

# Impact of Information Era on Philosophy and Concepts of Tertiary Education and FIG Activities

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**Key words:** pragmatic cognition, binary and analytical thinking, inner standard.

## SUMMARY

According to his long periodical studies in this field on 3 continents the author shows that the evaluation of regional diversities and main factors of the info-era (high tech, overflow of information) is mostly one-sided, non-scientific. Decisive is here the "inner yardstick" together with a medial rosy, binary approach to the info-era common also in the Commission 2 (C2). Such approach criticize many scientists incl. Nobel price winners.

The C2 can serve the FIG common objectives better when it will change his philosophy, the activities to long lasting concepts, science-based approach to the development of individual particular abilities for pragmatic cognition of the outside and inside world. Important is to cognise the pros and cons of particular factors and how to cope with their impacts, e.g. by the optimal development of human brain. Final aim is the methodological frame enabling the widest application: from evaluation and selection of information, models of education, quality of instruments up to the self-testing and improvement of personal qualities (being applied already as a part of Professional Studies in BSc., MSc. courses).

## SUMMARY (in Slovak)

Na základe dlhodobých štúdií tejto problematiky v regiónoch troch kontinentov autor ukazuje, že hodnotenie regionálnych diverzií a hlavných faktorov informačnej éry (high – tech, záplava technológií) je väčšinou jednostranné, nevedecké. Rozhodujúci je tu „vúťorný etalón“ spolu s mediálne ružovým, binárnym prístupom k informačnej ére, častým aj v komisii č. 2 (C2). Takýto prístup kritizuje veľa vedcov včítane nositeľov Nobelovej ceny.

C2 môže lepšie slúžiť spoločným cieľom FIG-u, keď zmení svoju filozofiu, činnosť podľa dlhodobých koncepcií, vedecký prístup k rozvoju individuálnych schopností pre pragmatické poznanie vonkajšieho a vnútorného sveta. Dôležité je tu poznať klady a zápory dielčích faktorov a spôsob ako sa vyrovnat' s ich vplyvom napr. pri rozvoji kvality mozgu. Konečným cieľom je metodologická kostra umožňujúca široké aplikácie: od hodnotenia a výberu informácií, modelov vzdelania, hodnotenia prístrojových systémov až po testovanie a zlepšovanie osobných kvalít bolo už aplikované ako časť predmetu Profesionálne štúdium v BSc. aj MSc. štúdiu.

*Motto: Much of what now is taught and believed about the practice of management is wrong or seriously out of date*

*Peter F. Drucker*

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## 1. INTRODUCTION

The information society, era (INFE) is characterized by an increasing frequency of changes with complicated interactions of very dynamic factors (high tech, explosion of INF) causing very diverse impacts in various countries, regions – their socio-economic, cultural environment. The question has been how can be ensured our further development.

The future of our profession and science depends mainly on the personal abilities of its members, hence directly on the freshman's brain and his development by education. It is therefore crucial to attract the best brains and develop them by appropriate tertiary education (selfeducation, CPE) which enable to understand and evaluate the role of main factors, their impact on processes in INFE.

The changes caused by new technology has been always here. Their rhythm, frequency before 1970 was low, easier to understand and to adapt to it. But already at that time some universities in Central Europe (CEU) started the courses of University Pedagogy for young teachers (Allan 1964).

*The evaluation* of the outside (environment) and inside (brain abilities) processes-world is the role of cognition, understanding, analysis – education on various levels.

The processes, their standing and trends are created by interactions of large amount of factors of various stability. The more factors are involved and the more are they variable with time and place the more are their interactions complicated and the higher are the demands on *Cognitive abilities* – analytical, pragmatic *thinking* – science based methodology of cognition.

The high-tech, explosion of information (INF), global economy doesn't make the civil and professional environment (PE) simpler, understanding of processes and factors easier esp. not for developing countries (LDC) – majority of mankind, where the N-S gap plays the decisive role. But also in developed countries (HDC) and transition ones (TC) is the realistic evaluation of factors, their impact rather rare mainly due to comfortable one-sided rosy presentation used by IT enthusiasts. It is common also among students and professionals. It represents s.c. *binary thinking* (in contrast to analytical one), and can't fulfill the demands on the *analytical cognition*, on *Selection, evaluation* of INF according to their *cognitive value*.

The unrealistic, rosy presentation of main factors of INFE led to critical reactions by some top scientists, thinkers inside and outside of our profession after 1990. They were aware that every phenomenon, factor, its impacts have their pros and cons, variable qualities. It came also to the

critics of basic, supporting disciplines like management, economics – tailoring them according newest stand e.g. *asymmetry* of INF in *economy*. The great setbacks in last years (dot-com bubble, crises in some larger countries and firms, continuous increase of N-S gap) confirm the older warnings and surprised various professionals and move them to correct their “*inner yardstick*”.

