



UCISA Enterprise Architecture Group

Introduction to the Higher Education Reference Models (HERM)

The UCISA EA Group

The UCISA Enterprise Architecture Group (EAG) seeks to promote and develop Enterprise Architecture practice across the Higher Education Sector in the UK and Ireland through the sharing of knowledge, experience and good practice

- 300 members from over 100 different universities
- Forum for collaboration and sharing of knowledge, experience, case studies and templates
- Active mail forum and MS Teams site
- Webinars to showcase and share examples of practice with the UCISA EA community
- 'Open-mic' meetings with group members to enable collaboration and discussion
- Network with HE EA Communities across the globe

please contact admin@ucisa.ac.uk to join our group
<https://www.ucisa.ac.uk/Groups/Enterprise-Architecture-Group>

The EA Group – Committee members



Lex Wilkinson
(Sheffield Hallam University) –
Joint Chair



Stéphane Pajon
(University of Warwick) –
Joint Chair



Rosie Coffey
(University College Cork) –
Joint lead of
BCM/BMC
workgroup



Gazelleh Moradi
(Coventry University) –
Joint lead of
BCM/BMC
workgroup



Russell Boyatt
(University of Warwick) –
Lead of DRM
workgroup



Chris Stewart
(University of Leeds)



Michael Westwood
(University of Exeter)

The Higher Education Reference Models

Introducing HERM

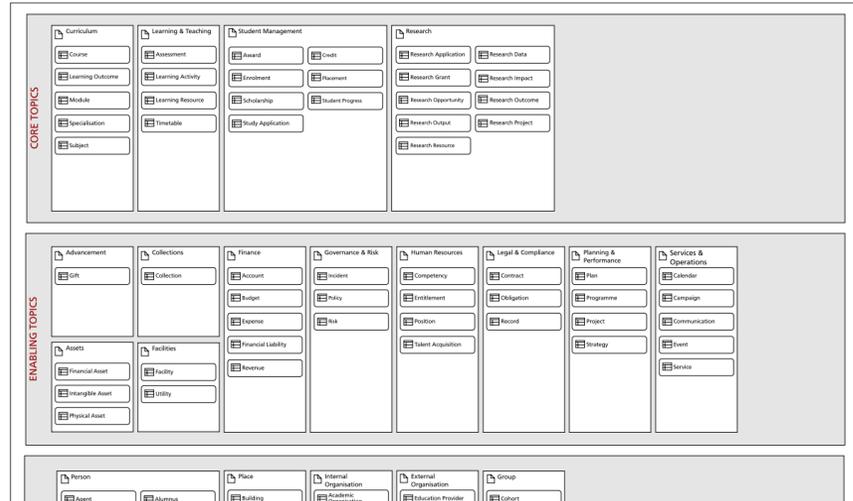
Higher Education Reference Models



HIGHER EDUCATION DATA REFERENCE MODEL

3 Core models:

- HE Business Capability Model
- HE Data Reference Model
- HE Business Model Canvas



DESCRIPTION
The Higher Education Data Reference Model describes a standard set of data architecture elements relevant to higher education. It identifies the business nouns that define a common language for Business Stakeholders, Enterprise Architects, and Technology Strategists to communicate clearly. The primary component of the Data Reference Model is the embedded conceptual data model, which captures these nouns as high-level data entities, grouped into topics.

UNDERSTANDING DATA
Data are a set of facts, representing a specific concept or concept. Value is added to data when they are combined and presented to users within a context, turning them into meaningful information to support business decisions and enable operational activities.

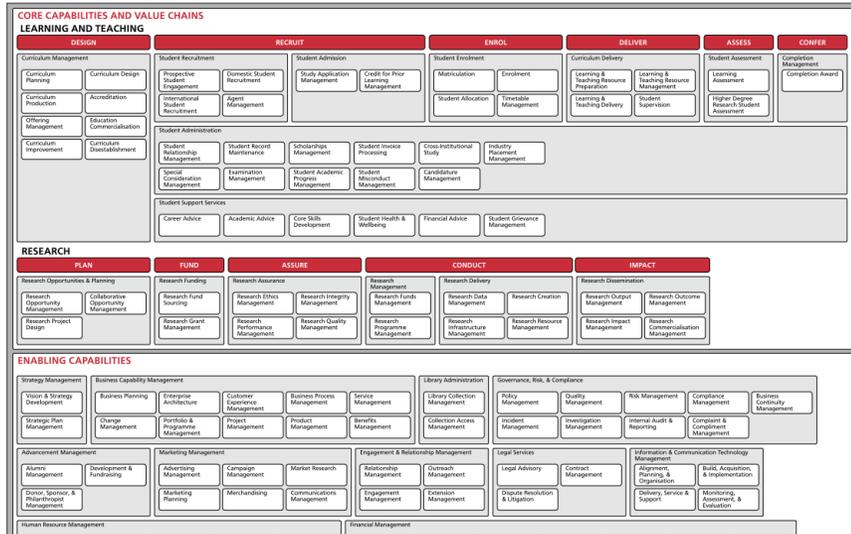
DATA - CONTEXT - INFORMATION

USAGE
There are three established levels defined in data modelling: conceptual, logical, and physical. This conceptual data model focuses only on the data entities to describe the language of the organisation and has an enterprise-wide scope to provide a strategic view of information.

The purpose of the models is to define the agreed terminology and key concepts that are important to the business. The model can be used to identify which data entities are identified or needed in various information assets, data quality risks, who is responsible for governing the data, and where data are stored. The top-level conceptual data entities also provide the basis for more detailed conceptual, logical, and physical data models that further specify relationships and attributes as inputs to business technology solutions design.

MAJOR CONCEPTS
A topic is a collection of data entities that share a common theme. This is not the same as a subject area. In a modelling context, a subject area (e.g., Research) may contain data entities from multiple topics (e.g., a Researcher (Person Topic) is involved in a Research Topic (Research Topic)).

HIGHER EDUCATION BUSINESS CAPABILITY MODEL



DESCRIPTION
The Higher Education Business Capability Model describes a standard set of Business Architecture elements relevant to Higher Education. It can be used as a reference for Business Stakeholders, Enterprise Architects, and Technology Strategists to engage in discussion regarding business effectiveness, needs, and challenges. Standing alongside the accompanying Business Model Canvas, the Business Capability Model elaborates the core value chains for higher education and their underlying business capabilities.

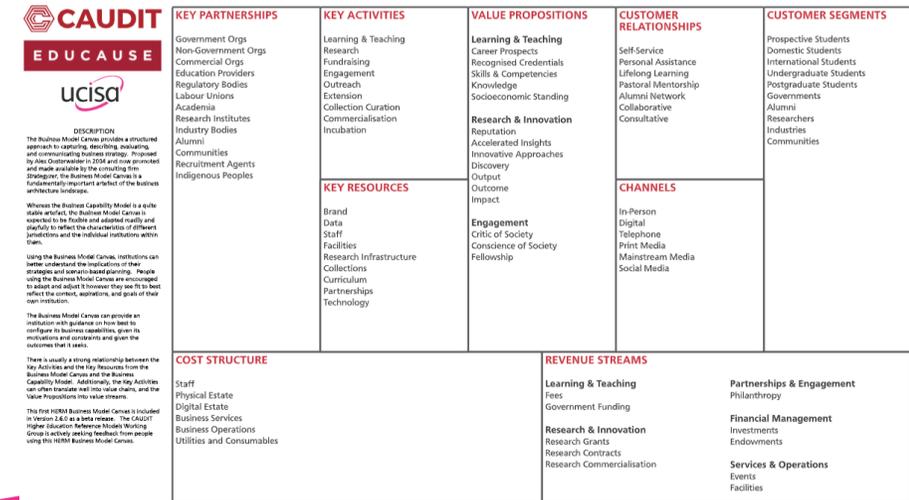
UNDERSTANDING BUSINESS CAPABILITIES
A capability model supports the development of strategies by viewing the business as a collection of capabilities that can be adjusted in response to the demands of the business environment. This models WHAT the organisation is capable of doing. It presents the business capabilities within the wider business context of WHO it serves, relies on, and answers to, extending beyond organisational boundaries. A Business Capability is a particular logical combination of People, Process, Information, and Technology necessary to deliver a discrete required outcome to achieve a specific business objective. The capabilities support the realisation of an institution's strategies.

BUSINESS MOTIVATION
MEASUREMENT: MEAS, ENDS, CAPABILITIES, INFORMATION, TECHNOLOGY

USAGE
The Business Capability Model serves as an anchor for assessing perspectives such as strategic importance, maturity, business operational pain points, capital investment, and organisational structure. It presents a view of the organisation with traceability from business objectives through to the information, technology, and other resources required to support them.



