

Ensuring Business Value From EA Repository Investment

Opportunities & Best Practices

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Abstract

IT organizations are increasingly looking at Enterprise Architecture (EA) as a rigorous and structured approach for IT portfolio planning, execution and governance. EA Repository being a key element of Enterprise Architecture provides an integrated framework and physical implementation for bringing together all the data, information and artifacts together with their inter-relationships.

Establishing and delivering the business benefits from investments in EA initiatives in general, and EA repository in particular is a key challenge during EA adoption journey. This view point, drawing from Infosys experience of working with diverse global clients identifies 6 key opportunity areas for business benefits from EA repository investment and ties them to measurable IT performance objectives and specific best practices.

We recommend that such an approach based on capturing, articulating and finally tracking tangible benefits of EA repository goes a long way towards establishing necessary sponsorship for the EA initiative and provide visibility into benefits throughout the life cycle of initiative.

Enterprise Architecture's Role Towards Enabling Transformational IT

Today's digital consumer and market era has witnessed a major shift in the role of IT function within the overall strategic and operational plan of global enterprises. Moving away from a function focused on smooth conduct of business ('Keeping the Lights on' function), it is evolving to be a partner in business transformation and in cases, main driver of business transformation. Today's businesses look at IT as an element of their strategic plan and as a key tool for creating differentiation and value proposition in market place. There are some major implications of this new role and related expectations from IT function, namely;

1. Need for a closer alignment of Business strategy and IT strategy and its execution
2. Need for predictable and sustainable IT solutions delivery
3. Need for a faster 'IT response' to changes in business strategy, tactics and operational processes
4. Need for efficiency and cost effectiveness in IT operations freeing up precious dollars for innovations
5. Need for IT to play a leading role in internal innovations and business transformations
6. Need for predictable and intended impact of change and effective risk management

The new operating environment characterized by above expectations has motivated IT organizations to adopt Enterprise Architecture' (or EA as it is commonly referred to) as a rigorous and structured approach for IT portfolio planning, execution and governance. EA as a discipline focuses on establishing a common framework for defining, managing and governing Business/IT structure, relationship and components. In a way, EA represents an integrated organizational blueprint for execution of business strategy through IT and covers strategy, tactical and operational domains.

