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Business Capability Models: current landscape and next steps for the EUNIS community

Gill Ferrell[1], Patrik Maltusch[2],
Gerolf Nauwerck[3], Esa Suominen[4], Valérie Le Strat[5]

[1] 1EdTech, France
[2]Aalto University, Finland
[3]Uppsala University, Sweden
[4] University of Helsinki, Finland
[5] AMUE, France

gill.ferrell@imsglobal.org, Patrik.Maltusch@aalto.fi,
gerolf.nauwerck@uu.se, Esa.Suominen@helsinki.fi,
valerie.lestrat@amue.fr

Abstract

This paper takes a policy perspective on the development and governance of Business Capability Models in Higher Education. In particular, we look at the next steps in international collaboration around the Higher Education Reference Model (HERM) launched in 2021. The motivation is to highlight the European challenges and contributions to this concept. To do so, the paper draws on insights from the EUNIS EA SIG community. The paper also argues that ongoing work in the domain of interoperability underscores the importance of a common framework such as HERM. At the same time, EUNIS can build upon those experiences when collaborating on the development of HERM. The main recommendation of the paper is that EUNIS in general and the EA SIG, in particular, should actively engage in the future development of HERM. More specifically, we see a need to focus on the implications of translating the model into the broader European context.

1 Introduction

EUNIS formed a special interest group around Enterprise Architecture (EA) in 2018. The group has almost 100 participants and is one of the most active EUNIS SIGs, with monthly meetings and regular workshops throughout most of the year. Sharing individual experiences and learning from one another on all aspects of enterprise architecture related topics are important aspects of the group.

The EUNIS EA SIG has been looking at business capability models since the EUNIS conference 2019 and has worked most closely with the UCISA model. In 2021 the higher education reference

model (HERM) was introduced (Modena et al., 2021). From 2022 EUNIS will be working in partnership with CAUDIT, UCISA, EDUCAUSE, and, ultimately, other global higher education associations with the continued development of HERM.

The European perspective on Higher Education includes the diversity arising from many national higher education systems and various collaboration and consolidation initiatives. An indication of the size of the ecosystem is that the European Universities Association alone has more than 850 members.

While the EUNIS community is larger than the European Union, the developments around the European Education Arena underscores the need to find tools that enable collaboration and mutual understanding of our institutions. Within the EU, we find large initiatives including micro-credentials, European Student cards, inclusion, innovation, and quality. Of particular interest here is the European Universities Initiative (EUI), currently "testing diverse models of the concept of European Universities and examine its potential to transform higher education", ultimately aiming at "transnational alliances that will become the universities of the future" (European Commission, 2020).

In short, the digital transformation of the higher education sector is complex and there is a need for a holistic understanding, something that we believe might be supported by HERM.

The paper has the following structure. First, we present the developments leading up to the release of HERM. Next, we give an overview of the state of EA in the EUNIS community, with a particular focus on the interest in working with business capability models. We also draw upon the EUNIS community's experiences from working with interoperability in a European and a global context. We argue that this is an example of an area where a shared understanding of business capabilities will be valuable. Furthermore, we believe that the experiences from these developments are relevant for future collaboration around HERM. The paper ends with a discussion on a possible framework for collaboration and how EUNIS might interact with the HERM working groups.

2 Towards a Higher Education Reference Model

Enterprise Architecture (EA) is a high-level, strategic technique designed to help senior managment achieve business and organisational change. It uses a specific set of tools and models (c.f. Nauwerck et al. 2022).

A study by Sanchez-Puchol et al. (2018) identified 20 Enterprise reference architectures and models used by the higher education sector. The study points to the potentially broad spectrum of models available. Taking a slightly different approach, Lethbridge and Alghamdi (2019) surveyed 70 higher education enterprise architects from 19 countries. Their study indicates that the generic TOGAF model still is the most widely known. However, both studies do note the emergence of the CAUDIT model and its qualities as a sector-specific framework.

Work on business capability models for higher education was initially pioneered by the CAUDIT Enterprise Architecture Community of Practice in Australia and New Zealand (CAUDIT, 2021). In the UK, UCISA drew on this work to create the UK HE Capability Model, which was published in March 2018 (UCISA, n.d.). The EUNIS community has used and adapted these models, particularly the UCISA version. During the EUNIS conference 2020, the EA SIG organised an online meeting where CAUDIT and UCISA participated and began close co-operation. Following this, HERM 2.5 was published in October 2020. An agreement on the continued collaboration on HERM was announced in November 2021, and EUNIS participated in the global launch. The latest release of HERM, 2.6, has been further developed through collaborations with UCISA and EDUCAUSE.