HIGHER EDUCATION BUSINESS MODEL CANVAS



To request access to the models email: admin@ucisa.ac.uk

HIGHER EDUCATION BUSINESS CAPABILITY MODEL



EDUCAUSE

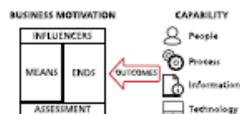


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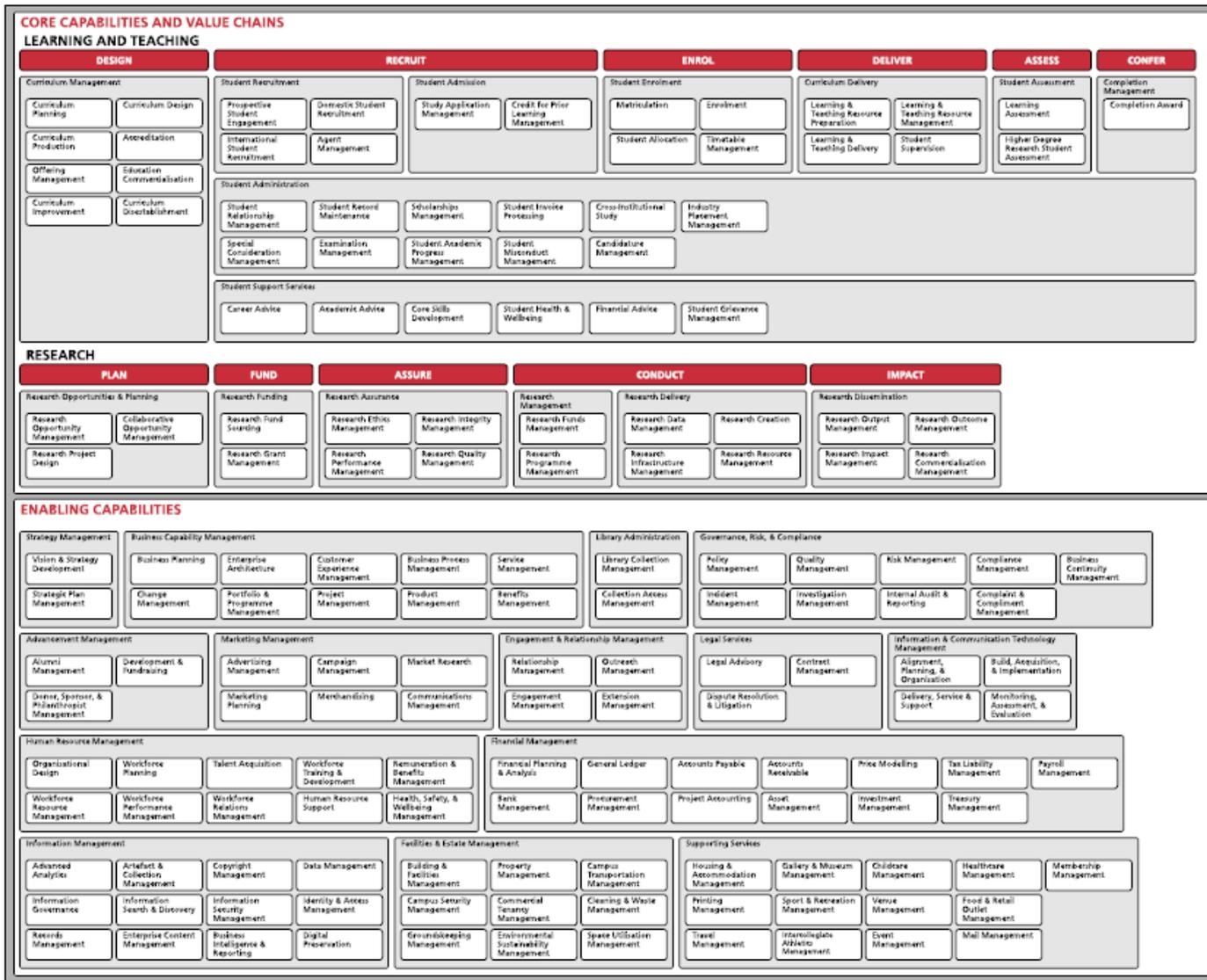


USAGE

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MAJOR CONCEPTS

Typically an **ORGANISATIONAL STRUCTURE** would be included to provide context for the scope of the model. **VALUE CHAINS** capture how the institution generates value through Learning & Teaching and Research. **CORE CAPABILITIES** that directly support the Value Chains are organized under the relevant Value Chain Segment. **ENABLING CAPABILITIES** support the core capabilities across the value chains and keep the institution running.



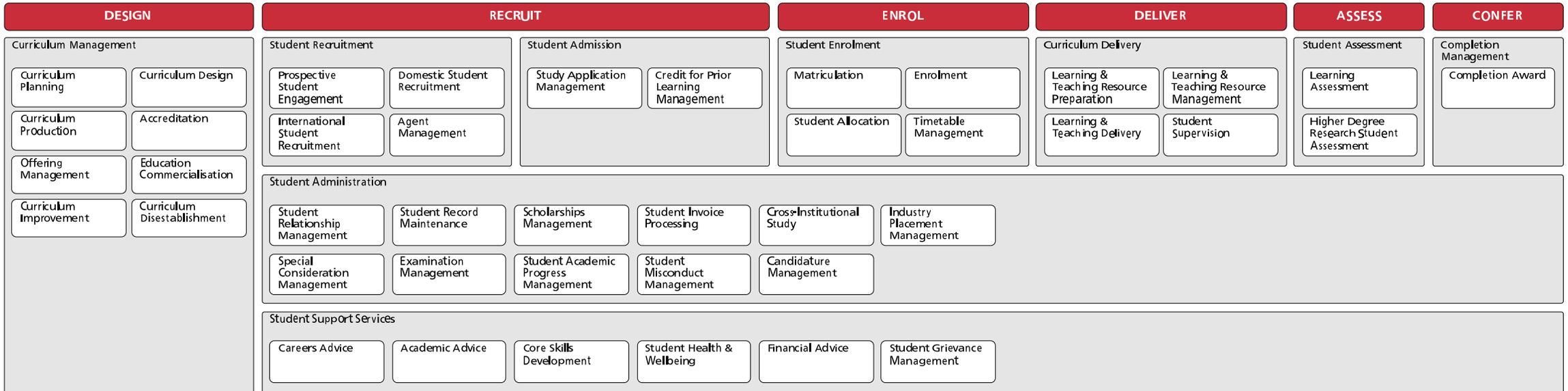
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Business Capability Model