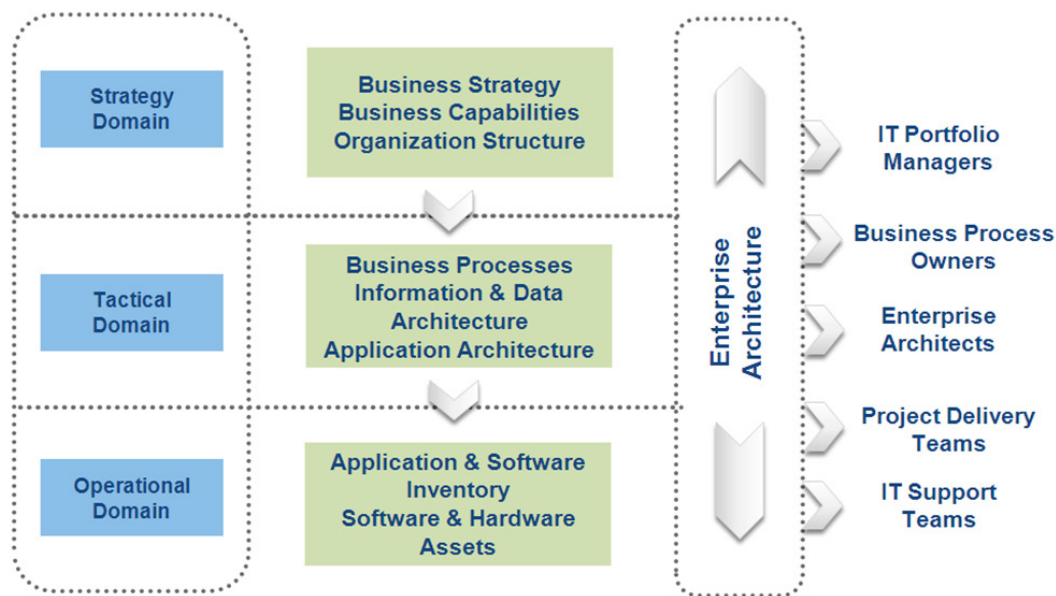


Figure 1: Enterprise Architecture Domains and Users Source: Infosys Research

We often hear a question from IT executives around why they should adopt EA as a discipline. The question centers on EA capabilities/benefits as well as tangible Return on Investment (ROI) from such initiative. In our experience, following elements of Enterprise Architecture form the core of key capabilities driving IT organizations to be in a better position to play transformational role;

Elements of EA	Impact on the way IT functions
Direct capture of Organization strategy, structure, objectives, processes and IT Applications together with their relationships	<ul style="list-style-type: none"> Shared understanding of business objectives and collaboration between business and IT drives IT portfolio planning
Business Architecture modeling with process domains and process areas mapped to underlying IT applications	<ul style="list-style-type: none"> Business process drives IT applications planning and portfolio management Visibility into process white spaces and overlaps drive IT to engage with business on optimization opportunities Visibility into key data points for investment decisions in high impact process transformation areas drive decision making
Information and Data Modelling	<ul style="list-style-type: none"> IT adopts a view ,of data at enterprise level independent of underlying applications implementation
Application Architecture Modelling	<ul style="list-style-type: none"> Enterprise / LOB level standardization of architecture drives underlying domain and solution architecture
Applications and Interface Inventories Modelling	<ul style="list-style-type: none"> Application related data and dependency information drives critical activities around Software change management, Business continuity planning and Disaster recovery plans
Technical Infrastructure Modelling	<ul style="list-style-type: none"> Common view of infrastructure across divisions and applications drives investment and reuse decisions
Integrated Framework with well defined hierarchy and linkages from Business Strategy down to Applications and Infrastructure	<ul style="list-style-type: none"> IT portfolio panning and management is led by Business strategy and objectives Availability of single view of enterprise IT landscape drives IT agility and mitigation of change related risks

Table 1: Impact of Enterprise Architecture on IT

'EA Repository', a key element of Enterprise Architecture provides an integrated framework and physical implementation for bringing together all the data, information and artifacts together with their inter-relationships. Establishment of EA repository forms the major part of Enterprise Architecture initiative both in terms of financial investment and effort and it is the effectiveness and adoption of EA repository that to a large extent, determines the ROI on overall Enterprise Architecture initiative.

In the rest of this view point paper, we will articulate the business value and benefits offered by EA repository and best practices for realizing those benefits.

Enterprise Architecture Repository: The Core of Your EA Initiative

The EA Repository acts as a controlled location for all the information, data and artifacts that are captured and developed throughout the Enterprise Architecture lifecycle. It provides information describing the 'as-is' architecture and a library of models, EA blueprints, standards & policies, and principles that describes the target 'to-be' architecture, aligned with business strategy & objectives.

Enterprises are typically required to invest in following activities to establish and sustain an EA repository.

1. Discovery: Initial collection, creation and collation of functional structure of the business, processes, application and infrastructure.
2. Repository Modeling: The initial structure is created and artifacts are placed under source control.
3. Repository Sustenance: All artifacts in the repository are to be reviewed periodically and assessed for correctness, consistency and cohesiveness, and coherency.

Business Value of Enterprise Architecture Repository

As IT portfolio managers look for sponsoring and championing EA repository related investments in their organizations, they are faced with challenging questions on what benefits such an investment will bring and how these benefits will be realized and measured. Collaborating with business for formulating and implementing such initiative poses its own set of challenges as they see such investment as purely IT related overhead without any business value in it.

Based on Infosys' experience of working with clients across industry verticals, we have identified following six areas that present significant opportunities for value realization with EA repository.

