Business, Economic, and Common Transformation Projects–The Integration of Six-Sigma (ISS)

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The Research Question is:

Which IHIPTF for ISS characteristics and capability are needed to support Projects?

Introduction

- It concerns Polymathic IHIPTF and ISS' integration.

- This article analyses the role of an in-house transformation framework and its ISS interfaces.

- Proposes the Applied Holistic Mathematical Model (AHMM) for the IHIPTF (AHMM4ISS).

- *Many standards and quality based methodologies exist; but the failure stay very high.*

- *Adapted Flexible Frameworks like Six-Sigma, TOGAF and IDEs to support projects.*

- *The process of transforming a traditional business environment into sets of Composite Building Blocks (CBB). And patterns.*

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Introduction

- *The proposed framework uses measurable Critical Success Factors (CSF) and Critical Success Areas (CSA) to define the optimal IHIPTF*

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- *Project's complexity as well as the usage of underlying Decision-Making System (DMS) and enterprise architecture can be evaluated by a tuneable CSF based mathematical model.*

- *The IHIPTF is based on: 1) RP to generate BBs and patterns; 2) A Mathematical Model; 3) Framework; 4) Digital Transformations (DT), and 5) Six-Sigma's capabilities …*

- IHIPTF identifies a Median Methodology (MDTCAS), *Six-Sigma,* Business processes to transform the Legacy Environment into a lean and automated system.

Introduction

- *The IHIPTF supports Project's Complex Implementation Phase (PCIP) that requires a set of in-depth (Refinement) RP, DMS, KMS, EA, Six-Sigma, and implementation skills.*

- *The Architect of Adaptive Business Information System (AofABIS) is to be considered as the optimal choice.*
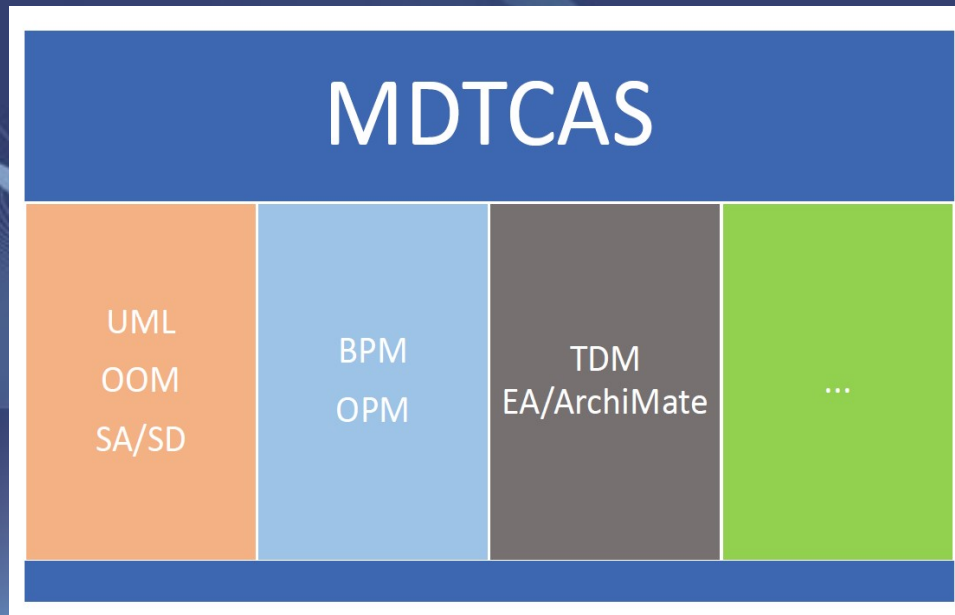