The call for more pragmatic, science based cognition became clearer, useful not only for analyzing the future of mankind, but also for practical handling, management of smaller groupings like FIG, universities, national associations and especial the development of an individual.

The role of pragmatic, analytical evaluation of outside and inside processes in our profession is further presented by parts of authors unpublished analysis of Commission 2 (C2) which activities in 1992-2001 reflects interesting interactions between science, practice and PE in diverse regions and shows the specific role of C2 in FIG. The analysis was inspired by P. Dales paper in Brighton, the change of accents by the FIG Bureau and authors long periodical studies of educational concepts on 3 continents with a common feature – the attention to methodology of analytical thinking for cognition incl. evaluation and selection of INF. Such approach corresponds to the tenor of the 2002 conference of 100 Nobel price winner in Stockholm as well to the principal concepts of German professors Schlemmer and Bähr for the incrusting importance of science – 5 years “Dip. Ing.” course - for the future of our profession.

## **2. TERTIARY EDUCATION AND INNER STANDARD**

The evaluation, ANALYSIS of processes, interactions in our profession is much harder as in other professions, sciences du are SPACIFIC FEATURE-enormous LOCAL, regional diversity. The fulfillment of common objectives of so diverse groupings like FIG needs the cooperation’s, pragmatic communication based on the realistic evaluation of regional variability’s (range of activities, structure of customers, market, models of education). The optimal way give the general of education, scientific methodology of analyses, development of though, the brain as a cognitive + communication tool for understanding and evaluation of outside (PE, models) + inside world (personal quality, brain).

The philosophy of modern university pedagogy is based on the compact approach to the development of individual abilities according to high frequency of changes utilizing the advantages of the INFE factors (access to INFE) and reducing their cons (overflow, aging), using the *formative and cognitive value of INF, the quality of young brain*. Priorities are: long lasting concepts, scientific principles, motivation for selfdevelopment.

*The experiences* from activities of FIG, the C2 papers and discussions have shown that they are many colleagues with very distorted imaginations about the main diversities, models even among the most contrast regions like UK, CEU. Main reason is chiefly the national, regional „inner

yardstick“, influenced by local environment, personal quality and knowledge of foreign language.

*The standing of profession*, adduction reflects the local socio-economic conditions – civil and professional environment (RPE). It is created by interactions of many factors within the country like culture, legal regulations (cadastral law), mentality system of thought. The particular models of education and practice, range of activities and esp. the name of our profession differ significantly, often diametrically, even in EU – an obstacle for communication and uniform solution (unknown in standard professions + sciences) is misunderstood by top decision makers, public and many colleagues outside the L.S. division and some younger inside of it. It is symbolic that this diversity was formulated together with critical evaluation of main models by UK Land Surveyors (L.S.) around 1970.

### 3. COMMUNICATION, LANGUAGE, DIVERSITY OF MODELS AND CULTURE

In the FIG term cultural diversity has to be understood wider also as administrative, juridical even behavioral diversity.

Language is a part of culture – product of historical development incl. administration. The British administration and the *whole social – economic structure* incl. mentality was oriented toward the *overseas* dependent territories. Therefore such traditional institution like *RICS is naturally “non - European” fitting to principles of imperial “extensive” noncadastral administration* with a low priority for L.S. The structure of RICS model, the integration of very diverse professions, is a puzzle for majority of Europeans. In intensive administration (“cadastral culture”) of CE the position of L.S., structure of activities, customers, education (independent science and civil profession with university education since 1897) was *diametrically different*. It has created a specific to L.S. and cadaster sensitive mentality of population.

The critical evaluation of the strengths and weaknesses of RICS and Central European (CE) model and of English professional terminology is still valid.

Great majority of European L.S. is represented in the FIG by independent L.S. associations. Great majority of professions integrated in RICS is in CE part of other professional associations. English is an international language but just in L.S. the basic term surveying is meaningless and confusing (Allan, Dale). Also in the connection “Chartered Surveyor” it covers such a wide range of diverse activities that it is useless (Dale). Also confusing are other basic terms like geodesy, engineering, used in Anglophone regions for activities not corresponding to their etymological meaning used in majority of European L.S. In 17th – 18th century in UK and USA (J. Love: *Geodaesie* 1688) and in CE (Comenius *Geodesia* 1631) the meaning of geodesy was similar, corresponding to the later geodetic engineering in CE. But in 19<sup>th</sup> century with the RICS, “splendid isolation” the wide Greek meaning (*geodesia dicta*) was in UK restricted and geodesy termed as part of mathematics. The English term Engineering was derived from “engine”

whereas in Europe from the “ingenuity”. Therefore the European term Engineering Sciences is not used in the UK.

Generally the term Surveyor and RICS are a great obstacle for an effective international communication outside of Commonwealth. Confusing and non-European is the use of the term Faculty instead of Division in the new organisation of the RICS.

### 3.1 Structure of Members and Participation of Majority

For the management of C2 and FIG is interesting to know the number of members associations with similar models and the standard of colleagues (technicians, students, B.Sc., M.Sc.) included in the total number of particular member association.