Closer Alignment of Business Strategy, Objectives and IT Execution: Do Right Things

The term 'Alignment to business strategy' has various meanings at various levels. From a financial management perspective, it refers to the critical need of business objectives driving the IT priorities and investments. Such a model requires a clear flow-down of key business objectives to enterprise units, functions, processes and from thereon to applications and infrastructure. From a performance management perspective, such alignment refers to be able to measure the tangible contribution and impact of IT initiatives on business processes, objectives and KPIs. Such a drillable measurement framework of results requires that a framework linking business objectives, functions and processes should exist and it should be a common one cutting across business and IT based on a common understanding of business terms and concepts. A key benefit of Enterprise Architecture repository is establishment of such a hierarchical, unified framework aimed at enabling business-IT alignment.

To summarize, Enterprise Architecture repository enables IT organizations to align effectively with business by ensuring that;

1. Business objectives drive the IT priorities and investments
2. Business impact of IT initiatives is tracked and measured in tangible terms
3. Business functions and IT share a common understanding of enterprise business structure, objectives and processes
4. A common vocabulary for business goals and results exists across enterprise

These benefits can be translated into following measurable IT performance objectives.

Measurable IT Performance Objectives	Required Enablers	Role of EA Repository Towards Meeting Objectives
<ul style="list-style-type: none"> • ROI on IT investments • No. of IT initiatives contributing to key business objectives impacting business top line and bottom line • % improvement in business critical processes brought about by IT solutions 	<ul style="list-style-type: none"> • Common view of enterprise structure, functions and processes • Explicit relationship between business objectives, functions and processes • Explicit mapping between business processes and IT assets (hardware and software) managing them 	<ul style="list-style-type: none"> • Provides a holistic, single view of business organization structure, objectives and performance measures and processes to all stakeholders • Establishes a common vocabulary for describing enterprise, its business and related processes

Table 2: Impact of EA Repository on IT Performance Objectives related to Business Strategy Alignment



Best Practice for
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- Identify and involve key stakeholders from business towards EA repository initiative
- Ensure that business stakeholders do not see EA repository as a pure IT initiative. Clearly communicate the value of EA repository for business and role required to be played by business users
- Establish process level linkage between Strategic planning process and EA repository lifecycle.

Predictable and Sustainable IT Solution Delivery Capability: Do Things Right

A major source of business value from Enterprise Architecture repository is integration of EA repository with Enterprise IT solutions management and delivery processes. EA repository adoption promises benefits across the life cycle phases of Enterprise IT solutions covering Solution definition, Requirement analysis and engineering, data modeling, design, development, testing and deployment. Key benefits areas (elaborated in the table below) across these phases are improved traceability, reuse, solution consistency and communication/stakeholder management.

Solution Delivery Phase	Key Benefit Areas from EA Repository
Solution Definition	<ul style="list-style-type: none"> • Solution Impact Analysis • Stakeholder Mapping
Requirements Analysis	<ul style="list-style-type: none"> • Business process and Rules consistency • Requirements Traceability • Testing coverage • User Coverage
Data Modelling	<ul style="list-style-type: none"> • Enterprise meta data consistency • Data model simplification
Solution Design	<ul style="list-style-type: none"> • Adherence to Enterprise level standards • High Availability and DR design
Development	<ul style="list-style-type: none"> • Design to implementation traceability • Interface and service reuse • Development infrastructure reuse
Testing	<ul style="list-style-type: none"> • Functional test coverage • Regression testing coverage • Test cases traceability
Deployment	<ul style="list-style-type: none"> • Impact analysis and deployment planning • Communication Planning

Table 3: Key Solution Delivery Capability Benefit Areas across Solution Delivery Phases

These benefits are translated into following measurable IT performance objectives.