MDTCAS

| UML OOM SA/SD | BPM OPM | TDM EA/ArchiMate | ... |

Figure 1 describes the relation between the MDTCAS and the Project's artefacts. The Framework's and RDP's interactions, include three components: 1) DMS; 2) KMS; and 3) IHIPTF
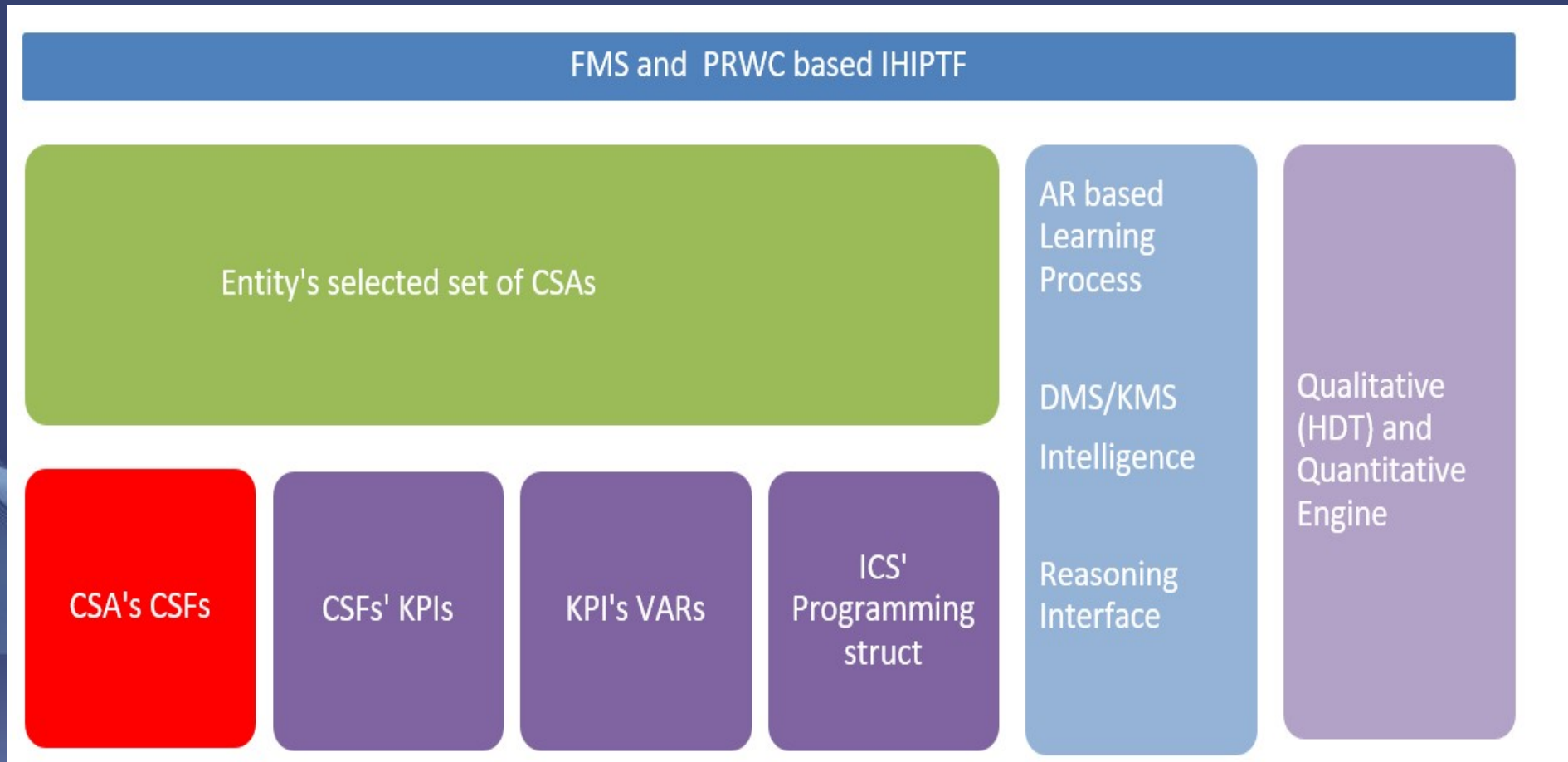·

Keywords

- **_Six-Sigma…_**
- Transformation Projects and Frameworks.
- Refinement, and MDTCAS.
- Manager's Profile.
- Business Transformation Projects.
- Enterprise Architecture.
- Mathematical Model.
- Artificial Intelligence.
- Profile Management.
- Human Resources.
- Critical Success Factors.
- Performance Indicators.

The PRLR and the Research/Project GAPA

- *Project's complexities and their XHFRs s are mainly due to the incapacities in the integration of Polymathic/cross-functional domains.*

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- *The IHIPTF to support Intelligence's operations to offer solutions.*

- *Organizational and Digital Transformation Projects-A Mathematical Model for Building Blocks based Organizational Unbundling Process (Trad, 2023d). Where The Unbundling Process (UP) that is followed by a Refinement Process (RP) (simply Disassembling)…*

- *Interfaces Agile Management*

- *The use of the Polymathic Rating and Weighting Concept.*

The FMS and PRWC IHIPTF (for ISS) that processes CSA_DTs

FMS and PRWC based IHIPTF					
Entity's selected set of CSAs				AR based Learning Process	Qualitative (HDT) and Quantitative Engine
				DMS/KMS Intelligence	
CSA's CSFs	CSFs' KPIs	KPI's VARs	ICS' Programming struct	Reasoning Interface	

Six-Sigma generic patterns

- A set of patterns that can support a SSI.

