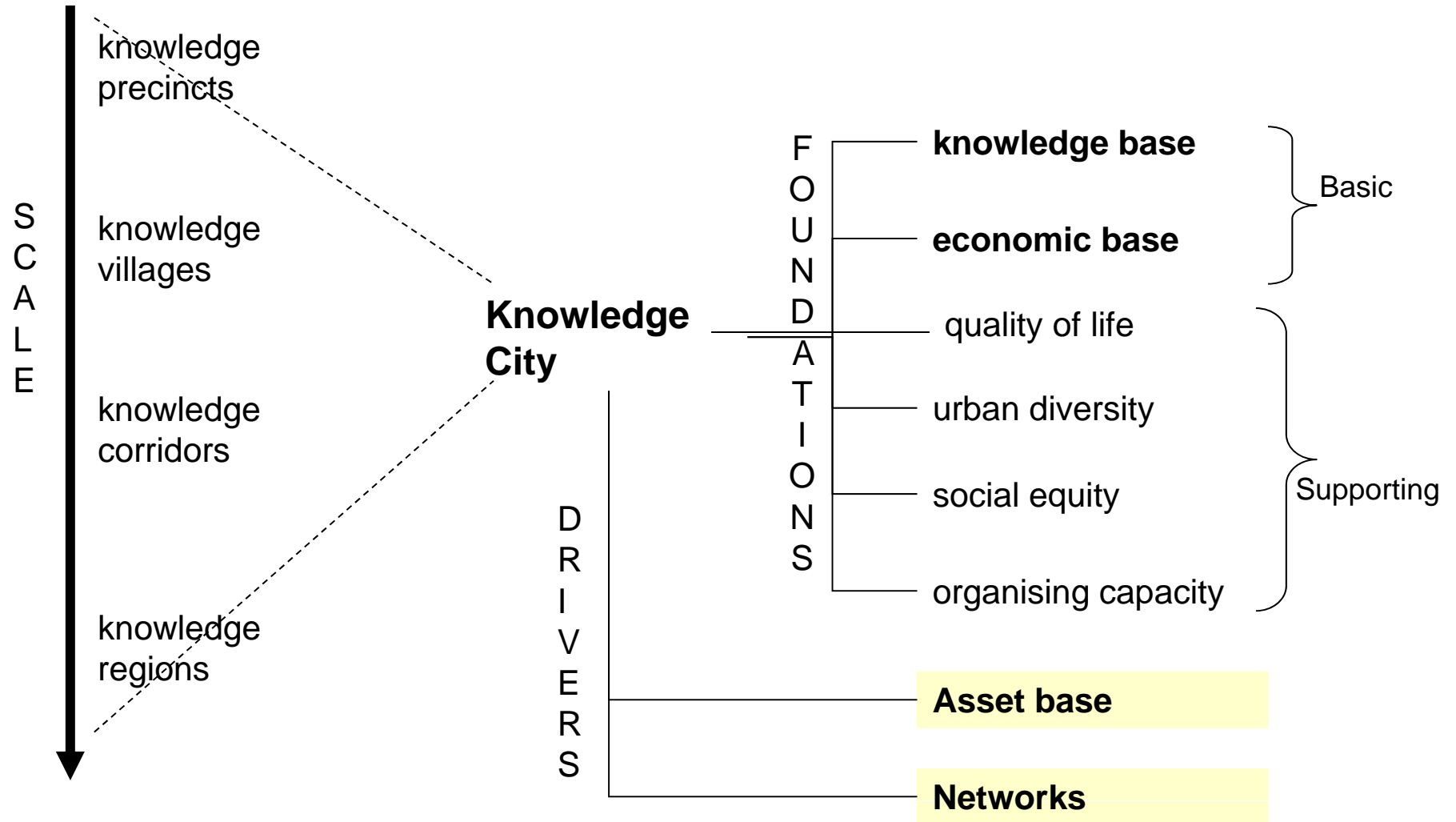Dr Tan Yigitcanlar

3rd International Symposium on Knowledge Cities

17-19 November 2008 Istanbul – Turkey

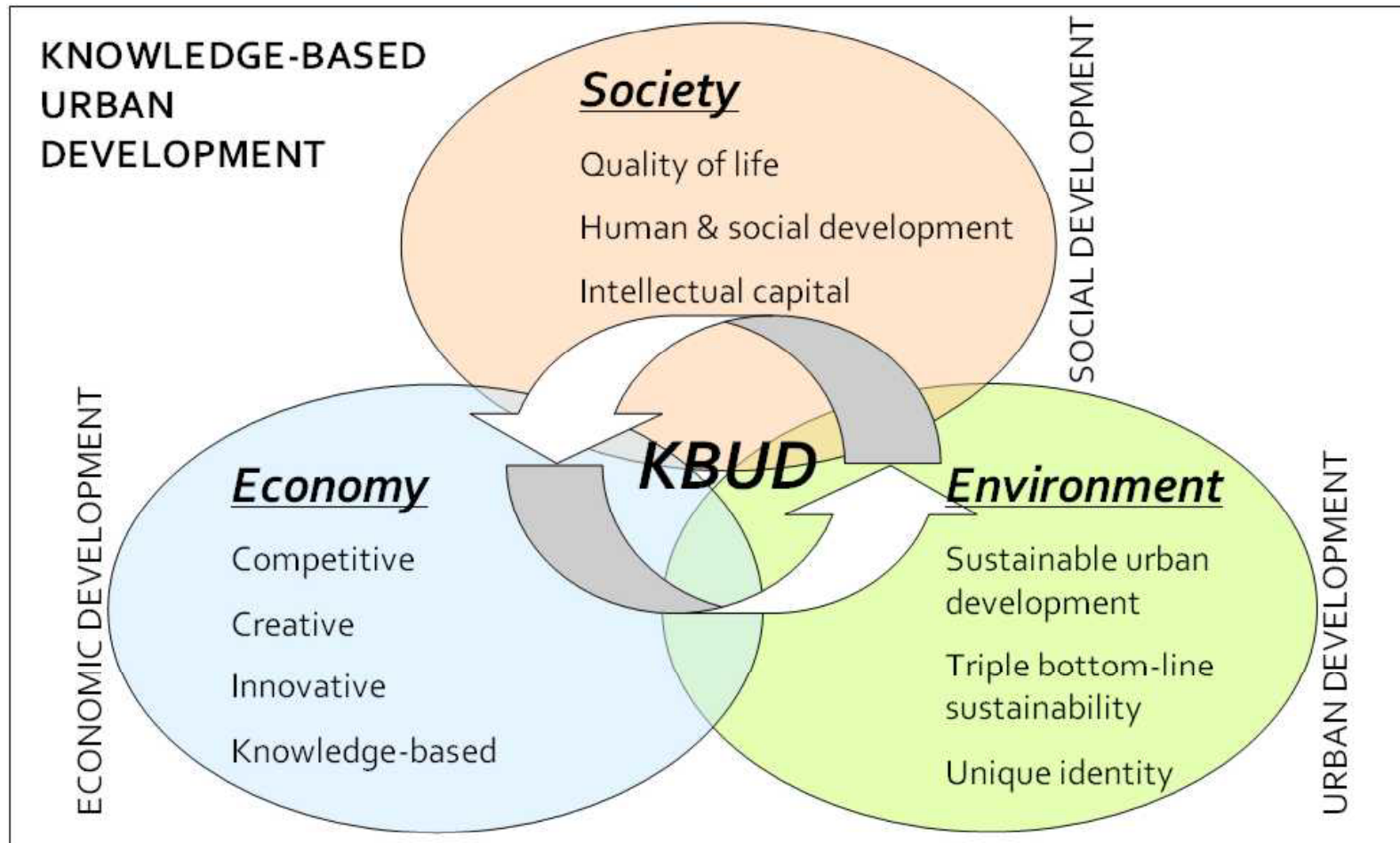# Knowledge assets and networks of Istanbul

Presentation Outline

- The key concepts and terms:
  - Knowledge City, Knowledge-based Urban Development
  - Assets and Networks
- Istanbul's world city discourse and beyond
- Istanbul's assets and capital systems
  - Knowledge asset base
  - Other supporting bases
- Istanbul's global networks
  - Hard networks
  - Soft networks
- Concluding Remarks

Knowledge City: Foundations

SCALE

knowledge precincts

knowledge villages

knowledge corridors

knowledge regions

Knowledge City

FOUNDATIONS

- **knowledge base**
- **economic base**

} Basic

- quality of life
- urban diversity
- social equity
- organising capacity

} Supporting

DRIVERS

Asset base

Networks

Knowledge-based (Urban) Development

Asset: Definitions and Categories

- An asset literally means useful and desirable thing that is **worth having** or quality for personal, social, economic or cultural benefit.