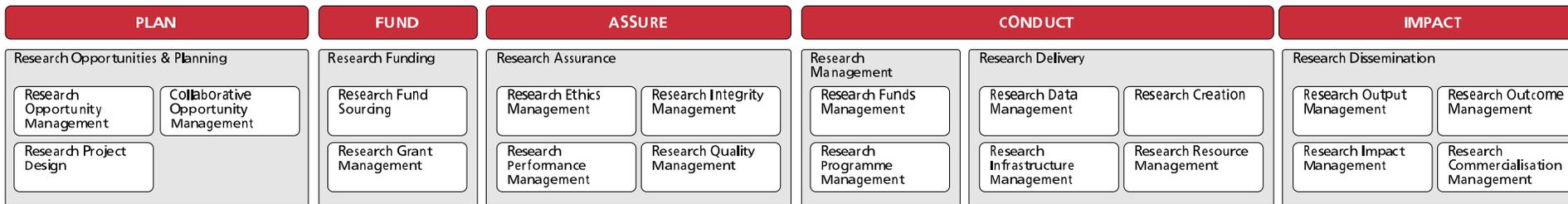


CORE CAPABILITIES AND VALUE CHAINS

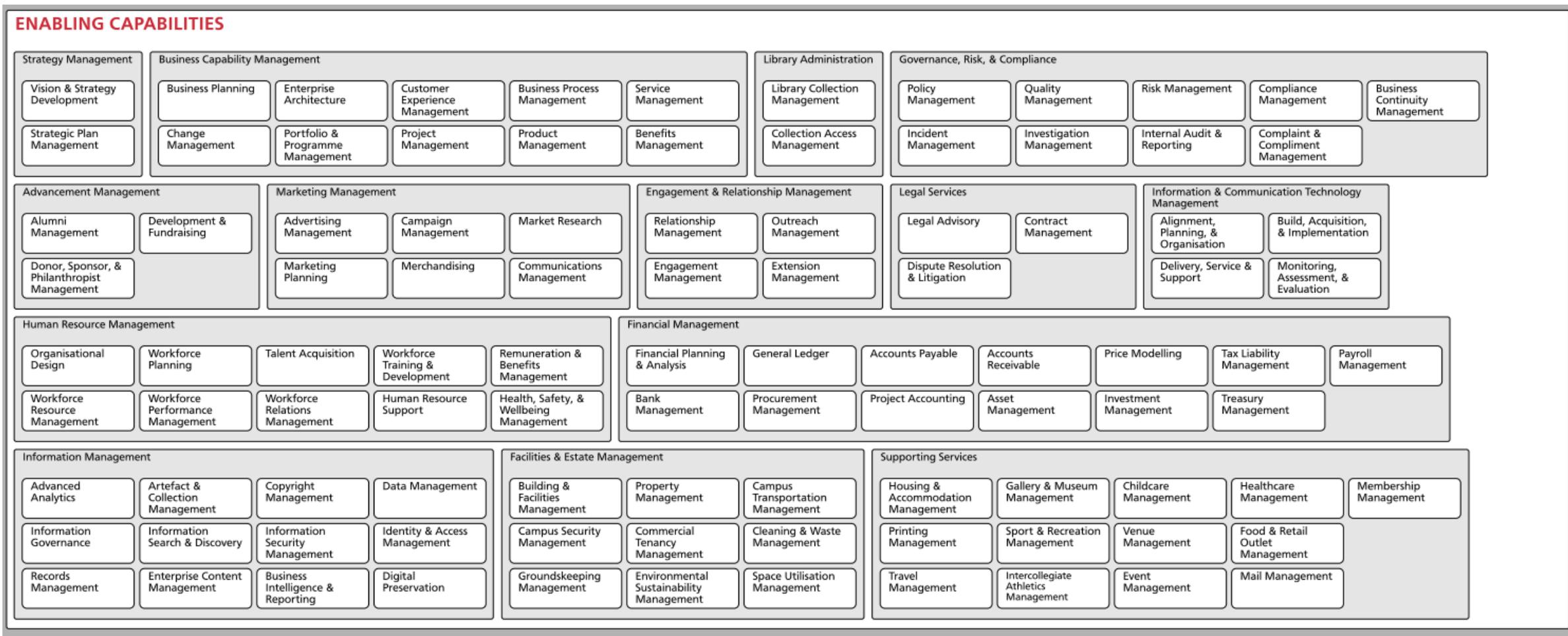
LEARNING AND TEACHING



RESEARCH

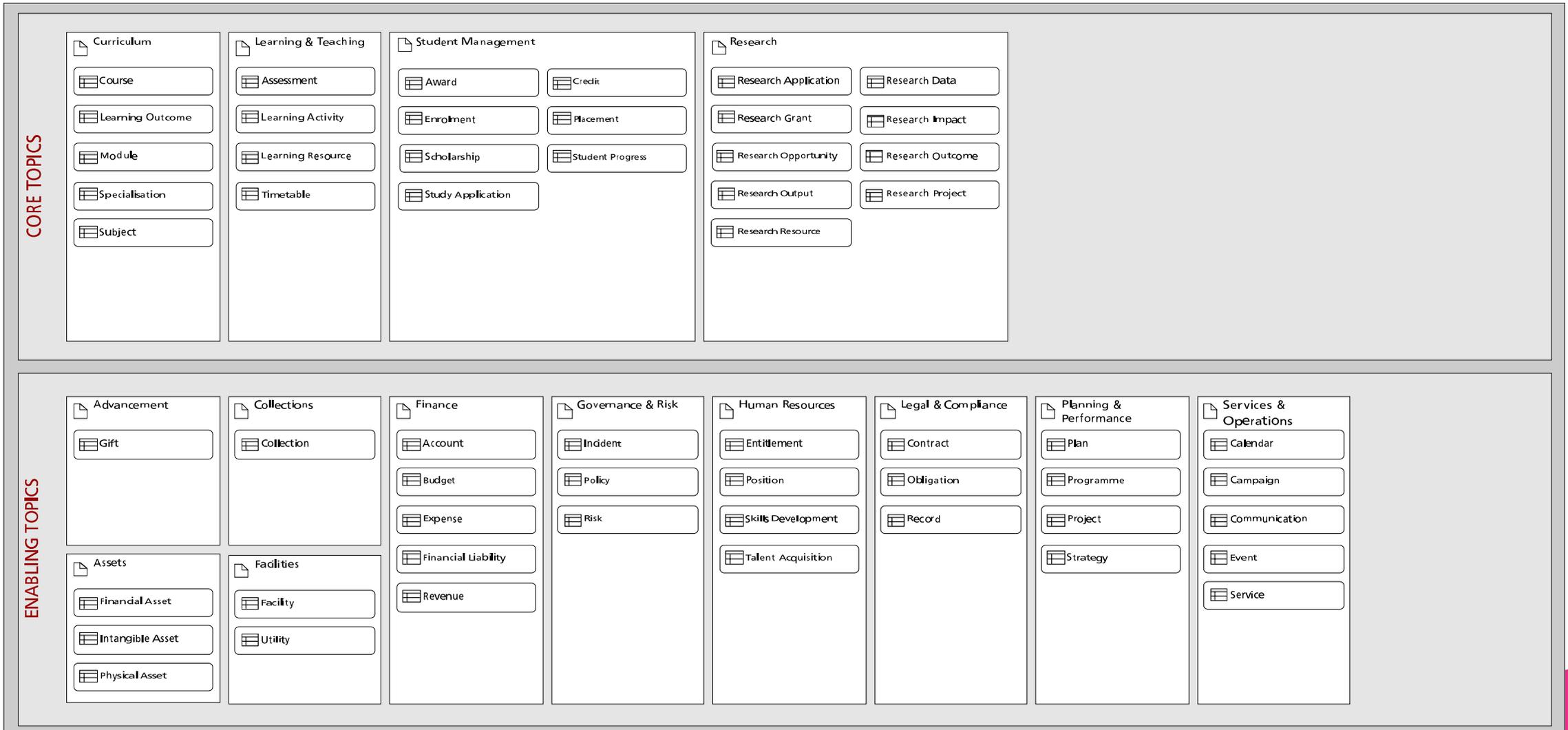


Business Capability Model



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Data Reference Model



Business Model Canvas

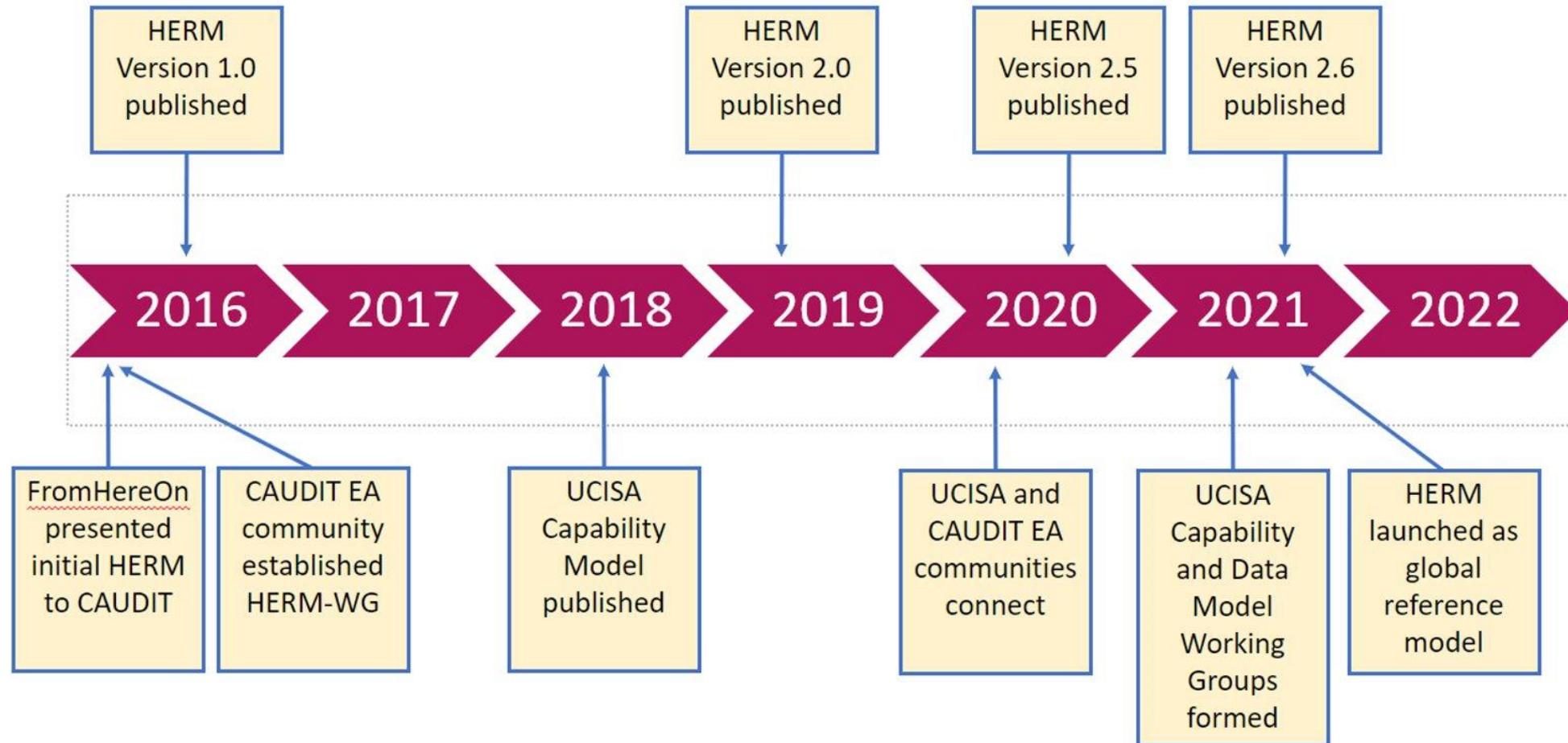


KEY PARTNERSHIPS Government Orgs Non-Government Orgs Commercial Orgs Education Providers Regulatory Bodies Labour Unions Academia Research Institutes Industry Bodies Alumni Communities Recruitment Agents Indigenous Peoples	KEY ACTIVITIES Learning & Teaching Research Fundraising Engagement Outreach Extension Collection Curation Commercialisation Incubation	VALUE PROPOSITIONS Learning & Teaching Career Prospects Recognised Credentials Skills & Competencies Knowledge Socioeconomic Standing Research & Innovation Reputation Accelerated Insights Innovative Approaches Discovery Output Outcome Impact Engagement Critic of Society Conscience of Society Fellowship	CUSTOMER RELATIONSHIPS Self-Service Personal Assistance Lifelong Learning Pastoral Mentorship Alumni Network Collaborative Consultative	CUSTOMER SEGMENTS Prospective Students Domestic Students International Students Undergraduate Students Postgraduate Students Governments Alumni Researchers Industries Communities						
	KEY RESOURCES Brand Data Staff Facilities Research Infrastructure Collections Curriculum Partnerships Technology		CHANNELS In-Person Digital Telephone Print Media Mainstream Media Social Media							
COST STRUCTURE Staff Physical Estate Digital Estate Business Services Business Operations Utilities and Consumables		REVENUE STREAMS <table border="0"> <tr> <td> Learning & Teaching Fees Government Funding </td> <td> Partnerships & Engagement Philanthropy </td> </tr> <tr> <td> Research & Innovation Research Grants Research Contracts Research Commercialisation </td> <td> Financial Management Investments Endowments </td> </tr> <tr> <td></td> <td> Services & Operations Events Facilities </td> </tr> </table>			Learning & Teaching Fees Government Funding	Partnerships & Engagement Philanthropy	Research & Innovation Research Grants Research Contracts Research Commercialisation	Financial Management Investments Endowments		Services & Operations Events Facilities
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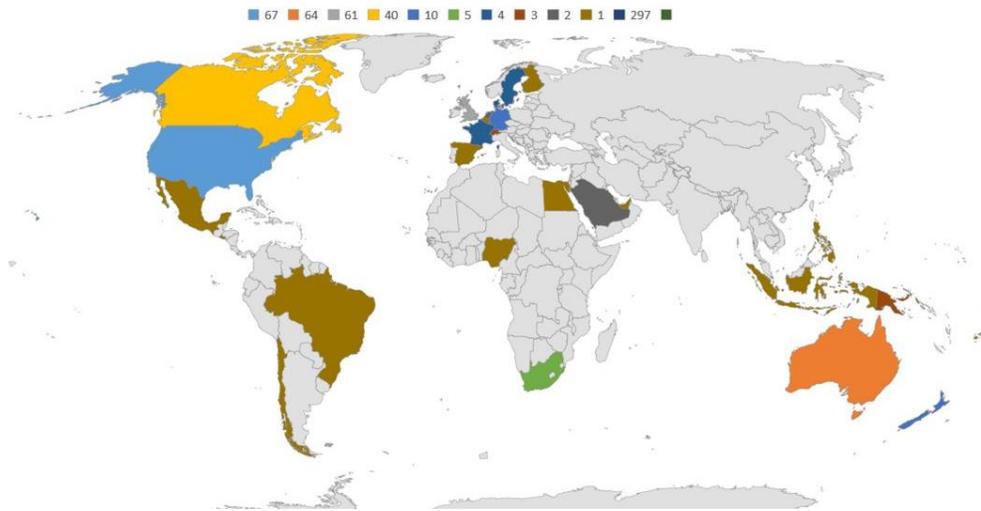
HERM

Inception, Evolution and Future of the models

Evolution of the models



HERM Global Collaboration



access and use of the models is spreading!

- Joint Statement of intent between UCISA and CAUDIT April 2021
- UCISA EAG HERM Working Group formed May 2021
- Global joint launch of HERM version 2.6 November 2022 with UCISA, CAUDIT and EDUCAUSE
- EUNIS and UCISA Sign Collaborative Agreement February 2022
- Continued networking and collaboration with HE EA Communities across the globe

UCISA EA HERM Working Group



Two subgroups of the UCISA working groups: one group working on the Business Capability Model (BCM) and the Business Model Canvas (BMC) and one group working on the Data Reference Model (DRM).

CM sub-group activities (led by Rosie Coffey and Gazelleh Moradi)

- Gather examples of use of the model and how HEI are deriving value from it
- Discussion and debating the models
- Proposing improvements and enhancements to further develop the models

DRM sub-group activities (led by Russell Boyatt)

- Review DRM, its relevance and applicability to the UK HE sector
- Recommendations of its use
- Proposing improvements and enhancements to further develop the data model

UCISA EA HERM Working Group

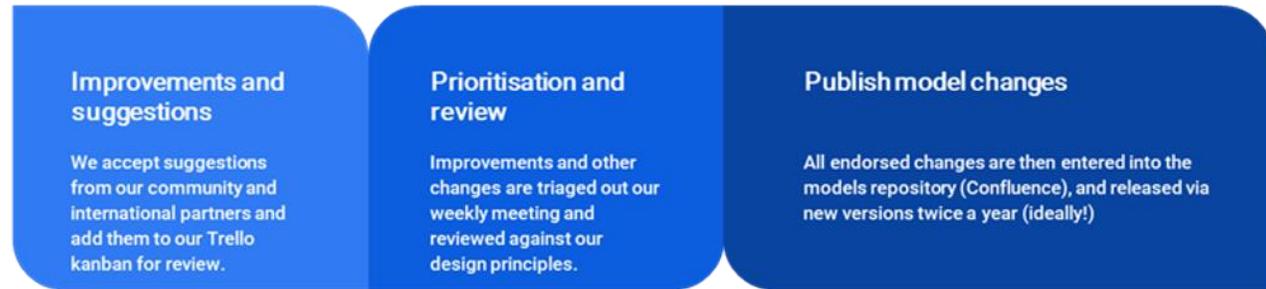


The UCISA EA HERM Working Group is helping to shape the future development of the models

- UCISA EA HERM working group and sub-groups meet regularly
- Meetings between the UCISA and CAUDIT HERM Working Groups – Fast Track process
- Feedback from UCISA has already shaped version 2.6.0 of the Capability Model



