Enterprise Computing

EMIT-607

Session 4

Part C

Session Outlines:

Part A: The CSVLOD Model of Enterprise Architecture

- Dimensions for Classifying Enterprise Architecture Artifacts
- Six General Types of Enterprise Architecture Artifacts
- The Resulting CSVLOD Model of Enterprise Architecture

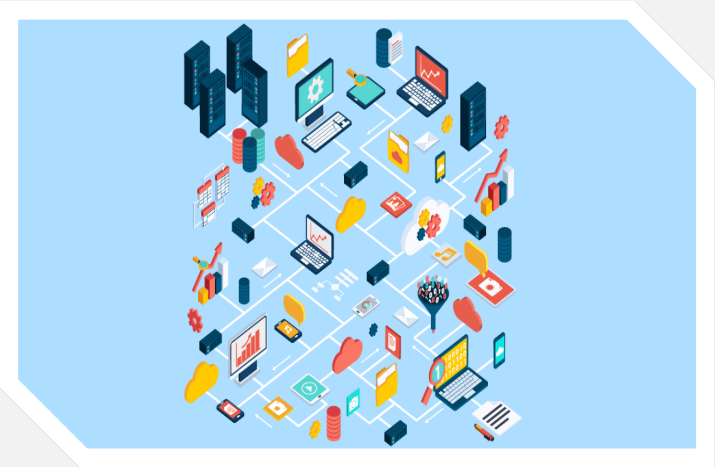
Part B: EA Considerations and Standards

- Considerations as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Considerations
- Standards as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Standards

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Visions
- Landscapes as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Landscapes

Part C: EA Visions and Landscapes



- Visions as a General Type of Enterprise Architecture Artifacts
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Part C: EA Visions and Landscapes

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Visions as EA Artifacts

- Visions are business-focused **structures** EA artifacts
- Visions often focus on the long-term future up to 3-5 years ahead
- Visions provide high-level business-oriented descriptions of an organization developed collaboratively by senior business and IT stakeholders
- Visions represent shared views of an organization and its future agreed by business and IT
- The proper use of Visions leads to improved **strategic alignment** and better **effectiveness of IT investments**
- Visions allow addressing four aspects of alignment:
  - How much money to invest in IT
  - Where to invest IT dollars
  - What types of IT investments are needed
  - When IT investments should be made

Part C: EA Visions and Landscapes

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Visions as EA Artifacts

- Visions provide answers to the following and similar questions:
  - What does an entire organization do?
  - What are the business activities and capabilities of an organization?
  - What is the relationship between main customers, processes, data and systems?
  - What should IT deliver for an organization in the long term?
  - Which business areas should receive future IT investments?
  - Which business capabilities should be uplifted with IT in the future?
  - What types of IT investments should be made in the future?
  - Which business needs should be addressed with IT and when?

Part C: EA Visions and Landscapes

- **Visions as a General Type of Enterprise Architecture Artifacts**
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Visions EA Artifacts Examples

- Business Capability Models – Essential EA artifacts
- Roadmaps – Essential EA artifacts
- Target States – Common EA artifacts
- Value Chains – Uncommon EA artifacts
- Context Diagrams – Uncommon EA artifacts

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Business Capability Models*[essential]

- **Business Capability Models** are specific Visions providing structured graphical representations of all **organizational business capabilities** and their hierarchy
- Business Capability Models can be considered as an essential subtype of Visions found in most EA practices
- Sometimes they can be also called business capability maps or capability reference models
- Business Capability Models represent high-level views of an organization from the perspective of its capabilities
- Essentially, Business Capability Models briefly describe everything that an organization can do

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Business Capability Models*[essential]

- Business Capability Models (Features):
- Business Capability Models are very stable and independent of reporting structures, politics and projects
- Sophisticated(advanced) Business Capability Models can provide additional information regarding an organization and its environment **relevant for strategic decision-making**

"What improvements are necessary for our organization?"

by means of the so-called "heatmapping", i.e. explicitly highlighting the business capabilities that should become the primary focus of future IT investments.

- Business and IT leaders identify the capabilities that require to be uplifted and then do "heatmapping"
- Many strategic conversations between business and IT revolve around business capabilities and start from **identifying the capabilities to be enhanced with IT**

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Business Capability Models*[essential]

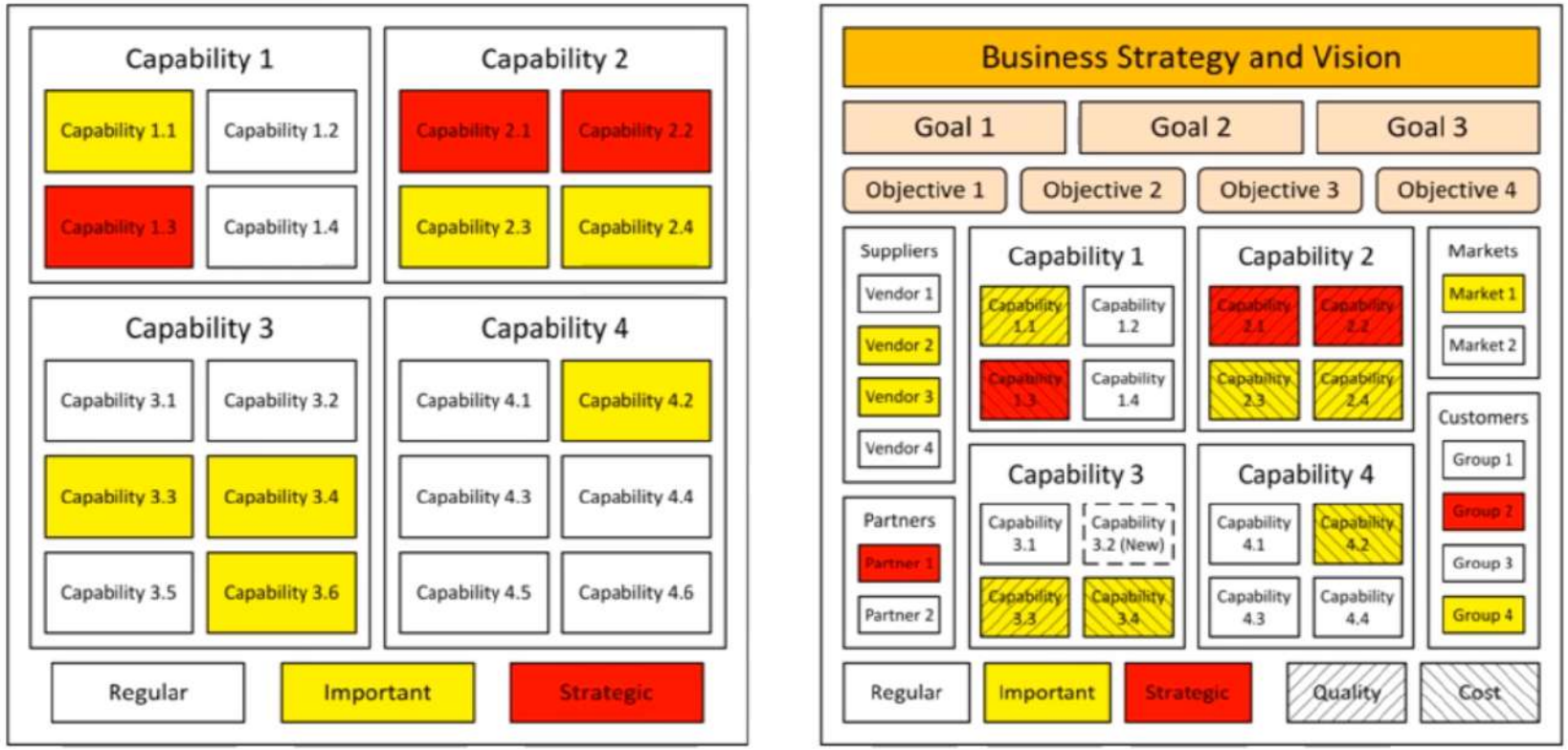

Figure 11.1. Business Capability Models (simple models and complex models)

An understanding of critical capabilities allows proposing effective strategic initiatives in a top-down manner as well as selecting the most appropriate bottom-up initiatives based on their strategic contribution

Example Business Capability Model

- **Business Capability Models**

1. Ground Handling		2. Air Cargo	
1.1 Warehouse storage	1.2 Customs clearance	2.1 Air Mail	2.2 Live Animals
1.3 Delivery	1.4 Pharma storage	2.3 Charter	2.4 Courier
		2.5 Pharma	
3. E-Commerce		**4. Coverage**	
3.1 Vendor	3.2 Customer	4.1 Network	4.2 Fleets
3.3 Partner		4.3 ULD's	
Regular	**Important**	**Strategic**	

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Roadmaps* [essential]

- **Roadmaps** are specific Visions providing structured graphical views of all **planned IT initiatives** in specific business areas having direct business value
- Roadmaps can be considered as an essential subtype of Visions found in the majority of successful EA practices
- They can be called investment roadmaps, capability roadmaps, application roadmaps, etc.
- Roadmaps describe IT delivery schedules for different business areas agreed by business and IT leaders
- Essentially, they show everything that IT plans to deliver for the business in the foreseeable future

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Roadmaps (Schematic View) [Essential]

- Business Capability Models operate with business capabilities and help business executives decide **where future IT investments should go**,
- Roadmaps operate with concrete IT initiatives and help business executives decide **when these investments should be made**.
- Roadmaps help prioritize planned IT initiatives, ensure the alignment between specific IT investments and required business capabilities and **connect future IT initiatives with respective business and financial plans**
- All IT initiatives from Roadmaps provide planned business needs as an input to the Initiative Delivery process
- Planned IT initiatives and corresponding business needs are further elaborated and transformed into more detailed Outlines
- Roadmaps are the main suppliers of planned business needs to the Initiative Delivery process ,

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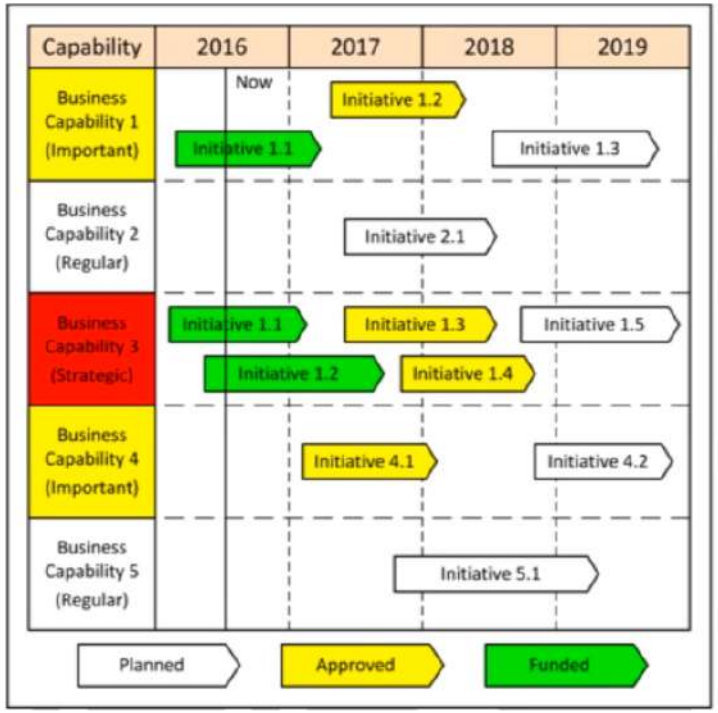
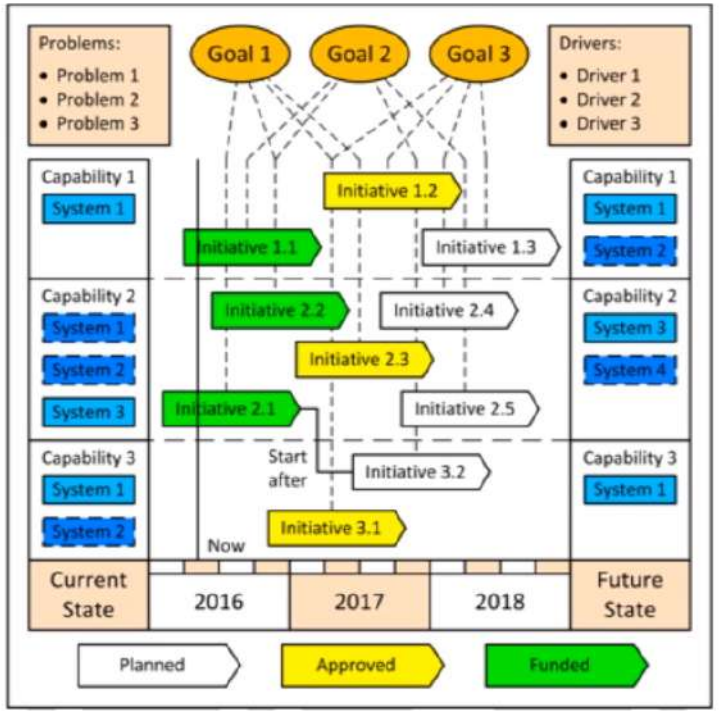
Roadmaps (Schematic View)

