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LIST OF ABBREVIATIONS

BPMN	Business Process Model and Notation
EA	Enterprise Architecture
IT	Information Technology
LOB	Line of Business
M&A	Merge and Acquisition
OMG	Object Management Group
ROI	Return of Investment
TOGAF	The Open Group Architecture Framework
UML	Unified Modeling Language

1. INTRODUCTION

Nowadays every organization challenged by increasing competition amplified by digitalization trend. The competition takes place in several dimensions like business models, processes, products/services, and data. Managing of all these elements requires a holistic view, dedicated perspectives, and designs on each level. Introducing a new paradigm of architected organization, where business and technology are integrated and managed via different design views, provides additional opportunity and capability to be more competitive and simplify organizational changes.

The critical challenge to C-level is how to create a business outcome-driven enterprise using digitalization when the time to market goes to zero. It implies several significant features that must be demonstrated by modern enterprises which include - innovation-driven, agile and cost-effective characteristics. Enterprises launch and manage several strategic initiatives, and usually, they are considered in isolation and without alignment with other ones. As a result, many strategic initiatives fail because of unidentified dependencies among other initiatives. Also, short term gains are more visible in comparison with results of long-term strategic initiatives.

Introducing enterprise architecture practice allows performing a set of activities to understand prospect organization context and visualize its architecture on the abstract level to provide a single source regarding the enterprise as a holistic system. In other words, enterprise architecture provides a clear and comprehensive view of an entity via several views: from top to bottom – strategic to technology, from left to right – current (as-is) state toward future (to-be) state. The focus is on improving planning, decision-making and solution implementation to achieve objectives like a strategic advantage, alignment, agility, efficiency, and value.

Many definitions of Enterprise Architecture formally exist and using specific ones allows focusing on how the organization understands it and what will be in scope. The definition used in this context - Enterprise Architecture is a complete

collection of models describing aspects of an organization (OMG, 2019). Moreover, it provides a holistic view of an enterprise and is critical for successful communication and shared language when stakeholders consider the enterprise for changes.

Commonly enterprise architecture practice is not considering an important initiative while some urgent architectural artifact is needed toward connecting silo problems within an organization (Daniel, 2007). Moreover, in most cases, there was some elegant paperwork generated, but it was produced in isolation and cannot support decision making. The need for enterprise architecture becomes evident when there is a need for replacing one or several core applications. It implies an understanding of the current situation and to answer several questions:

- What data stored in this application? (data viewpoint)
- How this data used? (business process viewpoint)
- Who uses this data? (business functions viewpoint)
- Why we need this data? (strategic viewpoint)

Answers on these questions provide the initial simplified enterprise architecture viewpoint, but the creation of these perspectives requires from several weeks to several months depending on enterprise maturity level. So, the result of this internal initiative easily could be obsolete on delivery if the development of enterprise architecture is not integrated with business strategy and reflects any changes of the latter.

It causes the architectural dilemma for enterprise architects or the people that perform that role in the enterprise when "they must promptly deliver the architectural artifacts that the organization urgently requires; at the same time, they must implement architectural practices from scratch." (Berg & Steenbergen, 2006). As a result, enterprise architects do not have a professional environment where they could develop and incorporate the architectures within the enterprise via applying one of the frameworks relevant to the business context (Rao, Reedy, & Bellman, 2011).

Enterprise architecture engineering and implementation of corresponding practices must be conducted in parallel to provide tangible results and make them up-to-date and relevant to key stakeholders.

1.1 Enterprise Architecture Usage

Enterprise architecture is a tool for various roles within an enterprise as executives, managers, analysts, subject matter experts, and end user. Every stakeholder group uses it for different purposes and within several perspectives, where enterprise architecture provides a single point of truth, shared understanding of the enterprise. Executives and manager use enterprise architecture to make sure that business and IT are linked, aligned and support organization strategy. Also, enterprise architecture provides a meaningful baseline to enable M&A. Analysts use enterprise architecture to validate organization quality attributes like consistency, redundancy, and integration to enable strategic initiatives for the development of IT infrastructure via implementation IT systems.

Enterprise Architecture usage realized by several activities (Enterprise Architecture Body of Knowledge, 2019):

- Transition
- Portfolio Management
- Acquisition
- Engineering
- Development
- Oversight
- Business and Operations Improvement
- Communication

Each of the mentioned activities provides value for initiator/sponsor of enterprise architecture practice based on problems he/she would like to solve.

In terms of transition, enterprise architecture could guide current to future states by visualizing phases for both business and technology perspectives, so that strategic initiatives are aligned, synced and followed according to agreed plans and defined resources.

Enterprise architecture supports portfolio management regarding the investments that support strategy toward established goals and expected outcomes. It allows identifying gaps and overlaps between business functions. As a result, recommendations of investments based on identified issues used as a toolset that enables strategic initiatives with expected outcomes.

Acquisition activities are highly dependent on the availability of enterprise architecture so that stakeholders could justify investments and access percentage of alignment with strategic goals and objectives. However, the introduction of a new company-wide system (like Enterprise Resource Planning or Customer Relationship Management systems) requires the development of documentation with detailed mapping of business processes and system functionality required to design and develop the system.

Engineering activities require enterprise architecture conceptual models to validate business and solution requirements for designing and developing solutions, systems and standalone components. Usually, these activities require an analysis of the whole set of quality attributes to collect and figure out information about the environment where the system will operate.

Development activities are focused on the creation of a new system or enhancing the existing ones. In this case, enterprise architecture provides a business context that shapes the scope of a new system or provides constraints on improvements. At the final stage, validation and evaluation allow making sure that a developed system or implemented enhancements fit existing state of enterprise architecture.

Oversight activities as part of enterprise governance program provide the evaluation basis via monitoring and assessment to make sure that performed efforts meet the requirements and all risks identified and managed. Mostly, oversight conducted by the third party to provide control over design or development activities.

Business and operations improvements activities are focused on enhancing business processes and related technology solutions. Providing step-by-step incremental improvements or implementation from scratch requires enterprise architecture to understand the context and dependencies among business and IT parts.

Finally, the communication among stakeholders using enterprise architecture provides a single point of truth and allows to visualize organization via different viewpoints (Hay, 2003) to communicate clearly to specific stakeholder groups. Usage of existing frameworks (Brown, Zachman, & Nunn, 2015) streamlines value creation, but enterprise architect has to consider both pros and cons depending on the business context, goals, existing resources. Both current and future states layered by strategy, business, and technology perspectives help communicate comprehensive view about an organization.

1.2 Enterprise Architecture Structure

Enterprise architecture described via several typical sub-architectures (see below), but also could include security architecture, geospatial architecture and social architecture:

- Business architecture
- Information architecture
- Application architecture
- Technology architecture

Most of enterprise architecture frameworks use similar subsets of enterprise architecture and develops current and future architecture views (Bernard, 2012).

1.2.1 Business Architecture

Business architecture is the essential for successful Enterprise Architecture because it defines the business drivers, strategy, operational model and corresponding goals and objectives. It represents holistic business capabilities view, value streams, business knowledge, organization structure and relationships among strategic perspective and operational ones. The business architecture one of the enterprise architecture perspectives and plays core role in business modeling (Lambert, The Place of Business Architecture within Enterprise Architecture, 2019). According to (OMG, 2019), Business architecture is "a blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demands". Moreover, Business architecture represents business without details of implementation in terms of IT solutions applying abstract level. However, Enterprise Architecture integrates both business and IT architectures. Besides EA, similar discussions take place regarding the Business Architecture – what does it mean to an organization, but surprisingly – the answer is similar: it is shared architecture and shared methodology (Kuehn, 2019).

1.2.2 Information Architecture

Information architecture (another term "Enterprise Information Architecture") is the part of the enterprise architecture process that describes – through a set of requirements, principles and models – the current state, future state and guidance necessary to flexibly share and exchange information assets to achieve effective enterprise change[1]. Information architecture allows to understand information lifecycle and define relationships with critical components where the information created, modified, viewed and destroyed. Moreover, it answers the question where this information stored, who is responsible for the information and who has access to what part of information. This perspective is core for IT landscape when organization performs transition from legacy system to the new system that enables additional opportunities.

1.2.3 Application Architecture

Application architecture provides information about catalog of applications in organization, existing interfaces among them and interaction with end users with that focus on data consumption and production[2]. Also, it depicts the incorporated

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[1] Gartner IT Glossary: https://www.gartner.com/it-glossary/enterprise-information-architecture
[2] Application architecture (Wikipedia): https://en.wikipedia.org/wiki/Applications_architecture

application logic how information transforms when used by end users with out focusing on internal structure. Application architecture could be used as starting point to understand internal complexity in organization to compose IT Roadmap for standardization and unification application for entire organization and figuring out opportunities for automation and solving performance issues.

1.2.4 Technology Architecture

Technology architecture provides description of logical and physical infrastructures that allows execution of application and services to support business activities. It defines reusable standards, guidelines, individual parts and configurations to provide technological services[3]. The notation that allows to depict structure and behavior of components on that levels is UML – widely used for system modeling.

1.3 Architecture Vision

Architecture vision is the first steps in creating enterprise architecture practice. It should provide shared understanding regarding the reason of this initiative, the purpose, clear definition of enterprise architecture valuable for enterprise, the services that architect provide to solve customer's problems and how enterprise architecture practice organized.

Essential steps for starting enterprise architecture practice at the company include increasing awareness of what the enterprise architecture is and about the value of enterprise architecture for perspectives of roles from different business functions. Delivering value to stakeholders could be possible only if an architectural function established effectively – applied actions performed according to defined priorities. A common issue is to commit to do enterprise architecture of the entire organization (which is too much to start from scratch) and do accomplish nothing. One of the essential steps in starting enterprise architecture agreed on first deliverables, milestones, and managerial support.

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[3] Gartner IT Glossary: https://www.gartner.com/it-glossary/enterprise-technology-architecture-eta/

1.3.1 Architecture Practice Areas

Enterprise architecture practice could be broken down into 18 areas (Berg & Steenbergen, 2006). These critical areas of architectural maturity grouped in two dimensions and included the level of architectural thinking in organization and integration in the organization. Eighteen areas of architectural maturity are:

1. Level of architectural thinking
    a. Development of architecture
    b. Alignment with business
    c. Coordination of developments
    d. Quality management
    e. Maintenance of architectural process
    f. Maintenance of architectural deliverables
    g. Use of an architectural method
    h. Architectural tools
    i. Budgeting and planning
2. Integration in the organization
    a. Use of architecture
    b. Alignment with the development process
    c. Alignment with operations
    d. Relationship to the as-is state
    e. Roles and responsibilities
    f. Monitoring
    g. Commitment and motivation
    h. Architectural roles and training
    i. Consultation

Every factor must receive sufficient attention to make enterprise architecture practice efficient. However, it challenged by the fact that enterprise architecture not applied as a dedicated business function, so architects are assigned to perform their role when there is an urgent need for architecture.

Development of architecture could be a project or process based. On the one hand, the project-based approach allows better budgeting and manageability towards the product focused results in the end because of independent and isolated project efforts. On another hand, incorporating architecture efforts into continuous process provides better value because of part of the culture – systematic and long-term thinking

Because architecture efforts have a goal, the developed architecture transition in use and usage form could vary – from the single and shared source of information to a tool of governing of the entire organization.

Any architectural efforts must be undertaken with justification in mind. Every architectural endeavor must be challenged with the question "How these efforts justify business goals?" and proceeded with supporting cost-benefit analysis.

Archiving business goals could be efficient only if aligned architecture efforts aligned with organization development efforts when both processes synchronized on conceptual and implementation levels.

Alignment with operations and maintenance support daily activities and gain related benefits from architectural efforts. However, incorporating operational principles and guidelines into architecture and vice versa imposing operations and maintenance activities by architectural constraints provides essential alignment on the operational level and enables further efficiency.

Commonly architectural efforts are allocated toward to-be state. Later, closer to the implementation phase understanding of as-is state becomes extremely important to define possibilities and constraints caused by historical growth, related suitability of the developed architecture.

Defined and clearly outlined architectural roles and responsibilities could save time when negotiations about someone's contribution or different opinions arise during the architectural journey.

Coordination of development provides a single-entry point to solve the problem of the number of initiatives that take place simultaneously and usually

interrelated, so architecture used as an instrument of control and orchestration of these initiatives.

Monitoring as a tool of control provides a control mechanism to make sure that allocated resources used in the best possible way and aligned toward the agreed business goals.

Quality management of architecture allows to decrease the number of errors and inconsistency in delivered artifacts, so achieve a higher level of the provided value.

Maintenance of the architectural process provides essential steps in the architectural cycle as evaluation, development, improvement, and implementation that safeguard architecture effectiveness and efficiency.

Once modeled as-is state is not enough in the long term, but defined maintenance of architectural deliverables required to eliminate outdated models and providing relevant models without the need for reengineering from the latest state.

Commitment and motivation by all stakeholders is essential, but the most critical – by C-level and IT management. Allocation of resource and support in the creation of favorable conditions to conduct architectural activities increase the speed of delivery and increase success level.

Architectural roles require training programs to develop and enhance knowledge and skills, where the essential are business (business model, process and solution development), technical (system and infrastructure development) and soft skills.

Architecture method provides a set of activities, techniques, and tools to compose deliverables effectively and could be reused again and again between the boundaries of a high level of details and holistic perspectives toward applicability.

Consultation during architecture development implies the involvement of different stakeholders and subject matter experts. Deliverables review for on every perspective is highly desirable. Valuable feedback supports architectural function according to defined quality standards.

Selection of architectural tool involves justification and alignment according to executed tasks with a focus on the repository and collaboration to maximize efficiency and effectiveness.