- Refinement concepts.

- Agile Methodologies and Business CSFs.

- Standards, like TOGAF, UML…

- Holistic EA concept and AI fields.

- Atomic architecture development method.

- Mapping concept and the Conceptual view.

- Atomic services and their granularity.

- Services' registries and integration / APIs.

- Service life cycle management / Agility

- Atomic artefacts.

AGNOSTIC IMPLEMENTATION ENVIRONMENTS

- ISS Implementations.

- AI based optimizations.

- The holistic meta-architecture concept.

- The micro enterprise components.

- The micro architecture concept.

- The business artefacts concept.

- The micro artefact concept.

- The choreography pattern of atomic services.

- The management of atomic and micro services.

- The neurons based decision making system.

- The fast and continuous development and deployment concept for a BTP global architecture.

THE APM

- The ISS and APM's collaboration can be based on Software development processes

- TheAPM based intensive communication.

- Manages variations and defects/bugs.

- On Problem-solving activities are a structured methodology that provides tools, roadmaps,...

- Integrates Lean Six-Sigma (LSS).

- Use sof the Define, Measure, Analyse, Improve, and Control (DMAIC)

The DMAIC
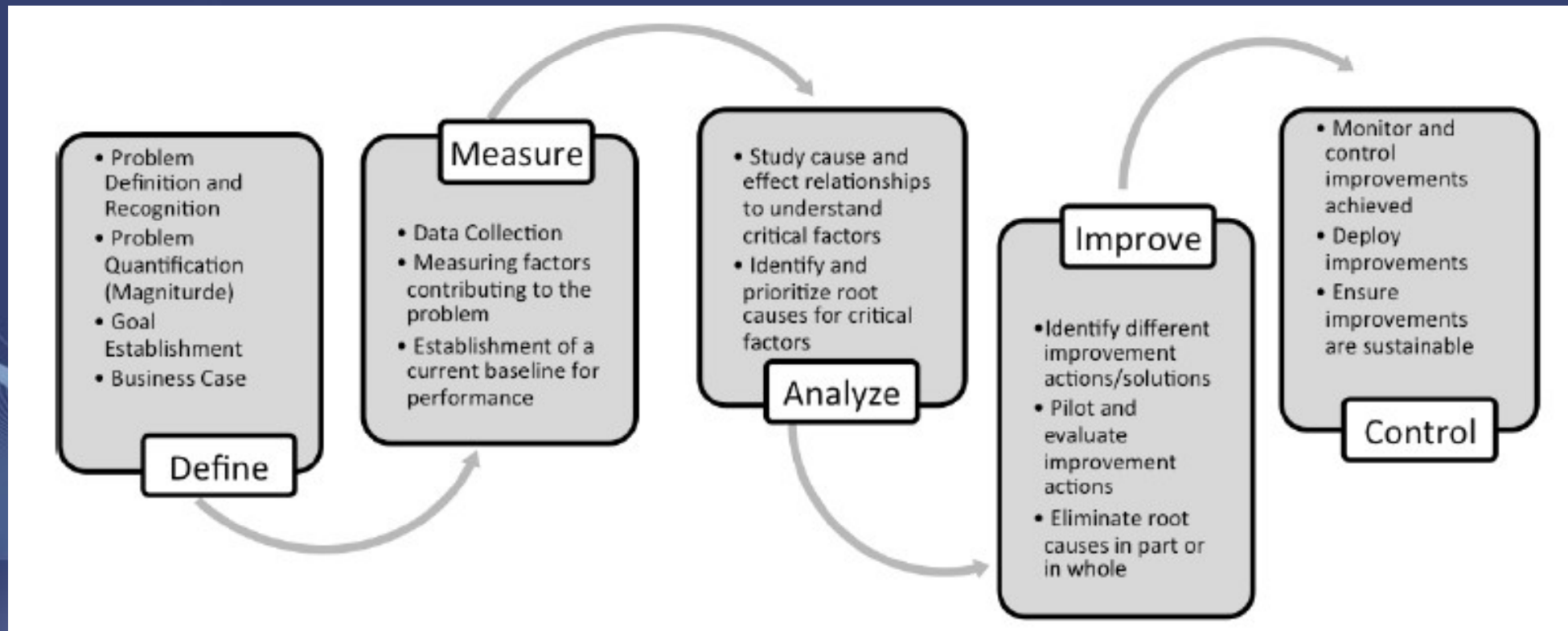
IHIPTF based approach for the ISS
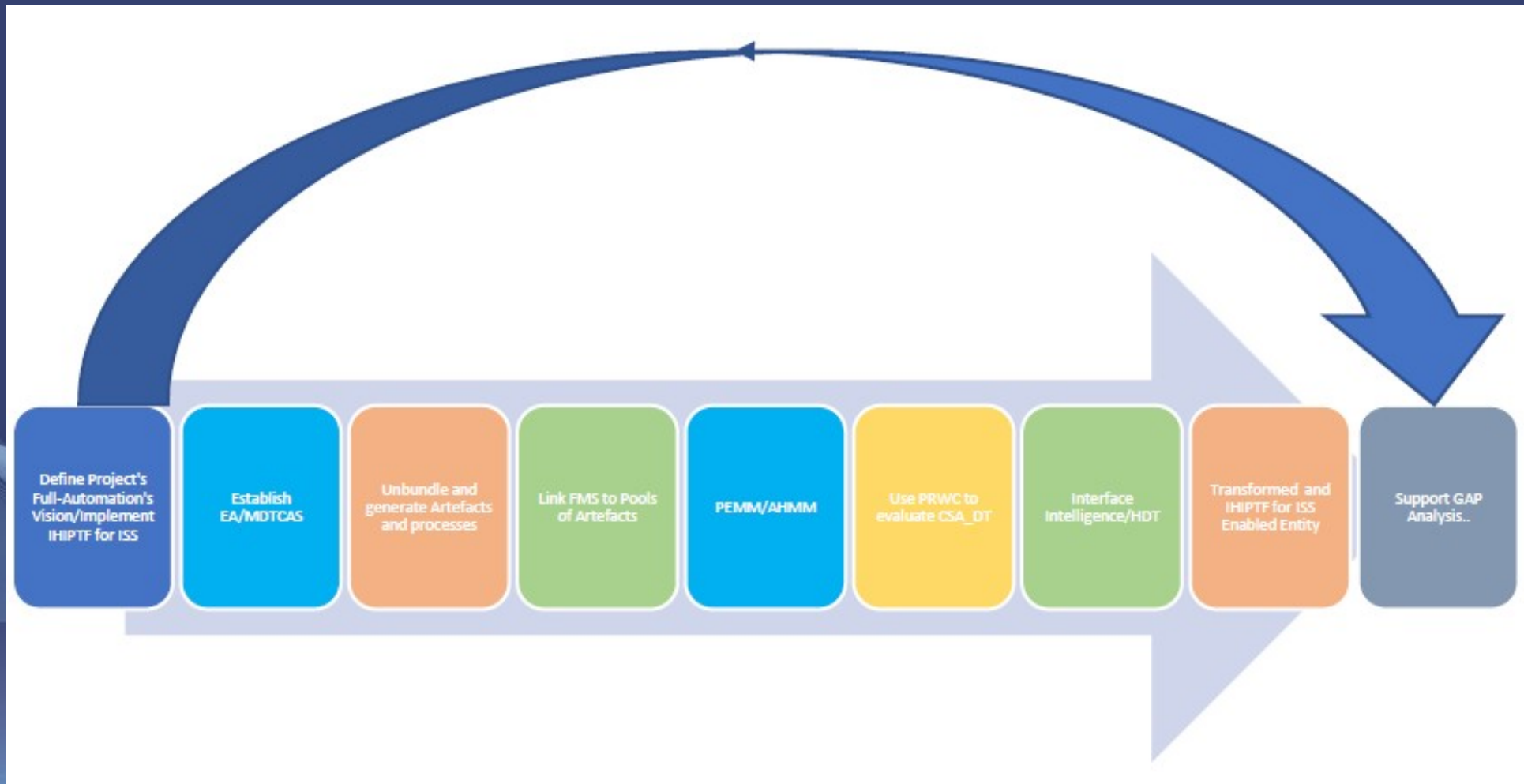
A Generic IHIPTF approach for the ISS

- The goal is to attain the defined ISS managementcycles.

- This article's aim is to influence the attitude of a transformation project and implementing of ISS

- The research concept is a part of the framework, which is composed of Six-Sigma parts.

- The used mixed method can be considered as a natural complement to conventional Quantitative Analysis and Qualitative Analysis methods presented in the Proof of Concept (PoC).