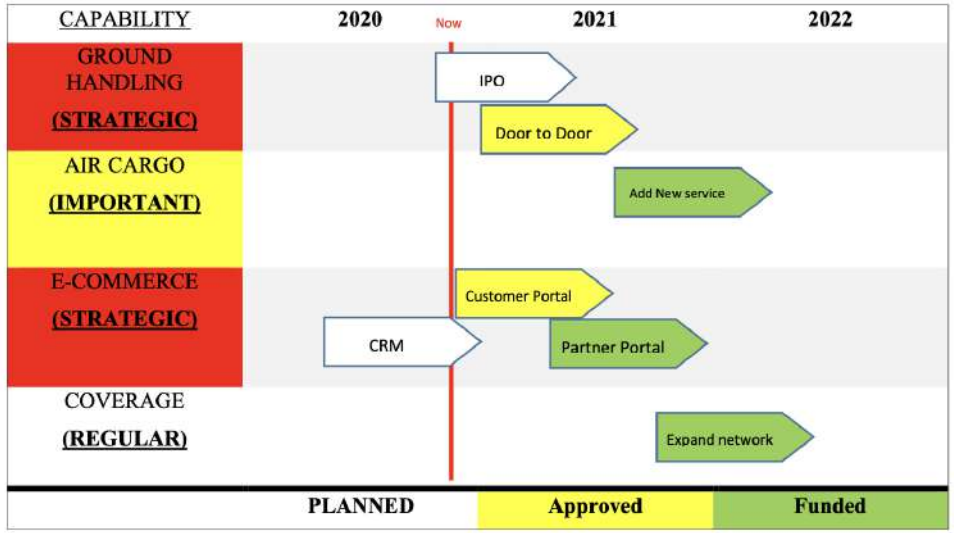




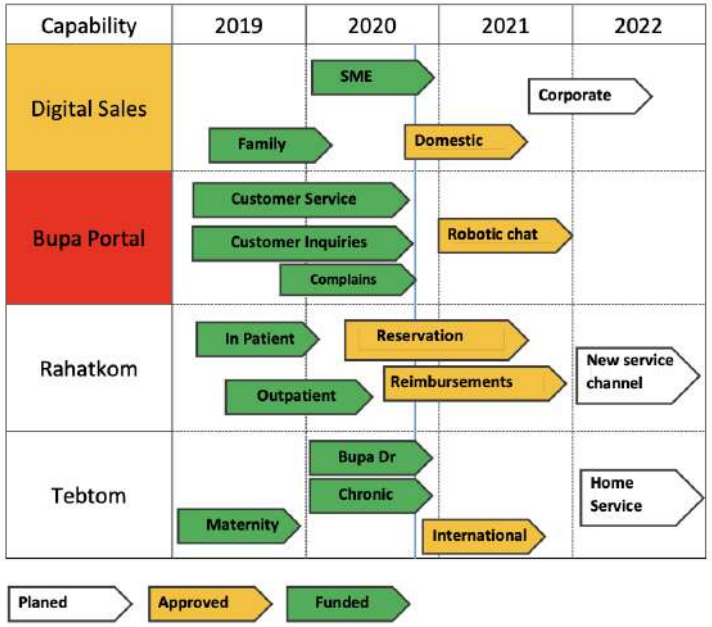
Planned – the IT initiative has been proposed as an idea, preliminarily approved by business leaders and placed in the Roadmap, but any further work on this initiative has not yet started
Approved– the IT initiative has been discussed in more detail and the development of early Outlines has been started to explore its possible implementation options
Funded – the IT initiative has been sufficiently elaborated, finally approved for funding, signed-off by business executives and included in the current program of work to be implemented shortly
Active – the IT initiative is being implemented right now,

Example Road Map

- **Roadmaps**



Roadmaps



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Target States [common]

- **Target States** are specific Visions providing high-level graphical descriptions of the desired long-term future state of an organization
- Target States can be considered as a common subtype of Visions often found in successful EA practices
- They can be called target architectures, future state architectures, business reference architectures, etc.
- Target States represent the ultimate destination of an organization from the perspective of its business and IT
- Essentially, Target States **explain what an organization is trying to achieve with IT in the long-term future**

For example, Target States may explain how future information systems, applications and data stores should relate to different customer segments, business units or capabilities. Basically, Target States explicate what an organization is trying to achieve with IT in the long run.

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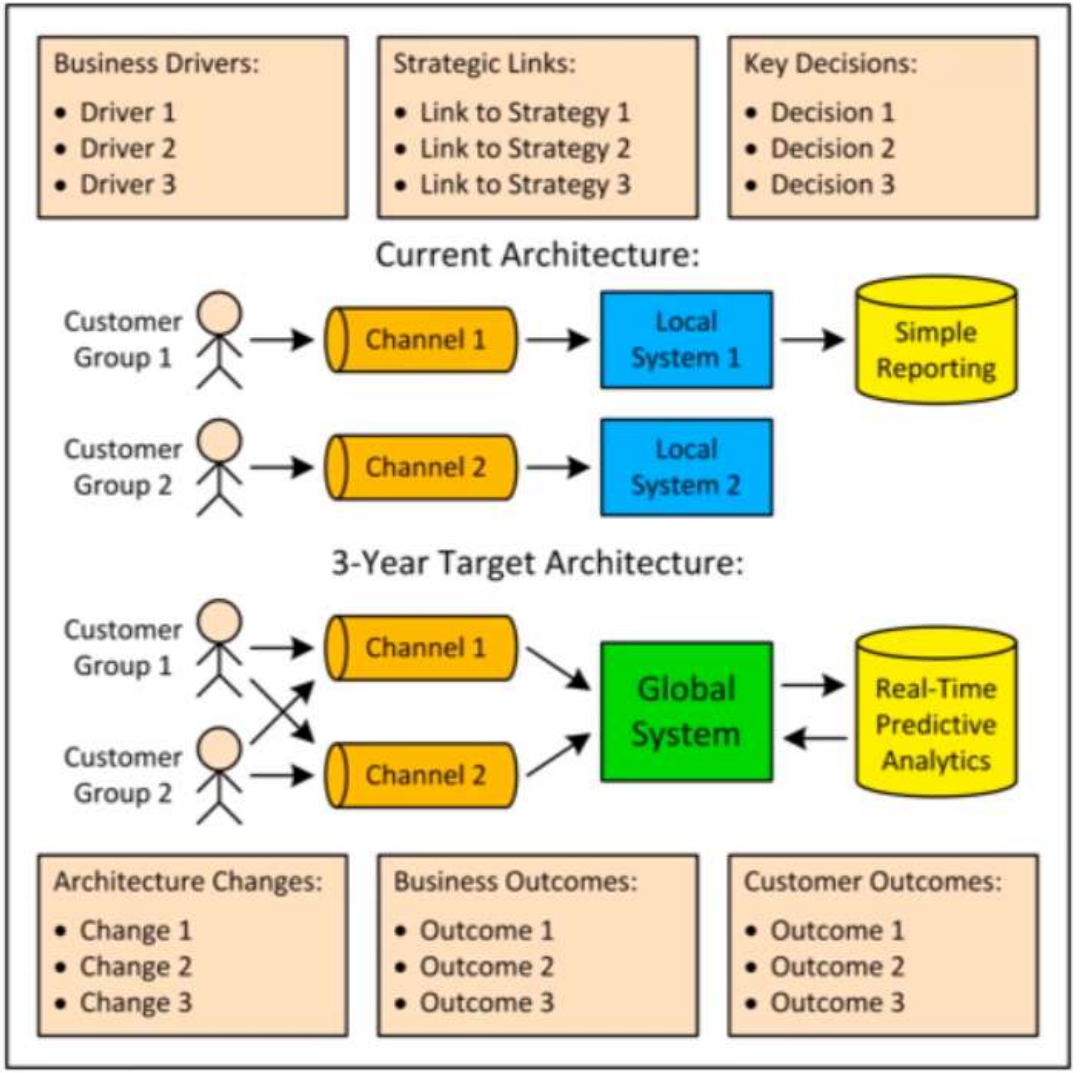
Target States (Schematic View)



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Value Chains [Uncommon]

- **Value Chains** are specific Visions providing structured graphical representations of the added value chain of an organization
- Value Chains can be considered as an uncommon subtype of Visions relatively rarely found in EA practices
- They can be called value reference models, business activity models, etc.
- Value Chains represent holistic views of an organization from the perspective **of its value-adding activities**
- Value Chains describe all primary and supporting activities that an organization performs to deliver value

A relative advantage of Value Chains (e.g. over Business Capability Models) is their better comprehensibility and attractiveness to business stakeholders

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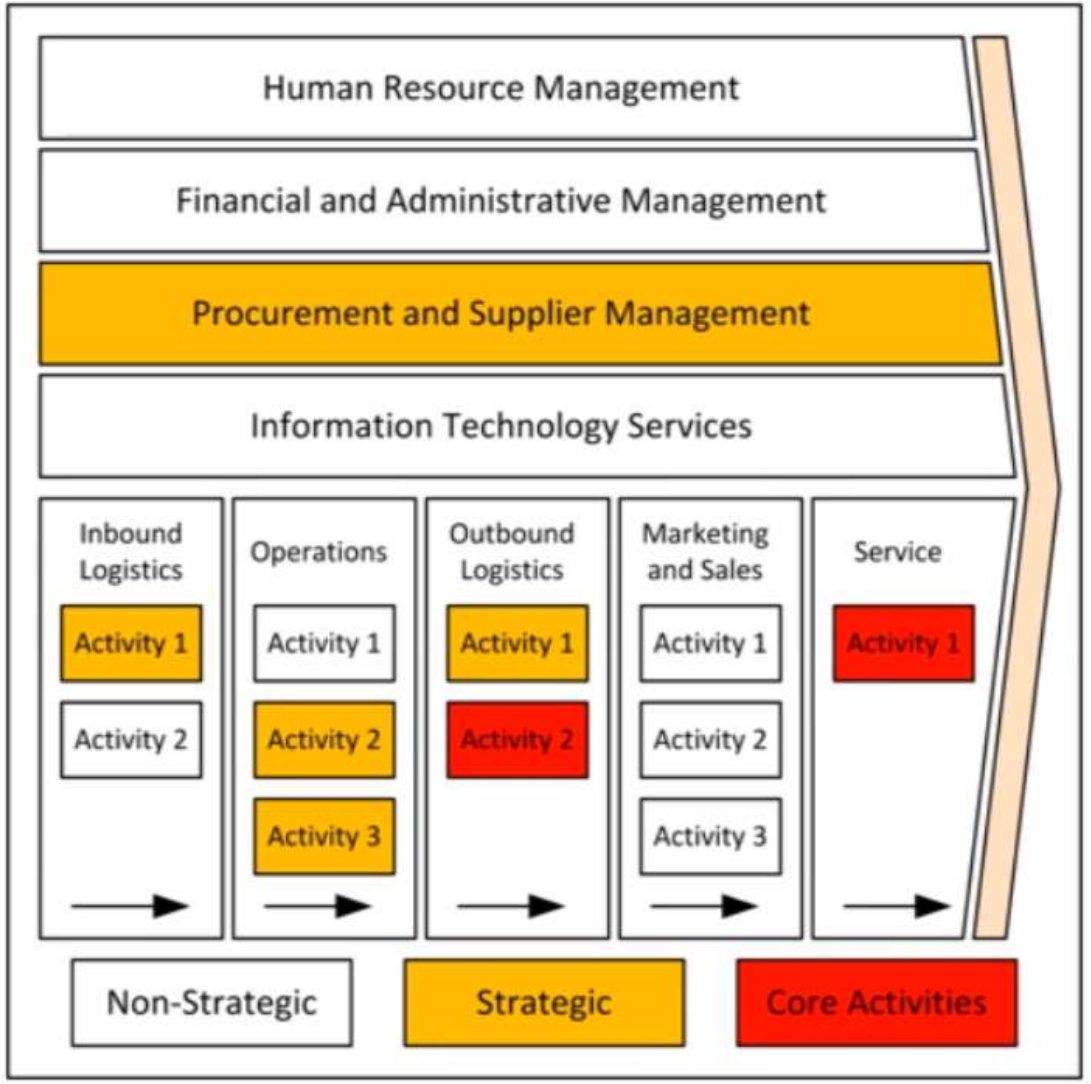
Value Chains (Schematic View)