Budgeting and planning allow to define the number of required resources and allocate based on priorities so that is can be clear what and when it expected, and the estimated cost of efforts.

All reviewed 18 areas should not be performed on a high level of perfection, but the selection and justification to support the required level of balance are essential to provide value within existing budget limitations. Furthermore, working on maturity level for each key area could evolve architecture practice step-by-step using Architecture Maturity Matrix (see ANNEX 1 Architecture Maturity Matrix)

From the management perspective, enterprise architecture is the tool that allows realizing the organizational context and map business goals within a single repository more structurally and consistently. These benefits allow engaging people into new endeavor right from the start without the need for collecting context details about the current state.

At the beginning architects eager to demo results of their work to unveil how they could benefit the organization and make sure C-level and project levels accept them. Later on, focus shifts on the maintenance of delivering the value to the organization and reusing processes and approaches that already standardized because of clear responsibilities and defined tasks. However, involving stakeholders from the beginning allows to avoid ambiguities later and provides proper priorities and relevant information about the current issues, challenges, and constraints to focus on developing the most relevant and valuable architecture models at the beginning. Elicited details provide a clear context at the beginning of the initiative and support expectations management to make sure that stakeholders and sponsors will accept final results. One of the beneficial efforts at the beginning of the enterprise architecture journey is to compose the inventory of the existing applications and corresponding owners. Usually, the first presentation to the executives raise the questions regarding the global IT landscape and why do we need so many applications

at one place – that is the excellent starting point of defining IT Strategy Roadmap that triggers several initiatives toward standardization and alignment application portfolio. Next step includes modeling data flows among the applications to define dependencies and refine IT Strategy Roadmap if needed.

Once the first models finished and initial quick wins gained, the architect would like to make sure that created artifacts used by stakeholders in their projects as a basis or starting point. Unfortunately, this is only the beginning of the journey where the ground steps of awareness, desire, and knowledge according to the ADKAR[4] model of change (Hiatt, 2006) triggers the enablement zone. Besides, concerns regarding the understanding of the models, like being difficult for fundamental understanding, modeling among different abstraction levels or overweighed because of complexity must be solved beforehand. Communicating clearly about this endeavor is critical to involve stakeholders. Expected value should be communicated in simple language with examples and alignment to the audience as early as possible and to maintain the pace - provide valuable packs of updates iteratively. Avoiding these simple steps could mislead stakeholders and undervalue the gains achieved by the architect.

1.3.2 Position of the Architect

The practice of Enterprise Architecture highly dependent on the personal characteristics the person who launches it but could be significantly affected if the architect's position does not provide clear boundaries and subordination. It implies that ideally job profile has to create on earliest possibility and architect must report only to one manager.

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[4] ADKAR is an acronym that represents the five milestones or outcomes an individual must achieve for change to be successfully realized: awareness, desire, knowledge, ability and reinforcement. The ADKAR Model outlines an individual's successful journey through change. Each step of the model naturally aligns to typical activities associated with change management and articulates clear goals for these activities.

However, taking into account the complexity of tasks dedicated Architecture Board could be created to support decision making. Architecture Board includes experts with different expertise and decision-making power: senior management, architecture management, business management, and program management.

Role and functions of the Architecture Board differ from organization to organization, but the essential tasks are:

1. Review the scope and assign architectural tasks
2. Assessment and Approvals
3. Resolving conflicts

Place of Architect or Architectural team in the organization dependent on maturity level, organization structure, and culture specifics. Usually, architecture efforts start within IT business function, but these activities dedicated to application and technology layers. Creation and maintaining a broader perspective require that architecture function must be accountable to senior management and placed over the business and IT functions. This structure applied when senior management understands the importance and value of architecture business function. Another option is to place additional architectural resources within business functions. It allows to focus on a domain, scale efforts but requires additional coordination efforts. In this case, lead architect assigns and manage architectural tasks and communicates shared understanding among architects. Other options apply dedicated architectural efforts either without organization-wide perspective or with limited usage.

1.3.3 Success criteria for Architect

Launching enterprise architecture practice involves following some rules or checklist that allows validating whether an architect provides the best in the class services. The following success criteria could enhance the architect's results (Berg & Steenbergen, 2006):

1. Find a sponsor for each endeavor
2. Know stakeholders and their interests

3. Work consciously on architecture (development, acceptance, and maintenance)
4. Know organization goals
5. Observe organizational environment
6. Architecture is not sacred, but the business goals are
7. Share knowledge with others
8. Present provisional results
9. Discuss problems with others
10. Focus on coherence, but mind the speed

Quick wins are essential for broader support. Organized workshop with sponsors allows to communicate general concepts, value and manage expectations via elicited problems or identified opportunities. Considering elicited items, execute a pilot project to gain support for the wider initiative. In three months, the architectural team and senior management will assess delivered artifacts and benefits and based on this assessment the decision about further sponsorship and comprehensive implementation will be made.

1.3.4 Change Strategy

The essential rule in EA Change Strategy is - one change at a time. However, every change elaborated as a detailed action plan so that an enterprise architect could manage expectations. Elements to be considered are ambitions of change, stakeholders' involvement and communication approach. The next steps are to align elaborated information against Architecture Maturity Matrix (see ANNEX 1 Architecture Maturity Matrix) – define the current status and expected shifts in maturity, so the corresponding action steps that require the focus and must be defined, prioritized and planned for execution.

Development of overall strategy of change focused on the long term but split into a series of iterations (action steps) allocated into tangible timeboxes. In this case, three months timeboxes (Quarterly Plan) are the best option for consideration, taking into account the complexity and pace of change. Change Strategy requires to provide

continuity and consistency of actions across the entire organization. Besides, the real value is in mindset shift to architectural thinking that will be gained while composing architectural artifacts along a way. The Quarterly Plan (see ANNEX 4 Quarterly Plan) includes activities that can be completed in the next three months (consider available capacity) based on Architecture Maturity Matrix (see ANNEX 1 Architecture Maturity Matrix), current business goals that provide value in short term and communication activities. Besides, knowledge sharing, and training activities will baseline gained value and quick wins.

Change Strategy determined by several elements, which are ambitions level, the pace of change and expectations. Each of these elements has to provide additional context: ambitions level – timeframe of setting up a practice, scope, first results; style of change – the approach of work, communication with stakeholders, responsibilities, learning process; expectations – elicit, manage and fulfill.

The pace of change impacted by ambition level and enterprise architect have to define the level of maturity in the defined period (at least two years), work out the plan to achieve this level, define the scope (organization-wide or specific business unit). The factors that also impact the pace of changes are organizational culture, organizational structure, leadership (in business and IT vision), process standards and knowledge and skills. To sum up, the pace of change is the set of trade-offs between what we what to achieve and what is achievable within the defined period. However, established architecture function enhance IT Governance because both are closely related.

EA practice provides long term value, and general expectations include decreased costs and shorter time-to-market cycle. It involves solving other common issues in an organization as eliminated redundancy and legacy problems, instant answers on questions about the current state.

Working with changes requires a clear understanding of involved stakeholders, their interests and expectations. Conducting of stakeholder analysis allows to build stakeholder inventory and collect valuable information (see ANNEX

5 Stakeholder) that includes involved individuals, involvement form, impact, interests, engagement strategy.

Engagement of stakeholders requires the introduction of a communication plan to distribute results, collect feedback and keep the shared understanding of the current status of architecture efforts and delivered artifacts, possible blockers, and challenges (see ANNEX 3 Communication Matrix).

1.3.5 Architecture Tools

Variety of architecture tools introduces additional challenges in terms of selection of the proper tool for storing elicited information and designed models, collaboration and producing different artifacts based on stakeholder expectations.

Conducted research used the knowledge collected by different sources as consultancy organization (Gartner, 2019), technology media company (IDG, 2016), software comparison platforms (Capterra, 2019) and (G2, 2019), SME (Rao, Reedy, & Bellman, 2011), thought leaders (Schekkerman, 2011) and contributors (White, 2018).

Assessment criteria include (Schekkerman, 2011):

- Methodologies and Models
- Analysis and Manipulation
- Repository
- Tool Automation
- Model Development Interface
- Extendibility and Customization
- Cost and Vendor Support

The required minimum set of methodologies, models and notations includes enterprise architecture modeling (Zachman Framework, TOGAF), strategic modeling (org.chart, value chain, strategy map), business modeling (business model; BPMN) and requirements engineering (UML).

2. ENTERPRISE ARCHITECTURE PRACTICE

2.1 Business Environment and Current Situation

Every organization is evolving from a small company to a large enterprise. Evolution phases imply continuous transformations and control function over enterprise evolution could be critical in the "red ocean" of competition. Enterprise architecture provides such type of control to coordinate directional transformations within the enterprise. Efficient transformation requires a clear picture of the current state (as-is design) and one or more future states (to-be designs) as inputs for planning and managing step-by-step changes. In terms of enterprise architecture, both states should be visualized for all perspectives of organization, from products and services provided to clients, via business processes used to deliver these products and services, as well as information systems which support these processes

Recent several years were turbulent in terms of incorporating narrow- and company-wide systems at ELEKS. This period also was challenged by changes on C-level and corresponding changes within IT strategy (switching between different technology stacks; attempts of automation specific business processes). The triggered initiatives in a few months caused complain because of prolonged periods, over budgets, never-ending change requests from different stakeholders and complaints from end-users.

Existing situation provides opportunity to introduce Enterprise Architecture practice as a tool for shared understanding and alignment initiatives on different levels.

2.2 Problem Statement

One of the problems in the company that many of our information systems, the core one is legacy ERP system at the end of application lifecycle and core application not aligned and not integrated to use shared resources. The reason is common for such type of organizations – most of all our systems built as individual projects based on unique requirements we had. The result is predictable too – we have duplication of functionality and data, we cannot support evolving business processes, it is challenging

to launch new initiatives without impact analysis, or the ones is costly and requires extra efforts.

The problem of	Challenged decision making because of not available clear and consistent views of overall enterprise on an ongoing basis
Affects	CIO, CFO, CEO
The impact of which is	- Increased efforts - Slowness in decision making - Rework
A successful solution would	- Provide Enterprise Architecture As-Is Blueprint to enable internal strategic initiatives - Incorporate Enterprise Architecture Capability

In short term period, problem affects internal initiatives toward transition from legacy system and integration several ERP systems into solid solution to streamline core business process.

In long term, problem does not enable opportunities in terms of compliance, possible M&A and visibility through managerial perspective.

Expected solution enables initial steps toward implementation solid IT Landscape that aligns efforts in changes on business and IT levels. Depicted as-is state speed ups decision making and single source of truth of different stakeholders and simplify scope definition for third-party integrators. As result, ELEKS will gain competitive advantage because of increased internal efficiency and agility on organizational level.

Strategic plan of actions involves solving several internal IT (simplifying IT landscape, integrations) and business problems (business process management, standardization, business unit's expansion). In addition, acquired capability provides extra value for new and existing enterprise customers that increase potential revenue.

2.3 Solution Scope

Scope highly dependent on available resources, priorities of stakeholders and internal capabilities. Solution scope involves the following elements:

- Enterprise Architecture Introduction Approach
- Model Package (As-Is) state
- Enterprise Architecture Capability

The scope includes the following deliverables:

1. Enterprise Architecture Models Package (As-Is state): strategic, business, information, application perspectives
2. Incorporated Enterprise Architecture Capability (within Strategy Management Office and introduced Change Evaluation Process)

In short term, the goal in visualize current state of enterprise (an enterprise architecture blueprint) to assist in decision-making for executive management level and support for integration efforts on system level.

The next step will be focused to provide the most value - model entire company current state and several possible future states. Introduce a process of modeling enterprise architecture and transition plan to introduce this capability.

In long term, the goal in to introduce a capability:

- To integrate enterprise architecture as single and solid source of truth into decision-making flow
- To track changes and simulate scenarios via different perspectives for strategic initiatives within enterprise architecture lifecycle
- To identify gaps in performance that could be solved by IT solutions
- To develop enterprise architecture plan for maturing the organization to assist in moving planning of systems and technology from systems and process levels to strategy-driven and enterprise levels. In other words, linking strategy, business and technology.

Based on the recent researches conducted by Forrester's enterprise architect group, aligning three dimensions require to achieve coherent enterprise architecture: organization, objectives and enterprise architecture scope

Executed pilot project allowed to visualize as-is corporate application perspective (see the diagram below). This visualization allowed to uncover several communication issues:

- Employees do no aware of existence of several corporate systems
- Applications business functions overlaps

2.3.1 Deliverables

Deliverables per each perspective level provided below.

Level	Deliverable
Strategic	Vision and Mission Roadmap Value Streams Value Chain
Business	Organizational Structure Business Rules, Policies and Procedures Business Processes Catalog
Information	Information Architecture Information Items Catalog
Application	Corporate Applications Catalog Application Architecture Application Use Case Diagram

2.3.2 Strategic Architecture

Strategic architecture used as input source for the further perspectives, so essential models provided below for better understanding business context.