Design Principles



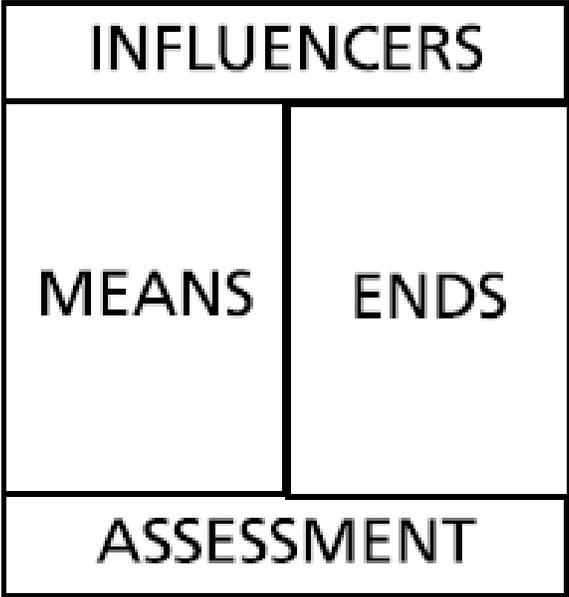
#	Principle	Narrative and Justification
1	Business Capabilities are Business Capabilities.	The business reference model is primarily a collection of business capabilities, and only business capabilities that meet the accepted definition* of what a business capability is may be included in the reference model. This core principle guards against the introduction into the business reference model of foreign concerns and viewpoints, such as motivation models or commonly-found organisational structures.
2	Usable Affordance is Paramount.	The usability and usefulness of the reference models determines the value the community can obtain through the use of the models, and is therefore of paramount importance in the design and prioritisation of changes and improvements to the models. This principle predetermines that a trade-off will be made between tolerable deviations from the structural integrity of the model if those deviations increase the usability and usefulness of the reference models to the community.
3	Duplication is Undesirable.	The duplication of business capabilities is undesirable (e.g., "Identity & Access Management" exists in its own right, and should not be duplicated across other business-capability domains, such as "Employee Identity & Access Management" and "Scholarship Applicant Identity & Access Management" and so forth). In some cases, duplication may be warranted if the specific instance is recognised as a separate business capability in its own right, or where the duplication improves materially the usability and usefulness of the model.
4	Consistency is Important.	Within the models and the catalogues that underpin them, consistency of language, structure, definitions, common terms, etc is important and desirable, as it aids the consumability, understanding, and adoption of the reference models.
5	Generalisability is Essential	The reference models are designed to be high-level artefacts that are applicable as broadly as possible. As a consequence, the models are defined and described in ways that do not limit their potential to be adopted globally.
6	Incrementation is Appropriate.	Making many major changes would damage the integrity of this industry standard reference model. Many organisations are using the first-release version of the reference models to support their architecture, strategic, governance, and other activities, and, in those contexts, the reference models are providing enormous value. Against that backdrop, undertaking a major refactoring of the reference models will be disruptive, is unwarranted, and is discouraged. Instead, the reference models will be treated as products, improvements to them will be created incrementally, and a forward roadmap of potential areas for change and improvement will be published and maintained for community comment and contribution.

HERM

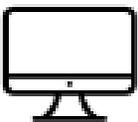
How can you use the models?

What is a Business Capability?

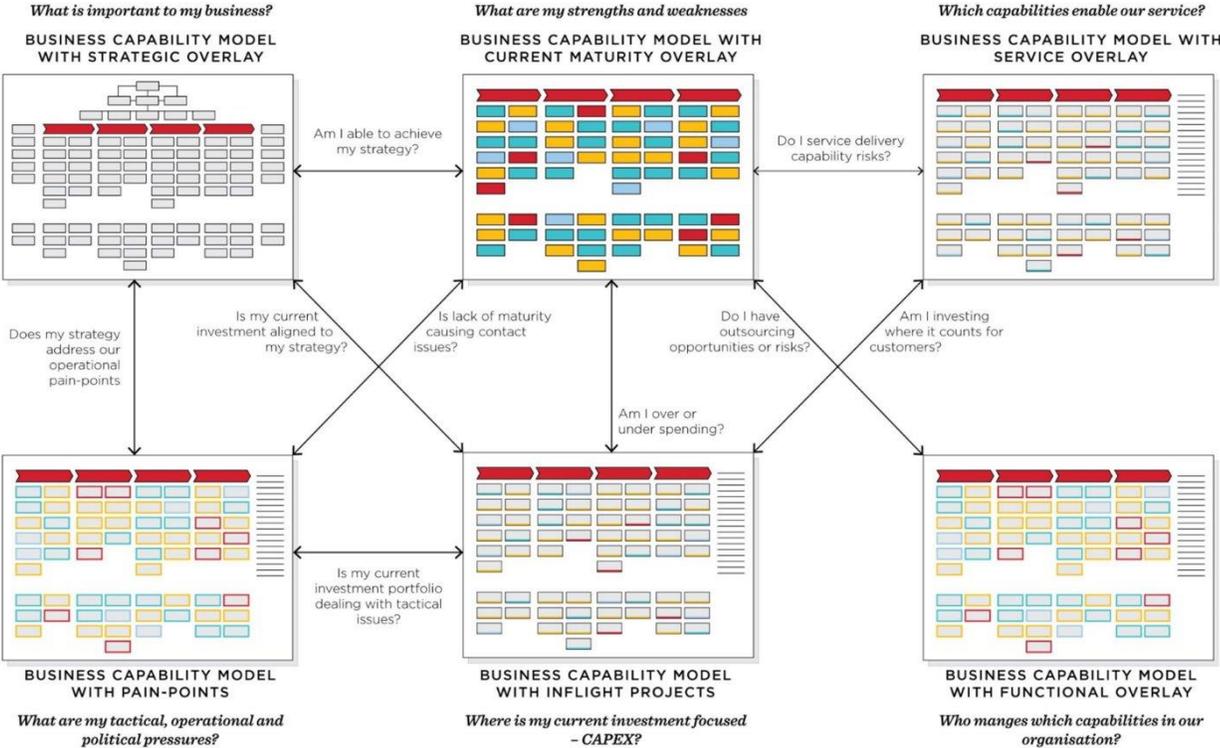
BUSINESS MOTIVATION



CAPABILITY

-  People
-  Process
-  Information
-  Technology

Using the Business Capability Model



A	B	C	D	E
The reference is a convenient reference code for posterity into which nothing in particular should be read or implied.	The scope indicates for each use-case whether it applies to the Business Capability Reference Model, the Data Reference Model, or the Business Model Canvas.	The name is a short phrase that identifies the use-case described, and should be unique throughout the namespace of this compendium.	The description provides just-enough detail about what the use-case entails.	The narrative provides contextual and advisory information about the use-case and how it can be useful to your institution.
Reference	Scope	Name	Description	Narrative
C0001	Business Capability Model	Organisational Structure	Map the structure of your organisation to the business capability model to understand, potentially with RACI mark-up, where there are gaps and where there are overlaps in who-does-what with the fulfilment of the business capabilities for your institution.	This is an excellent place to start! The business capability model itself is a beautiful and useful artefact, but our business stakeholders tend not to be able to "see themselves" reliably within it, so creating an overlay that shows what you think and understand they do is a very helpful way to validate and gain early engagement. This can also include representation of key staffing metrics such as number-of-staff and equivalent-full-time-load.
C0002	Business Capability Model	Application Inventory	Categorise your applications by the business capabilities to which they contribute.	Understanding how your fleet of applications helps your institution to fulfill its business capabilities opens the door to mapping selected application portfolio views to the business capability model and, subsequently, aspects of their technical fitness, business fitness, and cost, admitting rich narratives about application lifecycle management.
C0003	Business Capability Model	Institutional Strategy	Unpack your institutional strategy and identify the business capabilities required to realise its strategic objectives.	Bringing your institutional strategy to life through the lens of the business capability model can aid the understanding and communication of what needs to be different for the strategy to succeed.
C0004	Business Capability Model	Change Initiatives	Project the footprint of large-scale business-change initiatives onto the business capability model to better understand the implications upon your institution and its readiness to execute those changes successfully.	In conjunction with other overlays (e.g., organisational structure, capability health, application inventory) this can also help identify potential impediments to achieving these things.
C0005	Business Capability Model	Capability Health	Assess the health of your business capabilities and reflect the results on the business capability model.	Using a combination of formal maturity-assessment techniques and less-formal assessments of the <i>people, process, technology</i>

POLDA(T) of Teaching and Learning



			Key POLDAT focus layers					
Teaching & Learning			Identify which POLDAT layers would be the focus of work for the programme					
L0 Capability Group	L1 Capability Name	No. Processes	All	Process	Organisation	Location	Data	Applications
Teaching & Learning	Curriculum Management	54						
Teaching & Learning	Student Attraction & Recruitment	62						
Teaching & Learning	Student Admission Management	22						
Teaching & Learning	Student Enrolment	50						
Teaching & Learning	Teaching & Learning Delivery	84						
Teaching & Learning	Student Assessment	58						
Teaching & Learning	Student Administration	122						
Teaching & Learning	Academic Administration	63	,	,	,	,	,	,
Teaching & Learning	Student Support & Wellbeing Management	76	,	,	,	,	,	,
Teaching & Learning	Student Completion & Graduation	31						
Teaching & Learning	Alumni Engagement	27						