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Context Diagrams*

- **Context Diagrams** are specific Visions providing high-level graphical descriptions of the current operational flows of an organization
- Context Diagrams can be considered as an uncommon subtype of Visions relatively rarely found in EA practices
- They can be called business context diagrams, application diagrams, concepts of operations, etc.
- Context Diagrams represent high-level views of an organization with its essential elements and relationships
- Context Diagrams explain on a single page how the business operates and clarify how an organization works

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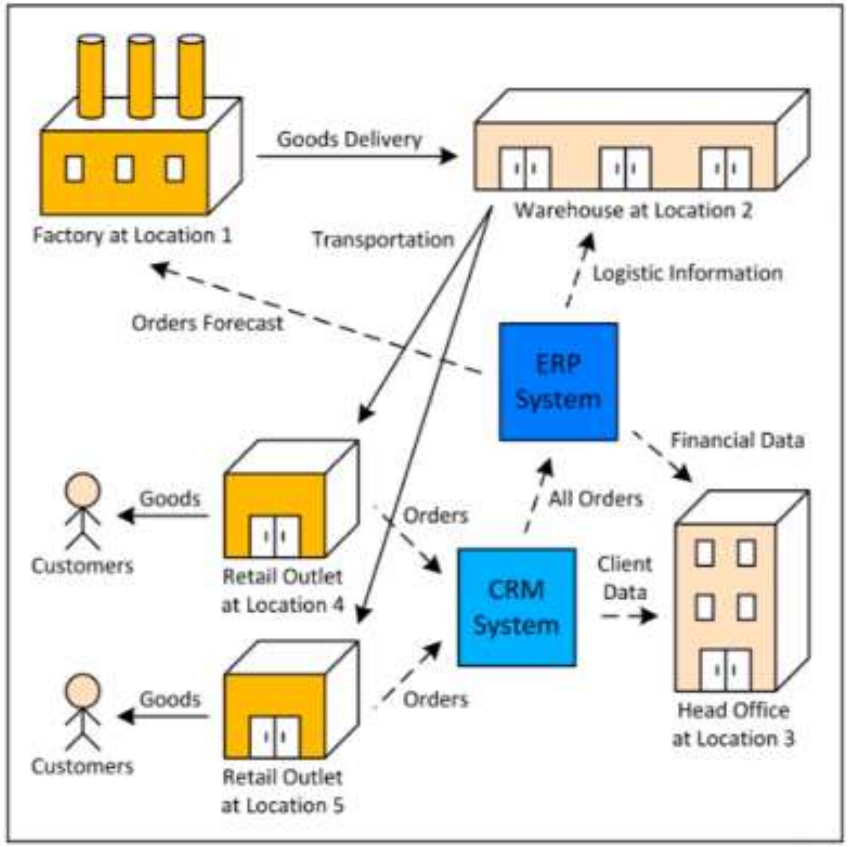
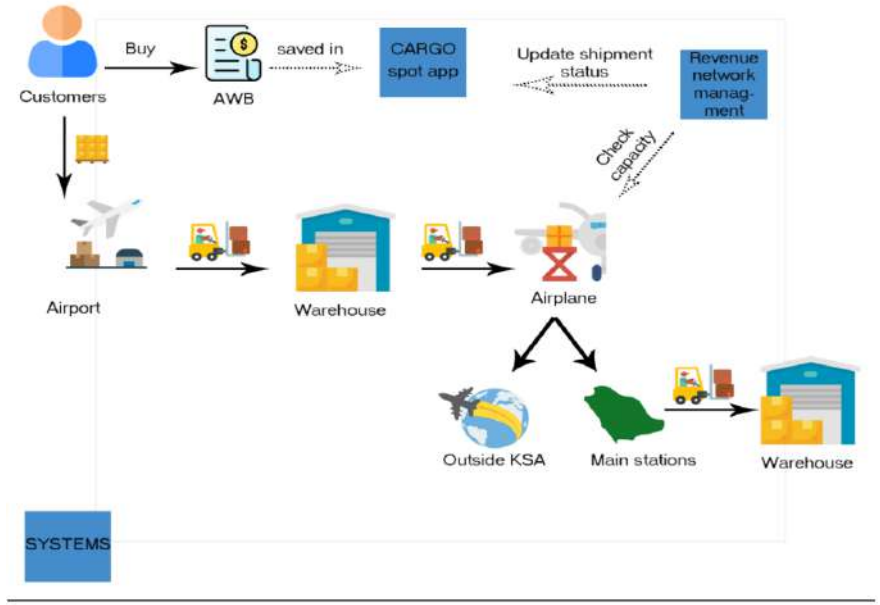
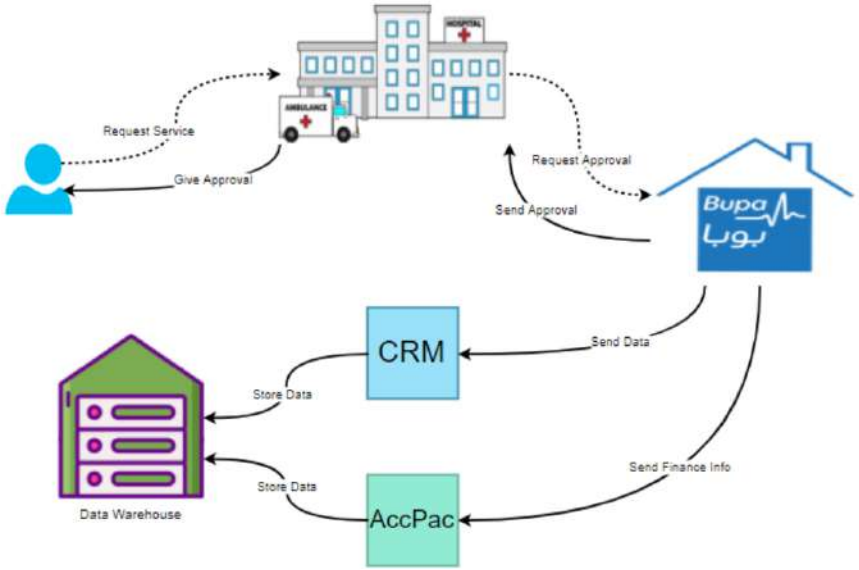
Context Diagrams (Schematic View)



- Contain any elements critical for understanding the main operational flows in an organization.
- Elements can be very diverse and include customers, products, services, activities, physical production and storage facilities, business units and functions, geographical locations, workforce, information, IT systems and any other relevant entities.
- Context Diagrams are facts EA artifacts depicting the existing business as it is seen by business executives and focusing mostly on the current "as-is" state of an organization

Examples
Context diagram





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Landscapes EA Artifacts

- Landscapes are IT-focused structures EA artifacts, provide high-level IT-specific descriptions of the organizational IT landscape useful for architects
- Landscapes represent a knowledge base of reference materials on the IT landscape
- Landscapes enable the accumulation, storage and exchange of the technical knowledge on the IT landscape
- The purpose of all Landscapes is to help understand, analyse and modify the structure of the IT landscape
- Key organizational benefits of using Landscapes include:
  - Increased reuse of IT assets
  - Reduced duplication of IT assets
  - Decreased dependence on legacy IT systems
  - Improved IT agility.

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Landscapes EA Artifacts

Landscapes describe **what IT assists exist** in an organization, how **they are related to each other and how are they used.**

- Landscapes provide answers to the following and similar questions:
  - What IT systems, databases and infrastructure are available?
  - How are existing IT assets connected to each other?
  - What is the information flow between different IT assets?
  - How are existing IT assets used to support business capabilities and processes?
  - Which IT assets are duplicated, unused or redundant?
  - Which IT assets are considered as strategic or legacy?
  - Which IT assets should be reused or decommissioned in the future?
  - What technical improvements of IT assets are required in the future and when?

Landscapes are IT-specific in nature and describe mostly common technical EA domains including applications, data, infrastructure and integration

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Landscapes EA Artifacts Examples

- Landscape Diagrams – Essential EA artifacts
- Inventories – Common EA artifacts
- Enterprise System Portfolios – Common EA artifacts
- IT Roadmaps – Common EA artifacts

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Landscape Diagrams* [Essential]

Landscape Diagrams are specific Landscapes showing technical "boxes and arrows" schemes of different scopes and granularities describing the IT landscape

- Landscape Diagrams can be very diverse in nature:
  - Different levels of granularity, e.g. only major or all IT systems
  - Different scopes, e.g. the whole IT landscape or its narrow parts
  - Any appropriate elements, e.g. processes, roles, services, etc.
- Landscape Diagrams can be considered as an essential subtype of Landscapes found most EA practices
- They can be called simply an architectural repository or used under very diverse titles, e.g. relational diagrams
- Landscape Diagrams represent snapshots of different parts of the organizational IT landscape
- Landscape Diagrams show what IT assets support different business areas and how they are interrelated

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Landscape Diagrams (Schematic View)

