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**IDEA BREEDING FARMS**

**Abstract**

**Purpose** – The article will present a success story and the decade-long experiences from Hungary: Idea breeding farms can be organized in the frames of the always given structures in the higher education without any additional resources. This form of startup-support in the SME sector can be seen as a decisive factor of regional development, because the sovereignty of researchers and lecturers in co-operation with innovation experts demonstrates unlimited force fields. This form of startup-support is a massive realization of the “dual education concept” since ever.

**Design/methodology/approach –** The article will be designed in form of a brief case study, where own experiences and facts of similar movements will be described and discussed in a structured way.

**Findings** – Idea breeding farms should be established and they should co-operate with each other to learn from each other and to support the insulated force fields through the force of the mass. The key persons for innovation, for innovative education are always the experts having direct contact to students and enterprises in the same time, and where expert of the higher education are entrepreneur and know how owner it the same person. This special constellation should and can be cloned and also searched for parallel constellation having the same efficiency in startup-support for SMEs. An idea breeding farms is namely a special form of doctoral, scientific schools. It is a old/new concept of incubation based on rationality and sovereignty.

**Research limitations/implications** – The idea breeding farms need a lot of factors being existent in the same time and in the same space. The frequency of occurrence can be increased through information networks, objective evaluations of activities, but not really with orders. The logic of idea breeding farms can be adapted e.g. in the V4 countries. The adaptation needs a common language (English). The international information network can provide further best practices and direct communication possibilities between active participants of this network. An international expansion could also be helpful for startups aiming international market presence.

**Practical implications** – In case of each researcher/lecturer/expert/parent, it is possible to derive the value of the potential (like estimation of innovation potential for enterprises) being able to play a leading role in an idea breeding farm. Parallel, the estimation of the potential indexes produce a simulator, where each person can be evaluated in form of online expert systems based on the term-creation capacities of artificial intelligence solutions.

**Originality/Value** – The case study itself is only a report. The methodology of estimation of person-oriented innovation potentials can be seen as one of the most relevant direction of developments, where human capabilities should be transformed into source codes. The same methodology is able to derive bubble effects, which show both for the enterprises and the higher education the directions having innovation needs.

**Keywords: artificial intelligence, objectivity, information alliance, innovation management, knowledge management, learning organization, competence matrix**

**Research type (choose one):** case study

**JEL classification: Z00**

**Introduction**

The following case-study tries to summarize the results of a data-driven [Pitlik, 2009] experiment from the last 10 years [Pitlik, 2010]. Our purpose is: to present a success story about decade-long experiences from Hungary. Idea Breeding Farms are a rationality maximized concepts to co-operate with the market and the university, where ideas of Students should support innovative changes of the given solutions based on strict quality management offering by teachers and researchers. Idea breeding farms can be organized in the frames of the well-known structures in the higher education without any additional resources. Therefore, Idea Breeding Farms could be initiated at once everywhere. This form of startup-support in the SME sector can be seen as a decisive factor of regional development, because the sovereignty of researchers and lecturers in co-operation with innovation experts demonstrates unlimited force fields to coach ideas of Students originating as soon as possible in the innovative education principles. This form of startup-support is a massive realization of the “dual education concept” since ever.

**Theoretical background**

Idea Breeding Farms are a few alternatives mentioned in the literature, like scientific papers of students [Bocsi, 2010 and Pitlik, 2015], innovation competitions/awards [Markus, 2010], incubation [Kálmán-Farkas-Dékány, 2014], home works with real challenges for teams and/or individuals, specific seminars, MOOCs [Owusu-Boampong/Holmberg, 2015], coaching effects, etc. Idea Breeding Farms include all advantages of the alternatives and even customized for each student in a specific way. Idea Breeding Farms are therefore a kind of synthesis of each force field trying support students to be creative.

The leading principles of the Idea Breeding Farms are as follows: Learning materials may never be designed without clear examples. Learning purpose is never the repetition of well-known thesis. Students should learn to detect potential problems. Learning is the process to identify evidence proving elements behind each declaration. Knowledge is only that constellation, what can be transformed into source code – each other human activities are parts of arts. Arts and science can not be ranked. But: The magic of words, the presentations, and data-visualization effects are important to catalyze human intuition processes. A text itself may not be seen as final form of knowledge representation. For each problem, a lot of possible solutions should be derived and the best solution should be detected based on a large set of error or fitting definitions. Tasks are not problems! Task should be done. Problems should be interpreted, classified, matched to solution classes. Problem detection delivers innovative situations in a direct way, where at least already known solution templates should be used for supporting real processes in a micro-environment. Hermeneutics of solutions should also be transformed to source codes. There is always a better solution, if their good-better-best scale could be defined in advance. Be always better than the best on the market or in the class or in the neighborhood!