- A resource with economic value that an individual, corporation or country owns or controls with the expectation that it will **provide future benefit**.

- A stock of financial, human, natural or social resources that can be acquired, developed, improved and **transferred across generations**.

Cultural and Historical Assets

Natural and Environmental Assets

Knowledge Assets

Physical-Infrastructural Assets

Social and Human Assets

Asset: Types

Financial Asset: Stocks, bonds, bank deposits, and the like, it does not necessarily have physical worth.

Non-Financial Asset: An asset with a physical value such as land, property or some type of object, it is physical and have values based upon their physical properties.

Intangible Asset: not physical in nature. Knowledge assets like intellectual property (items such as patents, trademarks, copyrights, business methodologies) is common intangible asset in today's economy.

Tangible Asset: An asset that has a physical form such as machinery, buildings and land.
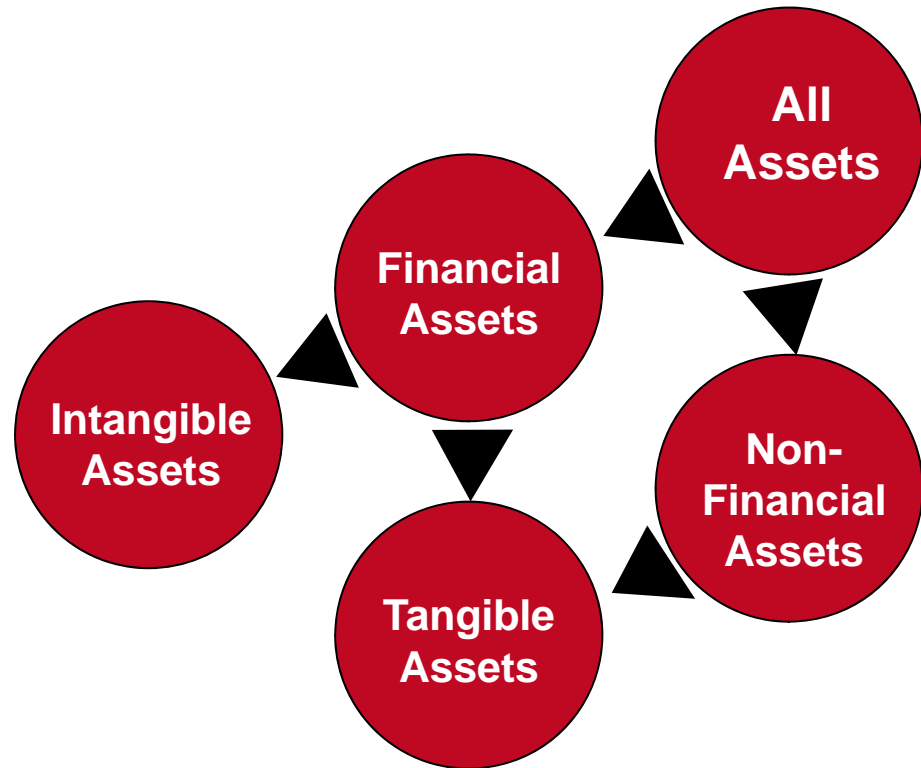
Knowledge Asset Base

Tangible

- Knowledge Clusters and Technology Hotspots
- Universities and R&D Centres
- Quality Human Stock and Infrastructures

Intangible

- Intellectual Property (i.e. Patent, Trademarks)
- Innovation and Creativity Capacity
- Capital Systems (i.e. Social, Cultural)

Networks: Definitions

A network is a set of interconnected nodes.Networks consist of nodes and links.

- Nodes: A node is the point where the curve intersects itself. Every "node" (which can be a company, a person, but also a city) in the knowledge network develops its own specialization.

- Links: A link is the means of connecting one location to another.
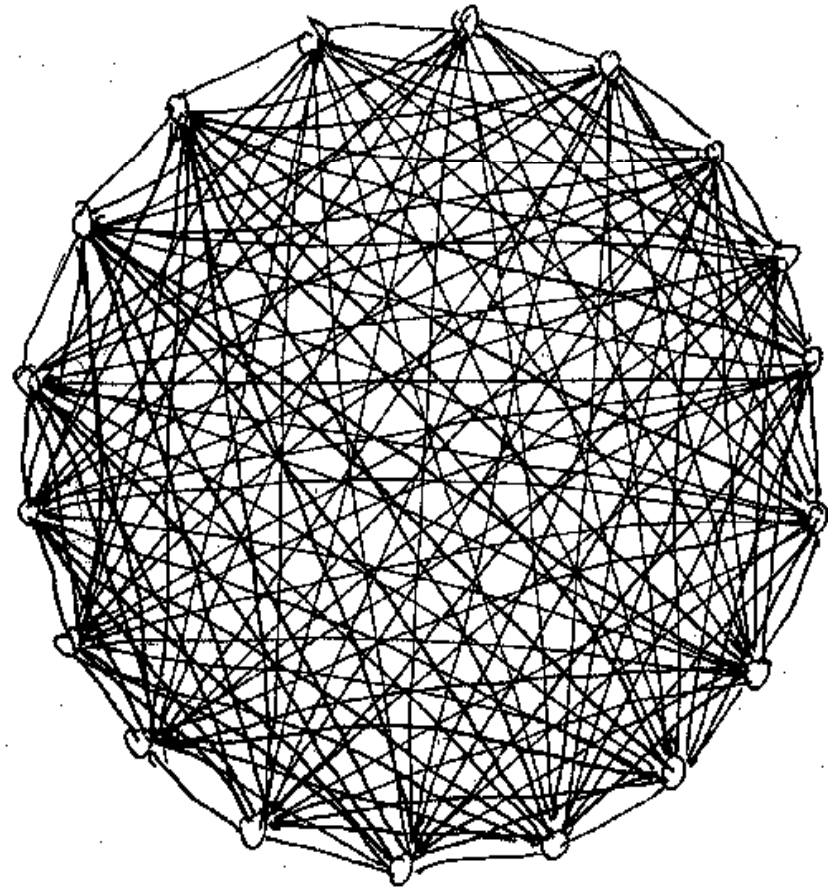
A completely-connected set of nodes

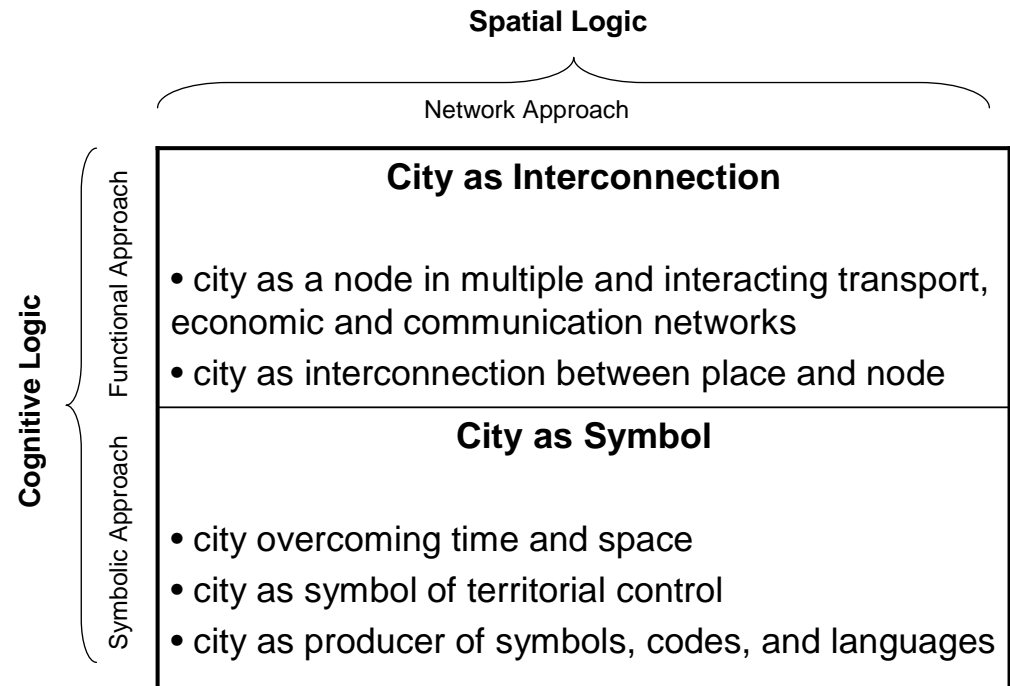Source: Castells, 1999; Salingaros (2003)

Urban Networks, City and Competitiveness

Urban Networks:

- Nodes include potential economic players such as business firms, financial institutions and governments.