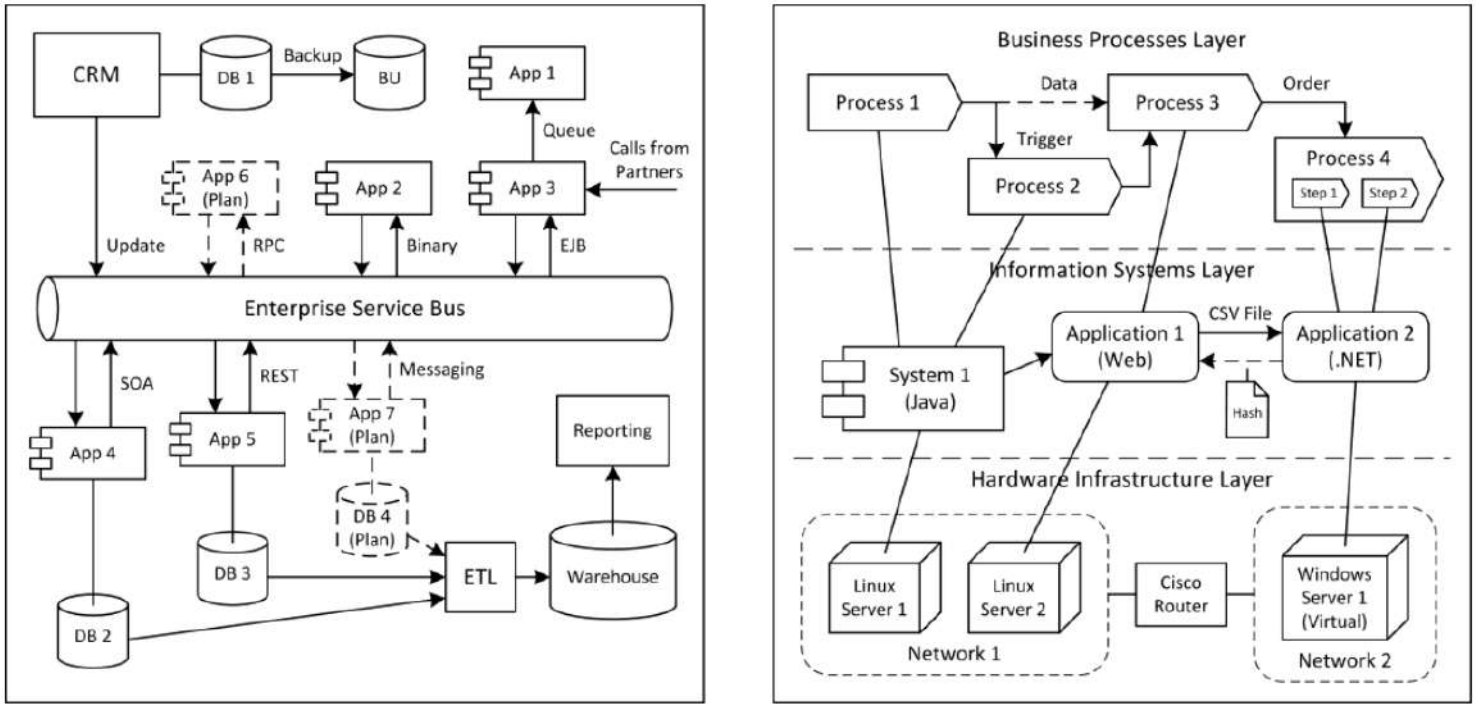
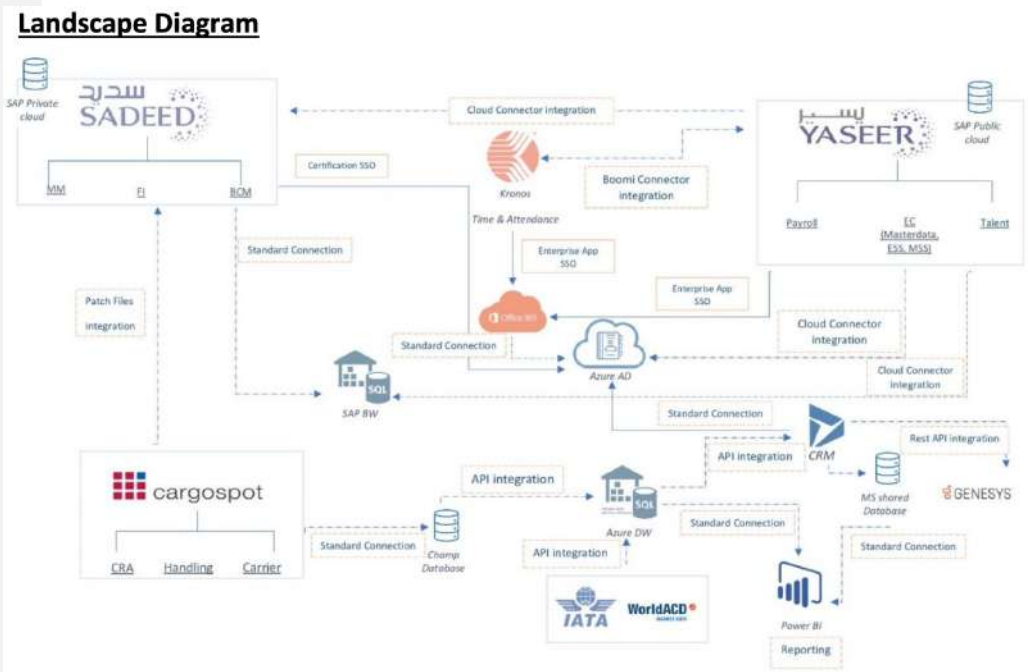
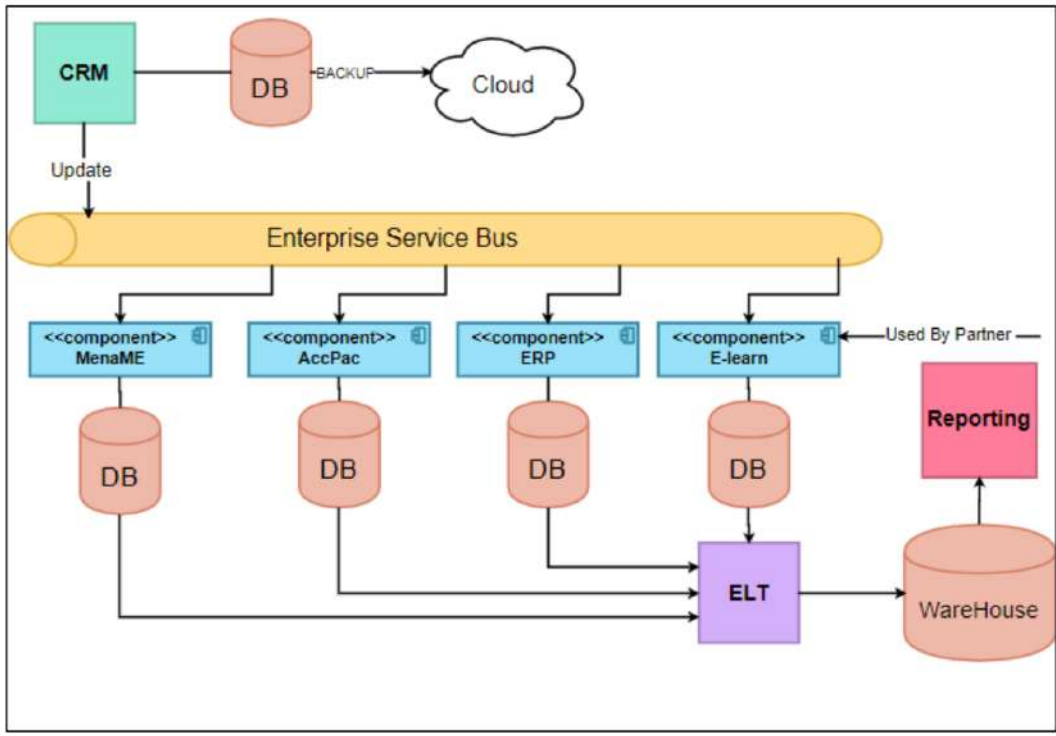


Figure 12.1. Landscape Diagrams (free-form diagrams and layered diagrams)

Example Landscape Diagram





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Inventories [common]

- **Inventories** are specific Landscapes providing structured catalog of currently available IT assets describing their essential properties and features
- Inventories can be considered as a common subtype of Landscapes often found in successful EA practices
- They can be also called asset registers or architectural repositories
- Inventories represent comprehensive directories of organizational IT assets with their detailed descriptions
- Essentially, they list all IT assets owned and maintained by an organization and describe their key attributes

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Inventories [common]

Inventories (Features)

- IT assets are often organized into related groups, e.g. into applications, systems and databases
- The properties of IT assets may include their purpose, technology, owners, lifetime, cost of maintenance, overall fitness and known problems
- Status of IT assets can be tagged, for example:
  - Reuse – "healthy" IT assets that can be safely reused
  - Invest – strategic IT assets that should be reused when possible
  - Maintain – "toxic" IT assets that should not be reused
  - Decommission – legacy IT assets that should be removed

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Inventories (Schematic View)

Status of IT assets can be tagged, for example:

Reuse – healthy" IT assets that are currently in use, will be maintained in the future and can be safely reused in new IT solutions

Invest – strategic IT assets that are currently in use, will be further enhanced in the future and reuse of these assets in new IT solutions is highly encouraged

Decommission – legacy or problematic IT assets that are currently in use, but will be decommissioned shortly and should not be reused in new IT solutions

Example Inventories

- **Inventories**

Asset	Purpose	Owners	Cost	Problem
CargoSpot (App)	Host the cargo business transactions	Business applications (Champ)	2K Per **user** per year	Needs customization always
Champ AQD (App)	Used for safety assurance team	Business applications (Champ)	12K $ Per **instance** per year	Did not meet requirements
SAP S4/Hana (App)	Used for Finance procurement, facility transactions	Corporate Applications (SAP)	2,200 SAR Per **user** per year	N/A
SAP SuccessFactors (App)	Used for HR, and employee's transactions	Corporate Applications (SAP)	1,200 SAR Per **user** per year	Continuous support
Office 365 (App's)	Used by all employees to access office suite	IT infrastructure (Microsoft)	2-5K SAR Per **user** per year	Change in license pricing and features schema by MS
Dynamics 365 (App's)	Used By commercial team CRM	Corporate Applications	95 $	Change in license pricing and features schema by MS
		(Microsoft)	per module per **user** per month	
Customer Portal (App)	Used By commercial team complementary for CRM	Corporate Applications (Microsoft)	700K Per **implementation**	To be customized
Windows 10 (System)	The used operating system for all machines	IT infrastructure (Windows)	450 SAR Per **device**	N/A
Azure DW (DB)	Host operational data for BI reporting	IT infrastructure (Microsoft)	200K SAR Per **DW**	High price for expansion
SAP BW (DB)	Used to host SAP transactions for BI reporting	Corporate Applications (SAP)	3,300 $ Per **user** per month	Needs to set up modeling per system
Champ DW (DB)	Used for operational data hosting for BI	Business applications (Champ)	40K $ Per **instance** per year	Not sufficient reporting tool
	Decommissioned	**Reuse**	**Invest**	

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Enterprise System Portfolios [common]

- **Enterprise System Portfolios** are specific Landscapes providing structured high-level mappings of all essential IT systems to relevant business capabilities
- Enterprise System Portfolios can be considered as a common subtype of Landscapes
- They can be called application portfolios, application models, IT system value maps, IT strategy maps, etc.
- Enterprise System Portfolios represent comprehensive[شامل] abstract views of the entire organizational IT landscape
- They focus only on the most significant IT systems
- Typically they mirror Business Capability Models

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Visions
- Landscapes as a General Type of Enterprise Architecture Artifacts
- **Specific Enterprise Architecture Artifacts Related to Landscapes**
  - Landscape Diagrams – Essential EA artifacts
  - Inventories – Common EA artifacts
  - **Enterprise System Portfolios – Common EA artifacts**
  - IT Roadmaps – Common EA artifacts

Enterprise System Portfolios (Schematic View)*

- Enterprise System Portfolios are developed and then maintained by architects to be used for strategic technical decision-making within the architecture function
- Enterprise System Portfolios help architects identify duplicated, misused, control the lifecycle and transition of core applications, assess the overall fitness of the IT portfolio
- They can inform the development of Roadmaps via showing current and suggesting future IT systems for particular areas
- IT systems are often color-coded, for example:
  - Active – IT systems that will be maintained in the future
  - Strategic – IT systems that will be further expanded in the future
  - Legacy – IT systems that need to be replaced in the future
  - Inactive – IT systems that can be safely decommissioned

