Chapter are provided by the end user

Business, Decision Making

Chapter 6: Research Methodology and Analysis6. 1. ResearchMethodologyThe outcome of this research is based on a mixtureof independent research and survey inputs from a various organization that has beenconducted while evaluating enterprise architecture tool for theirorganizations. Initially, an extensive research has been done on surveys andonly then has chosen Gartner Peer Insight as these ratings are provided by theend user at different levels of IT Professionals. Theprimary objective was to achieve the magnitude of the present enterprisearchitecture management tool which delivers the solution and facilitates todescribe, evaluate and illustrate current metrics.

Moreover, the survey alsocaptures vendor information about the tool. Apart from survey design, they also executed a pre-test which consistsof question that needs to be completed. Answered questionnaires where augmentedwith collaborative feedback and suggestions. There was a stipulated timeallotted to access questionnaires to tool vendors. Thesecondary objective of this research is to obtain to which extent doesknowledge management process facilitates enterprise architecture tools incapturing, decision-making and visualization of architecture, in accordance tothe results we shall evaluate and demonstrate Enterprise Architecturemanagement tool.

Gartner Peer insightis an interface that acts as a platform and provides ratings and reviews. Inthis type of survey, reviews are verified and well established through vendorassessment, comprehensive reviews from experts and reliable peer reviews. 6. 2 Survey DesignHauder, et.

al., 2013 mentions in his article that there were 43Enterprise architecture management tool (EAM) applicants who were using surveytool materials that are available widely on internet search engine. As in July2013, vendors were identified and contacted by phone and mail by inviting themto complete a comprehensive questionnaire that was given by Gartner (Bittler, R. S.

(2012). Altogether, theyhave sent around 1100 survey invitation by email. Expert's mail recipients listwas gathered from the past where there was an enterprise architecturemanagement project that was initiated with partners in the industry from last 8years. Electronic reminders were sent one week before survey closure.

Later on, preliminary results were documented to analyze the result from data collected. For this research, we will be usingGartner Peer Insights review (Garter PeerInsight Review Website) that has provided vendors who completedquestionnaires for Gartner Assessment questionnaireAs referenced byGartner Peer InsightsWe use Kiviat diagram approach toevaluate the survey rating based on the questionnaire that was sent to variousdepartments who were involved from different locations for example, Asia/Pacific, North America, Europe, Middle East and Africa. GartnerPeer Insight is a platform for reviewing and rating that are verified byGartner analysts that are provided by professionals and experts. These reviews are assessed based on criteriathat meet Peer Insights standards, quality and relevancy. As per surveymentioned literature review is comprise five sections (Garter Peer Insight Review Website): 1. Evaluation and Pricing: In this section, the user has rated theirexperience while negotiating

contracts with vendors. Evaluation of a tool in isto understand organization’s requirements.

They also rated on best pricing andflexibility of contract when compared to other tools. 2. Deployment & Integration: In this section, theyhave provided the maximum time of tool deployment and its integration withother 3rd party resources and how standard API’s help whileintegration. 3. Customer Service: In this section, rating wereprovided based on customer service that was provided by tools vendors, itsquality of support, how best it suits in peer user community.

4. Product Capabilities: In this section, itdetails on product or tool capabilities that fit their organizationrequirements like data modelling, architecture presentation, useradministrations, how easily it can be configured, what frameworks and standardsare supported by the tool and finally usability of the tool. 5. Additional Context: In this section, it providesadditional information like a number of users who access information and theirnature of involvement. And the reason behind opting the specified tool and whatessential features of this tool has driven their decision. 6.

