

The Need, Requirements, and Vision for E–Societal Management

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INTRODUCTION

The present article follows a previously one published in the second edition of the IST Encyclopedia, see Costake (2009). It considers. (i) the deteriorating global environment; (ii) the: still active global financial and socio-economic crisis (recognized in the exponential rise of the US government's debt and issues of the Euro Zone)¹. ; (iii) the state of actions planned by G8 and G20 sessions; (iv) the international and national growth of the inequality of the wealth's distribution; (v) the social unrests and civil wars, to quote some. It is obvious that the evolution .of e-Government and e-Governance, as presented in the *Electronic Government edited by Anttiroiko (2008)*, generated online public services, reducing the administrative burden of citizens and organizations in their relations with the state. But the problems quoted above need also societal management (SM - more precisely: e-SM). The classic Enterprise Management cannot cover the complexity of a local, national or international socio-economic system (SES). There is a still a gap between the slow evolution of SM and the rapid development of ICT. The logical flow of this article is: (i) the background; (ii) a proposed very high level (vhl) model of the SES; (iii) a sketch suggesting the items of a SES's system engineering theory; (iv) a vhl on for the e-SM ICT platform; (v).a short comment on cost-benefit estimation; (vi) proposed future steps. To avoid excessive complexity, SES at country level is mainly considered. The very large bibliography is represented by a small but relevant exemplifying sample. The main objectives are: to: (i) sketch the content of the e-SM concept. (ii) stimulate the exchange of views on a future system engineering theory for e-SM .and (iii) suggest an architecture model for a e-SM ICT platform.

BACKGROUND

The relevant aspects are exemplified in three categories: (i) risks and issues (Table 1); (ii) progress of ICT (Table 2); (iii) obstacles to e-SM. (Table 3).

THE VHL MODEL OF THE SES

A first iteration of the vhl model of the SES including its general environments and its structure (in subsystems) is presented in Table 4 and Figure 1.(in a next page).

The links in Figure 1 can be: (i) physical flows: (1). man - years -qualifications, (2) material, energy, scrap etc.; (3) financial flows e.g.:cash, financial titles etc..(4) informational flows e.g. data, information or knowledge (ii) logical relations such as:(1) relationship (family links); (2) employment, (3) debtor (4) creditor, (5) owner, etc..

SKETCH OF THE CONTENT OF A SES SYSTEM ENGINEERING THEORY

The system theory of the SES should contain;

1. Management science structuring: (i) basic management (main: principles, vhl model of the human being (characteristics and behaviour); (ii) vhl enterprise management including the model of the organization; (iii) societal management; including the model, values and objectives of the SES; and their duals, (mismanagements);

Table 1. Global and specific examples of risks and issues

No	Reference (abbrev.)	Description (Examples)	Mitigation(M) or Comments (C)
General Topics			
1	WEF Risks, (2013)	Global Risks: the highest risks are: severe economic disparities (~16.0); fiscal imbalances (15,8); water crisis (~15.5) CO2 rise (~15,2); no adaptation to climate change (~14,6); volatile agricultural and energy prices (~14,4); global governance failure (~14,,1) etc.	(C) The approximations were calculated by the author of the present paper using: a) the scale is 2.5 to ...4,2 for risk likelihood and impact b) risk's severity= likelihood x impact max. value ~ 17.6
2	GEO 5 (2012)	Global Environment Outlook a) drivers: demography, economy, atmosphere, land, water, biodiversity, chemical, waste, CO2; b) political options; c) global responses.	(C) UN Global Environment reports generated international conferences => government commitments => disappointing results see G8 Rio (2012)
3	Schwab & Xavier i Sala, (eds), (2013)	WEF Competitiveness. -Countries are characterized by criteria applied to: institutions, infrastructures, macro-economic environment, health, primary education, higher education and training, goods market efficiency; labor market efficiency, financial efficiency, technical readiness, business sophistication, innovation etc.	(C) a) Circular diagrams ease the interpretation and comparisons with relevant averages b) The global competitiveness index varies in the range 3.13...5.72
4	Johnston & Jacobs (2012)	Club of Rome Manifesto for Change. Interdependent: (i) structural unemployment; (ii) financial & banking crisis; (iii) food crisis, (iv) poverty (divorce between economic growth and human welfare); (v) insecurity (e.g. social unrests, crime & violence, piracy, etc.)	(M) a) A new theory for clearing rifts: (i) production & employment; (ii); finance & economy; (iii) economy & ecology b) Reengineering the economic valuation of the contribution to welfare, (also direct, indirect and inter-temporal prices, natural and social capital); c) protection of the whole society & new generations.
5	Foster & Clark (2012)	Planetary Emergency: a) danger: of climatic irreversibility (the trend +2C in ~30 years); b) wealth monopolistic accumulation.	(M) a) Elimination of unnecessary activities, economizing natural resources; b) Socio - economic planning

Comment: growing awareness to dangers in complex contexts.

2. SES, socio-economic entities and relationships, principles, (axioms), hypotheses; definitions of the main flow and level indicators such as e.g.: (i) annual financial input (sales, credits etc.) and outputs (payments, disbursements etc.); (ii) end of year liquidities, receivables, and liabilities, (iii) KPIs for SES and its subsystems;
3. SES invariants such as e.g.: (i) the cosmic, telluric, other physical automatic loops; (ii) the human behaviour (according to needs, education and wealth) generating final demand of the SPSS; (iii) socio-economic and financial basic processes and virtuous and vicious socio-economic automatic circuits, generating the SOSS and SMSS demand;
4. Detailed qualitative models of the SES (see very simplified examples in Annex A)
5. Mathematical SES system engineering theory;
6. E-SM information system based on interoperability and its five coherence levels: political (implicit); legal, organizational, semantic, technical;
7. Thresholds for defining the admissible domain of the values of KPIs.

A VHL POSSIBLE MODEL OF E-SM INFORMATION SYSTEM (ESMIS)

This section presents a vision based on: (i) the vhl model of the functional architecture of the: interoperability platform (Figure 2.); (ii) the vhl model of an Information Coherence Kernel (ICK- Figure 3.); the

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