Part C: EA Visions and Landscapes

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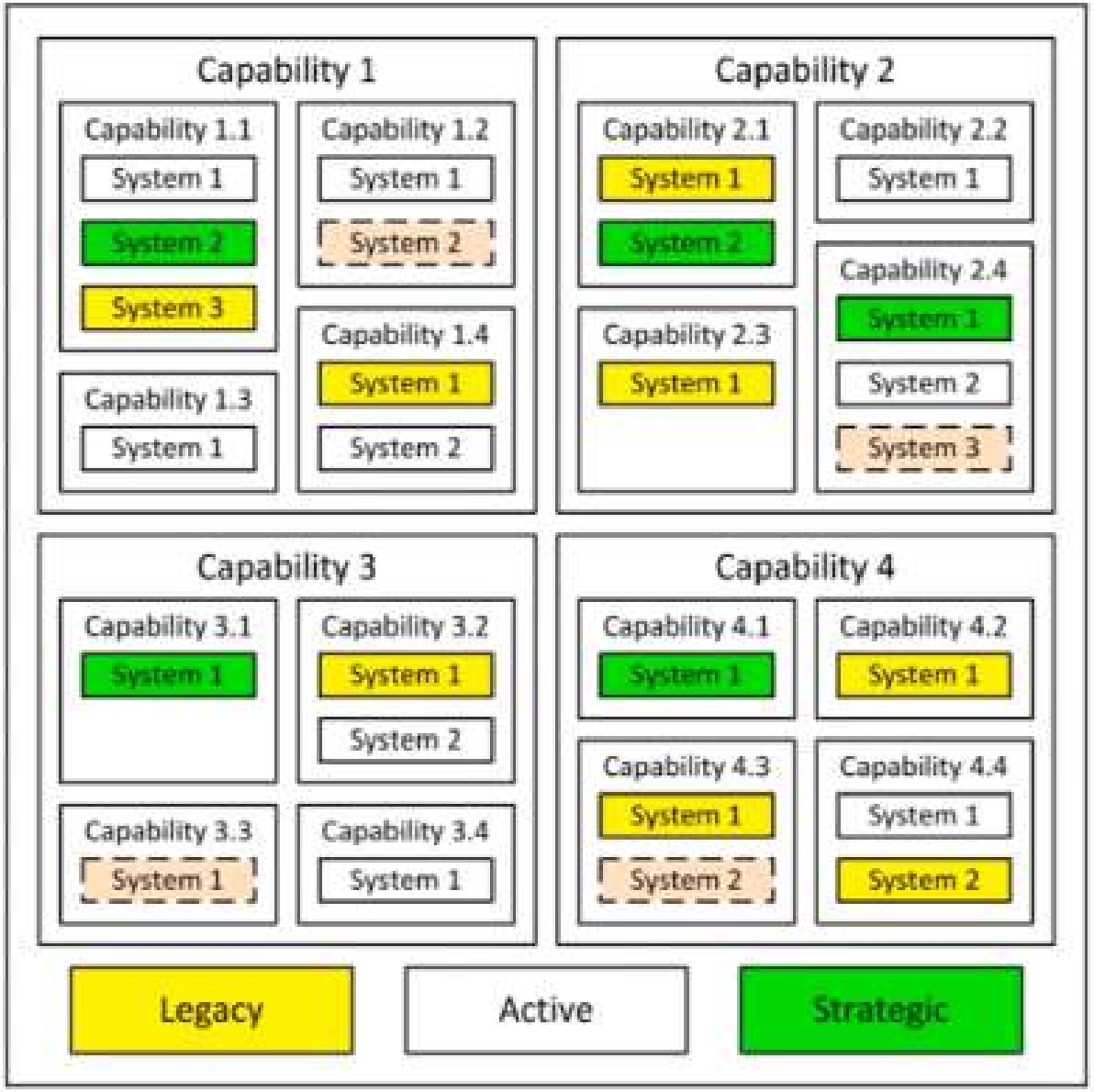
Enterprise System Portfolios (Schematic View)*



Part C: EA Visions and Landscapes

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  - **IT Roadmaps – Common EA artifacts**

IT Roadmaps [common]

- **IT Roadmaps** are specific Landscapes providing **structured graphical views of all planned IT initiatives** of a technical nature having no visible business impact
- IT Roadmaps can be considered as a common subtype of Landscapes
- IT Roadmaps can be called technology roadmaps, platform roadmaps, infrastructure roadmaps, etc.
- IT Roadmaps are IT-oriented counterparts of Roadmaps
- IT Roadmaps reflect purely IT-specific efforts intended to improve the technical quality of the IT landscape without delivering any new business functionality or benefits

Part C: EA Visions and Landscapes

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  - **IT Roadmaps – Common EA artifacts**

IT Roadmaps*

- IT Roadmaps (Features)
- IT Roadmaps focus on technical EA domains and are usually planned for shorter time horizons, e.g. 1-2 years
- IT initiatives in IT Roadmaps represent technical rationalization suggestions resulting from the Technology Optimization process
- Initiatives in IT Roadmaps are often color-coded to indicate their sponsorship status and funding need

Part C: EA Visions and Landscapes

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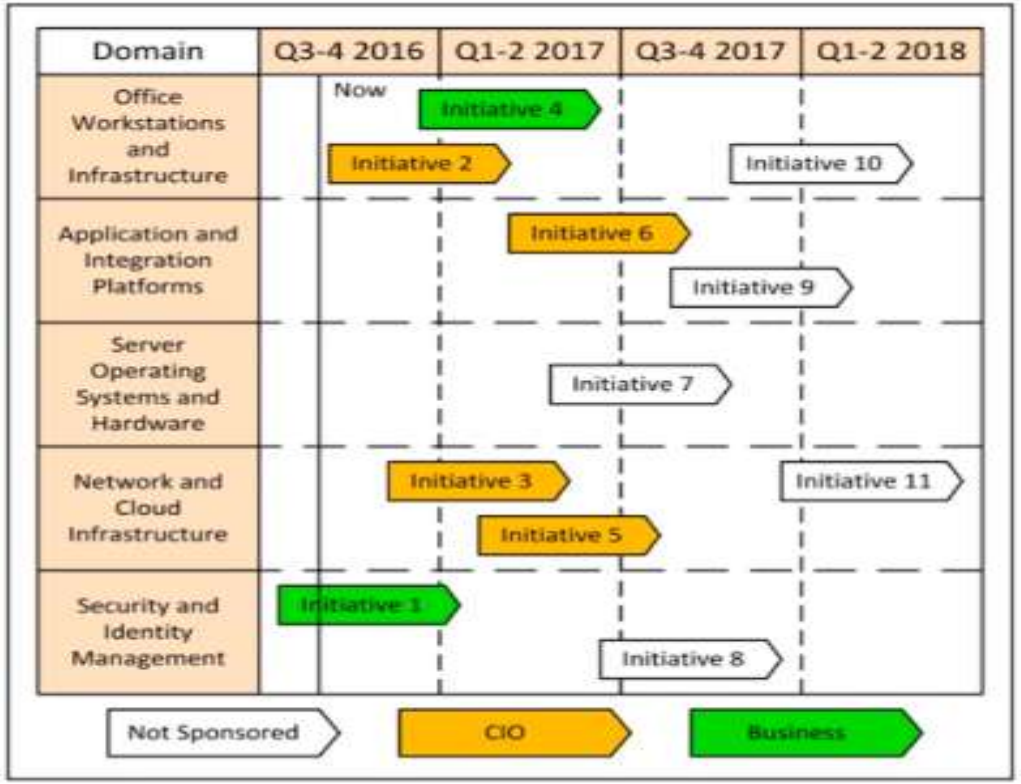
IT Roadmaps (Schematic View)



IT Roadmaps (Usage)

- IT Roadmaps are used by architects for planning the changes and technical improvements in the organizational IT landscape
- IT Roadmaps help architects eliminate the anticipated technical problems and bottlenecks in a proactive manner and schedule the planned maintenance of the IT landscape

The end

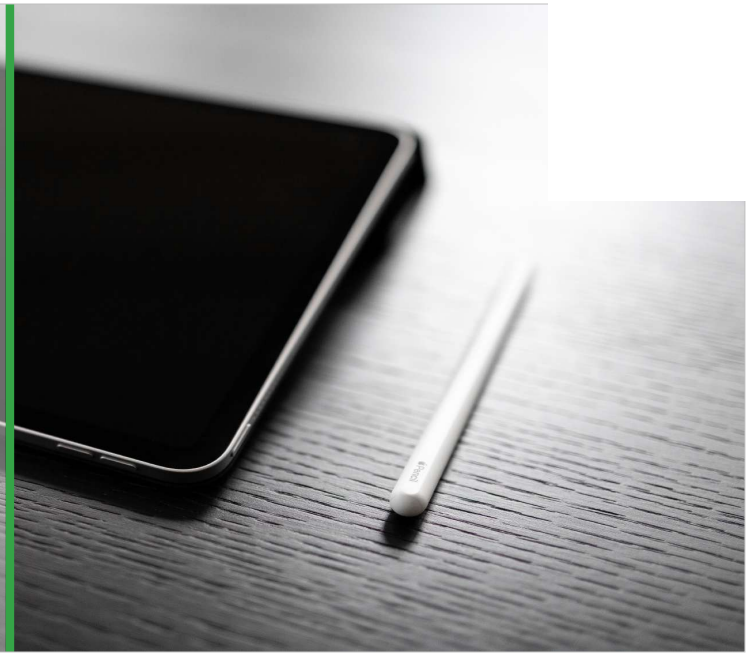
Thank you

See you next class

Enterprise Computing
EMIT-607

Session 4

Part C



Session Outlines:

Part A: The CSVLOD Model of Enterprise Architecture

- Dimensions for Classifying Enterprise Architecture Artifacts
- Six General Types of Enterprise Architecture Artifacts
- The Resulting CSVLOD Model of Enterprise Architecture

Part B: EA Considerations and Standards

- Considerations as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Considerations
- Standards as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Standards

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
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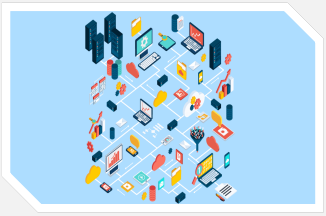
الجزء أ: عمليات ممارسة هندسة المشاريع
العمليات التي تشكل ممارسة هندسة المشاريع
العلاقة بين العمليات المرتبطة بـ EA
عرض عملية عالي المستوى لممارسة هندسة المؤسسة

الجزء ب: مبادرات تكنولوجيا المعلومات وبنية المؤسسة
دور مبادرات تكنولوجيا المعلومات في ممارسة هندسة المشاريع
أنواع مختلفة من مبادرات تكنولوجيا المعلومات
تدفق أنواع مختلفة من مبادرات تكنولوجيا المعلومات

Part C: EA Visions and Landscapes



- Visions as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Visions
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- رؤى كنوع عام من المشغولات المعمارية للمؤسسات
- المصنوعات اليدوية الخاصة بهندسة المشاريع ذات الصلة بالرؤى
- المناظر الطبيعية كنوع عام من المشغولات المعمارية للمؤسسات
- المشغولات المعمارية الخاصة بالمؤسسات ذات الصلة بالمناظر الطبيعية

Part C: EA Visions and Landscapes

- **Visions as a General Type of Enterprise Architecture Artifacts**
- Specific Enterprise Architecture Artifacts Related to Visions
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Visions as EA Artifacts

- Visions are business-focused **structures** EA artifacts
- Visions often focus on the long-term future up to 3-5 years ahead
- Visions provide high-level business-oriented descriptions of an organization developed collaboratively by senior business and IT stakeholders
- Visions represent shared views of an organization and its future agreed by business and IT
- The proper use of Visions leads to improved **strategic alignment** and better **effectiveness of IT investments**
- Visions allow addressing four aspects of alignment:
  - How much money to invest in IT
  - Where to invest IT dollars
  - What types of IT investments are needed
  - When IT investments should be made

4

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Visions Are Dual EA Artifacts

Visions often focus on the long-term future up to 3-5 years ahead

Visions provide answers to the following and similar questions:

What does an entire organization do?

What are the business activities and capabilities of an organization?

What is the relationship between main customers, processes, data and systems?

What should IT deliver for an organization in the long term?

Which business areas should receive future IT investments?

Which business capabilities should be uplifted

Part C: EA Visions and Landscapes

- **Visions as a General Type of Enterprise Architecture Artifacts**
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Visions as EA Artifacts

- Visions provide answers to the following and similar questions:
  - What does an entire organization do?
  - What are the business activities and capabilities of an organization?
  - What is the relationship between main customers, processes, data and systems?
  - What should IT deliver for an organization in the long term?
  - Which business areas should receive future IT investments?
  - Which business capabilities should be uplifted with IT in the future?
  - What types of IT investments should be made in the future?
  - Which business needs should be addressed with IT and when?