THE MATHEMATICAL MODEL

- The hyper evolution of information technology methodologies and business engineering disciplines made transformation project's management very complex and these facts for the Environment to have a central decision making module that is based on a mixed method.

- The mathematical model or the decision making module selects one solution that has a value based on factors.

- The evaluation value attached to each node in the tree is a state with complex data and functions containing many constraints. The decision tree's implementation is an HDT object that can be used and tested in the proof of concept

Event:
The Open Group London 2014

Business Transformation Manager Profile

Dr. Antoine Trad

The riskiest factor in transforming a traditional business environment (BE) into a lean and automated BE is the role of the business and (e-)business transformation manager (BTM) in the implementation part of the business transformation project (BTP). The basic profile of such a business transformation manager has not been sufficiently investigated in a holistic manner in order to design the BTM's profile; and that is the main goal of the author's research (Trad, Kalpic, IMRA, 2013).

This research based presentation deals with the optimal profile of the BTM that has to manage the implementation phase of complex business transformation projects. These business transformation projects require a specific set of business architecture and implementation skills, especially for the final and very difficult implementation phase. The BTP's implementation phase is the major cause of high failure rates (CapGemini, 2009).

The authors have constructed their research on the main fact that only around 12% of business organizations successfully finish innovation-related business transformations projects (Tidd, Bessant, 2009). Therefore, there is a tremendous need for more research on the BTM profile. Business transformation projects require BTMs who have the necessary business and information technology architectural skills such as TOGAF® for the implementation of complex business process management (BPM) based systems (Kelada, DBA Thesis, 2009).

Key takeaways: TOGAF, architect of adaptive business information systems, business transformation projects, business transformation manager's profile, transformation project implementation, business integration, innovation failure rate and (e-)business

