

3rd Digital Transformation in Government

Using Capability Map to transform the University

What

- This deck presents the work carried out by the Enterprise Architecture subgroup of the Information and Communication Technology Directors working group (SIN group), framed within the Sectoral Committee on Information and Communication Technologies of the Conference of Rectors of Spanish Universities (CRUE-TIC).
- It includes a complete map of the capabilities defined for the whole of the Spanish University System and should be taken as a generic reference upon which each university should customize its own personalized framework, depending on its nature (public or private) or other unique characteristics

Two main contributions

- We identify two main contributions for which the generic reference is key:
 - First, to identify the practice of Enterprise Architecture in the SUE itself, as one of the key elements for institutional development and the alignment of all activity with the institutional strategic objectives in an effective way.
 - Second, to have a framework, a common language, at the Spanish university system level that also serves as a base reference to link with other works at the system level, such as the ICT services catalog of the SUE or the data model.
- In addition, it is a key reference for the work of definition and alignment with the equivalent work at the State level.

Problem statement

- When the CRUE-TIC Enterprise Architecture working group began in 2017, there was little knowledge of the practice of Enterprise Architecture in the whole SUE, or of its benefits for the whole institution. In addition, there was a lack of a common reference/language as a whole system. Far from understanding this as something negative, it was seen as an opportunity to unify and build.
- Specific objectives were established: to define and disseminate what Enterprise Architecture is (and what it is not); to provide the first tool to the system that allows the connection of business and technology (the capability map); and to link this initiative with the results of other existing initiatives, such as the service catalog of Spanish universities.

Approaches Considered and Selected

- The Enterprise Architecture working group adopted one main principle: “do not reinvent the wheel”.
- We started by analyzing basic aspects, such as what frameworks of reference existed, at what stage was the question in the Higher Education (HE) sector, what modeling languages existed, what tools were available, etc. in order to identify those that would be taken as the basis for the initiative of Spanish universities.

About the Reference Model

- The main architecture reference models (US Federal Enterprise Architecture (FEA), The Zachman Framework for Enterprise Architecture™, and the TOGAF® Standard) were analyzed. Their implementation/use in several countries (Australia, Austria, Belgium, Canada, Denmark, New Zealand, India) was also analyzed.
- As a result, the TOGAF Standard was chosen.

About Status on HE Initiatives

- Different existing initiatives and references in the HE space were analyzed. Of these, two main initiatives and references were finally selected (see References):
 - CAUDIT6 v1.0.3
 - UCISA7 v1
- An extensive analysis of both models was carried out, to include the philosophy and approaches of each one as well as a detailed comparative analysis of all capabilities.
- As a result, the TOGAF Standard was chosen.

The CRUE Universidades Españolas' Approach to Capability Mapping

- Context is an important aspect of Enterprise Architecture practice, which is why, after evaluating existing frameworks, it was decided that a new Enterprise Architecture, adapted to Spain and Spanish university environments, should be produced. Factors such as the legal nature of universities (publicly or privately funded) or cultural aspects (religious institutions, institutions with clear commercial orientation, etc.) were taken into consideration.
- As a result, the first Spanish HE capability map was based on the CAUDIT model, incorporating the commercial capabilities of UCISA, and adapting some aspects of the SUE (such as basic terminology).

The Spanish Enterprise Architecture Definition

- “What is Enterprise Architecture?” Maybe this is the most recurrent question when someone starts to lead an Enterprise Architecture initiative.
- We agreed to adopt a practical definition: “The purpose of Enterprise Architecture is to WHY, by HOW, using WHAT”, to give us three main perspectives:
- WHY
 - To enable an enterprise to realize its Vision through the execution of its Mission, while enabling it to respond to change and increase its effectiveness, profitability, customer satisfaction, competitive edge, growth, stability, value, durability, efficiency, and quality while reducing costs.
- HOW
 - By strategic planning, architecture, and governance, supported by a decision support framework in the context of aligning all parts of the enterprise.
- WHAT
 - Using models, guidance, processes, and tools.