- Links refer to quantifying various interactions between economic players dealing with business, R&D, design, marketing, logistics etc.
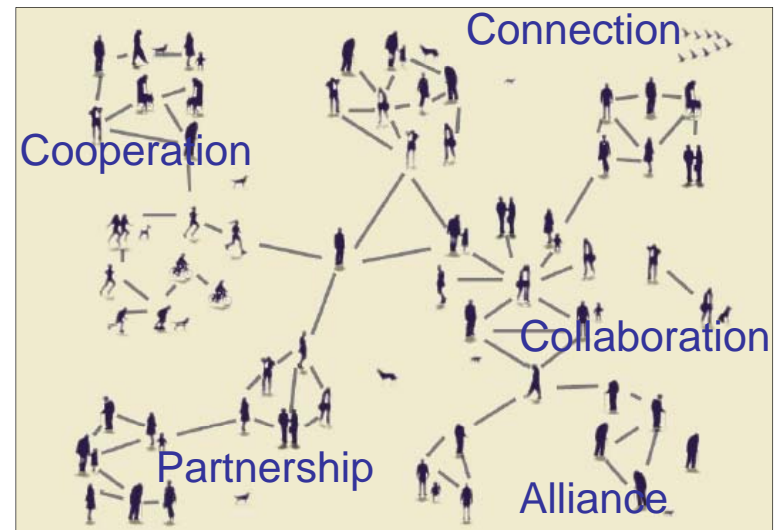
Urban Networks and Competitiveness:

- there are many nodes with only a few links and consequently a low degree of competitiveness, but only a few highly competitive nodes with a large number of links (Power Law distribution of networks).

Spatial Logic

Network Approach

Cognitive Logic

Functional Approach

City as Interconnection

- city as a node in multiple and interacting transport, economic and communication networks
- city as interconnection between place and node

City as Symbol

Symbolic Approach

- city overcoming time and space
- city as symbol of territorial control
- city as producer of symbols, codes, and languages
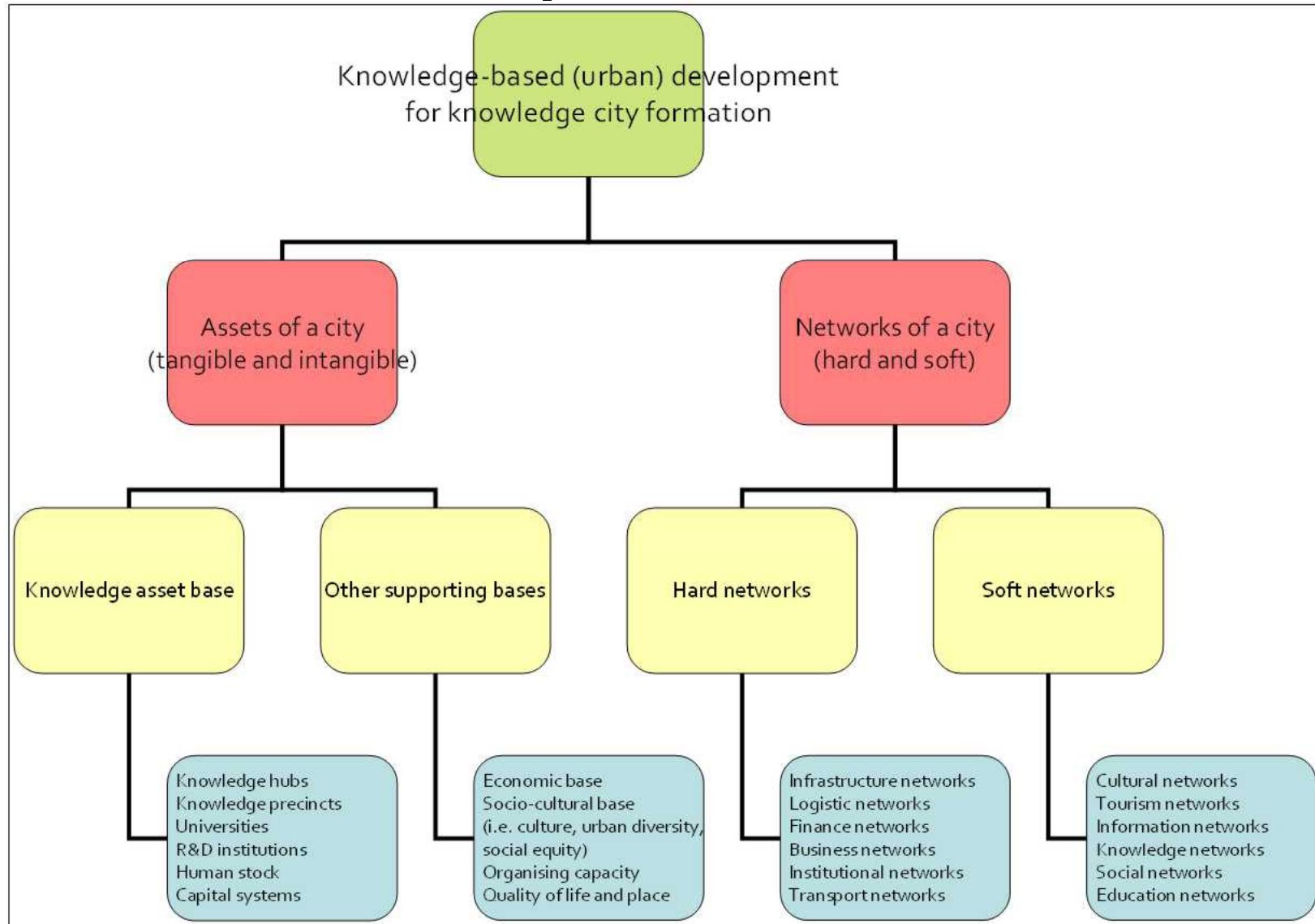
Source: Camagni (1991); Drewe (2005)

Hard and Soft Networks

- **Hard Networks**: infrastructure-dependent networks

  - Transportation Networks (roads, intersections, parking areas, rail infrastructure, railway stations, inland waterways, inland harbors, sea lanes, seaports, aviation routes and airports)

  - ICT infrastructure

  - Water and Energy Networks

- **Soft Networks**: gathering knowledge via people-related social interaction

  - Research and knowledge networks

  - Cultural and institutional networks

  - Networks of territorial authorities

Analysis Framework

Knowledge-based (urban) development for knowledge city formation

Assets of a city (tangible and intangible)

Networks of a city (hard and soft)

Knowledge asset base

Other supporting bases

Hard networks

Soft networks

Knowledge hubs
Knowledge precincts
Universities
R&D institutions
Human stock
Capital systems

Economic base
Socio-cultural base
(i.e. culture, urban diversity, social equity)
Organising capacity
Quality of life and place

Infrastructure networks
Logistic networks
Finance networks
Business networks
Institutional networks
Transport networks

Cultural networks
Tourism networks
Information networks
Knowledge networks
Social networks
Education networks