Usage:

Firstly, Visions are used to focus future IT investments on strategically important business areas

Secondly, Visions are used to identify potential IT initiatives to be executed in the future

Thirdly, Visions are used to prioritize IT initiatives according to their actual importance for the business of an organization

Fourthly, Visions are used to determine which IT initiatives should be launched in the near future or immediately

الرؤى هي أعمال EA المزدوجة

Part C: EA Visions and Landscapes

- **Visions as a General Type of Enterprise Architecture Artifacts**
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Visions EA Artifacts Examples

- Business Capability Models – Essential EA artifacts
- Roadmaps – Essential EA artifacts
- Target States – Common EA artifacts
- Value Chains – Uncommon EA artifacts
- Context Diagrams – Uncommon EA artifacts

Part C: EA Visions and Landscapes

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Business Capability Models*[essential]

- **Business Capability Models** are specific Visions providing structured graphical representations of all **organizational business capabilitie**s and their hierarchy
- Business Capability Models can be considered as an essential subtype of Visions found in most EA practices
- Sometimes they can be also called business capability maps or capability reference models
- Business Capability Models represent high-level views of an organization from the perspective of its capabilities
- Essentially, Business Capability Models briefly describe everything that an organization can do

Business Capability Models (Features):

Business Capability Models are very stable and independent of reporting structures, politics and projects

Sophisticated Business Capability Models can provide additional information regarding an organization and its environment **relevant for strategic decision-making**

Business and IT leaders identify the capabilities that require to be uplifted and then do “heatmapping”

The set of heatmapped capabilities represents a common understanding of the agreed strategic priorities

Large organizations often develop global and

Part C: EA Visions and Landscapes

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Business Capability Models*[essential]

- Business Capability Models (Features):
- Business Capability Models are very stable and independent of reporting structures, politics and projects
- Sophisticated(advanced) Business Capability Models can provide additional information regarding an organization and its environment **relevant for strategic decision-making**

"What improvements are necessary for our organization?"

by means of the so-called "heatmapping", i.e. explicitly highlighting the business capabilities that should become the primary focus of future IT investments.

- Business and IT leaders identify the capabilities that require to be uplifted and then do "heatmapping"
- Many strategic conversations between business and IT revolve around business capabilities and start from **identifying the capabilities to be enhanced with IT**

Part C: EA Visions and Landscapes

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Business Capability Models*[essential]

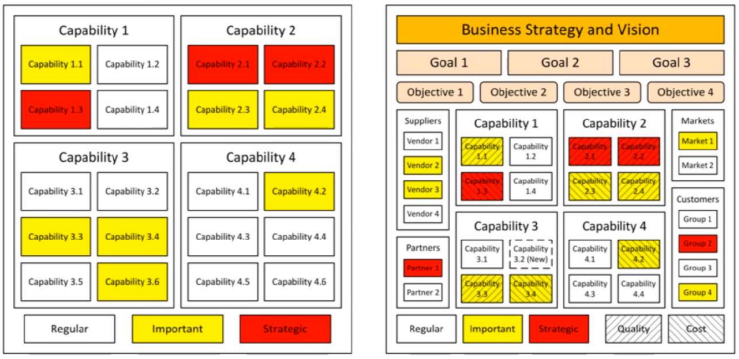

Figure 11.1. Business Capability Models (simple models and complex models)

An understanding of critical capabilities allows proposing effective strategic initiatives in a top-down manner as well as selecting the most appropriate bottom-up initiatives based on their strategic contribution

Business Capability Models are often considered as an “entry point” to IT for business executives

Many strategic conversations between business and IT revolve around business capabilities and start from **identifying the capabilities to be enhanced with IT**

An understanding of critical capabilities allows proposing effective strategic initiatives in a top-down manner as well as selecting the most appropriate bottom-up initiatives based on their strategic contribution

Business Capability Models are more suitable for guiding incremental capability improvements, rather than for organizational

Example Business Capability Model

- **Business Capability Models**

1. Ground Handling		2. Air Cargo	
1.1 Warehouse storage	1.2 Customs clearance	2.1 Air Mail	2.2 Live Animals
1.3 Delivery	1.4 Pharma storage	2.3 Charter	2.4 Courier
		2.5 Pharma	
3. E-Commerce		**4. Coverage**	
3.1 Vendor	3.2 Customer	4.1 Network	4.2 Fleets
3.3 Partner		4.3 ULD's	

Regular	Important	Strategic

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Roadmaps* [essential]

- **Roadmaps** are specific Visions providing structured graphical views of all **planned IT initiatives** in specific business areas having direct business value
- Roadmaps can be considered as an essential subtype of Visions found in the majority of successful EA practices
- They can be called investment roadmaps, capability roadmaps, application roadmaps, etc.
- Roadmaps describe IT delivery schedules for different business areas agreed by business and IT leaders
- Essentially, they show everything that IT plans to deliver for the business in the foreseeable future

Roadmaps are usually planned up to three years ahead, more rarely for longer planning horizons up to five years

Roadmaps are often aligned to business capabilities

IT initiatives in Roadmaps can be color-coded to indicate their size, approval status, beneficiaries or sponsors

Sophisticated Roadmaps may describe the current and desired future states in respective business areas

Large organizations often develop a set of multiple Roadmaps for different business units or capabilities

For budgeting purposes organizations can also

Part C: EA Visions and Landscapes

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Roadmaps (Schematic View) [Essential]

- Business Capability Models operate with business capabilities and help business executives decide **where future IT investments should go**,
- Roadmaps operate with concrete IT initiatives and help business executives decide **when these investments should be made**.
- Roadmaps help prioritize planned IT initiatives, ensure the alignment between specific IT investments and required business capabilities and **connect future IT initiatives with respective business and financial plans**
- All IT initiatives from Roadmaps provide planned business needs as an input to the Initiative Delivery process
- Planned IT initiatives and corresponding business needs are further elaborated and transformed into more detailed Outlines
- Roadmaps are the main suppliers of planned business needs to the Initiative Delivery process

خرائط الطريق (الاستخدام):

- تساعد خرائط الطريق في تحديد أولويات مبادرات تكنولوجيا المعلومات المخطط لها ، وضمان المواءمة بين استثمارات تكنولوجيا المعلومات المحددة وقدرات العمل المطلوبة وربط مبادرات تكنولوجيا المعلومات المستقبلية بخطط الأعمال والخطط المالية ذات الصلة
- توفر جميع مبادرات تكنولوجيا المعلومات من Roadmaps احتياجات الأعمال المخطط لها كمدخل لعملية تسليم المبادرة
- يتم تطوير مبادرات تكنولوجيا المعلومات المخططة واحتياجات العمل المقابلة وتحويلها إلى مخططات تفصيلية أكثر تفصيلاً
- تعد خرائط الطريق الموردين الرئيسيين لاحتياجات العمل المخطط لها لعملية تسليم المبادرة

Part C: EA Visions and Landscapes

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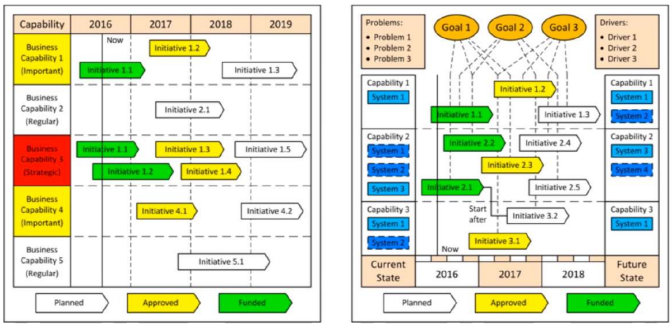
Roadmaps (Schematic View)



Planned – the IT initiative has been proposed as an idea, preliminarily approved by business leaders and placed in the Roadmap, but any further work on this initiative has not yet started
Approved– the IT initiative has been discussed in more detail and the development of early Outlines has been started to explore its possible implementation options
Funded – the IT initiative has been sufficiently elaborated, finally approved for funding, signed-off by business executives and included in the current program of work to be implemented shortly
Active – the IT initiative is being implemented right now,

Roadmaps (Usage):

Roadmaps help prioritize planned IT initiatives, ensure the alignment between specific IT investments and required business capabilities and connect future IT initiatives with respective business and financial plans

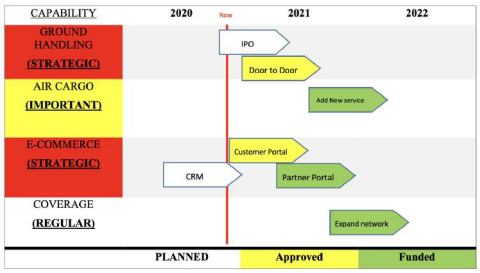
All IT initiatives from Roadmaps provide planned business needs as an input to the Initiative Delivery process

Planned IT initiatives and corresponding business needs are further elaborated and transformed into more detailed Outlines

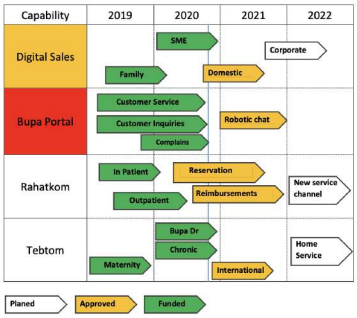
Roadmaps are the main suppliers of planned business needs to the Initiative Delivery process

Example Road Map

- **Roadmaps**



Roadmaps



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Target States [common]

- **Target States** are specific Visions providing high-level graphical descriptions of the desired long-term future state of an organization
- Target States can be considered as a common subtype of Visions often found in successful EA practices
- They can be called target architectures, future state architectures, business reference architectures, etc.
- Target States represent the ultimate destination of an organization from the perspective of its business and IT
- Essentially, Target States **explain what an organization is trying to achieve with IT in the long-term future**

For example, Target States may explain how future information systems, applications and data stores should relate to different customer segments, business units or capabilities. Basically, Target States explicate what an organization is trying to achieve with IT in the long run

Target States (Features)

Target States are often **planned for a horizon up to three years ahead**, less often for longer planning horizons

Target States are sophisticated(advanced) planning instruments more **often found in matured (developed) EA practices**

The usage of Target States requires more experienced architects as well as longer overall organizational **experience with enterprise architecture**

Target States are more appropriate and valuable for organizations pursuing **structural transformations**

Large organizations may need multiple Target

Part C: EA Visions and Landscapes

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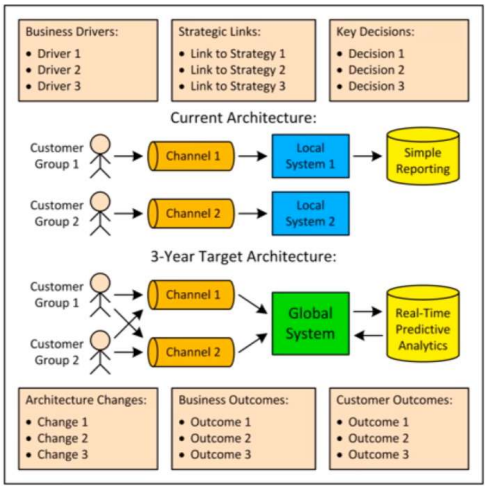
Target States (Schematic View)



Target States (Usage)

Target States are powerful instruments for guiding future IT investments

Target States provide an input for developing more detailed IT investment Roadmaps

Target States are broken down into a number of smaller components, these components are placed in Roadmaps as separate IT initiatives, prioritized based on their tactical importance and then implemented as regular IT solutions

Target States represent the intermediate level of planning between very abstract Business Capability Models and rather specific Roadmaps

Part C: EA Visions and Landscapes

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Value Chains [Uncommon]

- **Value Chains** are specific Visions providing structured graphical representations of the added value chain of an organization
- Value Chains can be considered as an uncommon subtype of Visions relatively rarely found in EA practices
- They can be called value reference models, business activity models, etc.
- Value Chains represent holistic views of an organization from the perspective **of its value-adding activities**
- Value Chains describe all primary and supporting activities that an organization performs to deliver value