Measureable IT Performance Objectives	Required Enablers	Role of EA Repository Towards Meeting Objectives
<ul style="list-style-type: none"> • Development Cycle Time • Cost of Quality / % Right First Time • Availability Metrics (MTBF, MTTR) • UAT Success Rate • Defect Leakage to Production • Change Requests for Missed Requirements • First Time Deployment Success Rate 	<ul style="list-style-type: none"> • Ability to co-relate functions, processes, business policies / rules and requirements • Coverage of all sources of requirements • Testing coverage addressing all the processes and users • Ability to assess impact of implementation/ changes to an application functionality • Traceability from requirements rights up to components implementation and testing 	<ul style="list-style-type: none"> • Provides a common and consistent view of business processes, policies, rules and related enterprise data • Establishes inter-relationship and dependencies among applications and between processes and applications • Enables linking of design artefacts with implementation for design, components and testing entities

Table 4: Impact of EA Repository on IT Performance Objectives related to IT Delivery



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- Establish required solution governance processes to ensure consistent usage of EA artifacts
- Promote and enable the usage of EA repository in developer community
- Integrate EA repository with underlying development environment and IDE / Other tools

Quick Response to Changes in Business Environment: Do things With Agility

One of the limiting factors for IT effectiveness in the past has been the mismatch in the pace of change expected by business and supported by IT. This mismatch and resulting inability of IT to support business agility partly resulted from complexity of IT operating environment. Frequent mergers and acquisitions only added to complexity by adding disparate set of technologies and applications.

EA Repositories enable improved IT agility to support business changes by providing a single reference point for all the application and infrastructure (software and hardware) assets present within the enterprise and their relationship to business. This unified reference for all assets can be used by;

1. Enterprise Architects to assess the impact of a strategic change and devise suitable response strategy
2. IT portfolio Managers to devise suitable implementation approach and mitigate risks for responding to a change
3. Business Analysts, Test Engineers, Application Administrators and System Administrators to assess / model the operational impact of change and carry out a risk free implementation

Key EA artifacts supporting this change process include application inventory along with application attributes, infrastructure components, dependency among systems and applications and application mapping to business processes / functions.

These benefits are translated into following measurable IT performance objectives.

Measureable IT Performance Objectives	Required Enablers	Role of EA Repository Towards Meeting Objectives
<ul style="list-style-type: none"> • Change Cycle Time / % improvement in response time • Business Continuity SLA Performance • Time to Deploy • % Right First Time Deployments • Developer productivity 	<ul style="list-style-type: none"> • Ability to assess the impact of change • Availability of updated application knowledge and information including software components and hardware configuration • Dependency Matrix Information 	<ul style="list-style-type: none"> • Provides a common view of all the applications, related attributes and infrastructure assets • Provides for simulation / modelling of planned change and its impact assessment • Enables identification of commonality among existing components and reuse for the purpose of new requirements

Table 5: Impact of EA Repository on IT Performance Objectives related to Agility



Best Practice for
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REALIZATION

- Ensure that EA repository gets updated after implementation of changes at applications / hardware level
- Implement change control mechanism for EA repository integrated with IT change control

IT Operational Efficiency and cost effectiveness: Do Things With Less

At the level of IT portfolio management, EA repository enables portfolio managers to develop an application portfolio view with respect to business units, functions and processes. This information can be of great help towards reducing the functionality overlap and application redundancy leading to consolidation and rationalization of IT portfolio. In fact, for large organizations, duplicate technology and application functionality investment accounts for a large part of IT budget leakage which when plugged can yield significant cost savings.

At the tactical IT management level, EA repository provides tools and methods for standardization of IT internal processes, improved service design and modeling (including SLA design) and business continuity planning.

At operational level, EA repository enables reuse of infrastructure and software component level driving cost effectiveness and improved operational efficiency.

IT Management Domain	Key Benefit Areas from EA Repository		
Strategic	• Application Portfolio Rationalization	• Resource Consolidation	• Standardization
Tactical	• IT Process Standardization • Security Policies Controls	• Enterprise SLA Modelling • Service Management	• Business Continuity Planning
Operational	• Reuse • Service Delivery Processes	• Business Continuity • Disaster Recovery	

Table 6: Key Operational Efficiency and Cost Effectiveness Benefit Areas across IT Management Domains

These benefits are translated into following measurable IT performance objectives.