Istanbul as World City: Different Periods
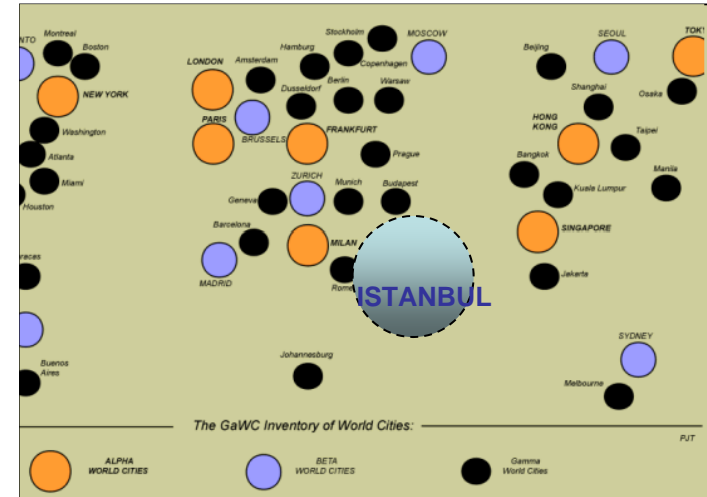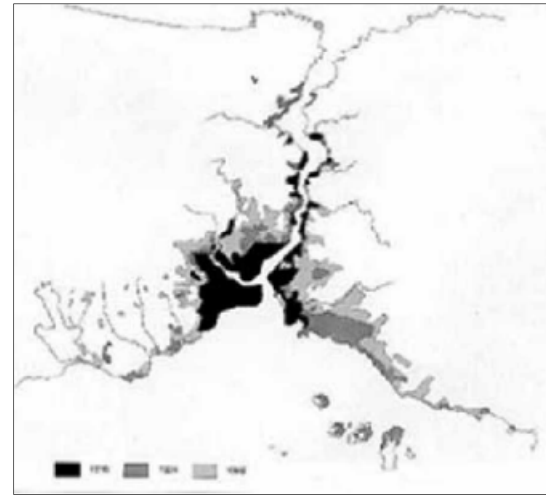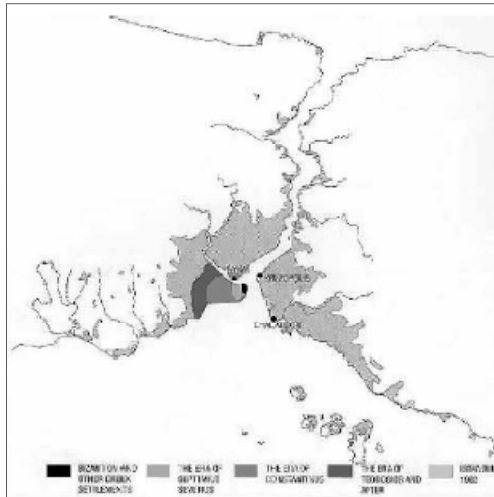
Istanbul as a **trade colony**

Istanbul as **imperial capital** of Byzantine and Ottoman Empire

Istanbul as **economic and cultural capital** of Turkish Republic

Istanbul as **world city**

Istanbul as an emerging **Knowledge city?**

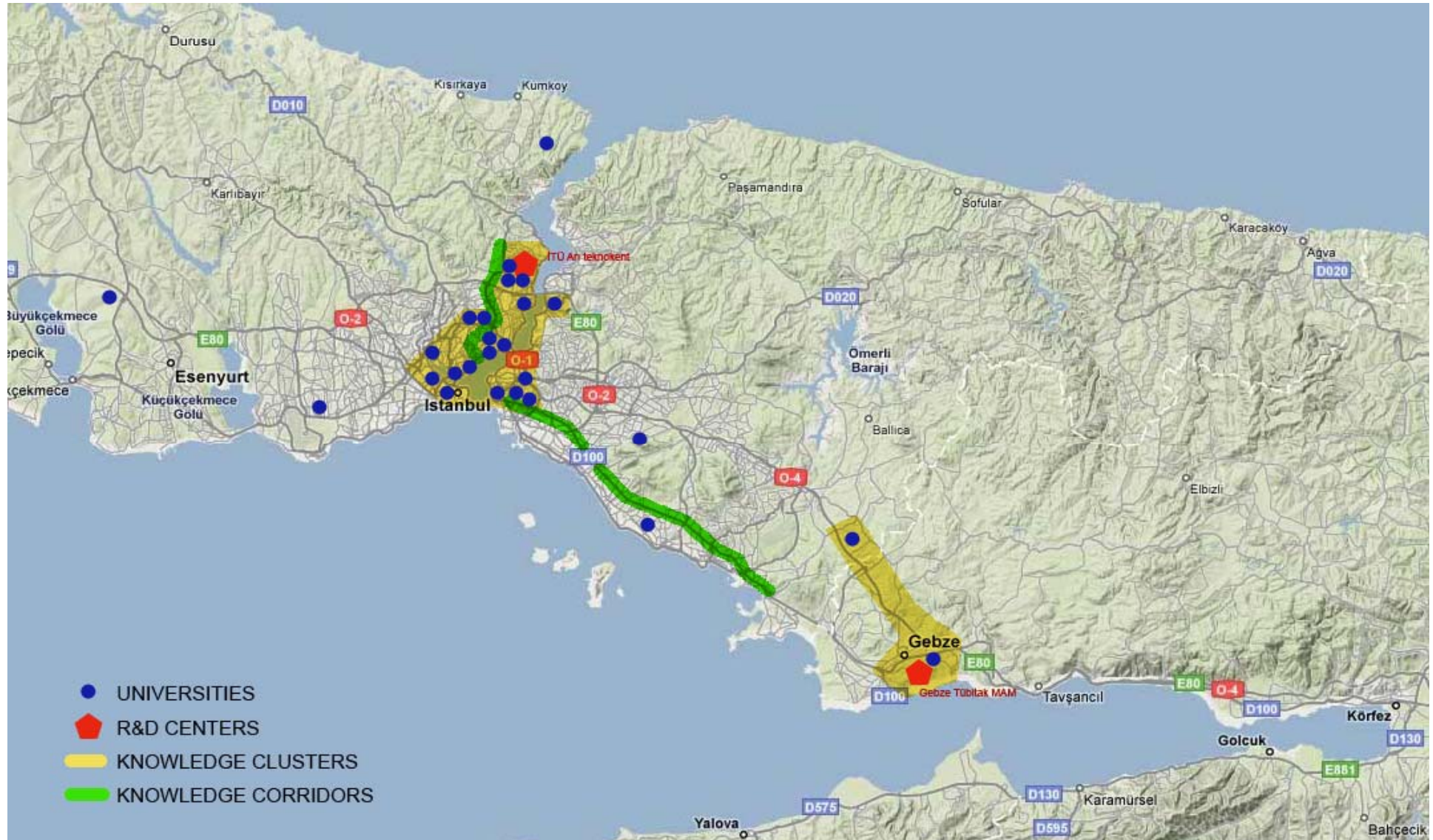7th Century BC

Between 1st and Early 20th Century

Early 1980s

1990s

21st Century

Source: Yenen (1993); GAWC(2000)

Knowledge Asset base of Istanbul

Legend:
- UNIVERSITIES (blue dot)
- R&D CENTERS (red pentagon)
- KNOWLEDGE CLUSTERS (yellow)
- KNOWLEDGE CORRIDORS (green)

Universities and R&D Centers

- Universities perform the role of 'local knowledge hubs' bringing global knowledge into the region. Those knowledge hubs can be considered as the core of the formation of new knowledge precinct developments where the learning value has the prime importance. University-centered developments have a special foci on research, experimentation, and testing that has created the triple-helix model of innovation (public-private-academia partnership)

Knowledge Clusters and Technology Hotspots

- As a centre of national culture and media industries Istanbul can easily exploit specific niches for instance in design and fashion in line with a careful clustering policy and urban knowledge precincts for creative industries.
- Two spontaneous knowledge clusters and technology hotspots in Istanbul:
  - Maslak-Taksim Axis: big media conglomerates and ICT firms in new business centre
  - Kadikoy-Pendik Axis: ICT-based services in the Asian side of Istanbul.
- However, there is no sign of designed cluster policy and formation of new urban knowledge precincts in this regard, particularly no evidence of knowledge community precinct development.

Quality Human Stock:
# Talent, Innovation and Creativity

- Quality of human stock and talent pool is vital for knowledge-based urban development of Istanbul.

- The lack of appropriate secondary and tertiary education is a significant bottleneck for knowledge society strategies in Istanbul as well as rest of Turkey. This holds back the knowledge intensive sectors, like Istanbul's software industry, as it does not produce the required skilled human stock for the market.