3 Research AnalysisThe main purpose of this analysis is tocapture knowledge and information of current and future circumstances ofenterprise architecture in repositories. In this research we focus onevaluating different aspects of tools and Dumeezet. al., 2013, saysthat software tools for enterprise architecture can evaluate tools performanceand their factors by developing Kiviatdiagram. With this diagram, wecan evaluate how flexibly

information can be modelled and stored inrepositories, create visualization and considered some of the features asmentioned in a literature review. Kiviat Axes are derived from survey questionlisted above by Gartner Peer Insights and features. (Matthes, 2014). Kivit Diagram (Own Image)Abovediagram, shows different features of Enterprise Architecture Management Tool asper Gartner’s Peer Insight Survey.

These are also called as the dimension whichdescribes the capabilities of the tool. Every tool is independent based on theenterprise architecture of the organization. Based on these features ordimension we will analyze tools that are mentioned in literature review i. e. Bizz design Enterprise Studio, LeanIX and Planview have been demonstrated itsfeatures and functionalities. Now, will analyze how enterprisearchitecture management tools answer our research questions in KnowledgeManagement perspective. RQ1. Howdoes enterprise architecture tool similar to Knowledge Management Systems? Tseng& Lee, 2014 refers knowledgemanagement systems is a tool that stores and retrieves knowledge to improvebusiness process, operations, and organizational performance And also accordingto Denkena et.

al., 2007, knowledge management is a process that facilitates technicalcapabilities and provides collaboration of knowledge sharing in the organization. Simon et. al. 2014, mentions thatEnterprise Architecture Management tool is used as a model that capture, store, design and analyze information related to enterprise architecture anddemonstrate to stakeholders. Hullavarad, et. al.

, 2015. also says that these enterprise architecture tools support in thestrategic decision by capturing enterprise content, this enterprise contentdevelops and analyzes capabilities of business, technology, Information andsolution architecture using road maps. However, Alguezaui& Filieri, 2014 mentions that an ability to integrate and combinethe captured knowledge of the organization into enterprise model is the currenttrend in digitalization. Enterprise architecture model is static in naturewhere data becomes permanent once it is stored while Knowledge Managementenhances Enterprise Architecture tool by creating a dynamic model from the EArepository. Without the support ofknowledge resources, enterprise architecture model is unable to update thelandscape of application. Nevertheless, in knowledge management data is organizedin a structured format whereas in enterprise architecture data is organized inthe form of the model which builds knowledge in an organization.

Data models are been designed using differentmodelling languages like BPMN, UML, ArchiMate etc. In order to transform thisinformation into knowledge, we need a framework that represents knowledge anddefines types of information that is required to capture and how it is relatedto the different domain in enterprise architecture like Business Architecture, Technology Architecture, Application Architecture and Data architecture. Thedata model helps to apply the knowledge in the organization when making adecision or solution to a problem or enhancing business objectives or meetinggoals.

As mentioned in the literature review, now weshall evaluate how enterprise tools practice knowledge management in theirorganizations. As mentioned by Lankhorst, 2009, business architectureis a discipline that has been developed with its own methods and knowledge. Knowledge is about managing responsibilities that are essential for businessarchitecture effort.

Moran 2015, enterprise architectureis all about that captures architectural information and communicates using collaborationtools. As a result, this valuable knowledge enhances the decision makingprocess at strategic or operational level. And this knowledge needs to bemaintained and managed which makes enterprise architecture tools have arigidity while maintaining and managing and flexible while analyzing. Wherethis knowledge is been presented and shared with diverse individuals.

In ourliterature review, we have mentioned that GartnerPeer Insights has considered few features for his survey and Matthes et. al., 2014 also mentions same. · Metamodel/Repository: Enterprise architecture metamodel and repositoryhelps to capture artifacts that are used as groundwork for enterprisearchitects to implement (Roth, 2014).

However, France et. al, 2006, saidthat knowledge that is captured in repositories as artifacts and is used byenterprise architects to illustrate application standards and also arepository. This capability acts like hub for enterprise architecture thatstores and manages Metadata that is needed to support enterprise architect’swork. However, Thongtanunam, et. al., 2014mentions that repositories play a vital role in relation between knowledgemanagement and knowledge visualization tools.