Mission and Vision Roadmap diagram depicts the changes in vision, mission and values during the last 3 years

Figure 1 Vision and Mission Roadmap
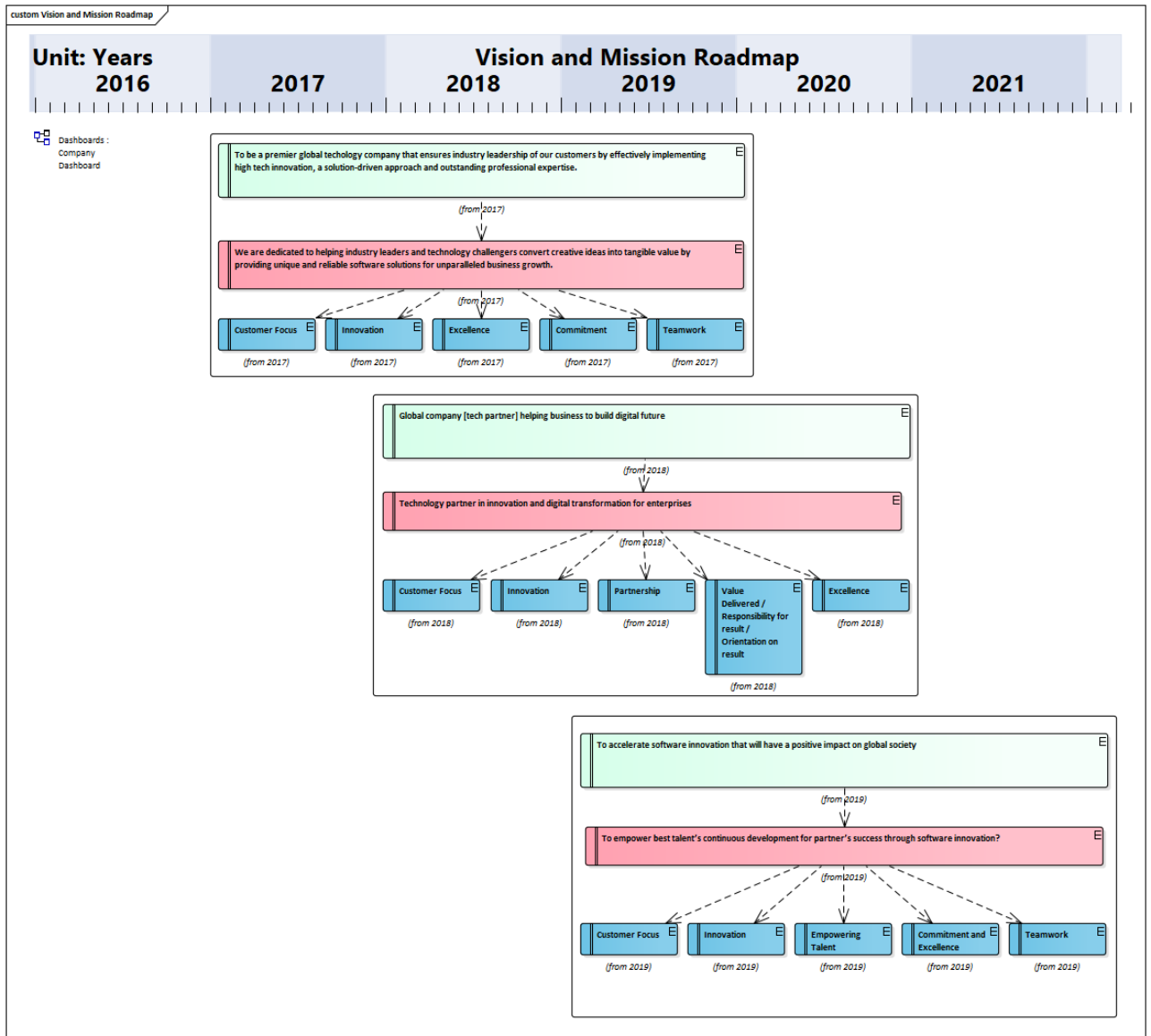
Value Chain depicts core and supportive activities

Figure 2 Value Chain
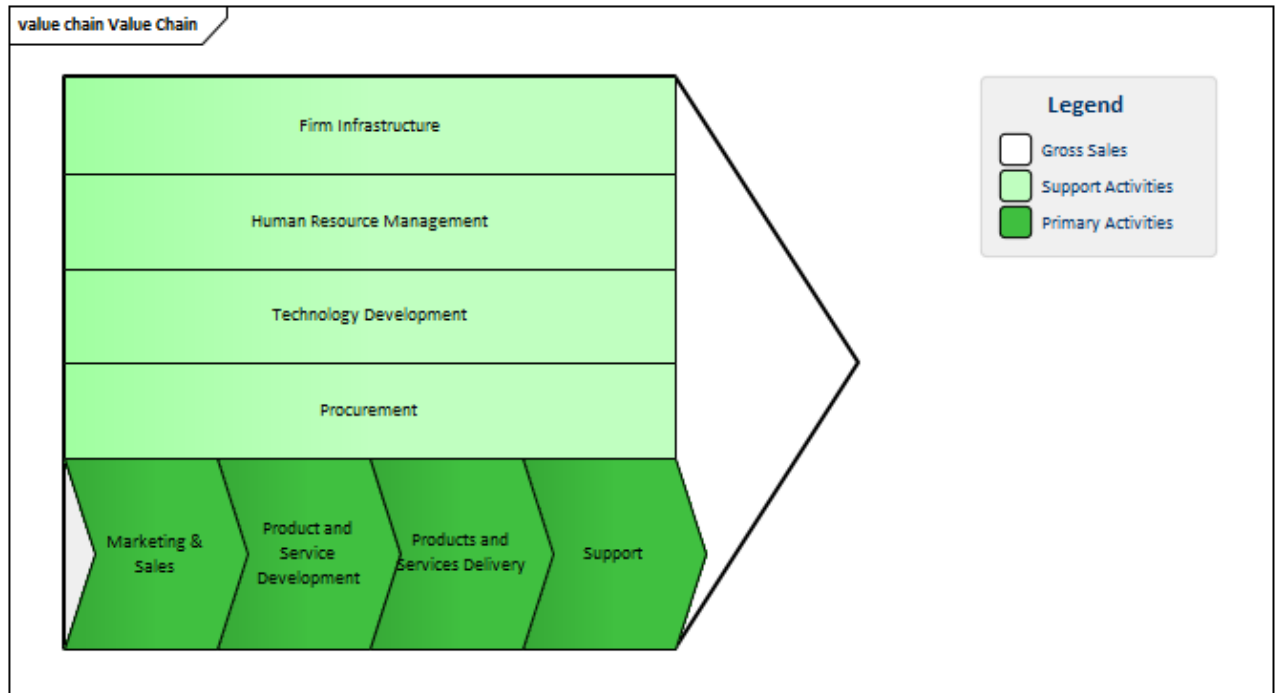
Value Streams depicts end-to-end value delivery flows grouped by types.

Figure 3 Value Streams
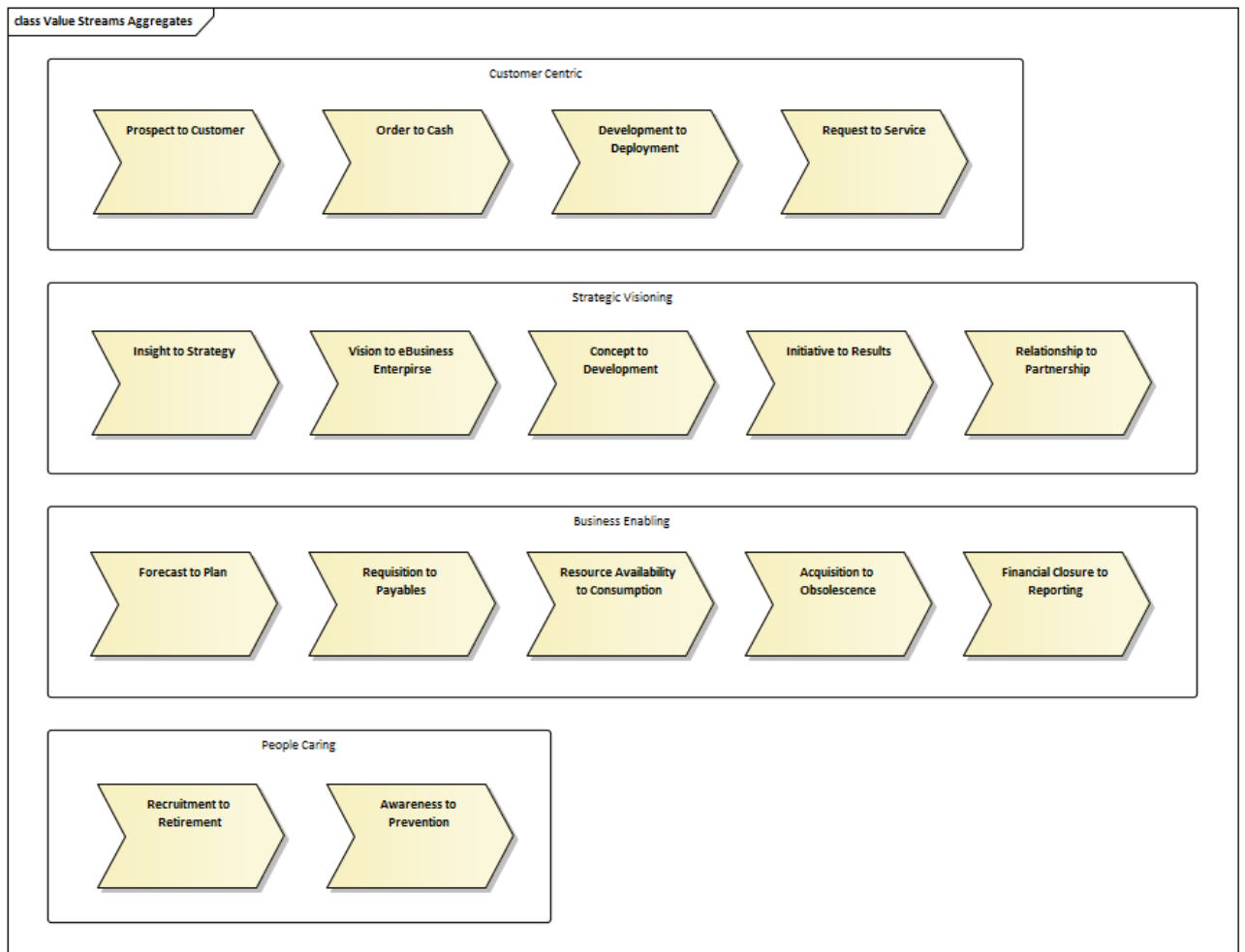
2.3.3 Business Architecture

Organizational structure visualizes structure of business functions and corresponding accountability

Figure 4 Organizational Structure
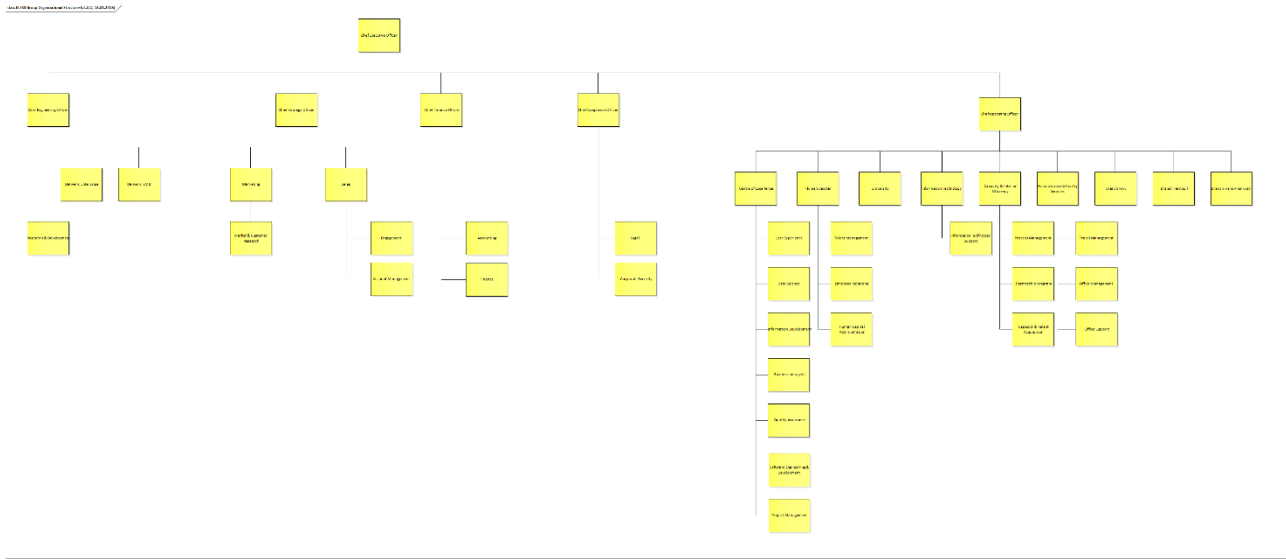
Collection of all identified business processes grouped by business functions and departments/offices modeled in Business Process Catalog

