Technology management in military intelligence

Business, Management

The inalterable truth is that many facets of the intelligence community, peculiarly those responsible for procurance of high engineering hardware, remain wedded to the thought of engineering as artifact. The fulcrum of this paper is that engineering direction can be applied to engineering as cognition, and as a procedure of question and action, which has deductions for the development rhythm. Pascale (1999) argues that to better the success rate of strategic enterprises and attain the degree of reclamation necessary for successful executing, theories associated with complex adaptative systems ('complexity ' for short) need to be considered within a new and developing engineering direction paradigm. This paper will therefore explore engineering as cognition and as a procedure of question and action alongside the thoughts associated with complexness, such that the success orfailureof intelligence related engineering direction is more to the full understood.

1. 1 Background

Technologygate keepers operate within a traditional engineering paradigm. Garud and Rappa (1991) point out that `` rating modus operandis '' have a inclination to reenforce an established paradigm and prevent the outgrowth of others. In sing intelligence related engineering direction hence, it will be argued that the emerged menace posed by a complex system of chiefly low tech visionaries, absolutely at easiness with mass targeting, remains a hard construct to counter when utilizing traditional attacks.

Following the rules established by Eric Beinhocker (1997) , it will be argued that intelligence related engineering direction continues to run within a

paradigm informed by strategic theories developed in the decennary following World War II. The theories are underpinned by themathematicsof mid-nineteenth century natural philosophies, with associated premises of deterministic cause and consequence which continue to exercise a immense influence (Pascale, 1999) . It will be argued that the attack fails to account for the promotion in apprehension of how the life universe really works when considered from the point of view of complex adaptative systems ; engineering as cognition. This has peculiar resonance for the administration of asymmetric terrorist societal groups which constitute the current and immediate menace which defense mechanism engineering direction seeks to counter. By non accounting for 'complexity ' and how it might be used to understand the kineticss at work within the mark groupings (engineering as a procedure of question and action) , this paper will seek to show that engineering procurance will go on to be unnaturally 'skewed ' towards a conventional menace which remains consistent with post-war cause and consequence strategic theory.

1. 2 Justification for the research

Whilst engineering direction continues to be influenced by station World War II strategic theories concentrating on engineering as artifact, what Garud and Rappa (1991) identified as thoughts that are institutionalization at the macro degree of shared knowledge will go on to rule. Technological gate-keepers within the MoD will retain out-of-date methods of understanding what engineering direction is, and how it can be applied to counter the current menace. Although there is grounds of complexness theory being applied to such diverse elements as the oil industry (Pascale, 1999) and the

doctrine of instruction (Peters, 2008) , there is a spread in cognition of how it might be applied to act upon engineering direction within intelligence related procurance. This paper will research the thought that dynamic equilibrium (prevailing during thecold warepoch) no-longer remains a valid theory for intelligence related technological development when sing the menace posed by asymmetric societal-terrorist groups.

Equally recent as 2009, Geraint Evans examined intelligence failures in the visible radiation of recent terrorist atrociousnesss. However, his primary probe centred on the application and integrating of intelligence architecture, still concentrating on engineering as artifact, whilst unwittingly reenforcing premises based on 19th century Newtonian natural philosophies and the associated cause and consequence dictat. This is merely one illustration amongst many whereby recent work has sought to turn to incidents of intelligence dislocation, whilst neglecting to place and work what Pascale calls the following large idea- complexness theory.

This paper will seek to turn to a cognition spread to categorize asymmetric societal-terrorist groups as complex adaptative systems and the ability to counter the menace through recognizing engineering as cognition and a procedure of question and action. Research will be applied to measure how the apprehension of complex adaptative systems can be used to inform future intelligence related technological direction and development programmes.

1. 3 Aim and aims

Research purpose:

to bring forth recommendations for military intelligence related engineering direction when sing mark groups as complex adaptative systems

Aims:

critically reexamine the literature to place how complexness theory has been applied to alternative spheres

comparison bing definitions of complex adaptative systems with the analysed behavior of asymmetric societal-terrorist groups

interviewintelligence professionals to find how engineering direction might be impacted when sing mark groups as complex adaptative systems

formulate recommendations for intelligence professionals when engineering direction is required to aim complex adaptative systems

Chapter 2 Research definition

2. 1 Initial reappraisal of the literature

The Open University class T840 'Technology Management ' , underpins the initial research into engineering direction withrespectto engineering as cognition and as a procedure of question and action. Whilst seeking to understand how asymmetric societal-terrorist groups might be understood in the visible radiation of complexness theory, Jane Henry in the Open University Course B822 'Creativity, Innovation & A ; Change ' provides a utile get downing point in understanding the background to complexness theory. The current business with intelligence failure, in the visible radiation of recent terrorist atrociousnesss, has led to many defense mechanism

orientated journal articles covering specifically with military intelligence, and these will be utilized to spread out the research.