It is known that *criteria for membership* in national bodies are very diverse and presented numbers are not suitable even for mechanical comparison. In spite of that they are presented (e.g. RICS) as proof of the strength and importance by colleagues with very high assertivity. Many colleagues in C2 and FIG are not aware that the CE model is applied in majority of European member associations. It includes such L.S. giants like Germany (24 000 L.S. over B.Sc.) or Poland (9 000 graduates), Czech and Slovakia with a record density of M.Sc. professionals (Slovakia 2 300/5.5 mil.) or Austria, cradle of L.S. with the highest standard of science + practice.

The Germany + Poland has more M.Sc. + Ph.D. professionals as all anglophone countries together and unlike before 1992 they were totally and underrepresented in C2 and their Task Forces before 2002. The enormous tasks for L.S. in Poland are unimaginable for many HDC e.g. UK, Denmark.

Striking is the unbalanced structure of C2 officials, members of Task Forces and authors of publications – all does not correspond to the needs of majority and cultural diversity. Special urgent problem is the participation of teachers of LDC – esp. Subsaharian Africa.

There is no one colleague of *CE model or France* among the officials of C2, their task Forces (with one exception) or speakers at *Delft seminar on Mutual recognition*, no quotation of CE literature in the C2 Publications. *Especially striking it is in Quality Assurance, where France was a pioneer (1974).*

Great majority of authors and officials have been from anglophone + Scandinavian countries. The discontinuity in achievements of the predecessors was caused not only by the yardstick of their followers, but also by their assertivity, ambitions but also by lower standards of these qualities among CE L. Surveyors.

#### 4. SUGGESTIONS FOR FUTURE ACTIVITIES

More attention should be given to principal ideas presented in Brighton by P. Dale (sustainable development, obsession with technology, pressure for uniformity) and J. Porrith (short term commercialism), afterwards in the Bathurst declaration (global challenge, increase of poverty) and by D. Foster - expressed also in FIG WP 2000-2003 (adequate technology, to address the concern of all members) the C2 WP 2000-2003 differs just slightly from that of 1995-1999 with the overemphasis of the high technology, the yardstick of RICS and Scandinavian models very different from majority of European countries and of *low attention to developing and transitional countries*.

The presentation of some C2 officials and authors did not correspond to the analytical, adequately critical spirit and tenor of P. Dale and D. Foster (e.g. in Malta).

Exception is P. Cavero with his activation of PE in South America (in spite of the title of his Working group 2.4 – Surveying students) a first step to adaptation to new priorities of FIG.

*Activisation and cooperation* with top universities in HDC like Quebec, New Brunswick, Ohio, Wien, Paris, Zürich and universities from developing countries especially Subsaharian Africa SuA: Kumasi, Kampala, Darres-Sallaam, Nairobi, Lusaka, Harare. Have you seen any teachers from this SuA sister departments attending the activities of FIG or CZ. It is sad that at Sun City FWW there were no papers in C2 from them. The structure of working groups, Task forces and authors can be improved by invitation from both groups HDK and SuA. Interesting could be also the cooperation with Atlantic Institute (USA), an organiser of informal working seminars for the future concepts and theories of Geomatic.

The author has prepared the concrete suggestions for the adaptation of a new C2 Working Plan according to the ideas mentioned above, like the simple methodology for pragmatic cognition and evaluation, the needs of transitional and developing countries and appropriate technology, reduction the attention to problems of high developed societies.

#### 5. CONCLUSIONS

For further development of our profession and science it would be helpful when we will know how to evaluate the interactions of main factors (and their impacts) creating our outside (PE) and inside (brain quality). The C2 can fulfil such tasks by tailoring the philosophy and activities to less attractive, less detailistic but longer lasting principles and *concepts of university pedagogy*, cognitive psychology for the development of individual abilities for pragmatic cognition and evaluation of pros and cons (overflow and ageing of INF) of particular factors. Final aim is the *methodological frame* enabling the widest application: from evaluation and selection of information, models of education, quality of instruments up to the self-testing and improvement of personal qualities.

The frame should enable a simple identification and evaluation of factors creating the standing of processes, interactions incl. brain qualities and ways for their improvement resp. reduction of negative impacts. The methodology has to support the *selfmanagement* of longperiodical activity and need a completion by a serie of hints for practical training.

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## BIOGRAPHICAL NOTES

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Research fields: Instrument testing, atmospheric influences, large scale metrology, and methodology of tertiary education. For 15 years national delegate for the FIG Com. 2. Invited lectures at many universities in Europe (e.g. Dresden, Bonn, Karlsruhe, Berlin, Budapest) and overseas (e.g. London, Nairobi, Dar-es-Salaam, Zaria, Kampala). Invited papers at many international conferences incl. 6 papers at FIG Congresses. Nearly 100 papers incl. 29 abroad, 5 text books.

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