A relative advantage of Value Chains (e.g. over Business Capability Models) is their better comprehensibility and attractiveness to business stakeholders

Features:

Value Chains are suitable for an organization-wide strategic planning up to 3-5 years ahead

Value Chains are often color-coded or heatmapped **to indicate which organizational activities should be improved in the long run and receive more IT dollars**

Value Chains are largely timeless in nature and normally survive most changes in the organizational structure and business strategy

A relative advantage of Value Chains is their better comprehensibility[فهمها لأفضل لأصحاب] to

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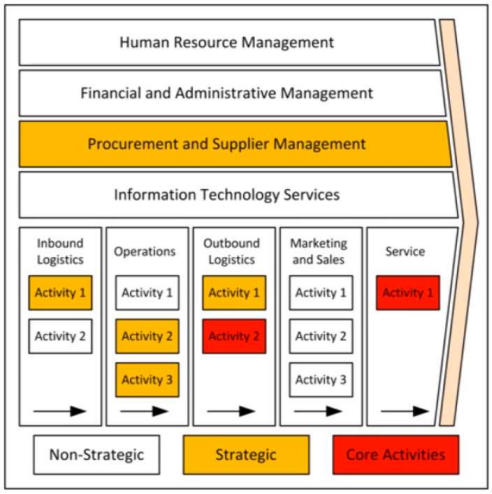
Value Chains (Schematic View)



Executive Master of IT

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Usage:

Similarly to Business Capability Models, Value Chains are one-page EA artifacts supporting the conversations between business leaders and architects regarding the desired long-term future course of action for IT

Value Chains help senior business and IT stakeholders identify the most strategically important business activities or areas and then focus IT investments on these areas

استعمال:

- على غرار نماذج قدرة الأعمال ، فإن سلاسل القيمة عبارة عن أدوات EA مؤلفة من صفحة واحدة تدعم المحادثات بين قادة الأعمال والمهندسين المعماريين فيما يتعلق بمسار العمل المستقبلي طويل المدى لتقنية المعلومات.
- تساعد سلاسل القيمة كبار رجال الأعمال وأصحاب المصلحة في مجال تكنولوجيا المعلومات على تحديد الأنشطة أو المجالات التجارية الأكثر أهمية من الناحية الاستراتيجية ثم تركيز استثمارات تكنولوجيا المعلومات على هذه المجالات

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- Specific Enterprise Architecture Artifacts Related to Landscapes

Context Diagrams*

- **Context Diagrams** are specific Visions providing high-level graphical descriptions of the current operational flows of an organization
- Context Diagrams can be considered as an uncommon subtype of Visions relatively rarely found in EA practices
- They can be called business context diagrams, application diagrams, concepts of operations, etc.
- Context Diagrams represent high-level views of an organization with its essential elements and relationships
- Context Diagrams explain on a single page how the business operates and clarify how an organization works

Context Diagrams (Features)

Context Diagrams may contain any elements critical for understanding the main operational flows of an organization, e.g. customers, products, services, activities, locations, workforce, information and systems

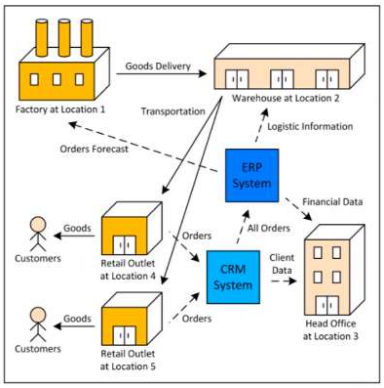
Unlike all other Visions, Context Diagrams are facts EA artifacts depicting the existing business as it is seen by business executives and focusing mostly on the current “as-is” state of an organization

Context Diagrams facilitate the strategic dialog between senior business and IT stakeholders regarding the best possible

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
- **Specific Enterprise Architecture Artifacts Related to Visions**
  - Business Capability Models – Essential EA artifacts
  - Roadmaps – Essential EA artifacts
  - Target States – Common EA artifacts
  - Value Chains – Uncommon EA artifacts
  - **Context Diagrams – Uncommon EA artifacts**
- Landscapes as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Landscapes

Context Diagrams (Schematic View)



- Contain any elements critical for understanding the main operational flows in an organization.
- Elements can be very diverse and include customers, products, services, activities, physical production and storage facilities, business units and functions, geographical locations, workforce, information, IT systems and any other relevant entities.
- Context Diagrams are facts EA artifacts depicting the existing business as it is seen by business executives and focusing mostly on the current "as-is" state of an organization

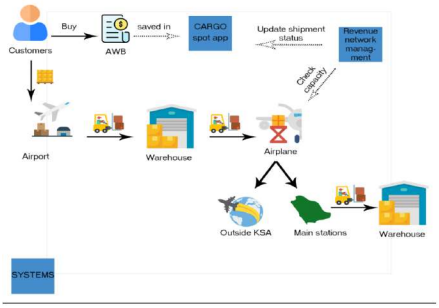
Context Diagrams (Usage)

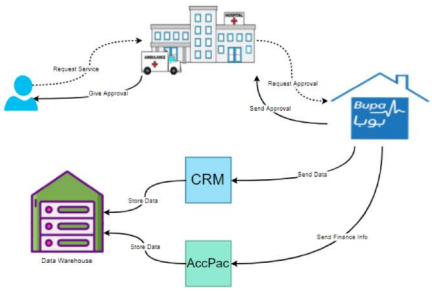
Context Diagrams help discuss the problems, bottlenecks, pain points and limitations of current operations as well as better understand the long-term consequences of different strategic IT-related planning decisions

Context Diagrams allow identifying the drivers, owners and stakeholders of separate IT initiatives and determining their overall organizational impact

These and other similar discussions supported by Context Diagrams help decide what IT investments should be done in the future, why and when

Examples
Context diagram





Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
- Specific Enterprise Architecture Artifacts Related to Visions
- **Landscapes as a General Type of Enterprise Architecture Artifacts**
- Specific Enterprise Architecture Artifacts Related to Landscapes

Landscapes EA Artifacts

- Landscapes are IT-focused structures EA artifacts, provide high-level IT-specific descriptions of the organizational IT landscape useful for architects
- Landscapes represent a knowledge base of reference materials on the IT landscape
- Landscapes enable the accumulation, storage and exchange of the technical knowledge on the IT landscape
- The purpose of all Landscapes is to help understand, analyse and modify the structure of the IT landscape
- Key organizational benefits of using Landscapes include:
  - Increased reuse of IT assets
  - Reduced duplication of IT assets
  - Decreased dependence on legacy IT systems
  - Improved IT agility.

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
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Landscapes EA Artifacts

Landscapes describe **what IT assists exist** in an organization, how **they are related to each other and how are they used.**

- Landscapes provide answers to the following and similar questions:
  - What IT systems, databases and infrastructure are available?
  - How are existing IT assets connected to each other?
  - What is the information flow between different IT assets?
  - How are existing IT assets used to support business capabilities and processes?
  - Which IT assets are duplicated, unused or redundant?
  - Which IT assets are considered as strategic or legacy?
  - Which IT assets should be reused or decommissioned in the future?
  - What technical improvements of IT assets are required in the future and when?

Landscapes are IT-specific in nature and describe mostly common technical EA domains including applications, data, infrastructure and integration

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Executive Master of IT

- توفر هندسة المناظر إجابات على الأسئلة التالية والأسئلة المشابهة:
- ما هي أنظمة وقواعد البيانات والبنية التحتية المتاحة؟
- كيف ترتبط أصول تكنولوجيا المعلومات الحالية ببعضها البعض؟
- ما هو تدفق المعلومات بين أصول تكنولوجيا المعلومات المختلفة؟
- كيف يتم استخدام أصول تكنولوجيا المعلومات الحالية لدعم قدرات وعمليات الأعمال؟
- ما هي أصول تكنولوجيا المعلومات المكررة أو غير المستخدمة أو الزائدة عن الحاجة؟
- ما هي أصول تكنولوجيا المعلومات التي تعتبر إستراتيجية أو موروثة؟
- ما هي أصول تكنولوجيا المعلومات التي يجب إعادة

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
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Landscapes EA Artifacts Examples

- Landscape Diagrams – Essential EA artifacts
- Inventories – Common EA artifacts
- Enterprise System Portfolios – Common EA artifacts
- IT Roadmaps – Common EA artifacts

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
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Landscape Diagrams* [Essential]

Landscape Diagrams are specific Landscapes showing technical "boxes and arrows" schemes of different scopes and granularities describing the IT landscape

- Landscape Diagrams can be very diverse in nature:
  - Different levels of granularity, e.g. only major or all IT systems
  - Different scopes, e.g. the whole IT landscape or its narrow parts
  - Any appropriate elements, e.g. processes, roles, services, etc.
- Landscape Diagrams can be considered as an essential subtype of Landscapes found most EA practices
- They can be called simply an architectural repository or used under very diverse titles, e.g. relational diagrams
- Landscape Diagrams represent snapshots of different parts of the organizational IT landscape
- Landscape Diagrams show what IT assets support different business areas and how they are interrelated

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Executive Master of IT

Landscape Diagrams (Features):

Landscape Diagrams most often describe only the current structure of the IT landscape

Landscape Diagrams can use sophisticated modeling notations, e.g. ArchiMate or less often ARIS

Landscape Diagrams are often maintained either as a set of simple MS Visio drawings or as graphs stored inside specialized tool-based EA repositories

- مخططات هندسة المنظر (الميزات):
- غالبًا ما تصف المخططات الأفقية فقط البنية الحالية لمشهد تكنولوجيا المعلومات
- يمكن أن تكون مخططات المناظر الطبيعية متنوعة للغاية في

Part C: EA Visions and Landscapes

- Visions as a General Type of Enterprise Architecture Artifacts
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Landscape Diagrams (Schematic View)

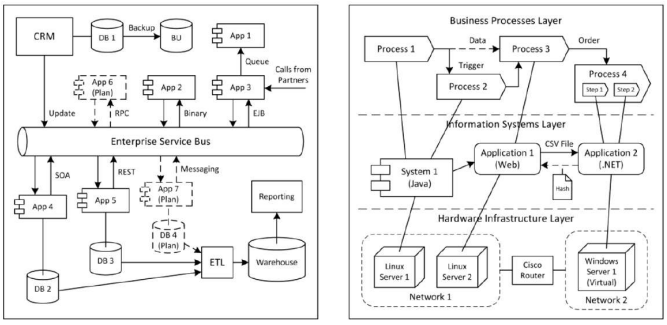


Figure 12.1. Landscape Diagrams (free-form diagrams and layered diagrams)

Landscape Diagrams (Usage):

Landscapes Diagrams are owned by architects

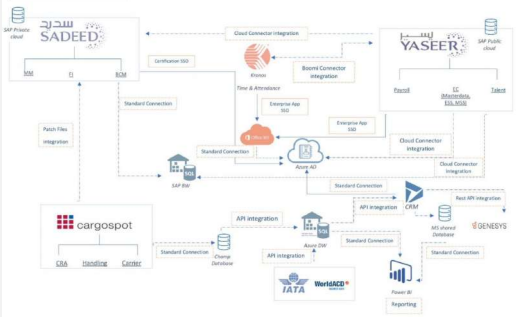
Landscapes Diagrams are developed with the intention to document a particular area of the IT landscape when necessary and then maintained up-to-date to reflect its ongoing evolution

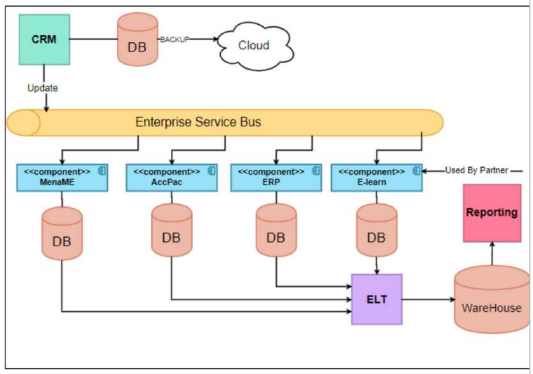
Landscapes Diagrams help architects identify and eliminate redundant IT assets, simplify the overall structure of the IT landscape and integrate new IT systems into the existing IT environment