- Istanbul is either underdeveloped or not significantly strong in terms of competitiveness and innovativeness. Nevertheless, as a result of its natural, historical and architectural assets, growing urban infrastructure investments and advanced service industries, Istanbul's economic and resident skill base are still good enough to accommodate more qualified jobs and international talent in the foreseeable future.

Other Supporting Bases

- <u>Strong economic base</u>: Istanbul produces 26 percent of the gross added values of the entire Turkish economy. Istanbul has registered one of the highest output growth rates since the mid-1990s. Istanbul has also attracted most of the FDI in the country, particularly in producer services.

- <u>Socio-cultural base</u> Istanbul has many strong assets to attract knowledge workers seeking to live and work in an 'authentic' and 'historical' place:
  - its very location,
  - its unique architectural heritage,
  - vibrant urban districts,
  - the legacy of its historical heritage, and
  - its wide range of other attractions
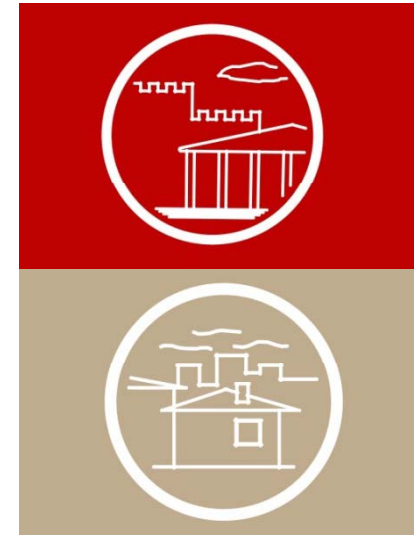
Global Networks of Istanbul

ISTANBUL

Cyberspace Atlas, Dodge (2001)
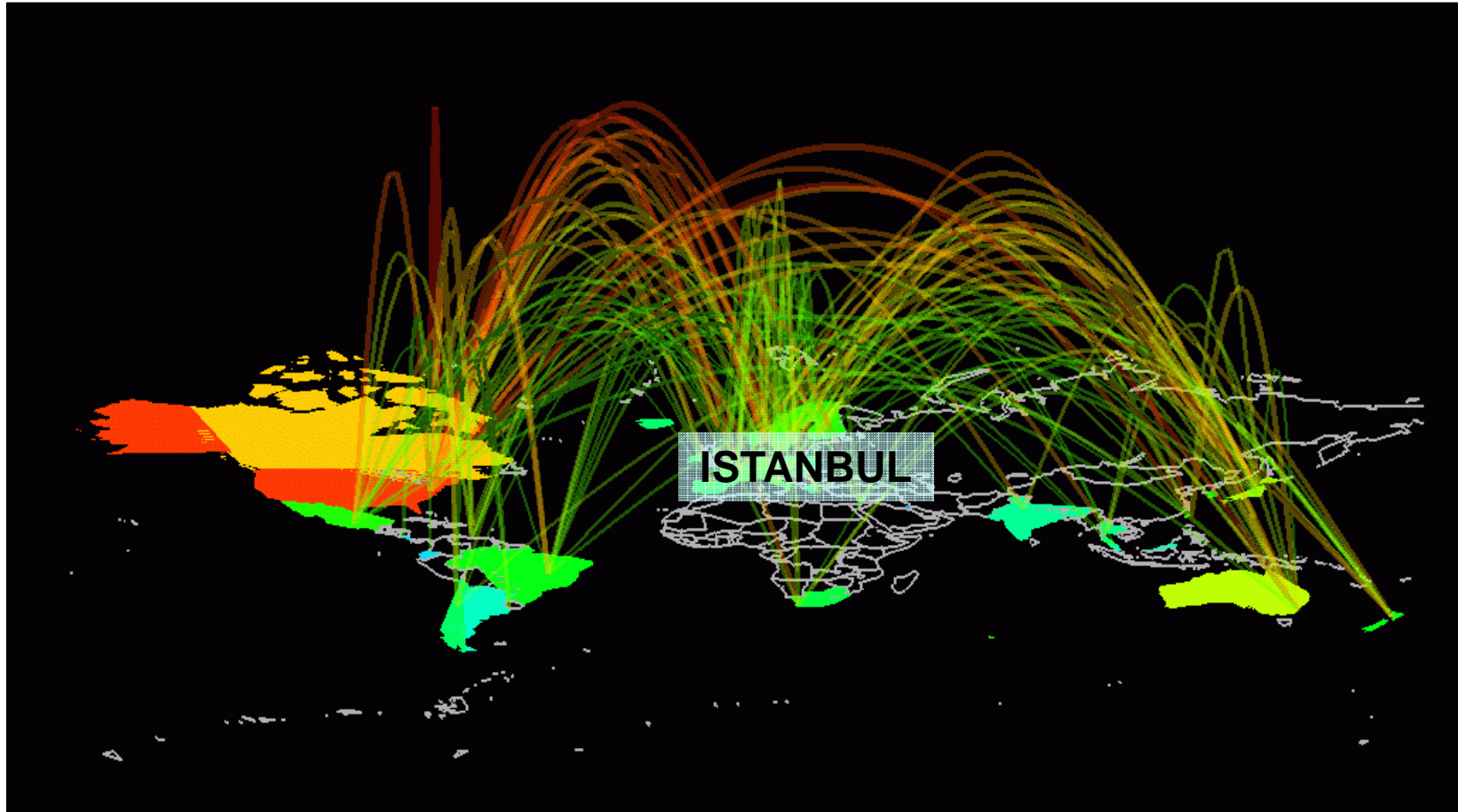
Hard Networks: Financial Power
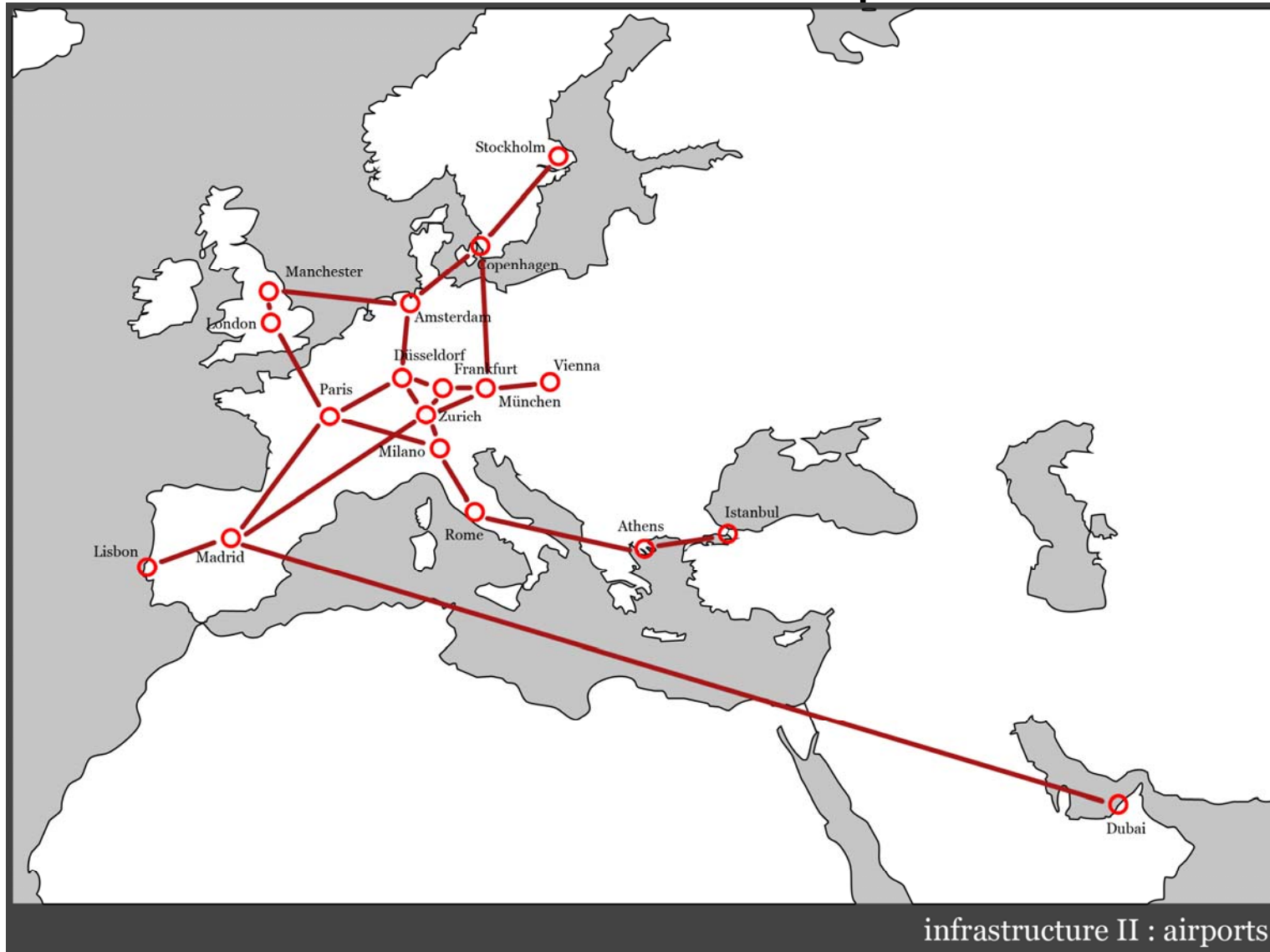