In knowledge management, data canbe searched in repositories and retrieved quickly.· Modelling: Enterprise architecture tools should be a support wide and flexible modellingcapability that shows all viewpoints in architecture viewpoints. As cited by Quartel et. al, 2009 model structure isneeded to specific, documented; communicative that provides the purpose toachieve goals and objects.

However Smiciklas, 2012 says that picture would communicate more than words that connect tostakeholders. Abdullah et. al., 2002, knowledge models are used to capture the features of real application bydividing them into manageable factors which will be easy to understand andmanipulate.

Nieves and Haller, 2014argues that models are associated with the domains in knowledge management. · Framework and Standards: Iyer andGottlieb, 2004 mentions that frameworks are important as they provide astructured methodology and guides enterprise architects to view present andfuture architectures. However, Braun andWinter, 2005 also mentions that some organizations framework is mandatoryand enterprise architecture tool should be capable to support framework. Eventually, Urbaczewski and Mrdalj 2006mentions that enterprise architecture framework plans business processes, theirrelations, and how they interact to achieve goals and missions of enterprisearchitecture. RQ2. Whatare Knowledge Management Processes are used in Enterprise Architecture Tool? Some of the features of Enterprise architecturetool integrate knowledge management processes for better performance anddecision-making. Integration ofKnowledge Management Processes and features of Enterprise Architecture tool(Various

authors as referred in table)Similarities in Knowledge Management Systemsand Enterprise Architecture Tool (Own Table)RQ3.

HowKnowledge is shared using Enterprise Architecture Tool? Asmentioned in literature review, collaboration is one of the Knowledgemanagement approaches where information is exchanged among individuals i. e fromtacit to explicit knowledge. However, Dalkir et. al., 2017 mentions Knowledge Management, collaboration is knowledge sharing and creation of shared content. Improvedcollaboration motivates to have stimulated opportunities for communication ininformation technology.

Accordingto Bente et. al., 2012, in enterprise architecture collaboration provides innovative solutionthat is required for current enterprises such as expert’s insight and real-timeexperiences. It effectively combines long-term top-down approach with logicalbottom-up thinking and insists on offering real-time solution forenterprise-wide changes that are been enduring in business. Additionally, everyenterprise architecture tools should possess these features when consideringtoday’s digital transformation. Asmerely, collaboration is significantly based on notification, triggering, workflows that are customized and web-based access.

Collaborationis cross-functional feature that helps in enhancing communication, enablescoordination and colloaboration among teams or individuals. As referred on fuze websiteRQ4. Whatother parameters to be considered when implementing enterprise architecturetool in a knowledge management perspective? Gartner Peer Insights has considered few featuresthat have been considered in there survey and also Matthes et. al.

, 2014, also mentioned about few features or dimensions while considering enterprisearchitecture tool and we shall see how these dimension relate to knowledgemanagement.· Usability: Usability adds high value and the desired feature for enterprise architecturetool, irrespective of the complexity of the basic repository/metamodel andcapability of decisions analysis. It should deliver the purpose and should beeasy to use. It should be inbuilt which is easy to understandand maintain (McGovern, 2004).

· Deployment and Integration: Enterprise architecture tool should be easy todeploy and deployment time should be minimal. Accessibility to integrate 3rdparty resources like integrators, service providers, etc. and current trend ofintegration is through REST APIs tool should support thisfeature. However, Bahrami et. al, 1998, says that tool is required with a minimal trainingthat contributes rapidly and reduces cost on training.

· Configurability: Configurabilityis the initial step-up of the tool, provides customization ofrepository/metamodel and other features. Every organization has diverse requirements, views and concerns and whencoming to enterprise architecture, so configurability is essential. Buckl et.

al., 2012, confirms that configuration should becustomized that can be integrated to suit the present methodology based on theconfiguration new process can be defined.· Decision-Making Process: Accordingto Litvaj and Stancekova, 2015, decision is based on knowledge that is captured in the enterprise organization. Updating and maintain knowledge is critical for an enterprise architecture formaking a strategic decision. Decision-making process from current architectureadds a lot of value to uncertainty as it is

positive and effective that aims toimprove process. In enterprise architecture, knowledge management plays a vitalrole while making a decision.

