University as a fractal organization of knowledge

Aleksander Binsztok (1) and Krzysztof Leja (2)

(1) Wroclaw University of Economics, Department of Information and Knowledge Management
(2) Gdansk University of Technology, Faculty of Management and Economics, Department of Knowledge and Information Management

Annual Conference on Higher Education Management and Development in Central, Southern and Eastern Europe
Danube University Krems, 26-28 November 2006

Agenda

• Introduction
• Knowledge - based university
• University as a fractal organization
• Conclusion
Introduction (1)

**Lambert & Butler’s report** „The future of European Universities - renaissance or decay“

**WEAKNESSES OF EUROPEAN UNIVERSITIES**

- exodus of young and the most talented people,
- most of European universities pursuing exactly the same objectives,
- unprofessional management.

Introduction (2)

**Percentage participation by nation in Nobel Prizes Awarded**

What problems should be solved in HE institutions

Changes in the domestic HE system
+ changes within universities

University as a fractal organization of knowledge

The question is:

Proposed answer is:

UNIVERSITY
BLACK BOX
OR
OR KNOWLEDGE ORGANIZATION
Ancillary leadership (1)

- strong leadership position serving the purposes to academic community
- coordinating the activity of each particular organizational unit of the university
- flexible approach to problem solving = guarantee a degree of self-organization typical to knowledge based organization

Source: Evans, 2003
Ancillary leadership (2)  
self - organization

- the principle of redundancy of functions
- the principle of necessary diversity
- the principle of the critical minimum of specification
- the principle of learning how to learn

Source: G. Morgan, Images of organization, 1986

---

Flexibility

- the new Polish legislation of HE - 2005
- adaptive-inertial model - traditional HE
- anticipatory flexibility - knowledge HE
Fluid structures

- complex organizational structures
- academic communities tend to be diversified
- structures should represent the idea of the university not just reflect its habits and tradition
- university organization similar to human brain

Emphasis on learning

- learning in teams is a key factor in acquiring knowledge
- adverse events and negative findings may serve as a source of great practical value
- respect various points of view, irrespective of the academic position of their proponents
- questioning established solutions as „canonical” options
- double loop learning (Argyris)
Fluidity of roles and responsibilities

- university staff – creatively pursuing the truth rather than merely doing the everyday duties
- “individuals must be able to work simultaneously in various organizational structures (...) the same person who is a boss in her/his organization may be a partner in an association, a minority stakeholder or participant in a joint enterprise, etc.” – Drucker

Openness to diversity

- teams composed of specialists in various fields may be more innovative
- diversity must be reinforced by an atmosphere that promotes an unrestrained transfer of thoughts
- Russian Literature PhD>MBA graduate(?) – „the knowledge of Dostoyevski stimulates curiosity and learning drive“
Fractal university (1)

- functions on the basis of self-organized, autonomous group (research and didactic)
- forms a selfsame organizational structure based on „inheriting aims” - base on principles of good practice
- allows continuous change of organizational structures as a result of implementing the principle of self-optimisation of work resources and processes

Fractal university (2)

- achieves a high level of vitality as a result of using flexible forms of work and guaranteeing a high level of freedom
- enable all fractal units of the university to navigate towards a common, set direction through permanent controlling and steering activities
Fractal university (3)

- on the basis of full access to information and its unobstructed, dynamic flow, positively influences learning processes, self development and improving its members qualifications
- best functions in a turbulent environment characterised by fast dynamics of change, typical of the present EU market
- obliges its members to apply holistic care and show responsibility for the work processes carried out for the benefit of client
Autonomous teams
the elements which bind and regulate them

- common goals and interests identified and accepted as a direction to follow
- integration and harmonisation of the resources at achieving the share goal
- common values and norm shared by the members of microfractal

Autonomous teams

- management teams
- cross-functional teams – formal and informal
- support teams – administrative staff
- autonomous work teams – working on research projects
Autonomous teams
why microfractals?

• they are in fact highly autonomous
  (freedom of decision making and responsibility being extensive)
• transparent and fast information flow and
  effective mechanism of sharing knowledge
  as a result of copying good solutions
• they automatically modify structures
• the principle of complementary mutual
  services – support each other

COMMITMENT of TRADITIONAL UNIVERSITY STAFF
and FRACTAL TEAMS

<table>
<thead>
<tr>
<th>ANALYSED ISSUE</th>
<th>TRADITIONAL TEAMS</th>
<th>FRACTAL TEAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLES:</td>
<td>Set</td>
<td>Changeable</td>
</tr>
<tr>
<td>TASKS:</td>
<td>Strictly delineated</td>
<td>Flexible; often modified in the course of completion</td>
</tr>
</tbody>
</table>
| SKILLS:        | Specialised       | Miscellaneous
 | Wide spectrum of general knowledge |
| CONTROL:       | Individual        | Collective + self-control |
| STATUS:        | Various           | Equal         |
| SUPERVISION:   | External          | Within the group, minimum control from authorities |
| WORK EFFORT:   | Distributed       | Shared; if possible – evenly divided amongst all team members |
| LEADERSHIP:    | Usually one person| Divided amongst team members |

Source: own, based on: [Torres and Spiegel]
Conclusion - outputs

• convergence of the concept of knowledge - based and fractal university (self organized fractals)
• growing need for team autonomy
• an increase in the rate and capacity of information channels
• a strong increase to share knowledge
• promoting creating attitudes in university
• fractal organizations are more efficient than traditional one

Thank you