Figure 5 Business Process Catalog
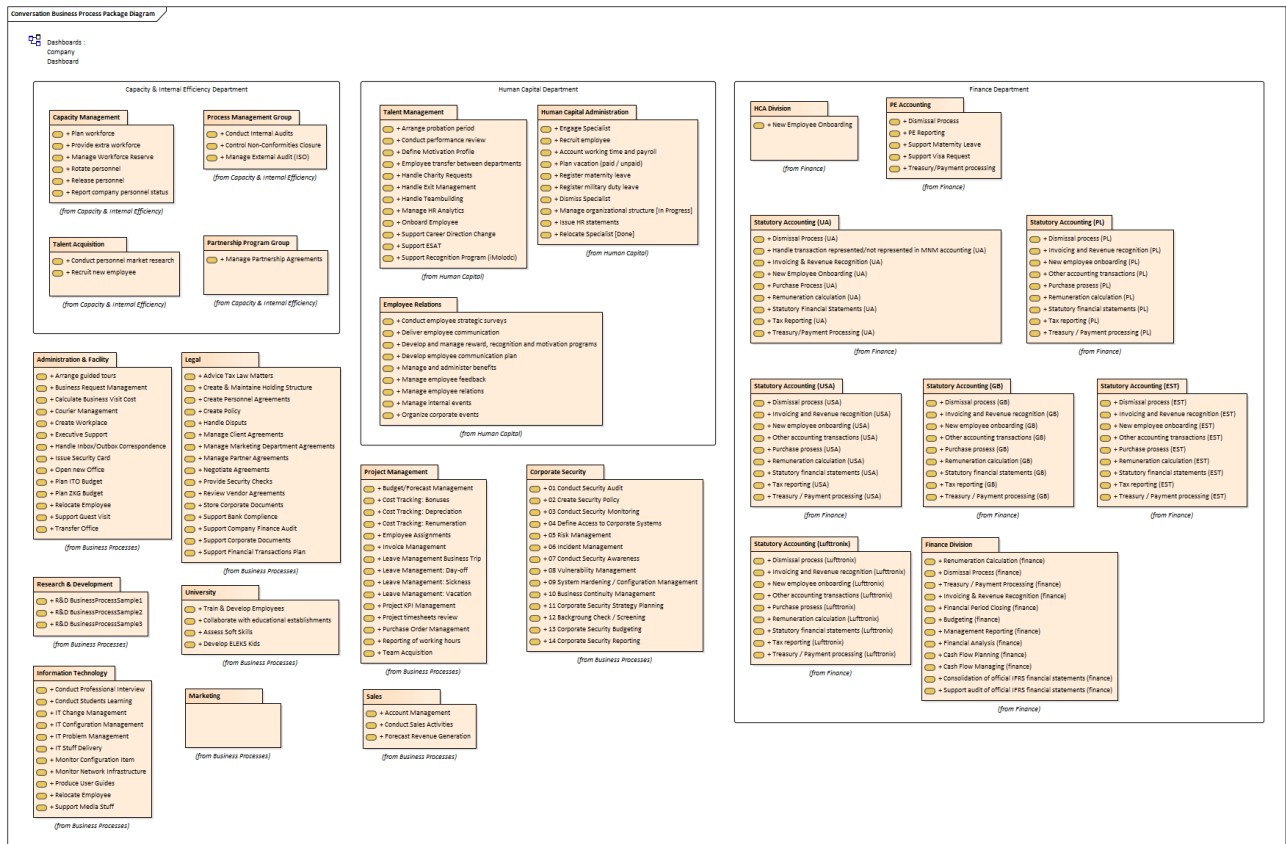
An example of elaborated business process diagram for Legal Office allows to depict ownership on process level. NOTE: The same diagrams modeled / will be modeled for each department / office.

Figure 6 Business Processes of Legal Office
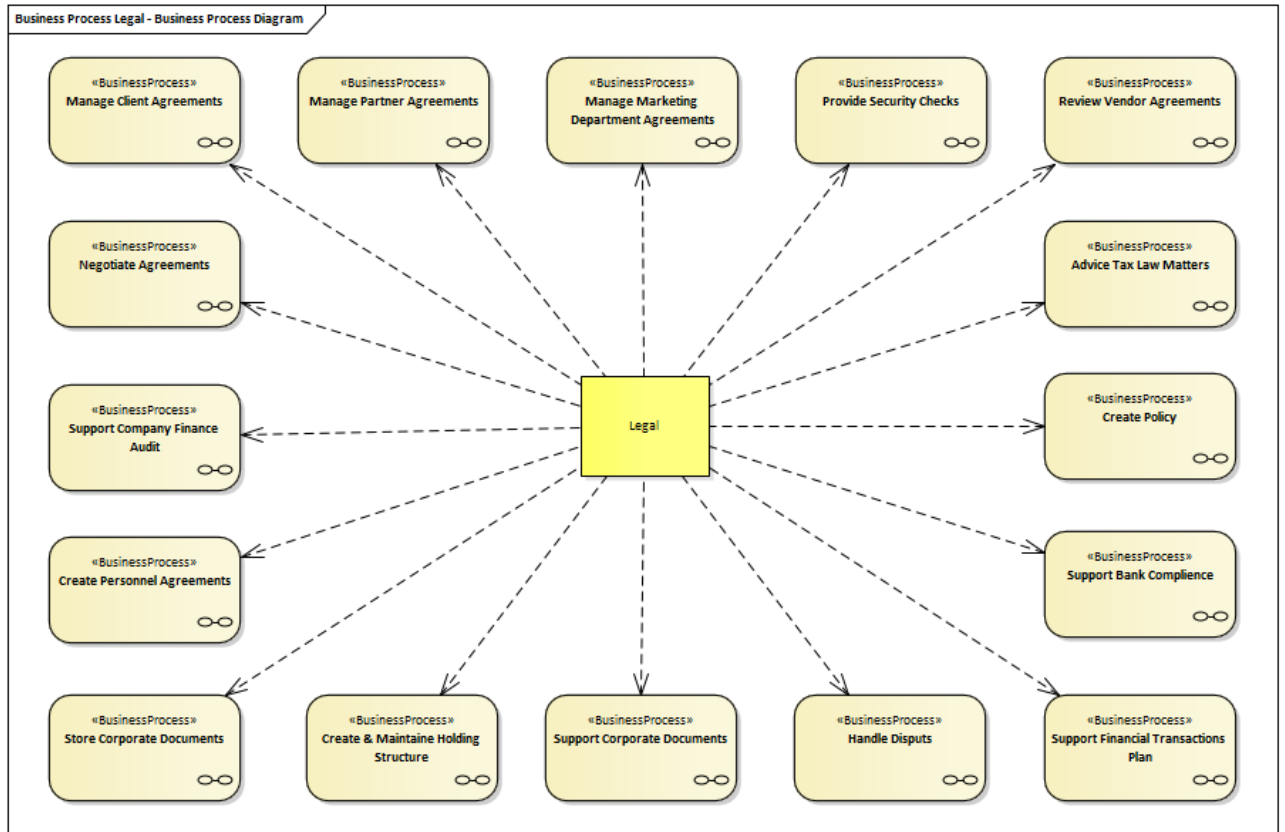
Essential catalog of business rules, policies and procedures depicted on the model below

Figure 7 Business Rules, Policies and Procedures

class Business Rules, Policies and Procedures

Dashboards :
Company
Dashboard

Source:General Terms & Conditions Of Cooperation

Business Rules, Policies and Procedures

Кодекс ведення бізнесу	Політика інформаційної безпеки	Політика контролю доступу	Політика чистого столу та чистого екрану
Політика класифікації та поводження з інформацією	Політика прийнятного використання інформаційних ресурсів	Положення про фізичну безпеку	Правила комунікації
Права та обов'язки використання сервісів та ресурсів	Антикорупційна політика	Правила обробки персональних даних	Політика використання Інтернету та електронної пошти
Політика управління безпекою інцидентів	Політика паролів	Політика використання власного обладнання	Політика використання мобільних пристроїв

2.3.4 Information Architecture

Information architecture diagram depicts information flows among dependent departments / offices

Figure 8 Information Architecture Diagram for Legal Office
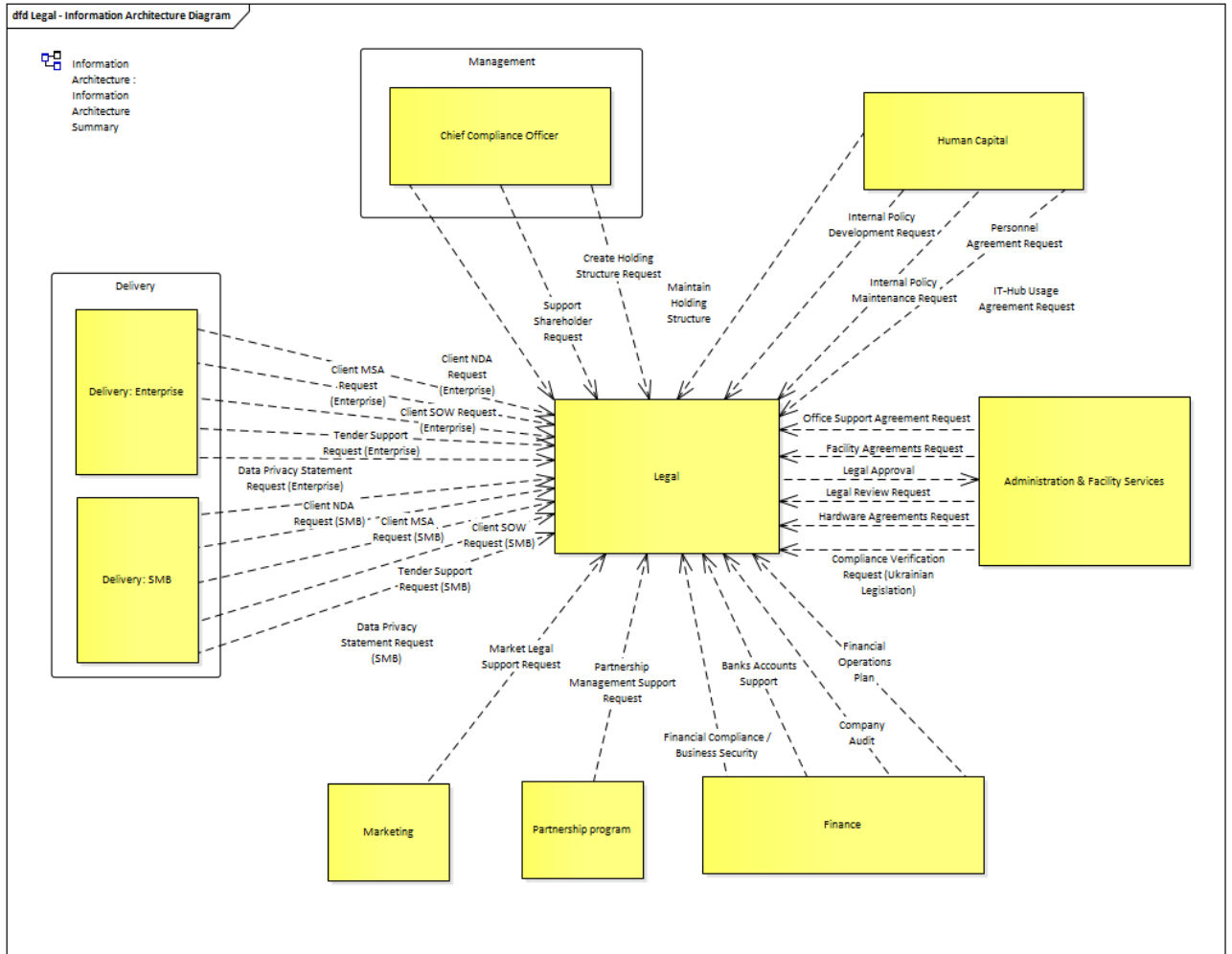
Information Items catalog diagram depicts list of items important for within each department / office.

Figure 9 Information Items Catalog
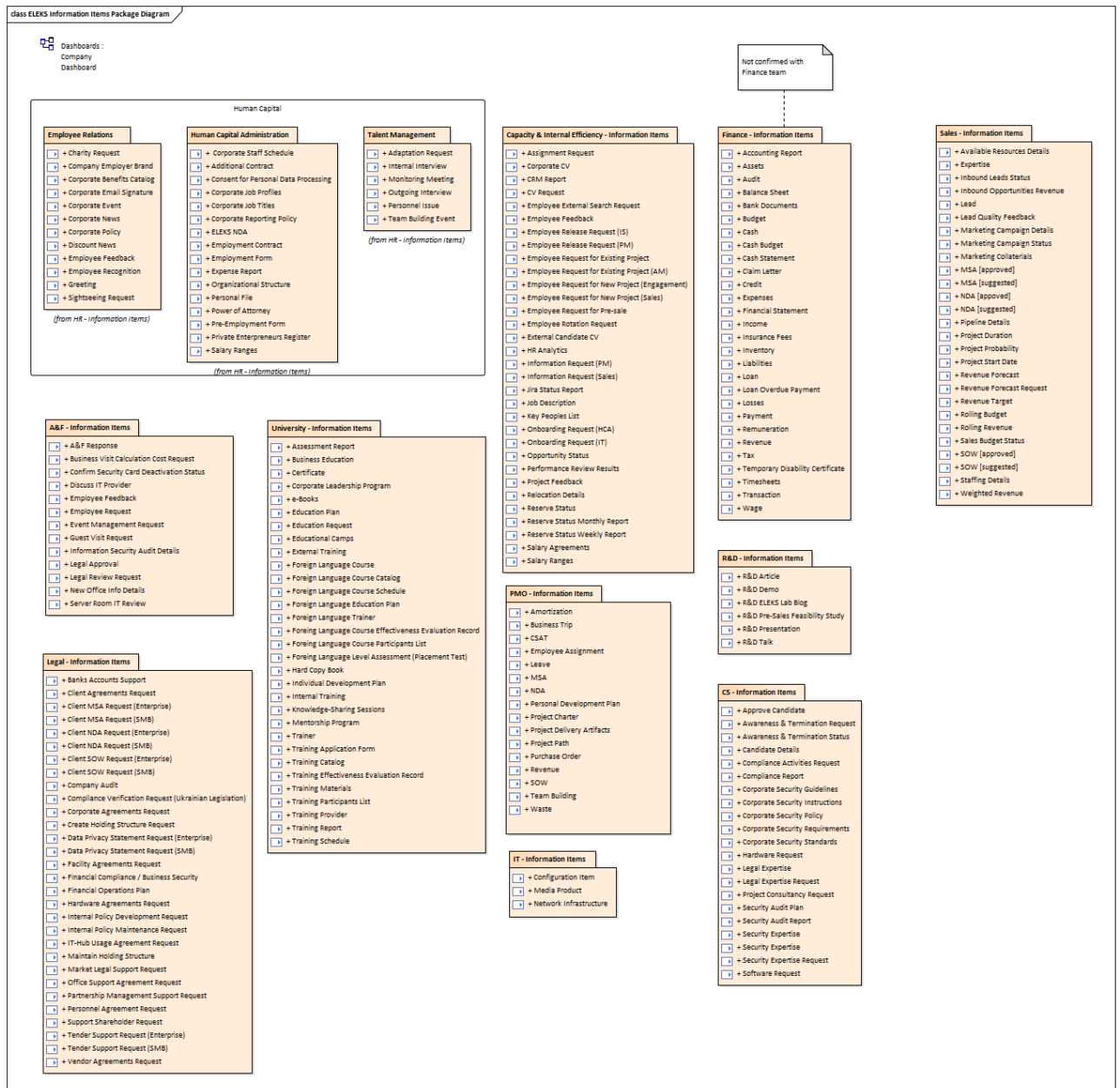
Information Items diagram depicts items important for specific department / office.