Knowledge Management in relation to decision-makingprocess referred by (Hrubizna)6. 4 Analyze Features of Enterprise Architecture ToolsKiviat Analysis Diagram for 3 Tools(Own Diagram)When analyzing above Kiviat diagram, LeanIX and BiZZdesignhave best rating compared to Planview while evaluating enterprise architecturetool. So we will be considering onlythese two tools for further comparisonKiviat Analysis Diagram for 2 Tools(Own Diagram)Whenanalyzing the above Kiviat diagram, following facts are evident as perKnowledge Management perspective· BiZZdesign has strongdecision analysis features as the user has given highest rating for this toolswhen compared to LeanIX. · Similarly “ Framework”,” Configurability”, “ Modelling” and “ Repository/Metamodel” of BiZZdesign havescored highest rating.· However, LeanIX scores highest ratingwith features like “ Presentation”, “ Administration”, “ Usability”, “ Ease ofDeployment”, “ Service & Support “, “ Timeliness of vendors Response” and” Quality of Technical Support” . Inspite of above, we have considered LeanIX because of it’s to user flexibilityand as per Knowledge Management perspective as below:· Rubenstein-Montano et.

al., 2001 mentions that repositories areused for storing information which is common feature of Knowledge Management asmentioned in literature review.· Buckl, et. al., 2009 mentions, inthe perspective of Enterprise Architecture management, development of knowledge is referred toplanning

and decision activities, where future knowledge of enterprisearchitecture is created. But as a result, all these 3 tools are similar to knowledge managementwhere Knowledge repositoriesare electronic systems or application that captures, structures, and categoriesknowledge of organization (Medelyanet.

al., 2013). And Arbab et. al.

, 2015mentions that enterprise architecture tools are associated with architecturelayers that complete architecture views of present and future. Indeed, Rodríguez-Elias et. al., 2008 says thatframework in enterprise architecture is used to describe knowledge process flowwhich facilitates organizational processes.

As shown below, GartnerPeer Insight has provided average user satisfaction to LeanIX tool. Chapter 7: ResultsAsmentioned in the literature review, our research is based on TOGAF frameworkwhich is common and most popular enterprise framework that is been consideredas a standard to many organizations. It provides best practices, rules, principles, guideline and techniques. Implementing TOGAF in a lean way isdifficult as this requires intensive training and effort to maintain.

There areloads and loads of enterprise artifacts that are generated. These artifactsneed to be maintained and to keep it updated an effective EA Repository Expertis required and this is where LeanIX plays a vital role in storing them. Aspart of TOGAF, LeanIX is considered as a knowledge hub for IT transformationand Business. Belowis the TOGAF ADM approach

implemented in LeanIXTOGAF (ADM)with LeanIX (https://www. leanix. net/en/download/webinar-togaf) WebinarItis recognized that TOGAF is an iterative enterprise architecture framework thatprovides a wide approach to design, plan, implement and govern architecturecapabilities. ADM (Architectural Development Method) is the main keystone ofTOGAF, as it’s a series of the iterative stage where scope, requirements andmilestones are reviewed and considers assets; revalidate scope and requirements& principles, architecture risk and its milestones.

Thereare few iterative sprints considering in TOGAF Enterprise architectureframework · Capability Sprint· Roadmap· Architecture Project· Data QualityTOGAF ADMIterative as referred by Weisman, 2011In order to support this iterative sprints and thevolume that is created during this process needs an effective and a dedicatedtool and processes for storing these architecture content. In TOGAF, architectural repository provides astructural enterprise framework that supports enterprise to distinguish betweentypes of asset that exists in different layers of enterprise architecture. These repositories provide capabilities to link components and architecturalassets that provide design information, deployment and repositories. Now we shall see TOGAF repositories that are linkedto LeanIX. 1.