power networks : financial centers
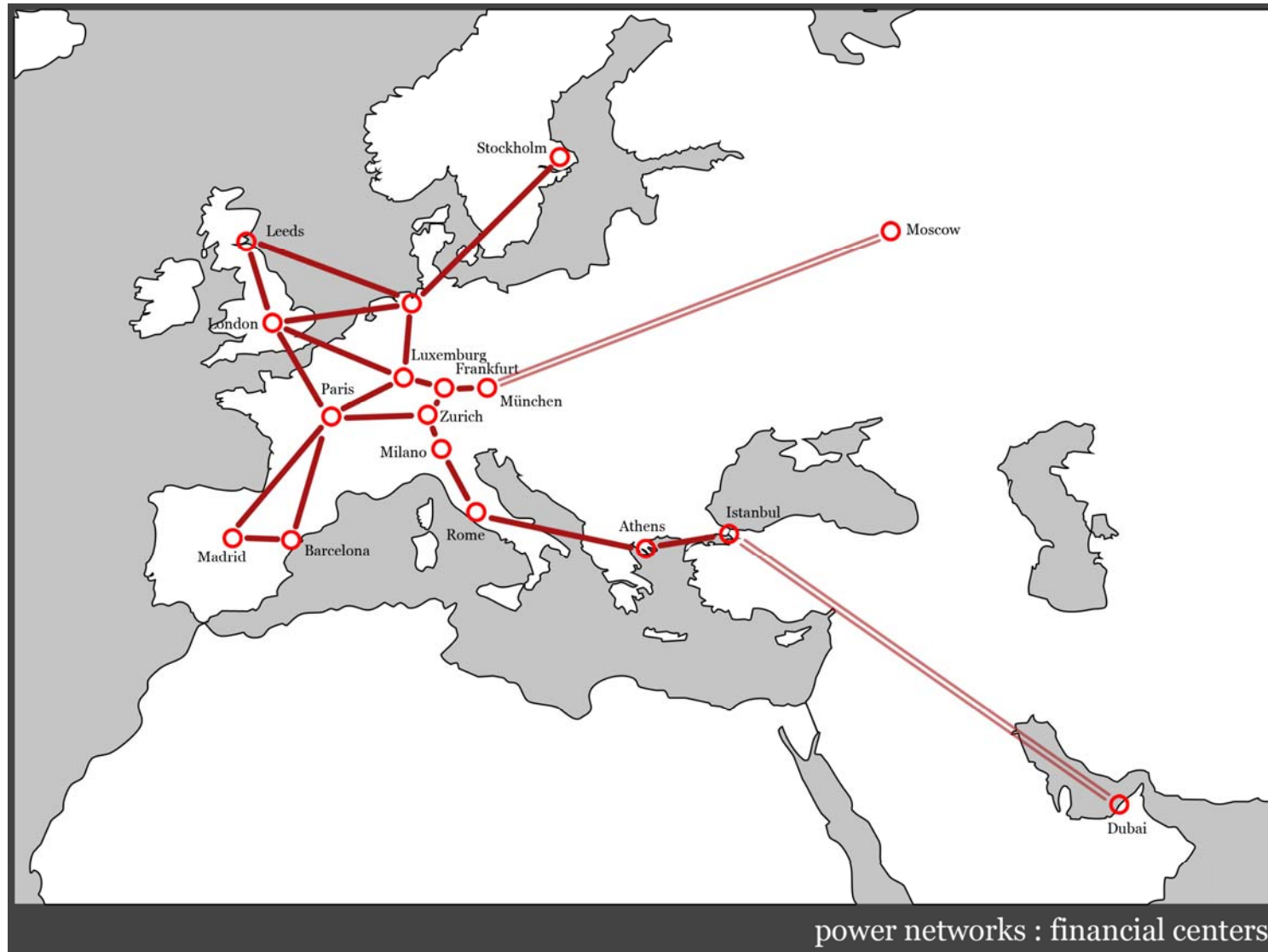
Based on Kunzmann (1997)

Hard Networks: Energy
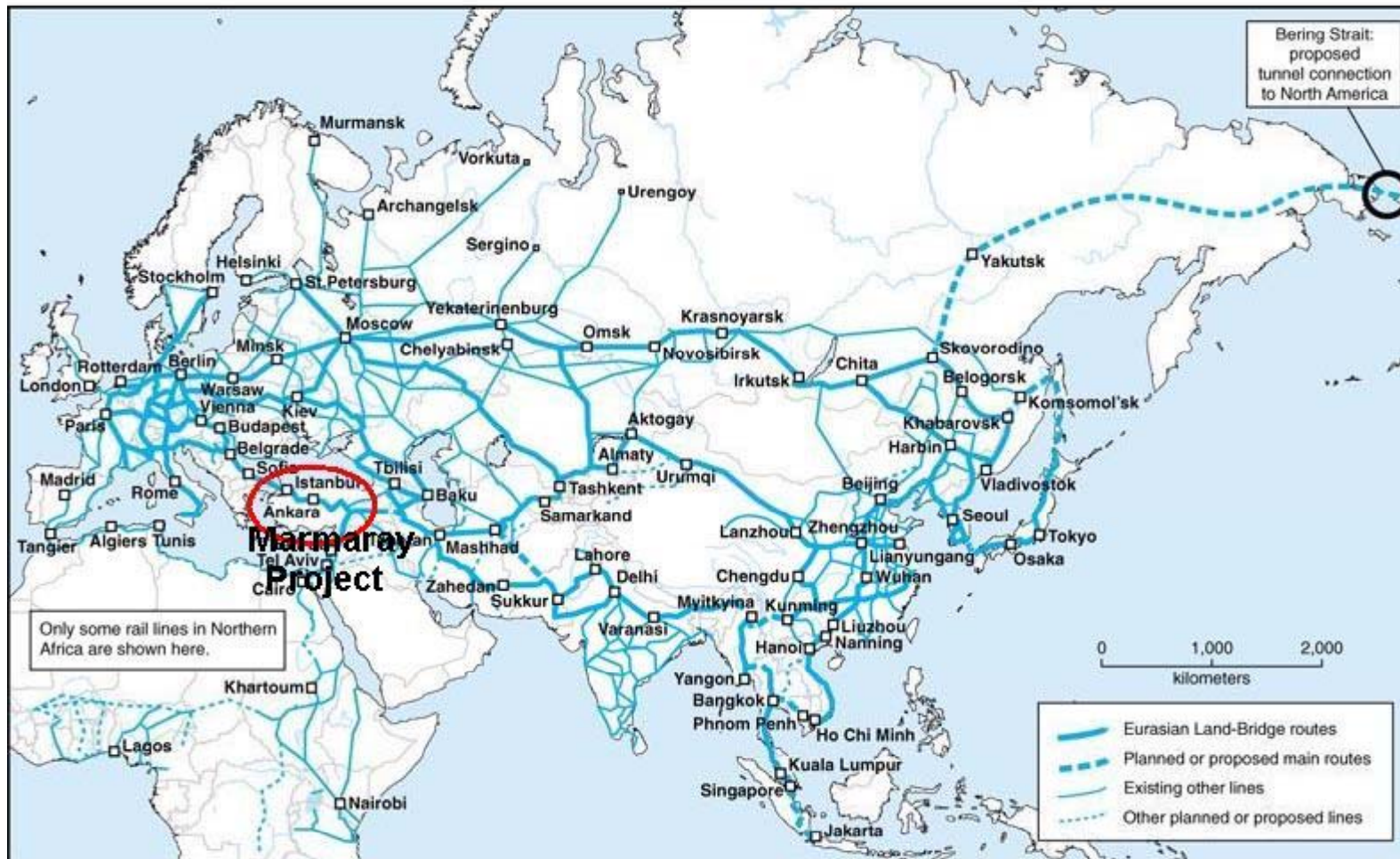

EU will need to be connected to the Turkish network by 2010 to receive gas from the Caspian Sea region and/or the Middle East.