Evans (2009) critiques the intelligence rhythm in seeking to understand where failures are happening in the procedure. He discusses the relationship between procedure (engineering as question and action) and information (engineering as cognition) ; something that is seen as cardinal by Hughes et Al in the the Open University Course T837 'Information Focused Systems ' . Both Evans and Hughes are fixated by information flow within the context of proficient bearers, viz. Evans discusses runing constructs such as Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) , whilst Hughes et Al explores, at a more elaborate degree, electromagnetic radiation. Nevertheless, the philosophical attack for both has much in common. Whereas Hughes succeeds in discoursing why information systems exist, to pattern the existent universe ; Evans fails to travel beyond an internal review of bing attacks to engineering direction, and finally reverts to covering with engineering as artefact. This tendency continues in other articles concerned with intelligence failure. In an article less concerned with engineering than with effects, Honig (2008) discusses why surprise onslaughts continue to go on, but once more does non place something that Hughes in T837 instantly recognizes - engineering related information systems have value merely when they model information content drawn from theenvironment(engineering as cognition) .

Of class, it would be artful to propose that Evans and Honig are non cognizant of the operational environment to a greater or lesser extent. Their

attack nevertheless does look to be untypical, in that they fail to dispute implicit in premises ; this finally affects how they approach the job of intelligence failure.

Pascale (1999) argues that strategic theories that underpin the principle behind most determination devising procedures today have their roots in the decennary following World War II ; which saw a universe runing within a dynamic equilibrium, codified by the cold war stand-off. Hulnick (2006) supports this position when discoursing one of the chief vehicles for intelligence appraisal in usage today. The intelligence 'estimate ' (engineering as cognition) , Hulnick argues, is a animal of the Cold War, but has its roots in the 1939-45 struggle.

The appraisal of beginnings which critique strategic theories will be of import as ultimately theories guide investing. The Open University Course T840 'Technology Management ' discusses the difference between conventional merchandise and procedure development and the rearward merchandise rhythm. Cited in T840, the Abernathy-Utterbck theoretical account (1978) identifies that where radical engineering is utilized, development is unstable and prototype invention is high. This paper will analyze grounds which suggests that determination shapers may seek to turn to failures in intelligence by high-end engineering investing, accompanied by high hazard, high cost, and long lead times.

Beginnings which challenge the prevalent, underlying strategic premises, from the point of view of understanding mark groupings in the visible radiation of complexness theory, will be assessed by this paper. The

rearward merchandise rhythm as described by Barras (1986, cited in T840) might be seen as a more prudent attack to engineering direction (when developing artefact) if the full deductions for complexness theory are realised, with high-end investing utilised merely when the deductions for intelligence related engineering direction are more to the full understood.

Whilst reviewing current attacks to intelligence related engineering direction, the usage of beginnings which seek to understand complexness theory will be drawn on. Pascale (1999) provides a utile background of how complex adaptative systems operate, peculiarly in the oil industry, whilst Peters (2008) expands on the issues with a more in-depth overview of the deductions for instruction. Pascale 's article is of primary importance, as it demonstrates how even high tech administrations like Shell might be viewed as complex adaptative systems. The deductions of this for military intelligence related engineering direction are broad ranging, but will stay outside the range of this research paper.

The purpose will be to concentrate on understanding asymmetric societal-terrorist groups as complex adaptative systems merely ; and the associated deductions for military intelligence related engineering direction when sing engineering as cognition and as a procedure of question and action.

Chapter 3 Methodology

3. 1 Proposed research methods and techniques

The research will affect interacting with intelligence professionals. All of these persons, to a greater lesser extent, will hold been, or remain, involved in intelligence related engineering direction in existent universe operational

scenarios. Because of the sensitiveness involved, the research will be tightly controlled (see subdivision 3. 4 - Ethical motives) . The cardinal points of the primary research stage are based onCase StudyResearch Design and Methods, Third Edition (Yin, 2003) .

Primary Research

Determine and specify the research range

Unstructured and semi-structured interviews will be used.

10 experts will be used to supply information through treatment and suggestion.

The complexness of intelligence related engineering direction and vagaries of operational experience will be ill served by the usage of set inquiries.

The sensitiveness of the capable affair will prevent questionnaires being issued.

Each expert will be asked to take an exemplar instance survey to discourse how 'complex adaptative systems ' might impact intelligence related engineering direction.

Determine how to garner the information on the research subject:

Face-to-face meetings will be arranged at the respondents topographic point of work, or at a impersonal scene.

Personal contacts will be utilised to place the experts from across a scope of operational countries.

Phone-calls will be used to put up the meetings ab initio.

The consequences will so be collated.

Evaluate and analyse the informations:

Notes from each interview will be analysed utilizing analytical techniques, to include, but non be limited to:

Systems function.

Cause & A ; Effect schematization.

Rich Pictures.

Functional dislocation constructions.

Flow diagrams.

UML modeling ; viz. usage instances.

The information will be interpreted in order to reply the purpose and aims of the research.

Decisions will be derived with respect to the purpose and aims.

Decisions will be derived sing the wider pertinence of the research.