Managing application portfolios

Asset lifecycle management

Retain

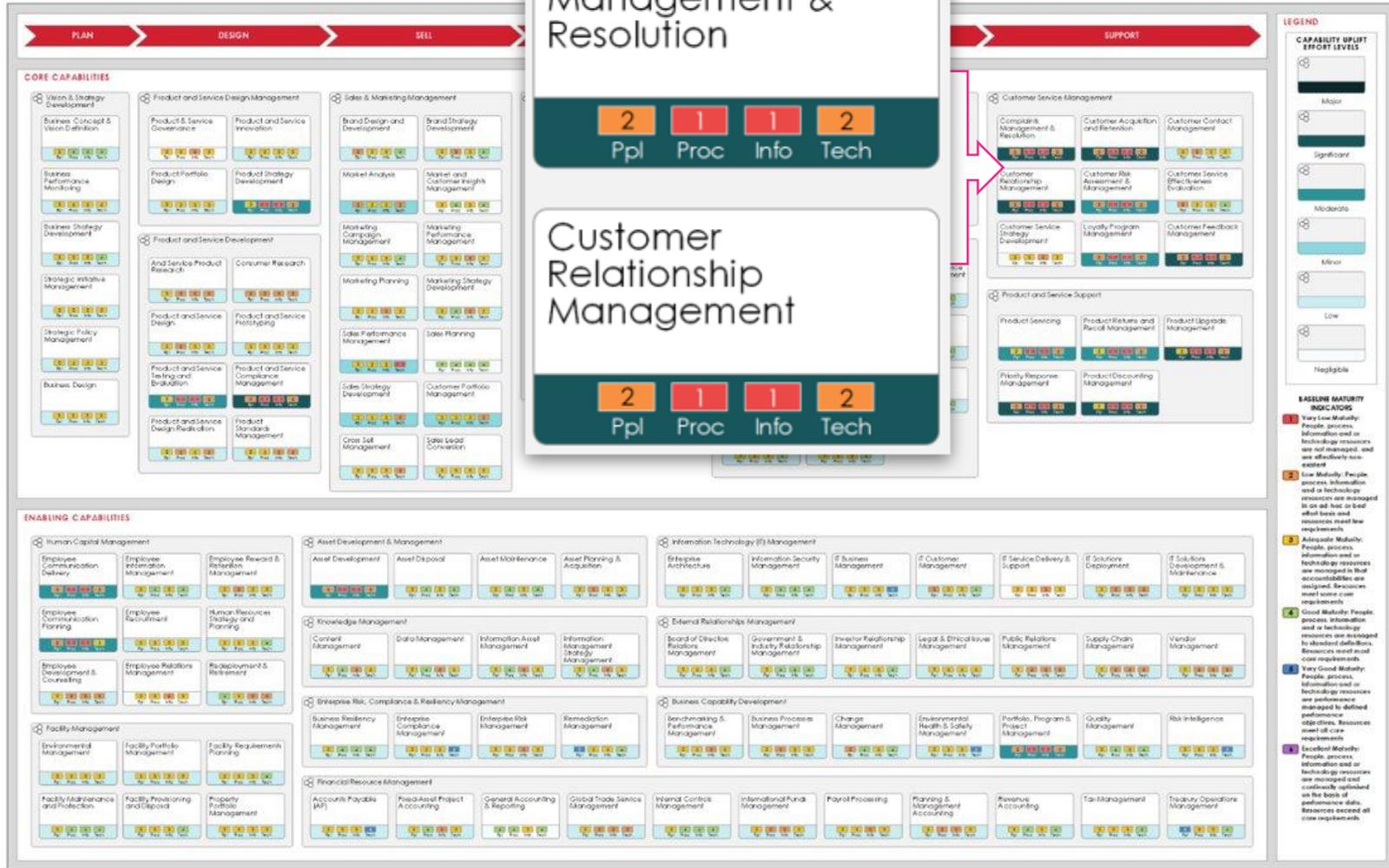
Refresh

Replace

Retire

BUSINESS CAPABILITY MODEL - UPLIFT EFFORT OVERLAY

Description: The Business Capability Model documents the capabilities required to deliver customer services. It also documents the capabilities required to deliver customer services. It also documents the capabilities required to deliver customer services.
Concerns Addressed: What capabilities do we need to deliver our services? Which are our core capabilities? What are the baseline maturity levels?
Stakeholders: CEO, C level Executives, Senior Managers, Business Architects, Business Analysts

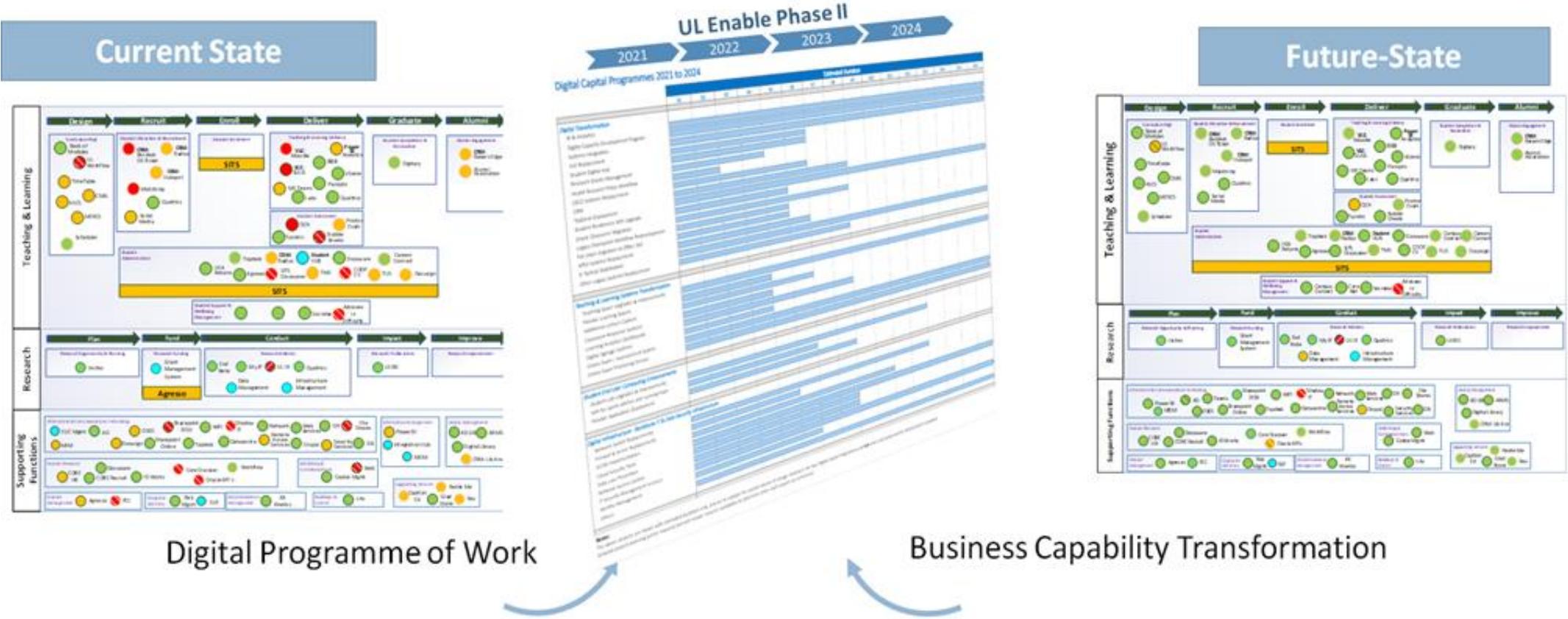


Communicating rich analyses

Where to focus investment?

On what?