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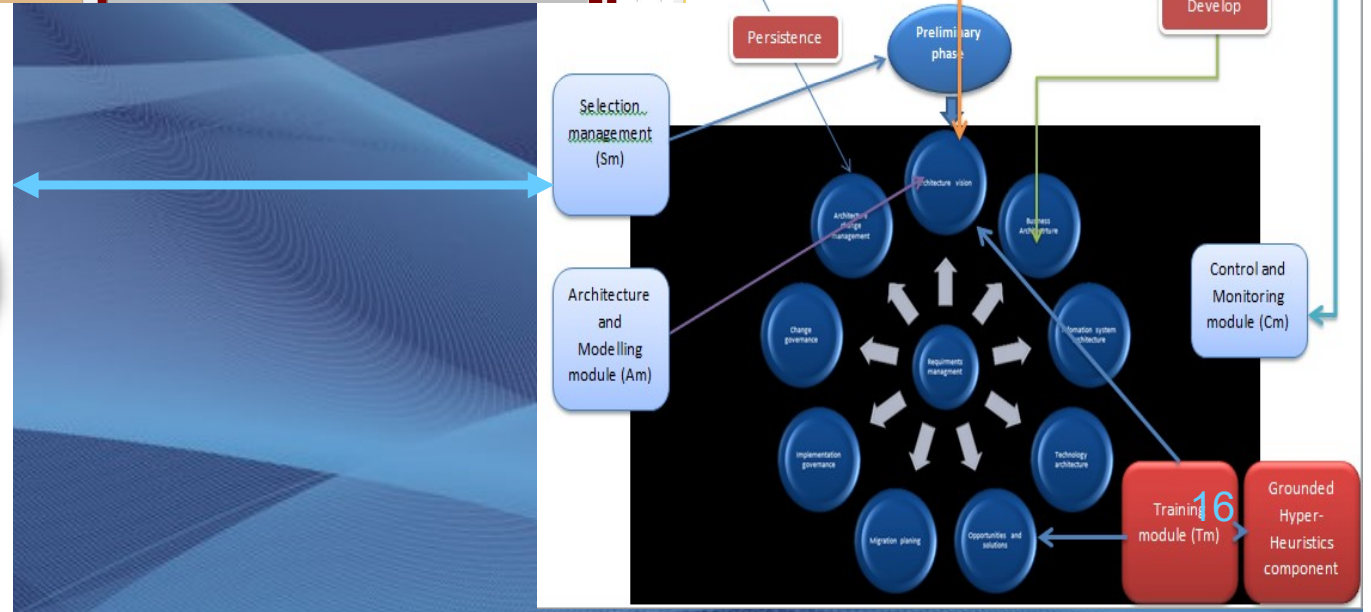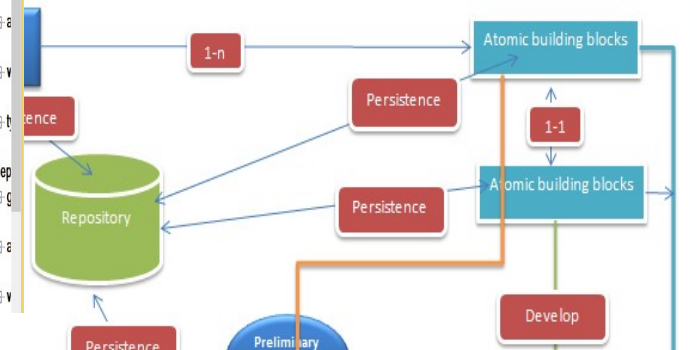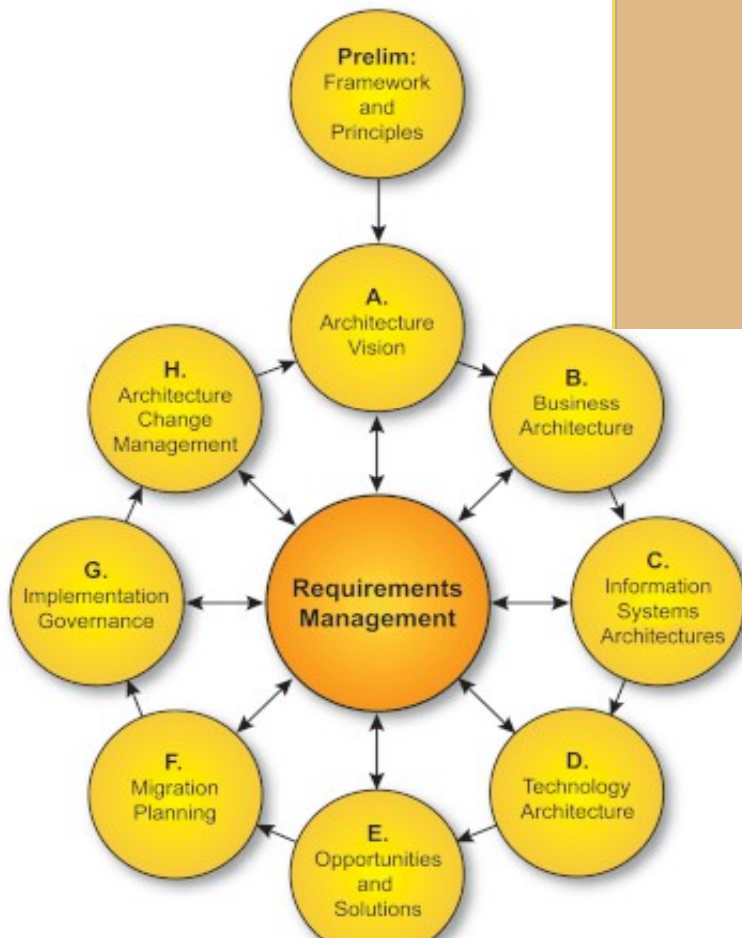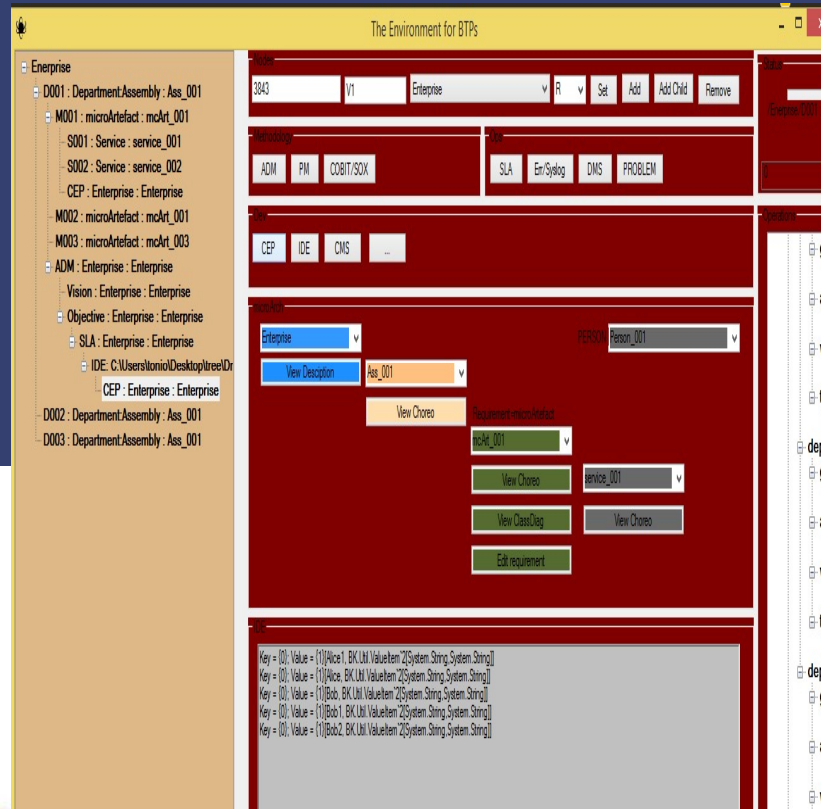**Using Applied Mathematical Models for Business Transformation**