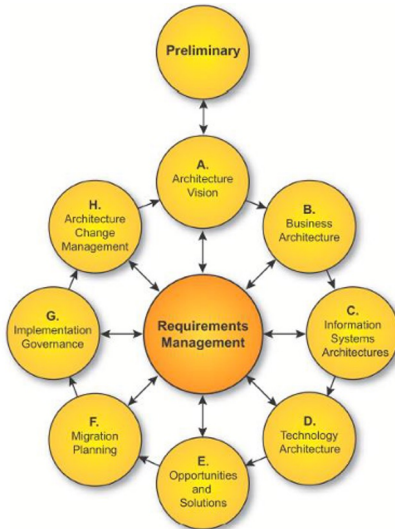
More formal definition

- Thus, we arrived at a more formal definition: “The purpose of Enterprise Architecture is to enable an enterprise to realize its Vision, by strategic planning, architecture, and governance, using models, guidance, processes, and tools.”
- It was also important to define what Enterprise Architecture is NOT. It is not:
 - Lots of hardware, software, and white papers describing business IT
 - A one-time project or effort
 - IT governance and business strategy
 - A set of artifacts, or architect-generated documents that describe the current state and future state architecture, or documents generated as part of an Enterprise Architecture framework

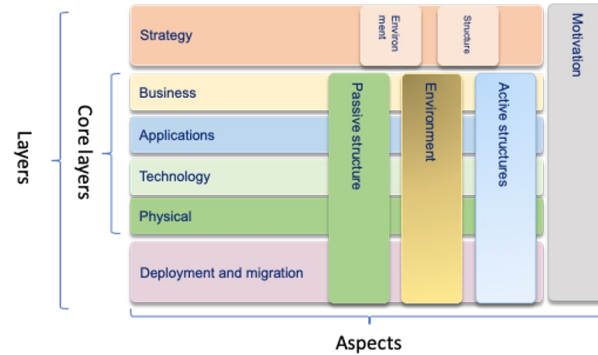
Graphical view

Promote and disseminate the concept of enterprise architecture in the Spanish university system

In order to provide a complete toolkit, four initial objectives were identified and defined:



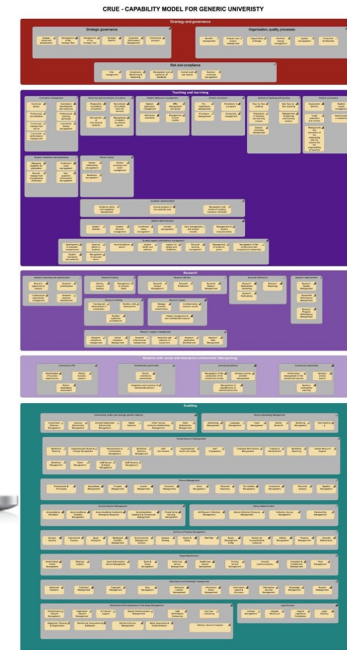
- Reference model



- Modelling language



- Modelling tool



- Capability Model

Enterprise Architecture Opportunities Identified

- Provides a full view of the university to all stakeholders through a comprehensive framework for business, performance, applications, data, integration, technology, security, and governance
- Enables the development of systems that are interoperable and scalable
- Provides a performance framework to measure drive performance based on indicators
- Ensures departmental and interdepartmental relationships are effectively identified
- Provides a structured way to categorize and prioritize university unit services for effective automation
- Provides a framework to develop and deploy applications from different units in a standardized way
- Facilitates the optimized use of Information and Communication Technologies by the university, reducing the cost of IT and business operations by identifying opportunities for reuse



Level 1 Capability

Strategy and
Governance
Teaching and
Learning
Research

Commercial
Activity

Enabling
Capabilities

Processes and/or Resources Necessary for/to:

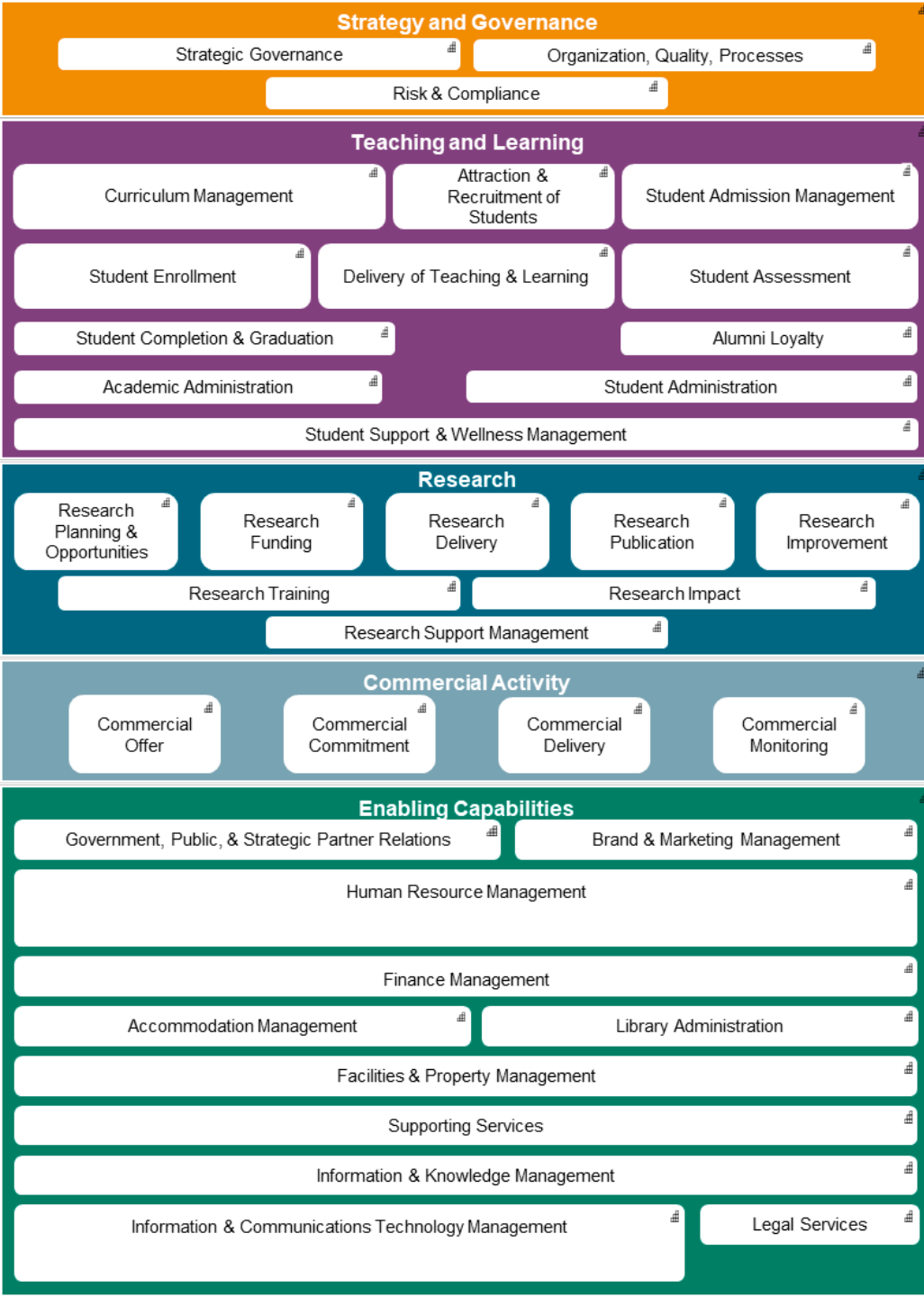
Effective strategic planning

Effective teaching and learning

Manage the establishment of the research
program

Ensure that the organization is able to
develop, deliver, support, and administer
commercial activity