Concerning the theoretical background, we should also take note about the risks of technology-oriented movements like Idea Breeding Farms: In Gősi's [Gősi, 2011] opinion, the development of information technology consequentially increased the fear of a common destruction-effect, which is confirmed by both the technophile and technophobe phenomenon. Between these extreme points of view, there exists a techno-realism movement, which aims to adjust to technology in a realistic way, not overestimating or underestimating it. The movement states what it means to adjust to technology in a realistic way in eight points: Technology is not neutral. Each technological solution has a direct or indirect social, political, economic meaning, and its utility is determined. The internet is revolutional, but not utopistic. The internet has an informative characteristic, reinforcing and negative. Various governments have such a huge role in electronic changes, because they have to accept the rules and traditions of the cyber-industry, and its right to integrate the traditional population into itself. The technological standards and data security are too important to be defined into market questions. Information is not knowledge. It's a big mistake to confuse the information flow with knowledge, even more so with wisdom. The networking of schools is not enough to save them. The increase of technological solutions' quantity does not involve improvement in the quality of teaching. Information must be protected! The cyberspace saps the law of copyright and intellectual protection rights, but it doesn't equal to total freedom of information. The information belongs to them, who create it. Communities must profit from the changes. From the use of new technologies, the communities and the civilians must profit, while the major part of sources must give a share to improve the education, culture and social aims. The understanding of technology is the pledge of becoming a global civilian. To become a reasonable civilian, one must recognize the possibilities and limits of technology. Information society is the new solution of cohabitation, where the creation, buffering and development of information on the web have a central role. The macro-systems are politics, economy and culture; the intermediate institutes are the State and its institutes, while the manufacturing organizations, communities, families and the individuals are reformed by the informational society. Athene-model: technology has great power, which makes people free and the result will be the new electronic democracy. Orwell-model: technology produces a total submission, and every single person becomes controlled by technology.

**Research methodology**

Thomas [Thomas, 2011] offers the following definition of case study: "Case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an object — within which the study is conducted and which the case illuminates and explicates." The collecting of facts and their interpretation is a trivial method to declare a kind of good practice in a given field. The WHY-questions can never be answered with high evidence. However the principles can be seen as a sort of why-effects behind of success stories. The elements of the success story should always be detailed interpreted to support the handling of complexity.

Facts: The observed period contains 10 years (2006-2015). The concerned BSC-courses (2-times with 15+10 persons) are the ISZAM-course (agricultural engineers with IT and legal specifications), MSC-course for Organization and Management (1-time with 10 persons) and the informative co-operation between “freelance”-Students (further 10 persons pro year), colleagues (6 persons), and the My-X research group (independent from the university – further 6 persons incl. international partners). My-X-Team got established concerning to an innovation project (INNOCSEKK 2006-2009 granted by the Hungarian Government). The aim of the innovation project was: developing an online analytical tool for creating models based on artificial intelligence (like similarity analyses). The My-X Free Tool can be seen as one of the catalytic force fields being able to support generation and realization of innovative ideas of Students. The basic partners are the organizations on the field of innovation management in Gödöllő (GIK Ltd.) and in the region of Central Hungary (KMRIÜ). The innovation management organizations and the researchers/teachers could transfer real problems to the Students and the controlling activities of further partners concerning the solution activities.

Parallel to the education, development activities run with Seacon Ltd. The result (SeaLog) got prized (2012) with the Hungarian Innovation Award. This impulse had a catalytic impact towards the Students. Spin-off enterprises (InnoHow Ltd. and InnoSpin Ltd.) got also established to manage the innovative licenses.

The problems could be identified both by Students (like bet-activities / sport psychology – altogether 100+ cases) and by experts (like rural development analyses – also 100+ cases). Each problem should be real and each potential solution should be used at once – at least in frame of teaching activities. Databases should be developed to support efficiency for big-data-concepts.

The partner (being satisfied) ensure journeys for Students to Germany (Giessen) in order to give more and more new impulses for further idea generation processes.

The above listed facts can be interpreted as a kind of volume information for the experiences in frame of the education system. Each realized activities like amount of matured studies (100+), employments by the university (ca. 100 months FTE), concerned projects (like regional development issues, and also the project “Noble Ideas” with several books, flyers, rollups, exhibitions, study trips), and contacted partner (100+ enterprises) on activities of spin-off managers, permanent online presence based with catalytic effects to visits (c.f. MIAU-LOG analyses: in average 2-times higher level as before) can be compared to HR-sources here and in the rest of the national and/or international universities. The unconscious objective function tried to maximize these indicators without involving further resources as basically given.

The comparison shows, that in case of the special constellations (innovation-oriented tasks, project-frames and partners, online presence, international contacts, etc.) the students are ready to approximate their borders and deliver at least doubled volume of performances. The analytical methodology is there for a kind of benchmarking, comparing to the classic level of education system.

**Research results and findings**

The Findings of the Idea breeding farms are simple, almost trivial: If the ideal constellation could be described and a scale for measuring the difference between the ideal and the given status can be identified, then ideas can be verified in an automated way. Parallel, Idea Breeding Farms should be established and they should co-operate with each other to learn from each other and to support the insulated force fields through the force of the mass. The key persons for innovation, for innovative education are always the experts having direct contact to students and enterprises in the same time, and where expert of the higher education are entrepreneur and know how owner it the same person. This special constellation should and can be cloned and also searched for parallel constellation having the same efficiency in startup-support for SMEs. An idea breeding farm is namely a special form of doctoral, scientific schools. It is an old/new concept of incubation based on rationality and sovereignty.