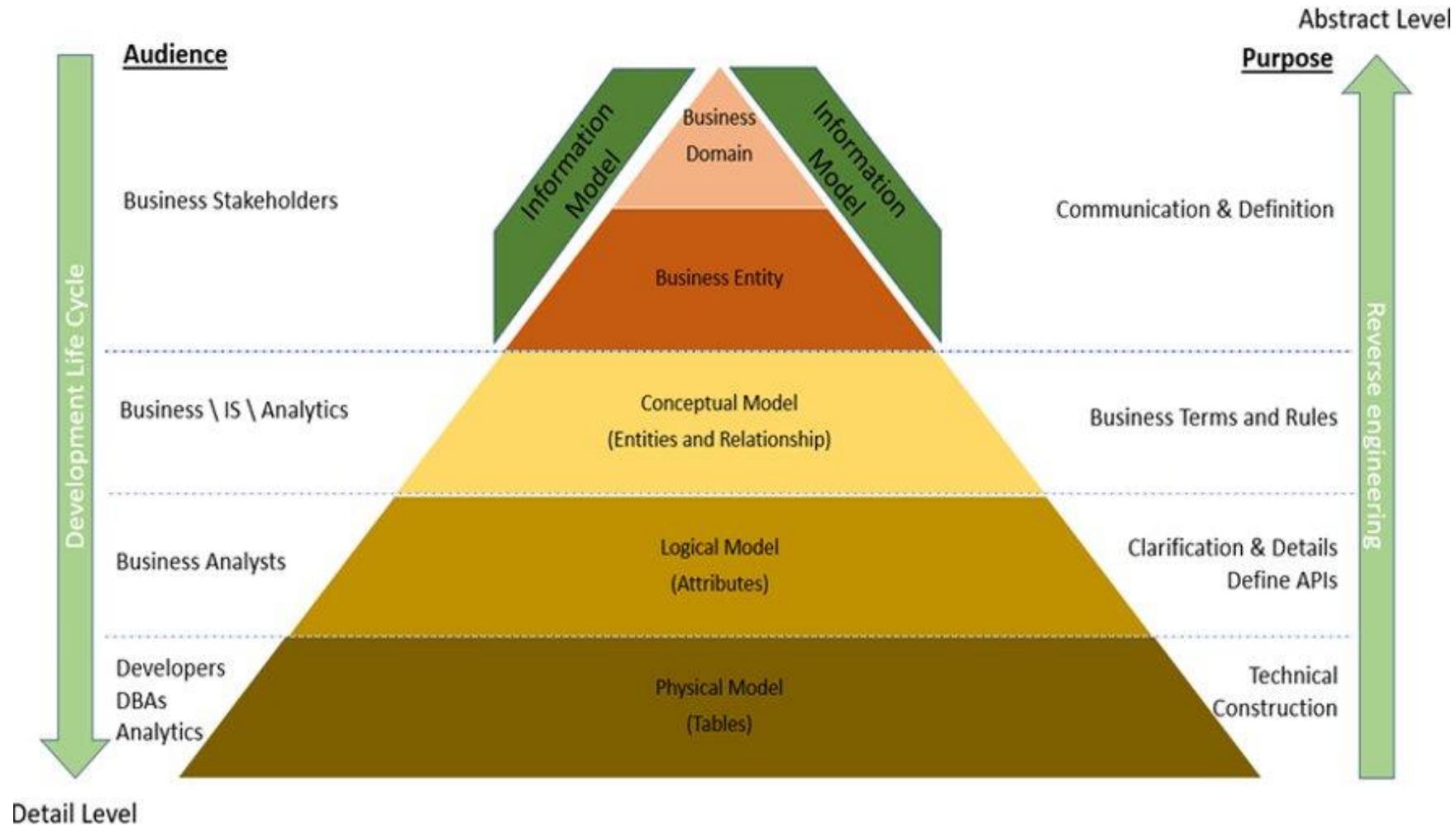
Communicate transformation programmes



Digital Programme of Work

Business Capability Transformation

Data Reference Model



Data Reference Model

CORE TOPICS

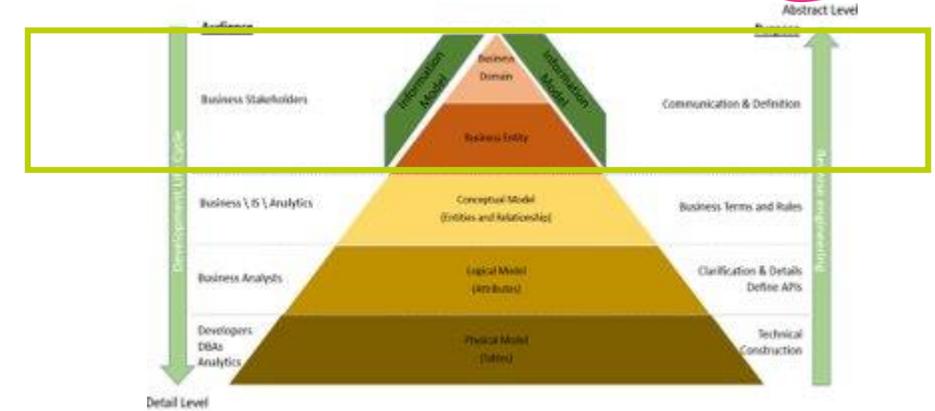
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ENABLING TOPICS

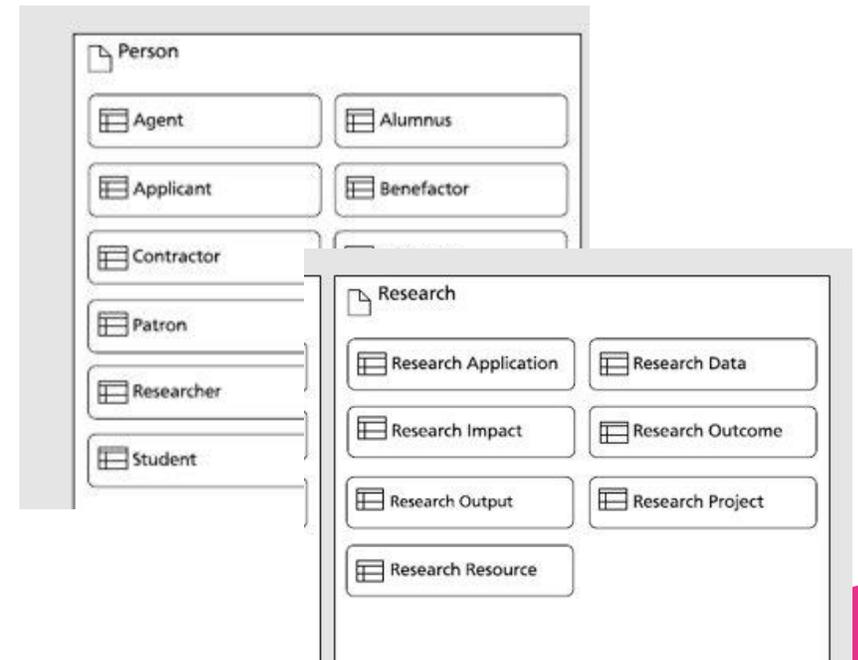
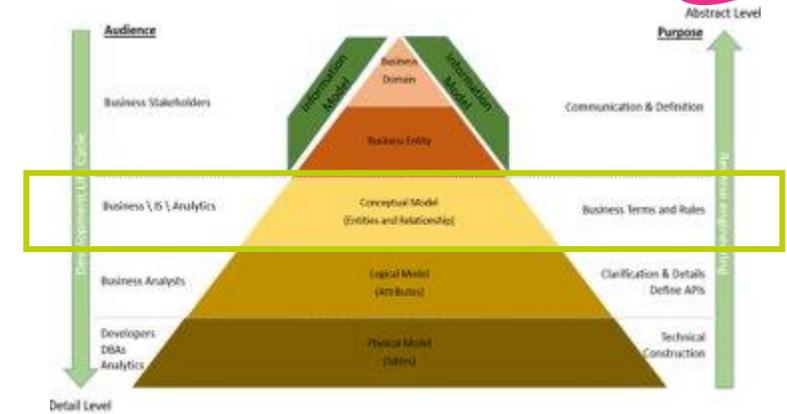
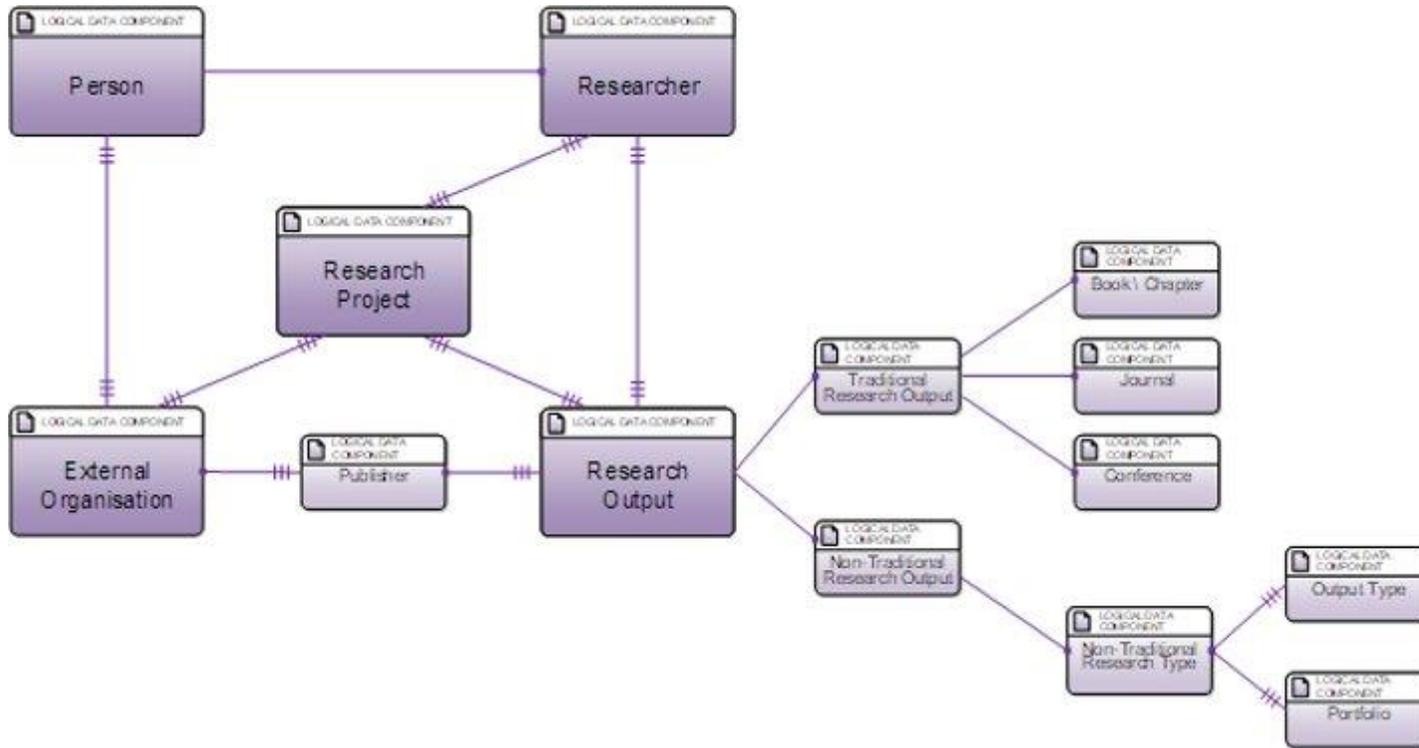
<ul style="list-style-type: none"> Advancement <ul style="list-style-type: none"> Gift 	<ul style="list-style-type: none"> Collections <ul style="list-style-type: none"> Collection 	<ul style="list-style-type: none"> Finance <ul style="list-style-type: none"> Account Budget Expense Financial Liability Revenue 	<ul style="list-style-type: none"> Governance & Risk <ul style="list-style-type: none"> Incident Policy Risk 	<ul style="list-style-type: none"> Human Resources <ul style="list-style-type: none"> Competency Entitlement Position Talent Acquisition 	<ul style="list-style-type: none"> Legal & Compliance <ul style="list-style-type: none"> Contract Obligation Record 	<ul style="list-style-type: none"> Planning & Performance <ul style="list-style-type: none"> Plan Programme Project Strategy 	<ul style="list-style-type: none"> Services & Operations <ul style="list-style-type: none"> Calendar Campaign Communication Event Service
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FOUNDATION TOPICS