Figure 10 Information Items Diagram

class University - Information Items Diagram

Source: Training and Development Procedure
Link: https://cd.eleks.com/display/ELUN/Training+and+Development+Procedure

Trainings
- Training Catalog
- Training Provider
- Trainer
- Education Plan
- Education Request
- Training Application Form
- Training Participants List
- Training Schedule
- Training Effectiveness Evaluation Record
- Training Report
- Certificate
- Training Materials

- Individual Development Plan
- Assessment Report

Education Forms
- Internal Training
- External Training
- Mentorship Program
- Corporate Leadership Program
- Educational Camps
- Knowledge-Sharing Sessions
- Business Education

University

Foreign Languages
- Foreign Language Course Catalog
- Foreign Language Trainer
- Foreign Language Course
- Foreign Language Education Plan
- Foreing Language Course Participants List
- Foreing Language Level Assessment (Placement Test)
- Foreign Language Course Schedule
- Foreing Language Course Effectiveness Evaluation Record

ELEKS Library
- e-Books
- Hard Copy Book

2.3.5 Application Architecture

Corporate applications catalog depicts systems in use, development or planned for deployment

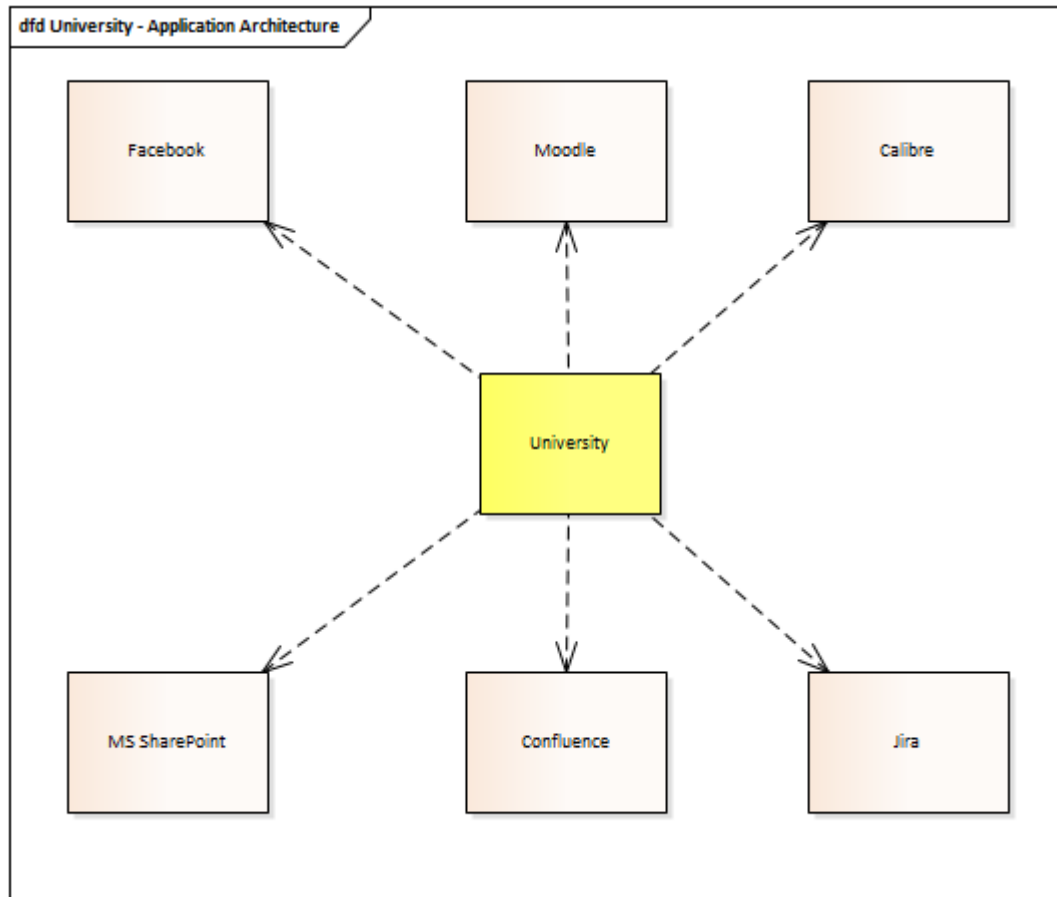## Figure 11 Corporate Applications Catalog

Application usage per department / office depicted by Application Architecture diagram

Figure 12 Application Architecture of University

The functionality of specific application visualized as Application Use Case Diagram

Figure 13 Application Use Case Diagram for EATS
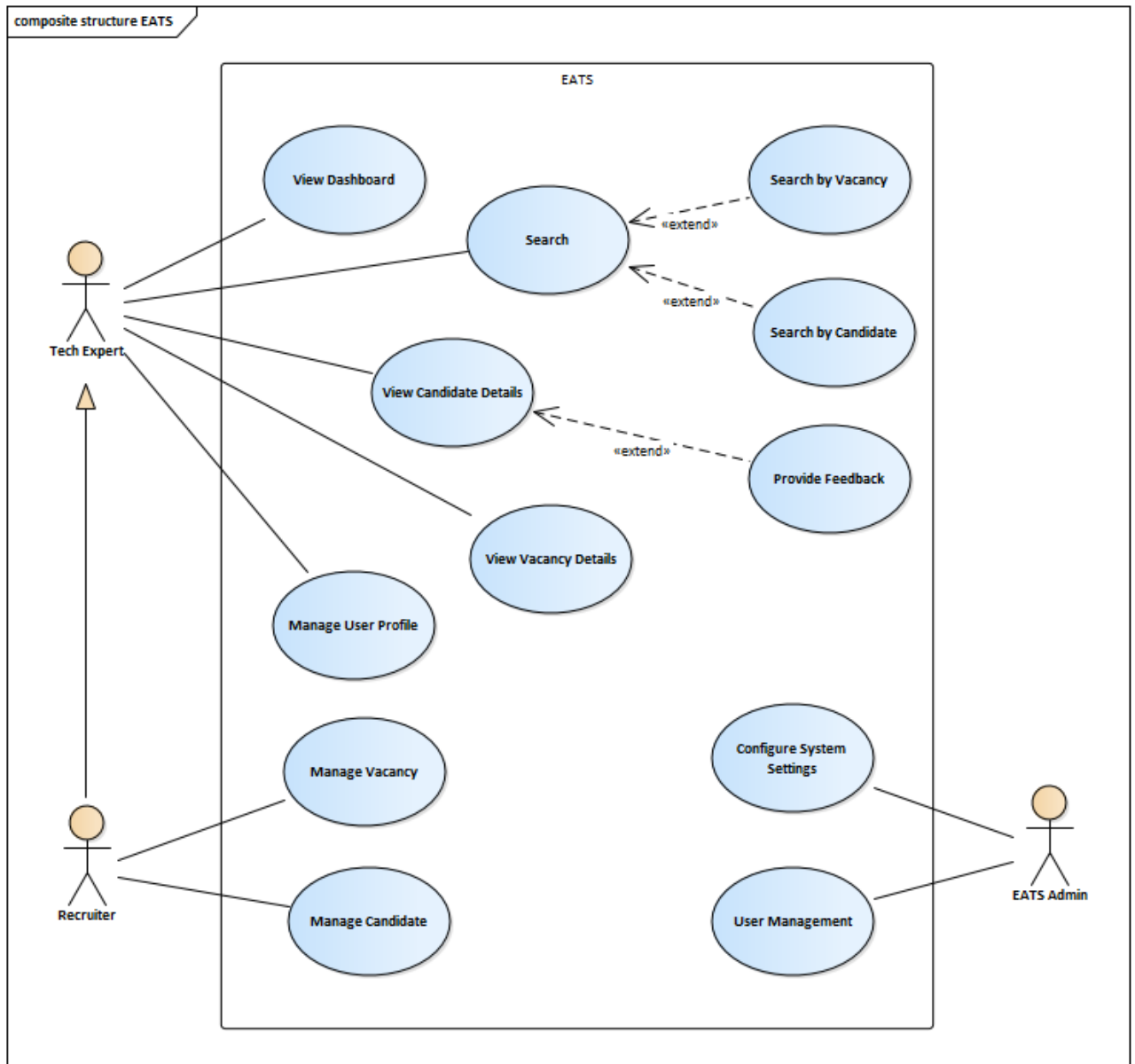
Additional type of models includes the visualization of dependencies (mappings). The Business Function vs. Information System Mapping provides extra perspective of importance corporate systems for specific functions. It becomes beneficial on impact analysis during system maintenance or system replacement.

Figure 14 Business Function vs. Information Systems Mapping

Business Function / Corporate System	Marketing	Sales	Delivery	Finance	Human Resources	Information Techology	Administration	Management
CRM	MS Dynamics 365							
ERP				TeamPro				
HRMS					EATS			
					Orange HRMS			
	JobDone							
FMS				1C ERP Salary				
				1C B				
				1C UUP				
				1C ZUPP				
				QuickBooks				
DMS	Confluence							
	MS SharePoint							
	Eleks Insider							
	eleks.com							
	MS OneDrive							
	Google Business Account			Calibre				
LMS				Moodle				
ITSM	Jira							
						GLPI		
Other	MailChimp						DocuSign	ProjectHealth
							MidPoint	
	My ELEKS							

2.4 Competitive Advantage

A competitive advantage occurs when an organization nurtures an attribute or set of attributes that allows it to outperform its competitors. Enterprise architecture is the source of competitive advantage. It allows to align strategy, business and technology. This approach will allow to develop a capability that is difficult for competitors to imitate. Moreover, when enterprise architecture is done well, it's become a strategic asset that makes the company more efficient and agile.

The enterprise architecture practice capability will allow perform more efficient cost leadership strategy and achieve the objective to be the lowest-cost producer among the firm between 1000 and 4000 employees in Ukraine. This

competitive advantage will allow to design and develop products with lower costs than competitors because of internal efficiency and agility on organizational level.

2.5 Value Proposition

The key value provided through the following:

- Increased level of understanding and awareness based on common set of EA terms and information
- Simplified compliance validation process & procedures
- Identified existing duplication in functional capability

Enterprise architecture documentation efforts are undoubtedly important – if you cannot see it, how could you manage it? We already have the similar experience within system-centric and process-centric approaches. Switch from a program- and system-level viewpoints to strategic approach, where we need to evaluate requirements and proposed solutions across entire enterprise aligning with strategic goals. According to performed analysis the goal is to have a single source of reference to avoid waste and duplication.