Requirements, limitations, implications concerning Idea Breeding Farms: The idea breeding farms need a lot of factors being existent in the same time and in the same space, but these factors should be given in the most cases automatically and without external cost effects. The frequency of intuitive occurrence can be increased through information networks, and based on objective evaluations of activities, but not really with orders. The logic of idea breeding farms can be adapted e.g. in the V4 countries. The adaptation needs a common language (English). The international information network can provide further best practices and direct communication possibilities between active participants in this network. An international expansion could also be helpful for startups - aiming international market presence. The IPR-anomalies are limited, if the most ideas concern problems of universities. The innovation potential of Students should catalyze a more and more innovative constellation day by day. Universities work well, if each finding or idea will be adapted on the spot in frame of the universities. This strategy supports the effectivity and, or efficiency of daily life in the university, and parallel it creates robust references for market or civil partners and first of all for each Student.

Practical implications of an Idea Breeding Farm: In case of each potential interested researcher, lecturer, expert, and also parent, it is possible to derive the value of their objective potential (like estimation of innovation potential for enterprises), expecting to play a leading role in an idea breeding farm. Parallel, the estimation of the potential indexes produce a simulator, where each person can be evaluated in form of online expert systems based on the term-creation capacities of artificial intelligence solutions. These sorts of simulators deliver frames for Life Long Learning strategies in case of each concerned person.

**Elements of the success story**

The following activities got initiated in frame of the Idea Breeding Farm (for details see the documents collected in the reference list below):

* Losonczi (2011): The quality of online presence can be seen as a sort of big data problem…
* Varga (2013): Big data analyses need more and more new methods like approaches based on similarities…
* ETDK (2009): Almost each Student of the courses being concerned in the experiment produces a scientific paper and the appropriate IT-solution in the background:
	+ E-valuation – supported with similarity analysis – for real estate developers
	+ Customization of Microsoft software licenses based on an online expert system
	+ Technical advising with online support: expert systems for quality awareness
	+ Agricultural consultancy with on-line support: on-line benchmarking based on FADN database
	+ Strategic planning of postal services based on similarity analysis
	+ Managing disproportions of the tax-system in Hungary in case of the planned property tax
	+ Production functions in the precision farming
	+ Development of an offline autofilter-mechanism as add-on for browser- supported OLAP-reports
	+ Developing an online expert system generator
	+ Development of an e-learning module to derive combinatorical space of expert systems
	+ Competitive meteorological forecasting supported by similarity analysis
	+ Online applications in addition to the HEGYIR: forecasting of wine prices according to regions and types
	+ Development of new monitoring system for the Duna-Ipoly cross-border region based on similarity analysis
* Szilágyi et al (2014): The concept of the Virtual Robot Farmer got invited to the Finale of Innovact Awards 2014 (Reims, France)…
* Alföldy-Boruss et. al. (2015): NG-STRESS concept got prized in the Hungarian Innovation Competition HUNINNO…
* For team working, a WIKI-service (MIAU-WIKI) got installed, where lexica and articles about innovative problem solving got developed day by day…
* Expert systems and other online solutions could be presented on own server (c.f. MY-X FREE), where an innovative analytical tool could also be involved into the innovative processes…
* High School Students could also be integrated into the experiments
* Students from neighbored universities co-operated too…
* Databases for further analyses got also created (c.f. MIAU-OLAP-services)
* Own e-learning solutions support the irregular distance education.
* The file management could integrated into an own library software (MIAU-OSIRIS).
* A rule system (c.f. academic writing skills) got developed to support the quality management of studies (c.f. MIAU-RULES), where the correction processes of previous studies could also be followed.
* Knowledge got presented in deep structured forms (like expert systems – c.f. My-X online handbook)
* Barriers between social and life sciences could be eliminated based on data-driven concepts (like big data, log-analyses – c.f. Kollár et al. 2015).

The above listed results are only a part of valuable activities. Comparing these complexity and information value added levels to the general level of studies (produced by Students) it can be declared, that the significant difference made possible to be interesting enough for market-oriented enterprises and for the teaching on the university(c.f. nowadays dual education).

**Conclusions**

What can be the Originality or the Value of the concept of an Idea Breeding Farm? A case study or a presentation itself is only a report. The methodology of estimation of person-oriented innovation potentials can be seen as one of the most relevant direction of developments, where human capabilities should be transformed into source codes. The same methodology is able to derive bubble effects, which show both for the enterprises and the higher education units the directions having innovation needs. The artificial intelligence-based methodologies can initiate new knowledge management solution (cf. higher level of the human-machine symbiosis), where each problem can be handled in an operationalized, optimized, objective way. So, the knowledge engineers can integrate human knowledge and robot-knowledge, because the future belong the optimized human-machine interactions.

The education frames can be changed without any relevant needs for further sources, if each partner does what he has to do. For lack of performances of Students are responsible mostly the system parameters and not the HR-potential in the input side. Students should be seen as children of the system, where parents do all to catalyze a sustainable future for them.

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