Source: INOGATE (2003)

Hard Networks: Airports

infrastructure II : airports

Based on Kunzmann (1997)

Hard Networks: Railroads

Iron Silk Road Project: a land-bridge between main routes of Eurasia

Source: Schiller Institute (2002)

Soft Networks: Culture

Soft Networks: Culture: The European Capital of Culture
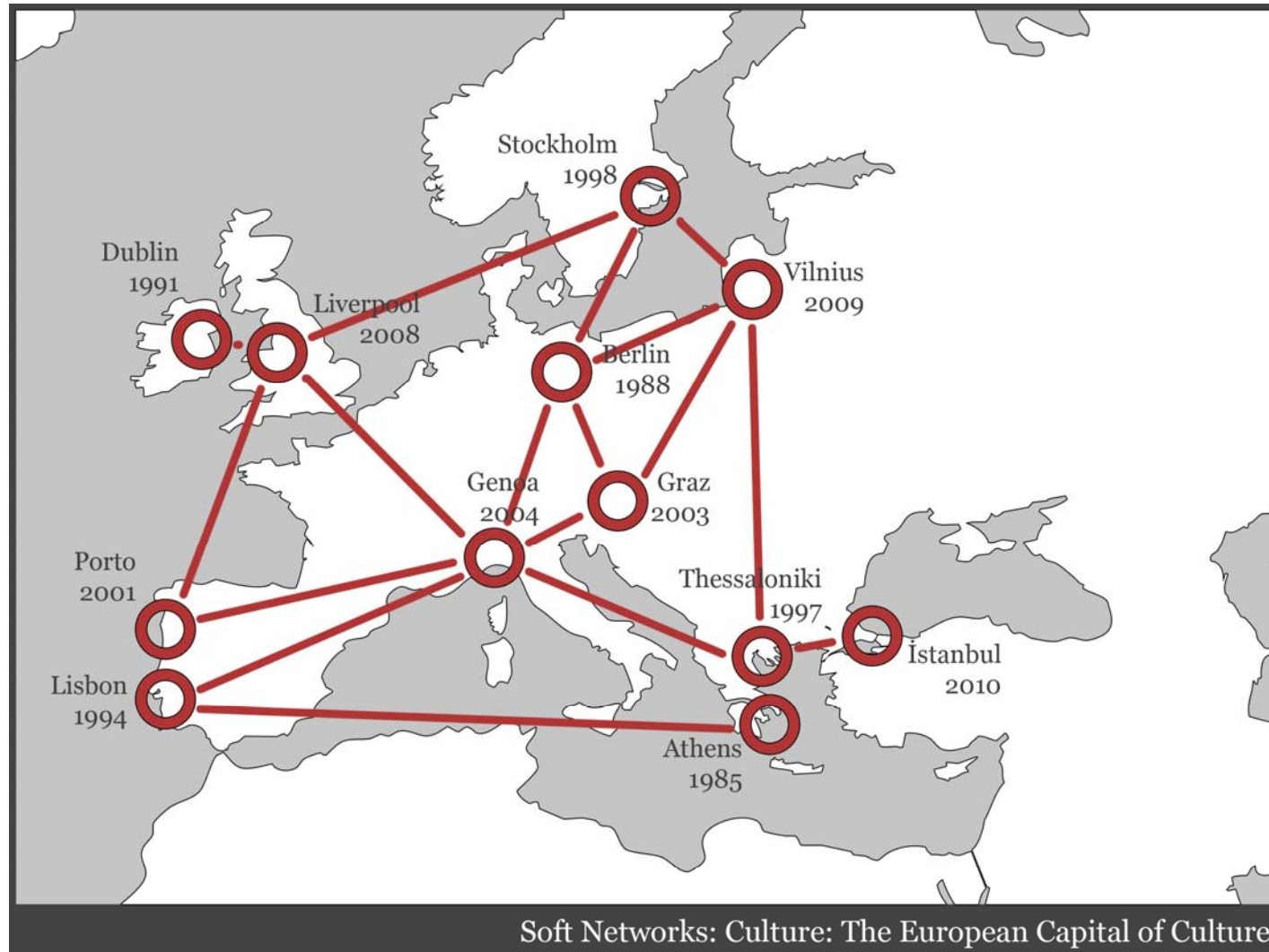
The European Capital of Culture

1985: Athens

1988: Berlin

1991: Dublin

1994: Lisbon

1997: Thessalonica

1998: Stockholm

2001: Porto,

2003: Graz

2004: Genoa

2008: Liverpool

2009: Lithuania Vilnius

2010: Istanbul

Based on Kunzmann (1997)

Soft Networks: Organizations

Sister Cities Network of Istanbul around Europe and MENA region.

Opportunities and Constraints

Opportunities:

- quality of supporting bases to promote knowledge asset base (cultural, historical, logistical and financial assets)
- increasing economic linkages with (inter)national hinterland
- Rising investment and awareness on biotechnology (i.e. pharmaceutical) and software industry (i.e. Valley of Informatics Project)
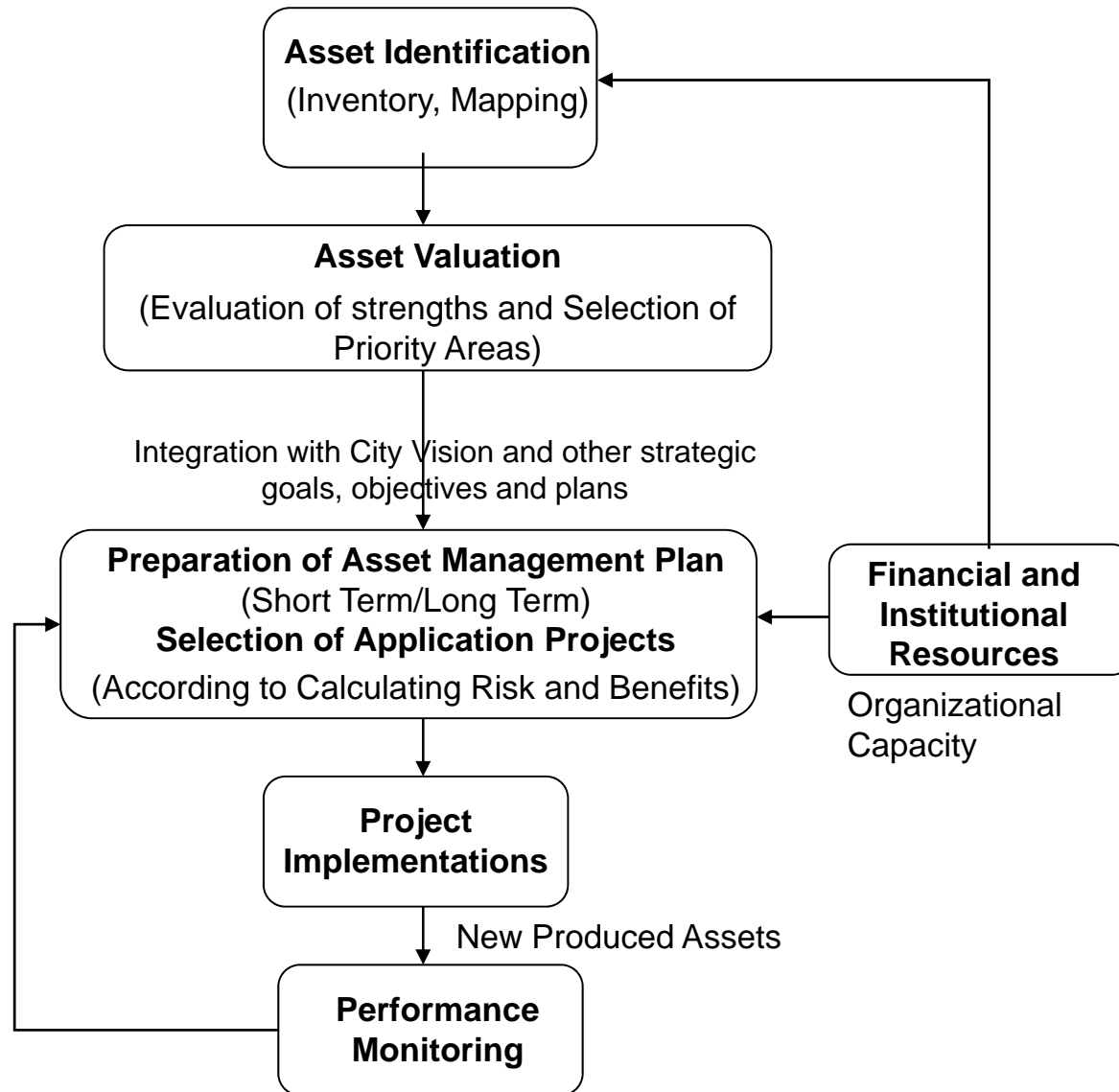
Constraints:

