

FACULTY OF INFORMATICS
MASARYK UNIVERSITY



Knowledge Management

Department of Computer Systems and Communications

Academic Year: 2016-2017

The cognitive world

Francesco Caputo

fcaputo@mail.muni.cz

The basic assumption

What firms do? (Kogut e Zander, 1986)



The companies produce and elaborate knowledge.

In this way, they give a tangible evidence to their identity and learning processes.

The knowledge management

The *knowledge management* acts on the three drivers of knowledge:

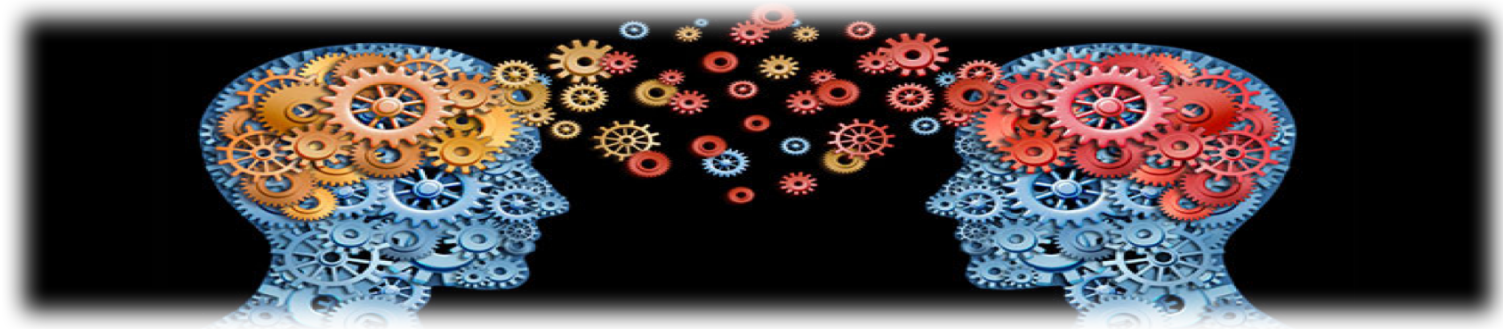
- ✓ It improves the *number of use of knowledge* (n).
- ✓ It increase the *efficiency of the solutions proposed by the companies* (v).
- ✓ It improves the opportunities for *generate value by using the knowledge* (p)

The drivers of knowledge management

- ✓ To build an *informatics system* to coding, stocking and use the companies' knowledge
- ✓ To *involve the human resources* in a common knowledge system
- ✓ To support the *sharing and the externalization of tacit knowledge* inside the company.

The drivers of knowledge management

To share the knowledge of company it is need to adapt and to align the individual 'knowledges'



It is need:

- ✓ To *extract* it from the network on which the companies is based.
- ✓ To *decontextualize* it in order to support its use in different contexts.
- ✓ To *motivate* human resources to use and improve the available knowledge.

The knowledge Stickiness (Lepkavost)

To overcome the internal
Stickiness towards the
knowledge sharing it is need
to adopt economic rewards
and instruments of motivation



The cognitive mediators

I cognitive mediators support the emergence of:

✓ *Context-based knowledge*

✓ *General knowledge*

✓ *Meta-knowledge*



The cognitive mediators

Past knowledge

Initial context-based knowledge

Initial general knowledge

Initial meta-knowledge



New knowledge

plus

New experiences

minus

Knowledge dissipation



Usable knowledge

Final context-based knowledge

Initial general knowledge

Final meta-knowledge

Reproducibility and demonstrative principle

The shift from industrial world to cognitive world has been supported by:

- The *reproducibility*, in terms of opportunities for use the knowledge in different contexts
- The *demonstrative principle*, related to the definition of strong rules to build, apply, and improve the knowledge



The cognitive transformation

Differentially from the industrial world, in the cognitive world:

- ✓ The cognitive works produce an output (the knowledge) the *does not finish after the use*.
- ✓ The cognitive works produce an output that is *subjectively evaluated by the users* with reference to its possible applications for the resolution of a specific problem.
- ✓ The cognitive works is based on *indivisible processes*.



The rules of knowledge

The value produced by the cognitive work cannot be ex-ante defined but it depends by the interactions among the involved actors.

The value is linked to the interaction because it depends by:

- ✓ The *number of times* that it is possible to use the knowledge
- ✓ The *value of knowledge* for each involved actor
- ✓ The *economic value of knowledge* for each involved actor



The knowledge transformation

Energetic economy

**The output can be used one
time**

Energetic value of use

Divisibility

Value= $S(1,1,1)$

Knowledge economy

**The output can be used n
times**

Cognitive value of use(v)

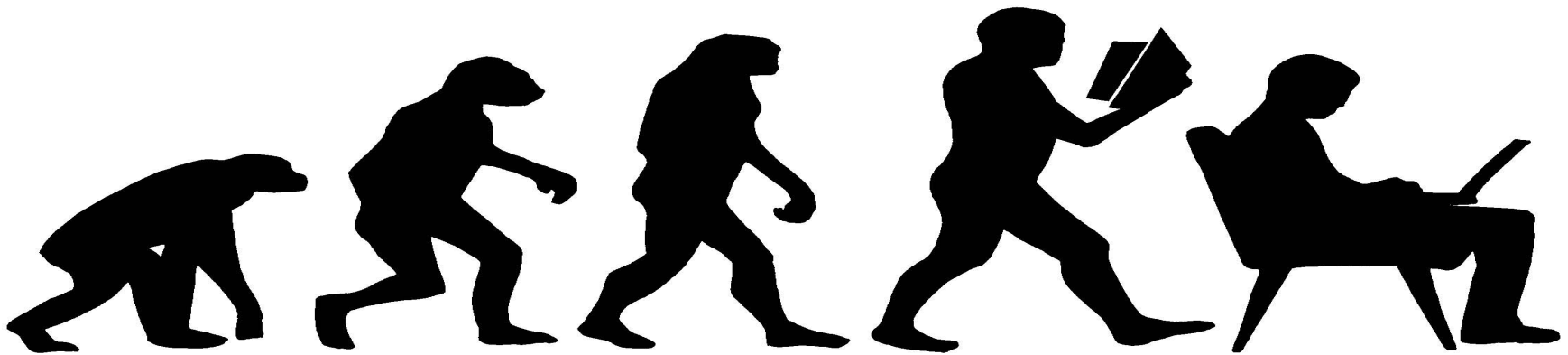
Indivisibility (p)

Value= $S(n,v,p)$

The emerging economic system

The emerging economic and social system is based on three levels:

- ✓ A *basic energetic level*.
- ✓ A *intermediate cognitive level* that produce utilities by using the knowledge.
- ✓ A *meta cognitive level* direct to produce new knowledge by using the previous knowledge.



The emerging economic system

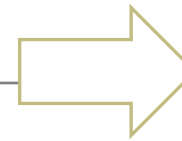
Industrial economy

ONE LEVEL

The utilities was produced by
using the energy

The used energy did not require cognitive investments

Precognitive utility



The emerging economic system

Knowledge economy

THIRD LEVEL

Meta-learning

SECOND LEVEL

Learning

FIRST LEVEL

Application of
energetic processes

Cognitive transformation

Meta-knowledge

Knowledge

Energetic transformation

Energy

Utility

Cognitive mediators



Questions ???