Measurable IT Performance Objectives	Required Enablers	Role of EA Repository Towards Meeting Objectives
<ul style="list-style-type: none"> • Cost Savings on YoY basis (%) • Software License Savings • SLA Adherence (%) • System Availability (%) • Resource Utilization 	<ul style="list-style-type: none"> • Easy identification of components (HW and SW) comprising IT landscape • Visibility into intended usage of IT assets (where used) and other attributes (available capacity, cost etc.) • Unified view of IT service offerings, their target users, service delivery process and SLA agreements • Continuous improvement cycle for IT delivery processes 	<ul style="list-style-type: none"> • Provides a common view of all components (HW and SW) with their detailed attributes • Enables assessment of current usage and opportunities for reuse / consolidation • Enables modelling and simulation of IT delivery processes and enterprise SLAs

Table 7: Key Operational Efficiency and Cost Effectiveness Benefit Areas across IT Management Domains



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- Upfront identify what resource attributes are critical for the purpose of resource acquisition and reuse decision making and ensure that these attributes are captured as part of repository design
- Look for opportunities to create executive dashboard and reports around resource deployment and usage.

Process Innovation and Transformation: Do New Things

The opportunities for leveraging EA repository for process innovation and transformation represent the most mature stage of EA repository adoption within the enterprise. Though process innovation and transformation initiative typically involve a large set of diverse stakeholders, the EA repository still has a key enabling role to play here.

A well planned EA repository holds following key set of data and information that is important from process innovation and transformation perspective;

1. Unified view of 'As-is' state of a specific enterprise function or process area
2. High level (L1, L2 and L3) processes that form the blueprint for any further variant of process implementation (e.g. same process served via a different channel). Reuse of such process blueprint is critical from effort reduction and process consistency perspective
3. Consistent view of business policies and rules applicable to a process

These capabilities of EA repository provide opportunities for meeting IT performance objectives such as new business capabilities successfully launched leading to additional revenue (e.g. a new commerce channel or a improvements to processes / systems leading to higher customer satisfaction).



Best Practice for
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- Avoid limiting the scope of EA repository to IT architecture. Instead, focus on elements related to both 'Business Architecture (covering Processes, policies and rules)' and 'IT Architecture'.

Compliance and Risk Management: Do Things Safely

Last, but not the least, EA Repository can be leveraged as part of closed loop IT governance framework covering IT goals, key processes and activities involved, performance indicators, risk management and compliance.

When assessed with respect to a standard IT governance framework such as COBIT 1 (Control Objectives for Information and related Technology), EA repository supports a majority of governance components, as described in table below. ¹

COBIT IT Governance Component	Area of Support in EA Repository
Business Goals	Business Architecture Modeling
IT Goals and IT Processes	Business Function Modeling
Key IT Activities	Business Process Modeling
RACI Charts	Business Process Modeling
Performance Indicators	Business Function Modeling
Outcomes Measures	Business Function Modeling
Risks	Risk Modeling
Control Objectives & Practices (Compliance)	Application Modeling Business Policies and Rules Modeling

Table 8: Key Compliance and Risk Management Areas Supported by EA Repository

Closing Thoughts

Leveraging Business Value Based View for Stakeholder Management

When championing the EA repository related initiatives, IT executives often face resistance from non-IT stakeholders mainly arising out of view that such an investment is purely for IT usage and is devoid of any impact on IT and business goals. An approach based on capturing, articulating and finally tracking tangible benefits of EA repository goes a long way towards establishing necessary sponsorship for the initiative and provide visibility into benefits throughout the life cycle of initiative.

Six key areas of business value for EA repository articulated in this View point paper can be used by IT executives for preparing the business case with necessary balancing among them to account for priorities and challenges specific to their organization.

REFERENCES

1. COBIT 4.1 Framework; IT Governance Institute, www.itgi.org

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