Enterprise Architecture provides abstract views, analyses and models of a current and/or future enterprise that helps people make better plans and decisions. Annual planning sessions and strategic meetings must use some model of the enterprise to support these discussions. The key value – have a model to play with to get shared understanding about how different scenarios would look like. Moreover, Enterprise Architecture assists in M&A opportunities – it helps rationalize and align strategic, business and technology plans (in addition to associated processes and resources to simplify decision making on post- merger/acquisition period. The decision support value proposition includes:

- at executive level, enterprise architecture provides visibility for large IT initiatives and support the determination of strategic alignment

- at the management level, enterprise architecture supports design and configuration management decisions, as well as the alignment of IT initiatives with technical standards
- at the staff level, enterprise architecture supports decisions regarding the operations, maintenance and the development of IT resources and services

The dashboard of web-version of ELEKS Enterprise Architecture for mentioned above levels looks like depicted below (generated HTML-report). Management navigating through architecture level enquire shared understanding about the company in general and selected information specifically.
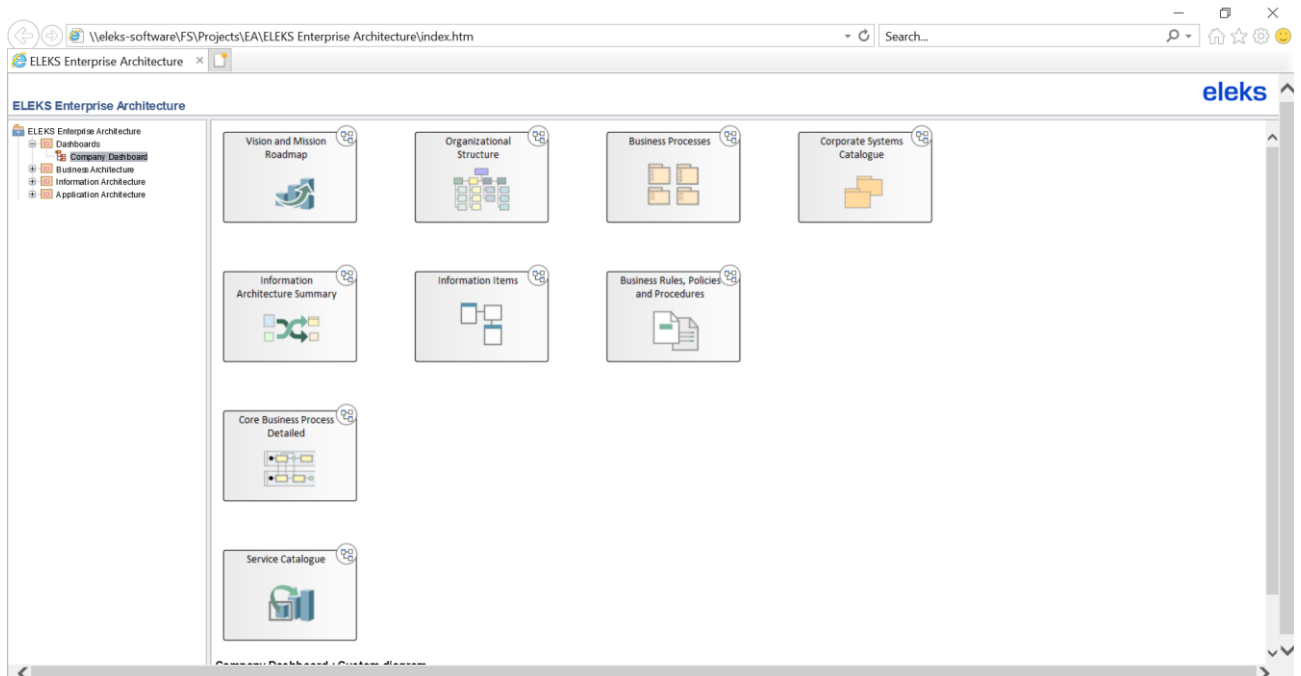
Enterprise Architecture is accomplished through a management program and an analysis and design method that are repeatable at different levels of scope:

- Management program
  - Strategic alignment (to connect goals, activities and resources)
  - Standardized policy (resource governance and implementation)
  - Decision support (financial control and configuration management)
  - Resource oversight (lifecycle approach to development/management)
- Analysis and design method

- o Enterprise architecture approach (the framework, analysis & design method, artifact set)
- o Current views (as-is strategies, processes and resources)
- o Future view (to-be strategies, processes and resources)
- o Enterprise architecture management plan (a plan of transition from the current to future EA)

EA helps to identify:

- the gaps in the performance of line of business activities/programs
- the capabilities of supporting IT services, systems and networks

The current view provides baselined inventory of current resources and activities documented in consistent way with future view so that analysts could identify gaps between current capabilities and future plans. Accurate current view provides an important reference for project planning, asset management and investment decision-making.

The key valued of enterprise architecture is about increasing available information about the enterprise

Future view provides architecture documents that focused on closing existing performance gap or supporting a new strategic initiative or operational requirement or technology solution.

To sum, the value proposition capabilities includes:

- Shift to enterprise-wide thinking about resource utilization
- Make and enterprise readier in responding to internal and external drivers of change
- EA helps to identify existing duplication in functional capability (which generates external savings)
- EA allows to identify current and future performance gaps

- EA allows achieve higher level understanding based on common set of EA terms and information
- EA enhances resource-planning capabilities
- EA supports better decision-making via reduced differences in interpretations

2.6 Business Model

Business Model changes within ELEKS ITO involves introduction of Enterprise Architecture capability within CoE Expertise. Holistic model of Business Model Canvas provides high level understanding of ELEKS ITO.

Figure 15 Business Model Canvas
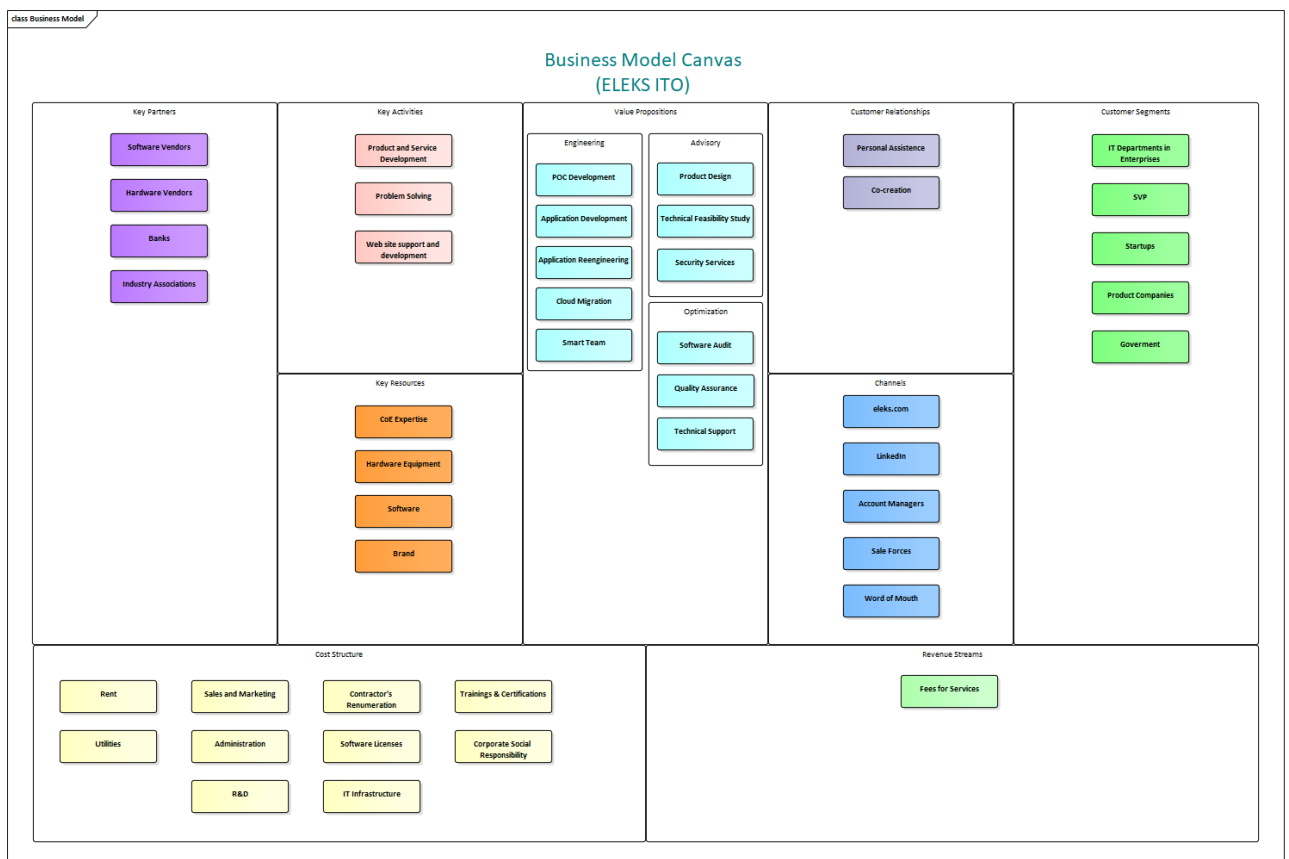
2.7 Risks

Initial analysis identified the following risk areas: scope, operations, support and value. Risk catalog with corresponding details and mitigation actions for each risk area available below

2.7.1 Scope

Attribute	Value
Risk Description	EA creation for the entire enterprise can be time-consuming, costly and disruptive to business services
Likelihood	Very low
Impact	High
Severity	Medium
Owner	Sponsor
Mitigation Actions	1. Deliver pilot project to access complexity and collect initial data for estimation 2. Plan lightweight and interactive delivery according to priorities and available resources
Status	Open

2.7.2 Operations

Attribute	Value
Risk Description	Managers and support staff disrupted from their normal work
Likelihood	High
Impact	Medium
Severity	Medium
Owner	Enterprise Architect
Mitigation Actions	1. Receive support from key stakeholders (CIO, CFO, CEO) 2. Conduct planning activities taking into account this risk and corresponding dependencies
Status	Open

2.7.3 Support

| Attribute	Value
Risk Description	Extra maintenance cost for EA documentation and repositories
Likelihood	High
Impact	Low
Severity	Low
Owner	Sponsor
Mitigation Actions	1. Secure budget for maintenance 2. Develop policy, procedures to support maintenance activities

	3. Conduct training session to support expected maintenance activities
Status	Open

2.7.4 Value

Attribute	Value
Risk Description	EA will not be used by stakeholders
Likelihood	Medium
Impact	Medium
Severity	Medium
Owner	Enterprise Architect
Mitigation Actions	1. Communicate value proposition and conduct lightweight and interactive delivery 2. Involve stakeholders, gain and maintain quick wins
Status	Open

2.8 Roadmap

The diagram below depicts the roadmap of activities that were conducted and dependencies on internal initiatives / risks occurred during the EA activities.
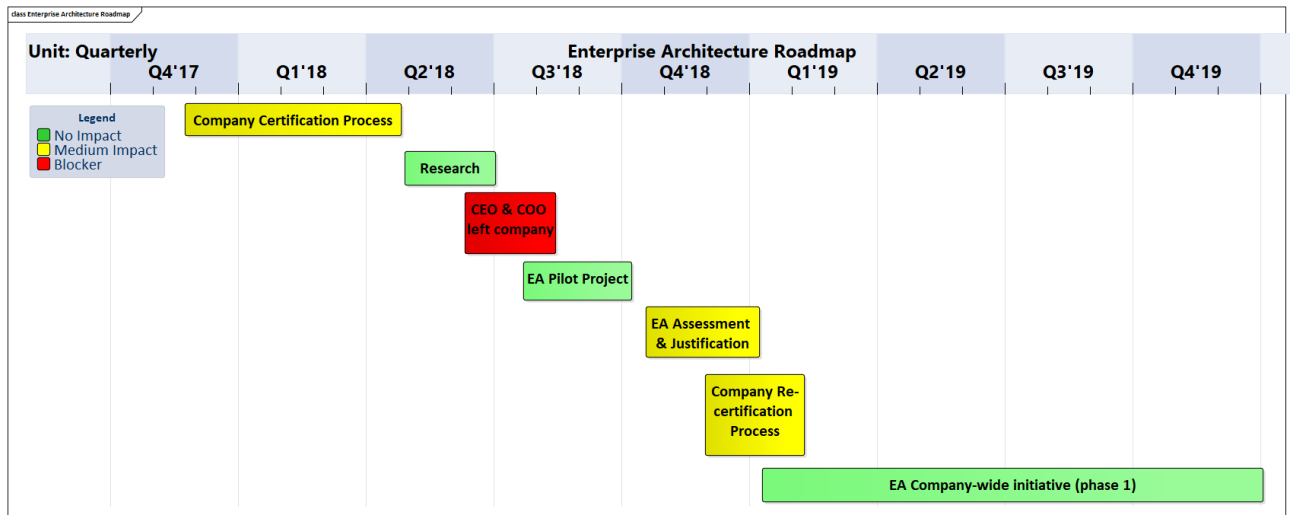
The key conclusions on this visualization are:

- Internal activities that involves stakeholders could heavily impact performance (reference to Company Certification Process)

- Assessment and Justification process requires extra time slot and reorganization and planning efforts

- Not available key stakeholders postpone all activities and question entre initiative

2.9 Communication Plan

The communication plan provides guidance for communication of modeled artifacts to enable and maintain engagement among stakeholders (see ANNEX 3 Communication Matrix).

2.10 Tools

According to conducted research and defined criteria (see Architecture Tools) the shortlisted tools include three tools with different pros and cons depicted in the comparison table below using Harvey Balls ideograms[5]

Criteria	Tools		
	SPARX Enterprise Architect[6]	BiZZdesign Enterprise Studio[7]	Archi[8]
Methodologies and Models	◕	◕	◑
Analysis and Manipulation	◕	●	◑
Repository	●	●	◕
Tool Automation	◕	◕	◑
Model Development Interface	◕	◕	◑
Extendibility and Customization	◑	◕	◑
Cost and Vendor Support	◕	◔	●

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[5] Harvey Ball (Wikipedia): https://en.wikipedia.org/wiki/Harvey_Balls
[6] SPARX Enterprise Architect web site: https://sparxsystems.com/products/ea/shop/index.html
[7] BiZZdesign web site: https://bizzdesign.com/products/enterprise-studio/
[8] Archi web site: https://www.archimatetool.com/

Considering provided functionality, budget constraints and organization knowledge & skills the selected tool is SPARX Enterprise Architect. NOTE: Additional assessment will be provided during lessons learn session to validate usage feedback and initial expectations.

2.11 Staff Management

ELEKS Enterprise Architecture requires the following staff assignments:

Initiative	Staff	Involvement
EA Pilot Project	Enterprise Architect	Full-time
EA Company-wide initiative	Enterprise Architect	Full-time
	Business Analyst	Part-time
EA Maintenance	Process Management Group Expert	Part-time

Staff Job Descriptions provided by Human Capital Administration Office. Assignments managed by Capacity Office.

2.12 Finances

2.12.1 Value of information

Information has value for business (Hubbard, 2014) and the reasoning is below:

- Information reduces uncertainty about decisions that have economic consequences
- Information affects the behavior of others, which has economic consequences
- Information sometimes has its own market value

To evaluate value of information used the coefficient EVI (Expected Value of Information) – the value of information is equal to the value of the reduction in risk. It calculates as Expected Opportunity Loss (EOL) before a measurement (initial estimates) and EOL after a measurement.