Suggestions will be made where farther advancement could be made by go oning the research.

Secondary research

Reappraisal of the relevantacademicliterature:

An appraisal of the related academic literature is required.

Section 2. 1 provides an initial literature reappraisal.

Section 3. 2 identifies extra beginnings identified, but non reviewed in the initial literature reappraisal.

The mention list will go on to be developed as the research develops.

3. 2 Beginnings of literature and other information

The Open University Postgraduate Certificate/Diploma in Technology Management class (s) will supply the implicit in beginnings and theoretical attack to research. This will be supplemented chiefly by the Open University online library, which through the initial literature hunt, has proved to keep an copiousness of relevant stuff, peculiarly with respect to complexness theory and military intelligence.

The purpose will be to farther addendum the research by pulling on the research installations available at The University of Bristol. The university has an first-class international repute in research. In the latest independent appraisal of research quality (RAE 2008) , over 61 per cent of the research work assessed in 48 research Fieldss at Bristol was awarded either the top 4* evaluation, defined as 'world taking ' , or the 3* evaluation, classified as 'internationally first-class ' . The library services are made available to Open University pupils via the SCONUL Access strategy.

Finally, and for completeness, the list below identifies beginnings found during the initial literature hunt, or used during the certification / diploma degree classs, but which have yet to be drawn on. As they have non been quoted, they are non included in the mention subdivision at the terminal of this proposal.

Fowles, M. 2004, T846 Technology Strategy, The Open University, Walton Hall, Milton Keynes.

Gintis, H. Dec 2006, `` Reappraisal of: The Origin of Wealth: Development, Complexity, and the Radical Remaking of Economics '' , Journal of Economic Literature, vol. 44, no. 4, pp. 1018-31.

Hayden, M. V. Sep/Oct2010, `` The State of the Craft - Is Intelligence Reform Working '' , World Affairs, vol. 173, no. 3, pp. 35-48.

Martin, John. , Bell, Ros. 2007, `` Pull offing Problems Creatively '' in B822 Creativity, Innovation and Change, erectile dysfunction. The Open University, 2nd edn, The Open University, Walton Hall, Milton Keynes, pp. 29-57-71-95.

Studeman, C. M. Feb 2009, `` 7 Myths of Intelligence '' , U. S. Naval Institute Proceedings, vol. 135, no. 2, pp. 64-69.

3. 3 Planning and scheduling

A Gantt chart has been utilised to exemplify cardinal day of the months for the complete period of research, working at the degree of separate hebdomads. The T802 MSc Research Study Calendar provides a dislocation of the cardinal phases and associated undertakings. These have been

transposed onto the Gantt chart below, with cardinal vacation periods (ruddy saloon) included for completeness.

3. 4 Ethical considerations

I have read and understood the ethical considerations, as described in subdivision 7. 3 of The Open University Course Guide for the T802 MSc Research Course. All stuff used, will be referenced in the appropriate mode, taking note of the information protection issues that may originate. Where beginning information is non already in the public sphere at the clip of usage for the T802 class, permission will be requested to utilize the stuff in the normal mode.

There is a moral duty to sensitively manage the point of views of functioning intelligence professionals in garnering the research information, and non to misapply professional trust built up over many old ages. The information presented will be generic in nature, whilst non mentioning to existent universe operations or capableness, but instead to how engineering direction might be impacted in wide operational footings. Where existent operational experience may be valid to exemplify peculiar points made by the interviewee ; the writer 's experience will be drawn on to exemplify the point that is being made.

3. 5 Risk appraisal

Development of the research stage is low hazard. The structured and semi-structured interviews will be conducted in an office based environment, admiting appropriate consciousness of exigency issues and fire muster points. Site visits are specifically excluded.

Chapter 4 Supporting information

4. 1 List of old classs

T837 Systems technology

T840 Technology direction: an integrative attack

M883 Software demands for concern systems

B822 Creativity, invention and alteration

T846 Technology scheme

4. 2 Relevance of capable affair to declared grade

The proposed research has strong synergism with the declared grade. It draws on many facets of the capable affair discussed in the compulsory faculties. T840 discusses merchandise rhythms and their appropriate application ; a capable really relevant to intelligence related engineering direction. Intelligence related equipment procurance and its rightness to extant mark groupings is at the bosom of this research.

Technology scheme (T846) expands on these elements when looking at the assorted schools of scheme that have come to the bow at assorted points in recent history. The relevancy of these to the capable affair, non least the Learning School and the thoughts behind outgrowth and complexness, will be cardinal to understanding the impact of complex adaptative systems on intelligence related engineering direction.

When sing optional faculties within the declared grade, both T837 (Systems technology) and B822 (Creativity, invention and alteration) reference, to a greater or lesser extent, the theories behind complexness and outgrowth.

The capable affair for this research proposal hence provides a vehicle to pull many of these elements together. The research will supply an chance to research the relevancy of the identified elements in a modern-day and extremely topical sphere, and possibly significantly, get down to make full a cognition spread which on first expression, does non look to hold been addressed.