Metamodel2. Capability3. Landscape4. Information Base5. Governance6. Reference LibraryTOGAF enterpriseArchitecture Repository as referred by Weisman, 2011Integrationof Data model in LeanIX for TOGAF artifacts. Data Model creates an easy tounderstand presents all

areas that are present in enterprise architecturemanagement as shown below: 6.

1 Implement TOGAF withLeanIXFurtherto our methodology, we shall implement TOGAF in LeanIX. We will be doing thisis a step-to-step process. As mentioned in Literature review, LeanIX is astrategic and repository for enterprise architecture. There are many tools thatintegrate out of box features.

Nowwe will see how TOGAF can be implemented in LeanIX: Step1: Capturing Architecture Visionand Requirements in LeanIX: Phase 1: TOGAF (ADM) with LeanIX (https://www. leanix. net/en/download/webinar-togaf) Webinar· Capturing of statics information into Wiki (forexample, Strategy and Principles, etc)· Collaborative effort – do not write dinosaur orhuge documentation· Make it flexible – referencing items ofRequirements and Architecture vision, etc by using hyperlinking· Capturing business capability which is crucialto business Step 2: Capture Capabilities and business services: Phase 2: TOGAF(ADM) with LeanIX (https://www. leanix. net/en/download/webinar-togaf) WebinarStep3: Mapping of TOGAF Artifacts to Lean Data ModelPhase 3&4: TOGAF (ADM) with LeanIX (https://www. leanix. net/en/download/webinar-togaf) WebinarIn LeanIX, Fact Sheets are the essential component. They document information regarding architectural objects such as Businesscapabilities, Application, IT components and Data Objects etc and these arepre-defined.

LeanIX Facts as referred in LeanIX Website (Find Reference)6. 2 Implement LeanIX – Knowledge Management Perspective · Data Modelling: We

Identified application or systemattributes that can be mapped to LeanIX data model as shown above. In LeanIX, information is stored usingfactsheets like belowAsabove mentioned factsheet is been mapped to the below mentioned EnterpriseArchitecture application for a broader view of information related toapplication MappingData Model (Own Image)· After data modelling is done, captureinformation from various data sources like Technology Catalogue, informationthat is existing with enterprise architecture in excel sheet, EnterpriseStrategy documents, information that is been uploaded by various other teamsand individuals on SharePoint.

The application has been identified andconsolidated in a list along with the other application information that isrequired to store in enterprise architecture tool. Capturingapplications list from various Data Sources (Own Image)· After data is been processing, now comesthe activities that have been performed to gather the information i. e byconducting face to face meeting, telephonic conversation, Chat conversation, reading High-Level documents, Reviewing Blueprints, and Identifying technicaldocuments of each application that needs to deploy into LeanIX tool.

Scale ofactivities conducted during deployment of applications in LeanIX (Own Image)· Now, processing data i. e. classifyingdata as per Data Model. All the captured information is been consolidate intoexcel sheet and then process this information in-to logical Enterprise AssetRegistry which is used as Repository for storing application information. EnterpriseAssets Repository – Own ImageChapter 8: ConclusionHowever, various tool vendors provide a softwaresolution to manage these repositories. Enterprise

architecture management toolsact as knowledge management system for enterprise architects throughdocumentation, generating reports and stakeholder communication.

Currententerprise architecture is built on the complex structure which is supported bycomplicated IT system which integrates with different technologies andstandards. Hence, modelling supportsmulti-layered architecture to capture and communicate in an enterprise which isbasic to develop enterprise performance. This ability of capture, integrate andmaintain enterprise architecture models depends strongly on tool features whichhelps enterprise architect’s productivity.