- massiveness of labor-intensive activities in the economic base and lack of skilled human stock for the advanced industries
- constraints on human capital development,
- large informal sector and increased income disparities,
- over-migration decaying urban infrastructures,
- lack of affordable housing,
- high earthquake and quality of life risk

Further Actions for Developing Knowledge Asset Base

Istanbul does benefit from its important assets and international networks in the knowledge-based development of the city but reforms and new strategies are needed:

1. **Sectoral mix** of technology zones should be seriously reconsidered. New creative industry sectors like **design and fashion incubators** should be initiated.

2. Istanbul should use the knowledge as the most strategic element for the integration to the global system. Therefore, strategy and initiatives for **leveraging knowledge assets** should be based on city's **unique assets and opportunities**.

3. To enhance Istanbul's knowledge base there is a crucial need to move towards a **knowledge-based urban development** and investment structure based on the **triple-helix** model. R&D activities should be thematically concentrated and industry-university relations should be enhanced to increase competitiveness and create high-skilled employment.
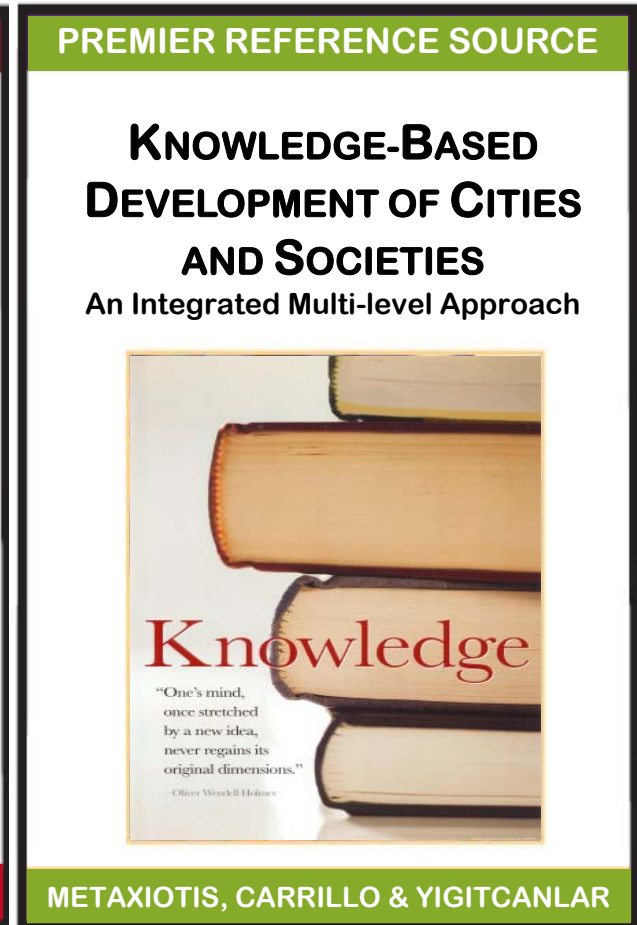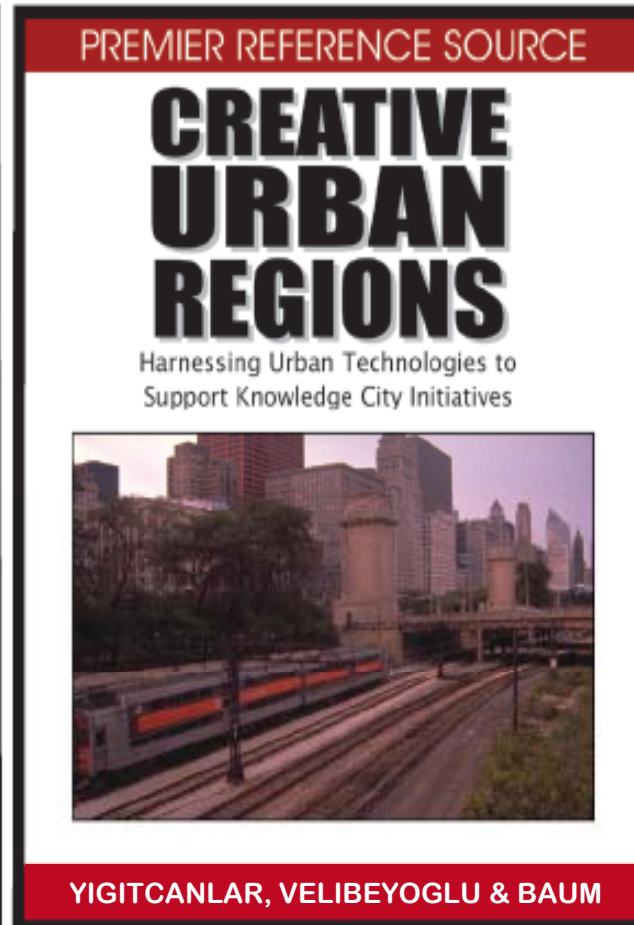
'Asset Management' as a starting point for Knowledge-based Development of Istanbul

Asset Identification
(Inventory, Mapping)

↓

Asset Valuation
(Evaluation of strengths and Selection of Priority Areas)

↓

Integration with City Vision and other strategic goals, objectives and plans

↓

Preparation of Asset Management Plan
(Short Term/Long Term)
Selection of Application Projects
(According to Calculating Risk and Benefits)

Financial and Institutional Resources

Organizational Capacity

↓

Project Implementations

↓

New Produced Assets

Performance Monitoring

In order to improve solid asset base, a long-term asset building strategy and careful **asset management framework** should be applied for Istanbul city.

This framework is now generic, more empirically focused research is needed for mapping Istanbul's knowledge asset base.

KEY REFERENCES ON KNOWLEDGE-BASED URBAN DEVELOPMENT

PREMIER REFERENCE SOURCE

Knowledge-Based
URBAN DEVELOPMENT

Planning and Applications in the Information Era

YIGITCANLAR, VELIBEYOGLU & BAUM

PREMIER REFERENCE SOURCE

CREATIVE
URBAN
REGIONS

Harnessing Urban Technologies to
Support Knowledge City Initiatives

YIGITCANLAR, VELIBEYOGLU & BAUM

PREMIER REFERENCE SOURCE

KNOWLEDGE-BASED
DEVELOPMENT OF CITIES
AND SOCIETIES
An Integrated Multi-level Approach

Knowledge

"One's mind,
once stretched
by a new idea,
never regains its
original dimensions."
- Oliver Wendell Holmes

METAXIOTIS, CARRILLO & YIGITCANLAR

Yigitcanlar, T., Velibeyoglu, K. and Baum, S., (Eds.) (2008), *'Knowledge-based urban development: planning and applications in the information era'*, London: Information Science Reference.

Yigitcanlar, T., Velibeyoglu, K. and Baum, S., (Eds.) (2008), *'Creative urban regions: harnessing urban technologies to support knowledge city initiatives'*, London: Information Science Reference.

Metaxiotis, K., Carrillo, J. and Yigitcanlar, T., (Eds.) (2009), *'Knowledge-based development of cities and societies: an integrated multi-level approach'*, London: Information Science Reference.