Applying this approach, the EVI for the period of Q4'17 – Q4'19 equals:

- HRMS loss - $48k

- ERP opportunity delay - $500 (implementation year) -2000k (full system rollout)

- Other initiatives delay - $25k

EVI = $48k x 0.3 + $500 x 0.1 = $14.4 + $50 + $12.5 = $76,8k

NOTE: Assumptions regarding the probability coefficients are following:

- HRMS loss – 30%

- ERP opportunity delay – 10%

- Other initiatives – 50%

2.12.2 Project Budget

EA Pilot Project spending are $37k

EA Company-wide initiative budget (optimistic)

Expenses	YEAR
Hardware	$0,00
Software	
Licenses (new & upgrade)	$1 000,00
Traning & Certifications	
Books	$600,00
Trainings	$2 000,00
Certifications	$3 500,00
Salary	
Enterprise Architect	$37 500,00
Business Analyst	$30 000,00
Total	**$74 600,00**

EA Company-wide initiative budget (pessimistic)

Expenses	YEAR
Hardware	$0,00
Software	
Licenses (new & upgrade)	$1 000,00
Traning & Certifications	
Books	$500,00
Salary	
Enterprise Architect	$3 750,00
Total	**$5 250,00**

Expected maintenance cost (2nd year and beyond) - $25k

Considered both scenario:

- Optimistic scenario: $137k

- Pessimistic scenario: $67k

To sum up, considering EVI = $76,8k and pessimistic scenario ($67k) costs – it makes sense to start initiative as early as possible to avoid losses for the upcoming initiatives or postponed current ones.

2.13 Change Management

Once the first artifacts created the need for tracking changes become crucial. Change requests will appear over and over because of the nature of people (missed details or unreasoned decisions), agile methodology and the situation on the market

Change Evaluation process allows to handle request captured via existing tool with modified steps to handle complexity, impact and business priority.

Figure 16 Change Evaluation Process
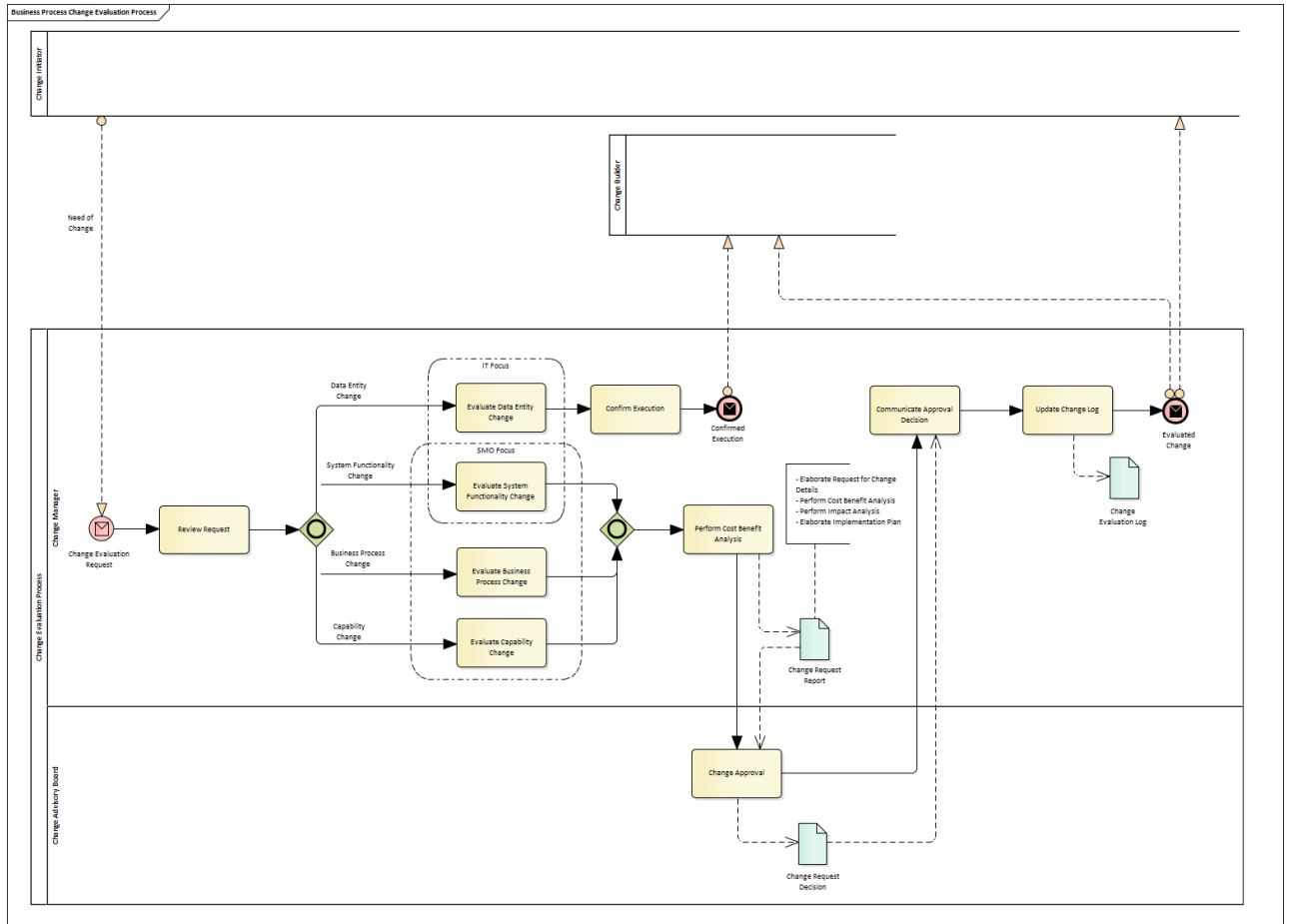
Change accessed based on impact (data entry change, system functionality change, business process change or capability change) and handled by corresponding members of Architecture Board.

3. CONCLUSIONS

The corporate world and corresponding projects are the most challenging ones I have worked with. It consumes a lot of energy during elicitation and negotiation sessions, it requires flexible planning to fit schedule time slots, it involves agility during planning and execution because of changes in priorities or triggered risks that cannot be mitigated. However, this type of initiatives enables steady growth as an expert (both role and influence/impact), so it adds more responsibility and power for implementing changes.

Working on this project as initiatives as a lead and subject matter expert I

Roles executed on this project includes:

1. Lead

   - Initiate an enterprise architecture pilot project at the company
   - Elicit, collect and analyze information about current state
   - Compose set of models about enterprise architecture
   - Validate models with stakeholders
   - Improve models based on received feedback

2. Subject Matter Expert

   - Describe a process of composing enterprise architecture
   - Create a transition plan how to seamlessly introduce this practice

3. Change Management Expert

   - Change Evaluation Process
   - Awareness, Desire & Knowledge (ADKAR as change management)

Experienced challenges and corresponding conclusions:

- Challenged ROI evaluation of Enterprise Architecture initiative
- Launch of new internal initiative requires strong executives support

- Quick wins extremely important for Change Management
- Enterprise Architecture practice requires hours and hours of elicitation

The list of courses that enabled and supported this work are:

- Management Decision Making Toolbox by **Mychailo Wynnytskyy:** Strategic tools (will be used later to visualize conclusions)
- Introduction to Finance by **Mykhaylo Salo:** Financial indicators calculation (will be used to calculate Project Pilot findings)
- Strategic Marketing Challenges in Technology Driven Organizations by **Joe Pons:** Thinking out of the box (problem and solution domains)
- Software Architecture for Managers by **Matthew Bass:** Analysis and modeling
- Methods in Requirements Engineering by **Mel Rosso-Llopart:** Goal modeling
- IT Strategy by **Dr. James McKeen / Alex Shegda (consultation):** CIO thinking, IT strategy and IT planning
- Business systems of the Future by **Adrian Slywotzky:** Strategic thinking, business modeling
- Certified workshop: The 7 Habits of Highly Effective People by **Anastasiya Markuts:** Personal motivation and organization

4. LITERATURE AND REFERENCE LIST

APQC. (2019, April 25). *APQC's Process Classification Framework (PCF)®*. Retrieved from APQC: https://www.apqc.org/pcf

Berg, M. v., & Steenbergen, M. v. (2006). *Building an Enterprise Architecture Practice: Tools, Tips, Best Practices, Ready-to-Use Insights.* Springer.

Bernard, S. A. (2012). *An Introduction to Enterprise Architecture* (3 ed.). AuthorHouse.

Brown, A., Zachman, J., & Nunn, S. (2015, February). *Understanding and Leveraging Synergies Among the Major EA Frameworks by: The Open Group*. Retrieved from zachman.com: https://www.zachman.com/resource/ea-articles/189-understanding-and-leveraging-synergies-among-the-major-ea-frameworks-by-the-open-group

Capterra. (2019, April 25). *Enterprise Architecture Software*. Retrieved from capterra.com: https://www.capterra.com/enterprise-architecture-software/

Coghill, C. (2016, June). *Enterprise Architect as Enterprise Designer by: Cort Coghill*. Retrieved from zachman.com: https://www.zachman.com/resource/ea-articles/360-enterprise-architect-as-enterprise-designer-by-cort-coghill

Daniel, D. (2007, March 31). *The Rising Importance of the Enterprise Architect*. Retrieved from cio.com: https://www.cio.com/article/2439397/the-rising-importance-of-the-enterprise-architect.html

Enterprise Architecture Body of Knowledge. (2019, April 25). Retrieved from EABOK: http://www2.mitre.org/public/eabok/eabok.html

G2. (2019, April 25). *Best Enterprise Architecture Software*. Retrieved from g2.com: https://www.g2.com/categories/enterprise-architecture

Gartner. (2019, April 25). *Reviews for Enterprise Architecture (EA) Tools*. Retrieved from Gartner Peer Insights: https://www.gartner.com/reviews/market/enterprise-architecture-tools/vendors

Greefhorst, D., & Proper, E. (2011). *Architecture Principles: The Cornerstones of Enterprise Architecture.* Springer.

Hay, D. C. (2003). *Requirements Analysis: from Business Views to Architecture.* Pearson Education.

Hiatt, J. M. (2006). *ADKAR: A model for change in business, goverment and our community.* Prosci Learning Center Publications.

Hubbard, D. W. (2014). *How to measure anything: finding the value of intangibles in business* (3 ed.). Wiley.

IDG. (2016, August 18). *Enterprise Architects: Bridging IT & Business*. Retrieved from idg.com: https://www.idg.com/tools-for-marketers/enterprise-architects-bridging-it-business/

Kuehn, W. (2019, April 1). *The Good, The Bad, and The Ugly: Dos and Don'ts For Establishing a Business Architecture Practice*. Retrieved from s2etransformation: https://www.s2etransformation.com/2019/04/01/the-good-the-bad-and-the-ugly-dos-and-donts-for-establishing-a-business-architecture-practice/

Lambert, D. (2019, April 25). *Bridging Business Model Canvas and Business Architecture*. Retrieved from biz-architect.com: https://biz-architect.com/bridging-business-model-canvas-and-business-architecture/

Lambert, D. (2019, April 25). *The Place of Business Architecture within Enterprise Architecture*. Retrieved from biz-architect.com: https://biz-architect.com/the-place-of-business-architecture-within-enterprise-architecture/

Lambert, D. (2019, April 2). *What's the ROI on Your Business Architecture Practice?* Retrieved from biz-architect.com: https://biz-architect.com/whats-the-roi-on-your-business-architecture-practice/

Land, M. O., Proper, E., Waage, M., Cloo, J., & Steghuis, C. (2009). *Enterprise Architecture: Creating Value by Informed Governance.* Springer.

Lankhorst, M. (2017). *Enterprise Architecture at Work: Modeling, Communication and Analysis* (2 ed.). Springer.

OMG. (2019, April 25). *OMG Enterprise Architecture Specifications.* Retrieved from OMG: https://www.omg.org/intro/EA.pdf

Perks, C., & Beveridge, T. (2001). *Guide to Enterprise IT Architecture.* Springer.

Pilone, D., & Pitman, N. (2005). *UML 2.0 in a Nutshell.* O'Reilly Media.

Rao, P. C., Reedy, A., & Bellman, B. (2011). *FEAC Certified Enterprise Architect CEA Study Guide.* McGraw-Hill.

Ross, J. W., Weill, P., & Robertson, D. C. (2006). *Enterprise architecture as strategy: creating a foundation for business execution.* Harvard Business School Press.

Schekkerman, J. (2011). *Enterprise Architecture Tool Selection Guide*. Retrieved from enterprise-architecture.info: https://www.enterprise-architecture.info/documents/Enterprise%20Architecture%20Tool%20Selection%20Guide%20v6.3.pdf

Silver, B. (2009). *BPMN Method and Style.* Cody-Cassidy Press.

Steven H. Spewak, P., & Hill, S. C. (1992). *Developing a blueprint for data, applications, and technology: enterprise architecture planning.* John Wiley & Sons.