During the development of new Outlines and Designs they show what applications are impacted, which interfaces are modified and

Example
Landscape Diagram

Landscape Diagram





Part C: EA Visions and Landscapes

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Inventories [common]

- **Inventories** are specific Landscapes providing structured catalog of currently available IT assets describing their essential properties and features
- Inventories can be considered as a common subtype of Landscapes often found in successful EA practices
- They can be also called asset registers or architectural repositories
- Inventories represent comprehensive directories of organizational IT assets with their detailed descriptions
- Essentially, they list all IT assets owned and maintained by an organization and describe their key attributes

Inventories (Features)

IT assets are often organized into related groups, e.g. into applications, systems and databases

The properties of IT assets may include their purpose, technology, owners, lifetime, cost of maintenance, overall fitness and known problems

Status of IT assets can be tagged, for example:

Reuse – “healthy” IT assets that can be safely reused

Invest – strategic IT assets that should be reused when possible

Maintain – “toxic” IT assets that should not be reused

Part C: EA Visions and Landscapes

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Inventories [common]

Inventories (Features)

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  - Maintain – "toxic" IT assets that should not be reused
  - Decommission – legacy IT assets that should be removed

Inventories (Features)
IT assets are often organized into related groups, e.g. into applications, systems and databases
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Inventories (Schematic View)

Status of IT assets can be tagged, for example:
Reuse – healthy" IT assets that are currently in use, will be maintained in the future and can be safely reused in new IT solutions

Invest – strategic IT assets that are currently in use, will be further enhanced in the future and reuse of these assets in new IT solutions is highly encouraged

Decommission – legacy or problematic IT assets that are currently in use, but will be decommissioned shortly and should not be reused in new IT solutions

Asset	Purpose	Owners	Cost	Problems
Application 1	.....	.....	.....	.....
Application 2	.....	.....	.....	.....
Application 3	.....	.....	.....	.....
Application 4	.....	.....	.....	.....
System 1	.....	.....	.....	.....
System 2	.....	.....	.....	.....
System 3	.....	.....	.....	.....
System 4	.....	.....	.....	.....
System 5	.....	.....	.....	.....
Database 1	.....	.....	.....	.....
Database 2	.....	.....	.....	.....
Database 3	.....	.....	.....	.....
Database 4	.....	.....	.....	.....

Decommission | Reuse | Invest

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Inventories (Usage)

- Inventories are initially filled when necessary to document some area of the IT landscape and then maintained up-to-date to reflect its evolution
- Inventories are owned by architects, but may be also populated by IT operations teams supporting IT systems
- Inventories help architects review the available IT assets, analyze their status and manage their lifecycle
- Inventories allow reusing appropriate IT assets in new IT solutions and promptly removing legacy IT assets
- Inventories also help synchronize the changes

Example Inventories

- **Inventories**

Asset	Purpose	Owners	Cost	Problem
CargoSpot (App)	Host the cargo business transactions	Business applications (Champ)	2K Per **user** per year	Needs customization always
Champ AQD (App)	Used for safety assurance team	Business applications (Champ)	12K $ Per **instance** per year	Did not meet requirements
SAP S4/Hana (App)	Used for Finance procurement, facility transactions	Corporate Applications (SAP)	2,200 SAR Per **user** per year	N/A
SAP SuccessFactors (App)	Used for HR, and employee's transactions	Corporate Applications (SAP)	1,200 SAR Per **user** per year	Continuous support
Office 365 (App's)	Used by all employees to access office suite	IT infrastructure (Microsoft)	2-5K SAR Per **user** per year	Change in license pricing and features schema by MS
Dynamics 365 (App's)	Used By commercial team CRM	Corporate Applications	95 $	Change in license pricing and features schema by MS
		(Microsoft)	per module per **user** per month	
Customer Portal (App)	Used By commercial team complementary for CRM	Corporate Applications (Microsoft)	700K Per **implementation**	To be customized
Windows 10 (System)	The used operating system for all machines	IT infrastructure (Windows)	450 SAR Per **device**	N/A
Azure DW (DB)	Host operational data for BI reporting	IT infrastructure (Microsoft)	200K SAR Per **DW**	High price for expansion
SAP BW (DB)	Used to host SAP transactions for BI reporting	Corporate Applications (SAP)	3,300 $ Per **user** per month	Needs to set up modeling per system
Champ DW (DB)	Used for operational data hosting for BI	Business applications (Champ)	40K $ Per **instance** per year	Not sufficient reporting tool
	Decommissioned	**Reuse**	**Invest**	

Part C: EA Visions and Landscapes

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  - IT Roadmaps – Common EA artifacts

Enterprise System Portfolios [common]

- **Enterprise System Portfolios** are specific Landscapes providing structured high-level mappings of all essential IT systems to relevant business capabilities
- Enterprise System Portfolios can be considered as a common subtype of Landscapes
- They can be called application portfolios, application models, IT system value maps, IT strategy maps, etc.
- Enterprise System Portfolios represent comprehensive[شامل] abstract views of the entire organizational IT landscape
- They focus only on the most significant IT systems
- Typically they mirror Business Capability Models

Enterprise System Portfolios (Features)

Enterprise System Portfolios primarily show current IT systems, but may also outline planned IT systems

They focus only on the most significant IT systems

Typically they mirror Business Capability Models

IT systems are often color-coded, for example:

Active – IT systems that will be maintained in the future

Strategic – IT systems that will be further expanded in the future

Legacy – IT systems that need to be replaced in the future

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Enterprise System Portfolios (Schematic View)*

- Enterprise System Portfolios are developed and then maintained by architects to be used for strategic technical decision-making within the architecture function
- Enterprise System Portfolios help architects identify duplicated, misused, control the lifecycle and transition of core applications, assess the overall fitness of the IT portfolio
- They can inform the development of Roadmaps via showing current and suggesting future IT systems for particular areas
- IT systems are often color-coded, for example:
  Active – IT systems that will be maintained in the future
  Strategic – IT systems that will be further expanded in the future
  Legacy – IT systems that need to be replaced in the future
  Inactive – IT systems that can be safely decommissioned

- يتم تطوير حافظات نظام المؤسسة ثم صيانتها من قبل المهندسين المعماريين لاستخدامها في اتخاذ القرارات الفنية الاستراتيجية داخل وظيفة الهندسة المعمارية
- تساعد حافظات أنظمة المؤسسة المهندسين المعماريين على تحديد أنظمة تكنولوجيا المعلومات المكررة وسوء الاستخدام وغير الملائمة والقديمة ، والتحكم في دورة الحياة وانتقال التطبيقات الأساسية ، وتقييم الملاءمة العامة لمحفظة تكنولوجيا المعلومات
- يمكنهم الإبلاغ عن تطوير خرائط الطريق من خلال إظهار أنظمة تكنولوجيا المعلومات الحالية واقتراح المستقبل لمنطق معينة
- تعد حافظات أنظمة المؤسسات مجردة جدًا بحيث لا تكون مفيدة للتخطيط التفصيلي لحلول تكنولوجيا المعلومات الجديدة

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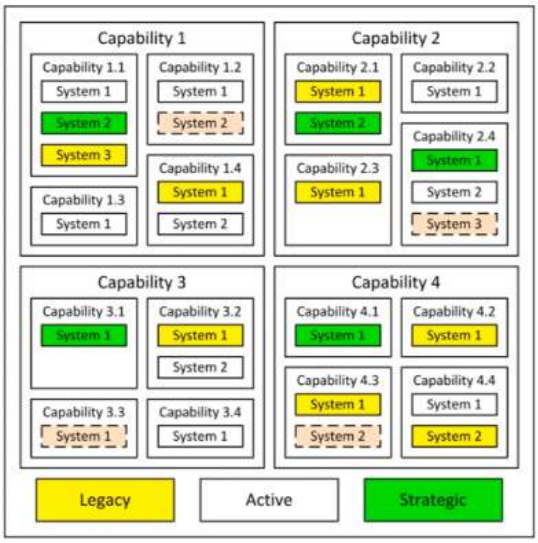

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IT Roadmaps [common]

- **IT Roadmaps** are specific Landscapes providing **structured graphical views of all planned IT initiatives** of a technical nature having no visible business impact
- IT Roadmaps can be considered as a common subtype of Landscapes
- IT Roadmaps can be called technology roadmaps, platform roadmaps, infrastructure roadmaps, etc.
- IT Roadmaps are IT-oriented counterparts of Roadmaps
- IT Roadmaps reflect purely IT-specific efforts intended to improve the technical quality of the IT landscape without delivering any new business functionality or benefits

IT Roadmaps (Features)

IT Roadmaps focus on technical EA domains and are usually planned for shorter time horizons, e.g. 1-2 years

IT initiatives in IT Roadmaps represent technical rationalization suggestions resulting from the Technology Optimization process

These initiatives can be either implemented as part of regular business initiatives, or launched independently as separate architectural initiatives

Initiatives in IT Roadmaps are often color-coded to indicate their sponsorship status and funding needs

Part C: EA Visions and Landscapes

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خرائط طريق تكنولوجيا المعلومات (الميزات)

- تركز خرائط طريق تكنولوجيا المعلومات على مجالات EA الفنية وعادةً ما يتم التخطيط لها لأفاق زمنية أقصر ، على سبيل المثال 1-2 سنة
- تمثل مبادرات تكنولوجيا المعلومات في خرائط طريق تكنولوجيا المعلومات اقتراحات ترشيد تقنية ناتجة عن عملية تحسين التكنولوجيا
- يمكن تنفيذ هذه المبادرات إما كجزء من مبادرات الأعمال العادية ، أو إطلاقها بشكل مستقل كمبادرات معمارية منفصلة
- غالبًا ما تكون المبادرات في خرائط طريق تكنولوجيا المعلومات مشفرة بالألوان للإشارة إلى حالة الرعاية واحتياجات التمويل
- تتوافق خرائط طريق تكنولوجيا المعلومات عادةً مع المجالات التقنية

Part C: EA Visions and Landscapes

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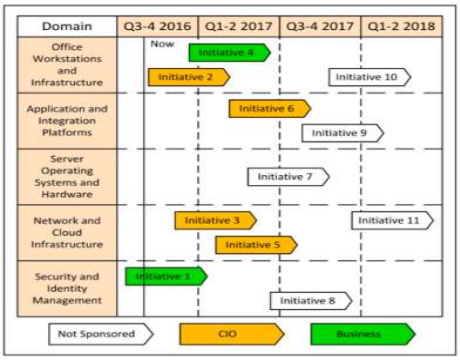
IT Roadmaps (Schematic View)



IT Roadmaps (Usage)

- IT Roadmaps are used by architects for planning the changes and technical improvements in the organizational IT landscape
- IT Roadmaps help architects eliminate the anticipated technical problems and bottlenecks in a proactive manner and schedule the planned maintenance of the IT landscape

خرائط طريق تكنولوجيا المعلومات (الاستخدام)

- يتم استخدام خرائط طريق تكنولوجيا المعلومات من قبل المهندسين المعماريين لتخطيط التغييرات والتحسينات التقنية في مشهد تكنولوجيا المعلومات التنظيمي
- تساعد خرائط طريق تكنولوجيا المعلومات المهندسين المعماريين على التخلص من المشاكل التقنية المتوقعة والاختناقات بطريقة استباقية وجدولة الصيانة المخططة لمشهد تكنولوجيا المعلومات
- تساعد خرائط طريق تكنولوجيا المعلومات أيضًا في مناقشة مبادرات تكنولوجيا المعلومات مع أصحاب المصلحة المعنيين بتكنولوجيا المعلومات ومواءمة هذه المبادرات مع الجداول الزمنية لمبادرات الأعمال المنتظمة المخطط لها

The end

Thank you

See you next class