Enable core processes to support the
business



Level 1 Capability	Level 2 Capability	Processes and/or Resources Necessary for/to:
Strategy and Governance	Strategic Governance	Effective strategic planning
	Organization, Quality, Processes	Determine and report on organizational performance, and to develop, enhance, and manage improvements
	Risk & Compliance	Perform risk management and compliance activities
Teaching and Learning	Curriculum Management	Create and develop the curriculum
	Attraction & Recruitment of Students	Undertake activities to attract and recruit domestic and international students
	Student Admission Management	Admit students to the institution
	Student Enrollment	Enrol students at the institution
	Delivery of Teaching & Learning	Deliver teaching and learning
	Student Assessment	Manage student assessment
	Student Completion & Graduation	Perform student completion and graduation
	Alumni Loyalty	Engage with past students of the institution
	Academic Administration	Schedule curriculum courses
	Student Administration	Manage student administration
	Student Support & Wellness Management	Provide support to students during their studies
Research	Research Planning & Opportunities	Manage the establishment of research programs
	Research Funding	Identify sources and manage research funding
	Research Delivery	Manage the delivery of research
	Research Publication	Publish research findings and outcomes
	Research Improvement	Improve the research program
	Research Training	Prepare academics and students for research activities
	Research Impact	Promote research outcomes



Level 2 Capability for Strategy and Governance	Level 3 Capability	Processes and/or Resources Necessary for/to:
Strategic Governance	Strategic Vision & Development	Perform the vision and strategic development
	Development of the Strategic Plan	Perform the development of the strategic plan
	Management of the Strategic Plan	Perform the management of the strategic plan
	Strategic Reports	Assess and analyze Key Performance Indicators (KPIs)
	Corporate Performance Management	Perform the corporate management
	Commercial Prospect	Perform the commercial prospect
Organization, Quality, Processes	Benefits Management	Perform the benefits management
	Program & Project Management	Perform the program and project management
	Organizational Design	Perform the organizational design
	Portfolio Change	Perform the portfolio change management

Applicability

- Reference model for state relations: this is relevant because CRUE has competencies in the Sectoral Committee of Electronic Administration of Spain for the HE sector – thus, the capacity map and the data model are the reference and basis for relations with other educational and/or productive sectors
- Reference model for stakeholders: the capability map serves to provide a common language with key stakeholders and suppliers
- Reference model for other working groups: the capability map also serves as a common reference with other CRUE working groups, such as the service catalog, or the teaching, etc. – in this sense, it is also a common basis for all the different profiles of the different groups
- Universal template for every university: the capability map is generic but serves as a basis for any university, being adaptable to its own reality
- Glue for business engagement: one of the most appreciated values of the capability map is the ability to place different university actors in the same context, with a common language

Communication - key for success

- CRUE Higher Education toolkit for University Board

The EA working group elaborated the following communication and dissemination material for University board, to highlight how Enterprise Architecture fits with the University Board

- **CRUE Higher Education toolkit for IT Directors – EA initiative**

The EA working group elaborated the following communication and dissemination material for IT Directors, to highlight what Enterprise Architecture initiative is, and how Enterprise Architecture initiative can help/support several business domains.

- **CRUE Higher Education toolkit for IT Directors – EA relation with other ICT standards**

The EA working group elaborated the following communication and dissemination material for IT Directors, to highlight how Enterprise Architecture and how it fits with other well-known reference standards.

- CRUE Higher Education toolkit for IT Directors – ICT' Run&Grow opportunities mapped on the Enterprise Capability Map

The EA working group elaborated the following communication and dissemination material for IT Directors, to highlight how Enterprise Architecture supports the run or enables the grow

- Internationalization efforts: [The OpenGroup "EA Government Working Group"](#)

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