White, S. K. (2018, November 27). *Top 11 enterprise architecture tools for 2019*. Retrieved from cio.com: https://www.cio.com/article/3323396/top-enterprise-architecture-tools.html

5. ANNEXES

ANNEX 1 Architecture Maturity Matrix

Key Area	Level 1	Level 2	Level 3	Level 4
Development of architecture	Architecture undertaken in projects	Architecture as a continuous process	Architecture as a facilitation process	-
Use of architecture	Architecture used informatively	Architecture used to steer content	Architecture integrated into organization	-
Alignment with business	Architecture tested for compatibility with business goals	Architectural process geared to business goals	Architectural process is an integral component of business	-
Alignment with the development process	Ad hoc	Structural	Interactive	-
Alignment with operations	Ad hoc	Structural	Interactive	-
Relationship to the as-is state	Attention to the as-is state	Attention to migration	-	-
Roles and responsibilities	Responsibility for architectural content assigned	Management responsibilities for the architectural process	Senior management responsibilities for the effect of architecture	-
Coordination of developments	Steering the content in each project	Coherence among projects	-	-
Monitoring	Reactive monitoring	Proactive monitoring	Embedded monitoring	Integrated monitoring
Quality management	Retrospective validation	Quality process developed	Embedded quality policy	-
Maintenance of the architectural process	Maintenance performed in a fragmented manner	Maintenance procedures are established	Continuous process improvement	-

Maintenance of architectural deliverables	Maintenance performed in a fragmented manner	Maintenance procedures are established	A maintenance policy exists	-
Commitment and motivation	Allocation of budget and time	Architecture integrated into processes of change	Continuous architectural improvement accepted by the organization	-
Architectural roles and training	Role recognized	Role described	Role supported	Role valued
Use of an architectural method	Project specific	Organization generic	Organizationally optimizing R&D activities	-
Consultation	Internal architectural meetings	Meetings with sponsors and users of architecture	All-encompassing discussions about the quality of the architectural processes in the organization	-
Architectural tools	Ad hoc and product based	Structural and process based	Integration of tools	-
Budgeting and planning	Project specific	Organization generic	Optimizing	-

Source: (Berg & Steenbergen, 2006)

ANNEX 2 Enterprise Architect Job Description

Source: (IDG, 2016) and (Coghill, 2016)

ANNEX 3 Communication Matrix

Communication	Method	Frequency	Goal	Owner	Audience
ELEKS Enterprise Architecture	Email with link to repository HTML-report	Monthly	Deliver updated EA models	Enterprise Architect	Executives, D-level, H-level
Department / Office documentation	Email with link to documentation located in Document Management System	Per request	Collect as-is state (collected information) about the department / office	Enterprise Architect	Executives
Status Update	Email	Weekly	Provide status update and sync regarding priorities	Enterprise Architect	Chief Strategy Officer

ANNEX 4 Quarterly Plan Example

Activity	Phase 1				Phase 2
	30/4	31/5	15/6	31/7	
Vision document	■				
Services catalogue A&A	■				
Communication plan		■			
Communication			■	■	■
First alignment with IM		■			
Architecture assessment IM		■			
Second alignment with IM			■		
Formal agreements strat. collab.				■	
Execution plan per business unit				■	■
Embedding intake & proposal	In IT processes				
Embedding preparation			In IT processes		

Figure 8.3 Sample Quarterly Plan

Source: (Berg & Steenbergen, 2006)

ANNEX 5 Stakeholder Inventory

Stakeholder Group
Marketing
Sales
Finance
Corporate Security
Legal
Corporate Security
Capacity & Internal Efficiency
Capacity & Talent Acquisition
Process Management
Partnership Program
Human Capital
Human Capital Administration
Talent Management
Employee Relations

| Stakeholder Group |
| --- |
| University |
| Delivery: Enterprise |
| Delivery: SMB |
| Center of Excellence |
| Project Management Office |
| Information Technology |
| Administration & Facility Services |
| Travel Management |
| Office Management |
| Office Support |

ANNEX 6 Modeling Guidelines

Enterprise Architecture repository general structure includes sections mentioned above (Business Architecture, Information Architecture, Application Architecture) and complementary ones:

- Dashboards – an entry point package (besides includes relationship matrices)
- Documentation – pre-configured templates, style sheets and scripts for generation of documentation per each stakeholder group
- Other – a package for requires not included into ELEKS Enterprise Architecture yet
- Recycle Bin – a package for removed items
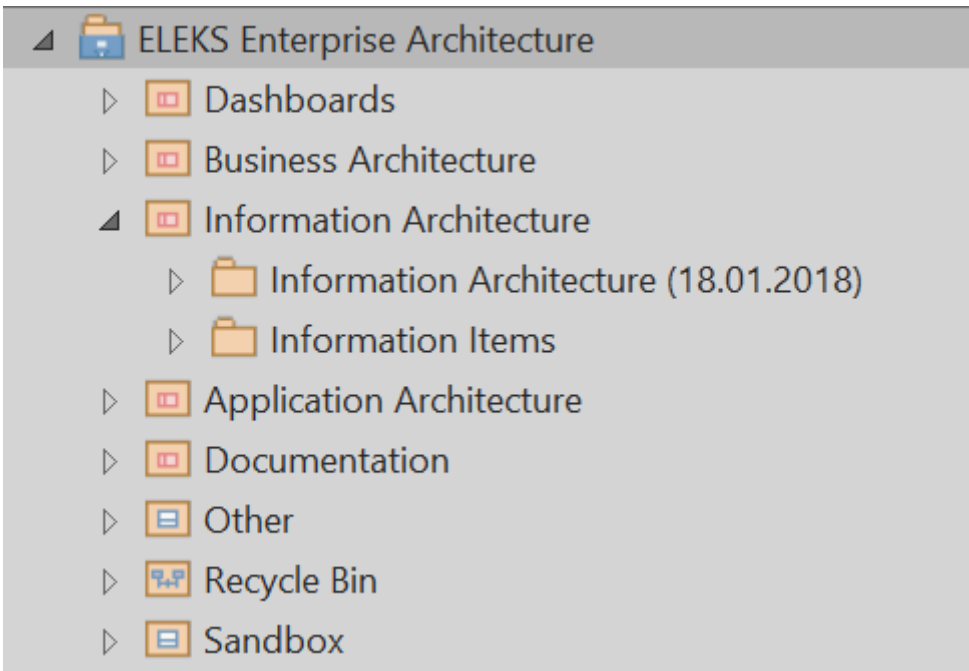- Sandbox – a package for SPARX Enterprise Architect functionality research
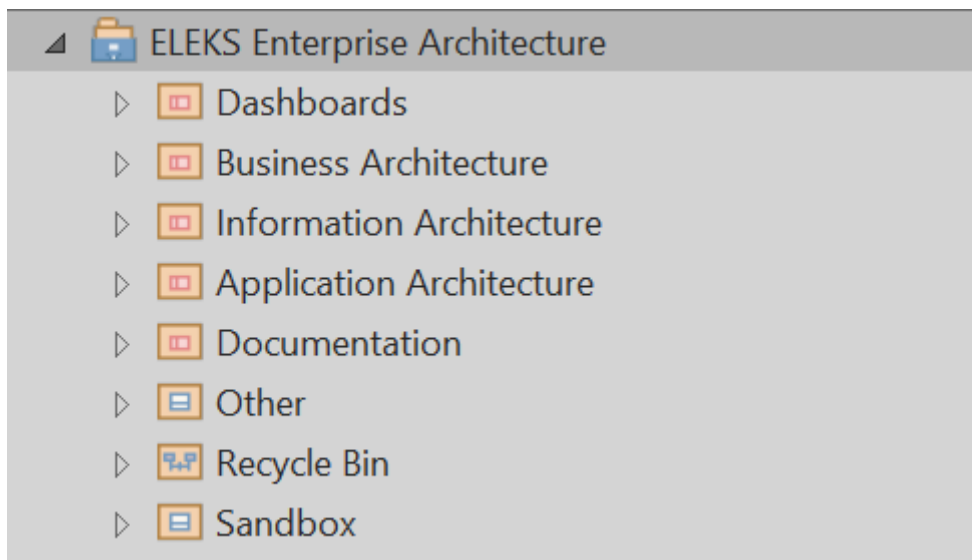
Dashboard Package
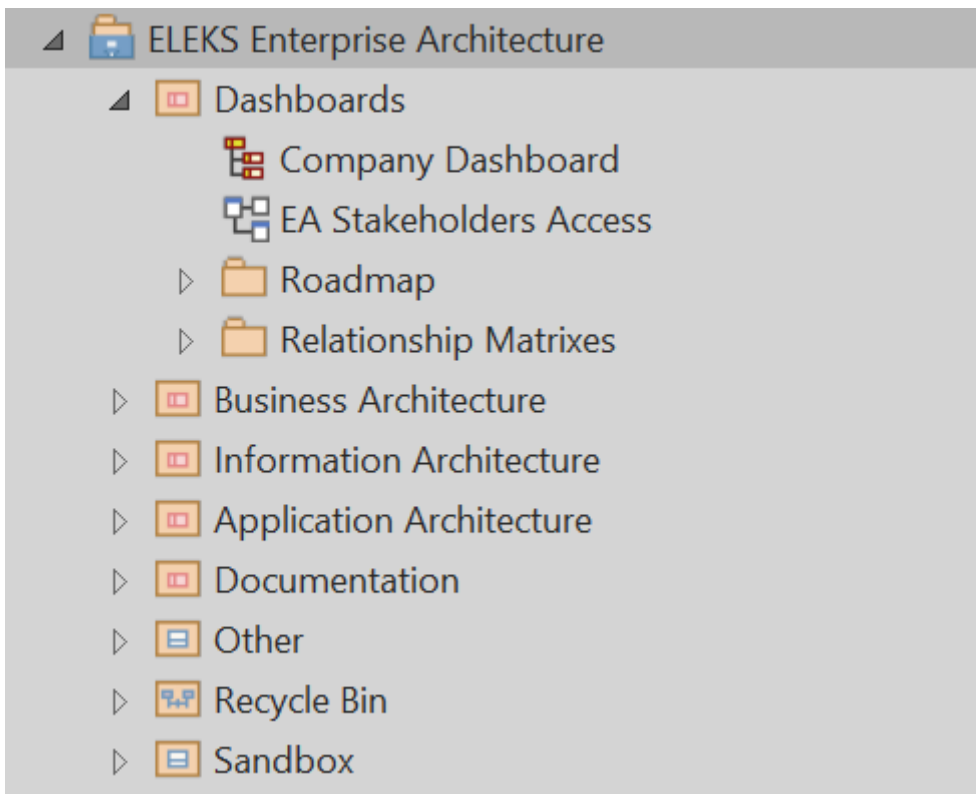
Business Architecture Package
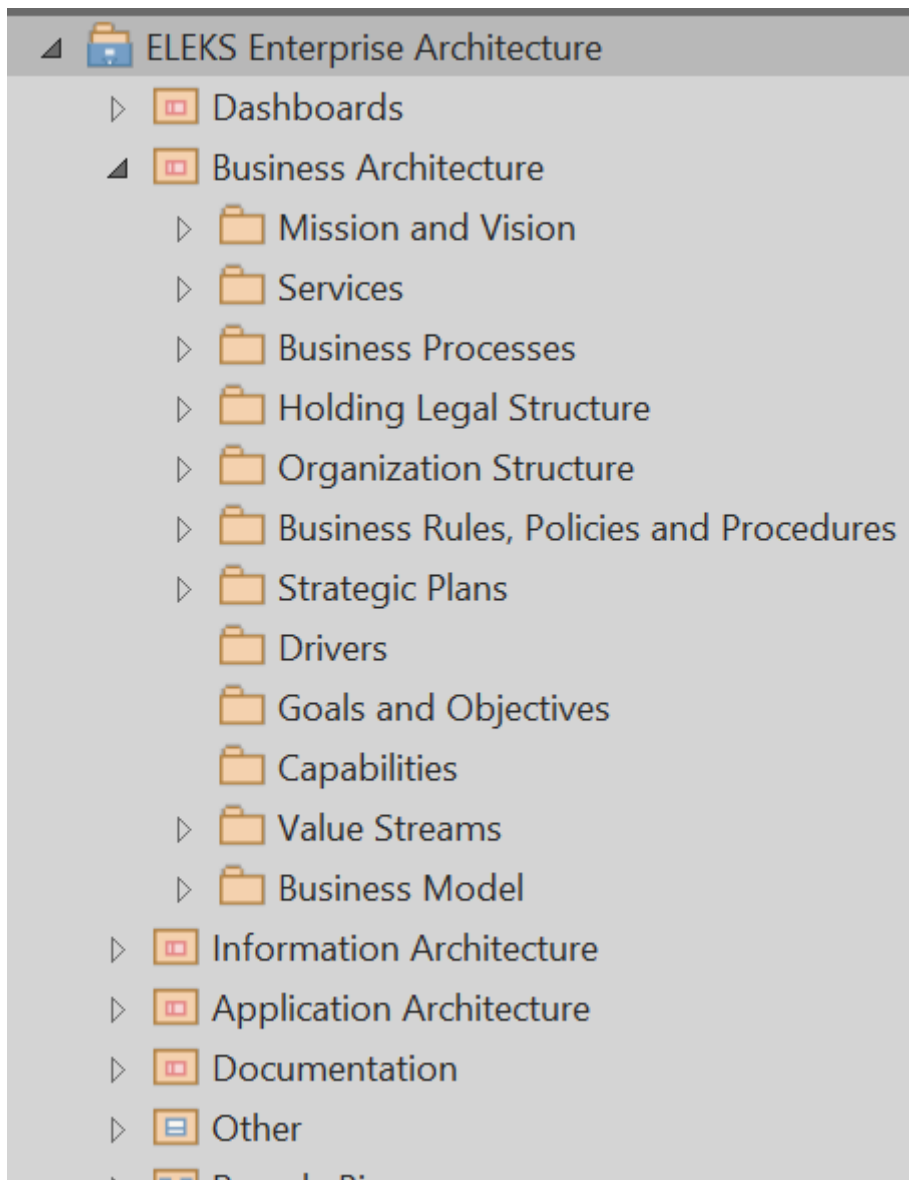
Information Architecture Package

Application Architecture Package