Digital Business Ecosystems

Originally developed in "ICT for Business networking" (in SME area)

- Change of organisational structure (among enterprises), towards global networked economy
- Transition towards the knowledge-economy

**SMEs**: a weakness or a potential for Europe?

- Dynamic and complex business interrelations
- More knowledge
- Continuous innovation
- More specialised resources
- But SME companies have limited specialised resources and difficulties
  - To access to global value chains
  - To access to knowledge
  - To access to specific services (e.g., legal)
  - To adopt new technologies (ICT)
- To adopt new and distributed business models and work organisations

Threshold Size and 2 Divides: Geographical + SMEs vs. LEs

But the only hope for a SMEs is to become BIG?
SMEs in a Dynamic knowledge-based globally-networked economy
• How to reach the critical mass of resources?
• How to cope with the increased complexity?

Complexity and new forms of organisation
• “… the actual slowly changing network of organizations will be replaced by more fluid, amorphous and often transitory structures based in alliances, partnership and collaborations”...
• “… building a community that share business, knowledge and infrastructure, develop creativity”

Peculiarities of the EU economical structure
• Dimensions of enterprises (SMEs vs. LE)
• Historical presence of clusters with diffused tacit unstructured knowledge, skills and infrastructure
• Cultural diversity (model of business, approaches, practices, …)

Turn peculiarities in competitive advantage
The Business Ecosystem

Create a climate conductive to investments, innovation and entrepreneurship:
the conditions for

- Attracting / developing business and direct investments
- Attracting / developing enterprises
- Attracting / developing skilled and qualified workforce

How to create a favourable environment for business and people: a socio-economic ecosystem?

- Which industrial policy?
- Which infrastructure? (material / immaterial)

Turn Peculiarities into Competitive Advantages
Shift of paradigm

Engineers: “problem solving” approach: isolate problem, identify variables, make a plan …

Economy as machine

Complexity: Ecosystemic approach:

Economy as ecosystem

From building a machine to nurturing a garden
From “engineer approach” to “ecosystem approach”
From making a plan to creating the conditions

Processes:
Interpretation - Participation - Collaboration - Harmonization of interests

Plurality and richness of: economic actors, subjects, ideas, interactions, models, aggregation
The Innovation Ecosystems:
An integrated approach for development

to reduce the digital divides - among regions -among SME and LE
to foster local economic growth and innovation; new forms of dynamic business interactions, enabled by new paradigms and digital ecosystem technologies;
embedded knowledge enabled by capacity building instruments

New organizational and business models; knowledge & skills
Encourage cooperation & innovation networks
Make viable ecosystem-oriented infrastructure
Supports Bio-Paradigms
Enhances ICTs
Catalyse improve
Competitiveness, market & internal efficiency
lead to Growth
“Digital Ecosystem Infrastructure”
Policy

The Digital Ecosystem, the carrier for services and ideas enabling their networking

Who owns it? What does it contain? What’s the destination? Which is the revenue model?

Owner
Serial-ID
Check-ID
Country
ISO Ident

Courtesy from DBE project
DDB London School of Economics

Pula, 12 June 2001
Sardegna Terra ICT

European Commission
DG Information Society and Media
Unit D5 : ICT for Enterprise Networking

Francesco Nachira
The economic structures change the infrastructures too

Which transport and aggregation infrastructure for services and knowledge?

The digital ecosystem

How to provide business networking services, adapted to local needs?
How to transfer and disseminate knowledge?
How to enable synergies and business networking?
How to represent services, but also micro- and macro-economy (from semantic of web to semantic of economy)?

How to create ICT infrastructure that allows digital components to exhibit behaviour of natural ecosystems?

Integrated scalable approach intermediate results
What is a Digital Ecosystem?

**THE DIGITAL ECOSYSTEM**

* is a pervasive “digital environment”
* that supports the business ecosystems
* which formalise represent micro- and macro- economic relationships
* that evolves / adapts to local conditions with the evolution of its components

**THE “SOFT” SUPPORT INFRASTRUCTURE,**
**WHICH MEDIATES and REPRESENTS SERVICES & INFORMATION (knowledge)**
**EMPOWERING THE NETWORKING AND THEIR SHARING**

What is represented in a Digital Ecosystem?

* software components, applications, services, knowledge, business processes and models, training modules, trust relationships, contractual frameworks, laws ...

**ANY USEFUL REPRESENTATION,**
**EXPRESSED IN A LANGUAGE (formal or natural),**
**DIGITALISED AND LAUNCHED ON THE NET,**
**WHICH CAN BE PROCESSED (by computers and/or humans)**
The innovation ecosystem

Digital ecosystem: an o-s, public, distributed, pervasive environm.
- transport, identification, match (services, knowledge)
- embedding knowledge, biz rules, revenue models, ontology...
- spontaneous evolution, adaptation / composition of services, digital content and sw components

Digital Ecosystem
Dynamic aggregation of ICT-services

ICT-SME Inputs
ICT service
ICT service
ICT service
ICT service
ICT service
Rules, models, context
DE structural services, e.g.
- Accounting
- Billing
- Authentication
- Reputation
- Decentralised Data Storage
- Fitness data

Needs of ICT solutions.
Profile of users of ICT needs

Digital (ICT) Services
Aggregated Complex, personalised, ICT-services

Digital Ecosystem infrastructure
DE structural services*

Economy (business ecosystem)
Structural coupling
ICT (digital ecosystem)
Digital Ecosystem
Dynamic aggregation of final services (and SMEs)

1. Networks of SMEs
- Aggregated, complex, personalised services / solutions

2. Final Services
- To manage the process
  - ICT district +
  - Sectorial district

SME Offers
- ICT service
- ICT product
- ICT service
- ICT service

Rules, models, context

Digital Ecosystem infrastructure

Needs of ICT services, solutions, profile of providers, profile of users

Ecosystem Evolution
- 2002 1st Paper - 1st cycle of Workshops
- 2003 Start 1st project IP-DBE 10M€
- 2005 2nd Cycle Workshops ; Position Paper "Research Vision"
- July 2005 Int'l Summer School - European Digital business ecosystem
- Nov 2005 WSIS - Int'l interest for EU models (Latinamerica - India)
- 2006 Cluster EU projects 35M€; New science: start NoE on Ecosystems
- Nov 2006 DBE EU conference ; Feb 2007 IEEE Dig.Ecosys. Conference
- End 2006 Initial governance structures - Multi-stakeholder consultation process
More information on
http://www.digital-ecosystems.org