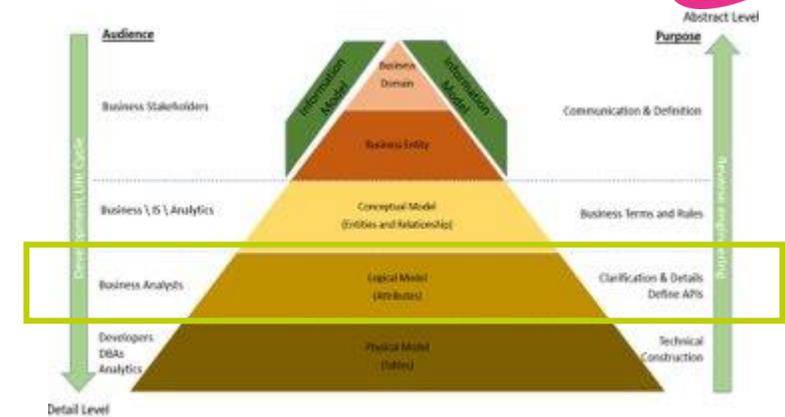
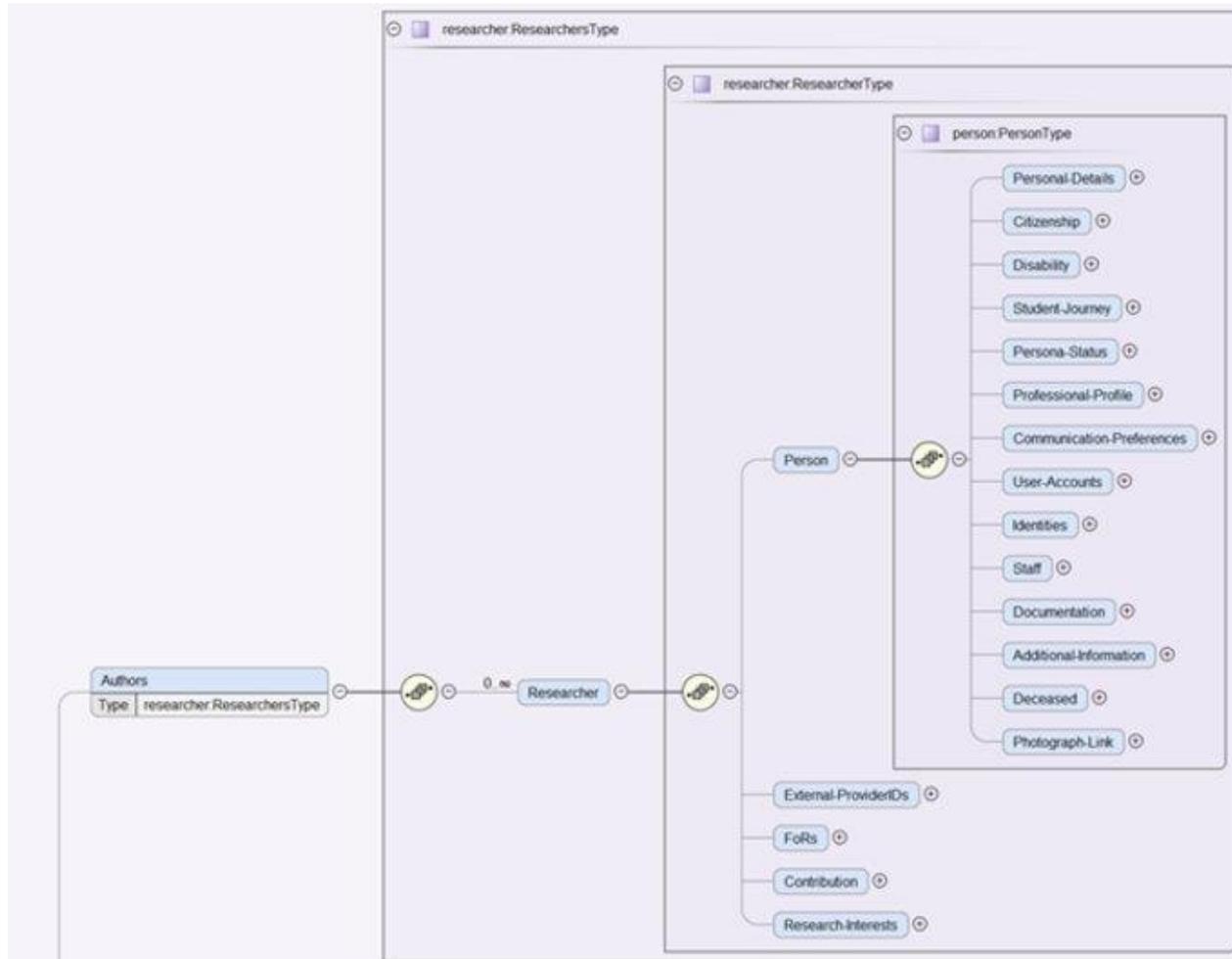
<ul style="list-style-type: none"> Person <ul style="list-style-type: none"> Agent Alumnus Applicant Benefactor Contractor Educator Patron Prospect Researcher Staff Student Visitor 	<ul style="list-style-type: none"> Place <ul style="list-style-type: none"> Building Campus Site Space 	<ul style="list-style-type: none"> Internal Organisation <ul style="list-style-type: none"> Academic Organisation Outreach Organisation Research Organisation Student Organisation Support Organisation 	<ul style="list-style-type: none"> External Organisation <ul style="list-style-type: none"> Education Provider Government Organisation Non-Government Organisation Regulatory Body Research Institution Commercial Organisation 	<ul style="list-style-type: none"> Group <ul style="list-style-type: none"> Cohort Collective Community Tribe
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Conceptual Data Model



Logical Data Model



Resources/Mentions for the HERM



- **Gartner:** Lowendahl, J-M. (2020) Use Business Capability Modeling to Drive Digital Business Design in Higher Education, Gartner Research, Article ID #G00722622: <https://www.gartner.com/document/3990836>
- **Educause (HE use-case compendium):** [The Higher Education Reference Models | EDUCAUSE](#)
- **JISC Paper Collaboration:** [Digital at the core: A 2030 strategy framework for university leaders \(jisc.ac.uk\)](#)
- **Business Model Canvas:** [Components of Business Model Canvas Explained | Strategyzer](#)
- **Global Launch:** [Recording and presentations - UCISA](#)



UCISA Enterprise Architecture Group

Thank you & Questions