Antoine Trad and Damir Kalpic

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IT IS A CONCRETE FRAMEWORK…

Lead

- This research project's main keywords are: 1) Artificial Intelligence; 2) Enterprise Architecture; 3) Business Transformation Projects; 4) Business Transformation Manager; 5) Applied Mathematical Models; 6) Neural Networks; 7) Holisms; 8) Risk Management; 9) Decision Making Systems; 10) Artificial Intelligence; 11) Knowledge Management Systems; and 12) Innovation.

- Using the scholar engine, in Google's search portal, in which the authors combined the previously mentioned keywords and key topics; the results have shown clearly the uniqueness and the absolute lead of the authors' methodology, research and works .

- From this point of view and facts the authors consider their works on the mentioned topics as successful and useful; so the main topics will be introduced.

- Using the scholar engine, in Google's scholar search where the author combined his research's keywords and key topics; the results have shown clearly the uniqueness and the absolute international lead of the author's methodology, research and works.

The Mathematical Model

- The applied AHMM4ISS's basics nomenclature: In this *Project* OR modules run on a pool of synchronized AHMM4ISS threads, in which, each AHMM4ISS thread launch's an HDT process

Basic Mathematical Model's (BMM) Nomenclature

Iteration	= An integer variable *"i"* that denotes a *Project/ADM iteration*	
microRequirement	= KPI	(B1)
CSF	= Σ KPI	(B2)
Requirement	= CSF = U microRequirement	(B3)
CSA	= Σ CSF	(B4)
microKnowledgeArtefact	= U knowledgeItem(s)	(B4)
neuron	= action->data + microKnowledgeArtefact	(B5)
microArtefact / neural network	= U neurons	(B6)
microArtefactScenario	= U microartefact	(B9)
AI/Decision Making	= U microArtefactScenario	(B10)
microEntity	= U microArtefact	(B7)
Entity or Enterprise	= U microEntity	(B8)
EnityIntelligence	= U AI/Decision Making	(B11)
BMM(*Iteration*) as an instance	= EnityIntelligence(*Iteration*)	(B12)

The Generic AHMM's Formulation

AHMM	= U ADMs + BMMs	(13)

The Role of AI/Qualitative Models

- **Learning based and not data based..**

- **AI based DMS: AI systems management refers to expert systems and global systems modelling; which is supported by the EA's mapping concept. AI systems management is an approach for building and deploying intelligent systems and it replaces conventional concepts with DMS.**

- **DT based Projects replaces traditional methods …**

- **Manager as a Cross-Functional Architect / Agile Project Management / Enterprise Architecture**

- **Understanding Organizations and the CSFs that can influence their survival and competitiveness, is only the first step towards a successful Project.**

USAGE OF EA/AI based IHIPTF

- **IHIPTF for Projects. That supports the ISS.**
- **Qualitative: HDT… AR… Learning based.**
- **CBB, BBs,… Artefacts…**
- **Unit of Work as the Building Block**
- **EA, Technology, Services and Standards**
- **Enterprise Security Strategies**
- **Resources, Artefacts, Factors Management and Qualification Procedures**
- **The ADM and Phases**
- **Business Architecture**
- **A Complex and Risky Process**
- **The Knowledge Management System**
- **The Decision-Making System**

The Needed Skills… Just for EA

IT Architect Roles	Architecture Board Member	Architecture Sponsor	IT Architecture Manager	IT Architecture Technology	IT Architecture Data	IT Architecture Application	IT Architecture Business	Program or Project Manager	IT Designer
Enterprise Architecture Skills									
Business Modelling	2	2	4	3	3	4	4	2	2
Business Process Design	1	1	4	3	3	4	4	2	2
Role Design	2	2	4	3	3	4	4	2	2
Organization Design	2	2	4	3	3	4	4	2	2
Data Design	1	1	3	3	4	3	3	2	3
Application Design	1	1	3	3	3	4	3	2	3
Systems Integration	1	1	4	4	3	3	3	2	2
IT Industry Standards	1	1	4	4	4	4	3	2	3
Services Design	2	2	4	4	3	4	3	2	2
Architecture Principles Design	2	2	4	4	4	4	4	2	2
Architecture Views & Viewpoints Design	2	2	4	4	4	4	4	2	2
Building Block Design	1	1	4	4	4	4	4	2	3
Solutions Modelling	1	1	4	4	4	4	4	2	3
Benefits Analysis	2	2	4	4	4	4	4	4	2
Business Inter-working	3	3	4	3	3	4	4	3	1
Systems Behavior	1	1	4	4	4	4	3	3	2
Project Management	1	1	3	3	3	3	3	4	2

DT's Implementation

- **Irojects and DT's goal is to have a common platform of Blocks, BPMs and other artefacts which improve Entity's Time-to-Market (TtM).**

- **DTs are strategic objectives, but Projects' digitizations are complex and have XHFRs.**

- **The DT uses the IHITF to disassemble legacy systems and enable the use of TDM, MDTCAS, and EA digitized models and to define DT's scope.**

- **A successful DT is the base of a successful Project that needs Polymathic skills.**

- **The DT support ISS' successful usage.**

Integrating the DFSS Methodology and other Frameworks

- Define the customers' requirements.
- Identify customers' roles in a Project.
- Design the processes to support the requirements.
- Optimize the processes.
- Verify by using tests and validation.
- Create a catalogue of needed frameworks and their area of focus.
- Include planning and execution (Project Management Institute (PMI), PRINCE2, Six-Sigma).
- Include ICS governance and operation (Lean, COBIT, ITIL).
- Include management and measurement frameworks (Balanced Scorecard and SABSA Enterprise Risk).
- Include industry specific WHAT? (SCOR and eTOM).
- Group the frameworks by type like risk, accounting, and planning as shown in Figure 17.
- Define the intersection with EA/TDM capability because EA provides value in planning, change governance, and realization.
- Adjust the Project's roadmap to either fit the EA Capability or to extend the EA Capability to fill the gap.

The IHIPTF PoC's phase 1 outcome is 8.70

CSA Category of CSFs/KPIs	Transformation Capability	Average Result	Table
The RDP's Integration	Mature	From 1 to 10. 9.20	1
Team's Setup	Risky	From 1 to 10. 8.50	2
Disassembling Process	Risky	From 1 to 10. 8.50	3
PEMM's Implementation	Risky	From 1 to 10. 8.25	4
FMS' Integration	Risky	From 1 to 10. 8.50	5
AHMM's Integration	Mature	From 1 to 10. 9.40	6
PRWC's Integration	Feasible	From 1 to 10. 9.0	7
TDM' Integration	Feasible	From 1 to 10. 8.60	8
Intelligence's Integration	Mature	From 1 to 10. 9.25	9
APD's Integration	Risky	From 1 to 10. 8.20	10
IHIPTF4ISS/Phase's 1 Outcome	Risky	From 1 to 10. 8.74	11

Evaluate First Phase

Conclusion

- **This RDP proposes a set of recommendations and techniques on how to implement a IHIPTF4ISS for Projects in any APD. T**

- **he IHIPTF4ISS uses FMS/PRWC, GAPA, HDT, and Factors to iteratively assert Project's feasibility and because of the low score of 8.70 (Table 11) implies that it is "Risky" Project.**

- **ISS is a Six-Sigma methodologies' integration concept.**

- **The IHIPTF4ISS shows how to implement an IHI and Anti-Locked-In (ALI) transformation framework.**

- **The GAPA and PRWC evaluate Projects' progress.**

- **This RDP uses a specific QQRMM concept and ignores statistical/quantitative approach.**

Conclusion

- **The PRLR proved the existence of an important knowledge gap and XHFRs.**

- **The AHMM4ISS and ELP based HDT support Intelligence.**

- **The HDT supports IHIPTF4ISS' modules reasoning,**

- **The IHIPTF4ISS uses and interfaces existing frameworks, standards, and methodologies, like TOGAF, SWOT, Six-Sigma's environments...**

- **The PoC checked IHIPTF4ISS' feasibility.**

- **The IHIPTF4ISS integration is complex and "Risky".**

- **Six-Sigma is not a transformational methodology but can be a complement to a transformation's initiative and framework like the IHIPTF.**