The higher education EA community sees value in collaborating on a global model. From 2022 EUNIS will partner with CAUDIT, UCISA, EDUCAUSE and, ultimately, other global higher education associations to develop HERM.

The more we can speak a common EA language, the more we benefit from the collective experience of the whole community in improving our approaches to delivering the capabilities. Understanding our commonality and differences also helps articulate our needs to suppliers and advance interoperability.

This brings us to the question of the current state of business capability models within the EUNIS community and what experiences and insights we can bring to the partnership.

3 The European Contribution

Important for the collaboration around HERM is an understanding of the views of the EUNIS community. Hence, the EUNIS EA SIG undertook a survey during December 2021 and January 2022 to understand the usage of business capability models within the EUNIS community.

In addition to the survey, we build upon the observations and results from a workshop held at the EUNIS Congress in 2019. We had broad participation from around Europe with more than 30 practitioners. The workshop's primary goals were to identify Global Drivers (Education); to understand better capabilities in HE Institutes; to find out the most critical capabilities needed to develop; to set Strategic Goals for European HEI, and understand the concept of using a capability model. The outcome of this workshop sparked many activities that we today can see with the discussion around capability models. In retrospect, workshop highlights that there may be a particular European slant on the issue even where topics are of importance globally. This impacts how we represent our worldview in terms of models, and it also affects how we design our IT ecosystem and information flows.

3.1 Business Capability Models on the national level

Before we turn to the survey, we should emphasise that there is ongoing work at the national level in many countries. Examples from Finland, France and Spain are discussed in Le Strat et al. (2022, forthcoming). In the Netherlands, SURF (an association of Dutch educational and research institutions) has since 2012 been developing an extensive higher education reference architecture, HORA. It includes a high-level vision, the actual reference architecture and support for the implementation. The reference architecture itself consists of eight models (SURF, 2018). In Norway, the Directorate for Higher Education and Skills works on a reference architecture for data sharing within Research and Higher Education (HKdir, n.d.). This reference architecture is being developed and expanded for use within all education domains under the Ministry of Education and Research. The program in this expanded scope, KUDAF, aims to provide data sharing infrastructure, promote reuse of information and promote best practices within information management (KUDAF, 2021). In Sweden, a reference city plan has been developed through a bottom-up approach by the HEIs (Ljungkrona & Hörnblad, 2016). Finally in the UK, the UCISA has been active in developing a capability map for HE.

3.2 Business Capability Models in European HEIs

We distributed the survey to the EUNIS community via the EUNIS mailing list and received 26 responses. The survey numbers are small and we do not claim they have statistical validity. To put them in context: the responses represent almost 40% of our group members. This is therefore a self-selecting group but one that is well-informed about the topic.

The respondents came from 12 European countries (Belgium, Croatia, Estonia, Finland, France, Germany, Greece, New Zealand, Norway, Spain, Sweden, The Netherlands, and the United Kingdom).

The most significant finding is that half of the respondents are already using a business capability model, and a further 40% plan to bring the total to 90%.

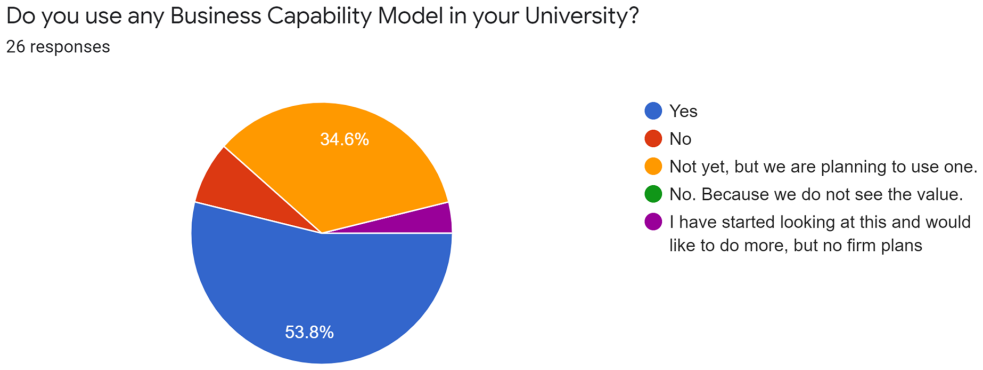

Figure 1: Responses to the question "Do you use any Business Capability Model in your university?"

Of those who aren't using a model, it is encouraging that none said this was because they didn't see the value. This is good evidence that the SIG addresses a topic of widespread interest to our members.

The most commonly used models are the CAUDIT and UCISA models and HERM. Several respondents use the free text field to say they plan to move to HERM.

This is interesting because it suggests that, despite the difficulties of translation and equivalence, people understand the value of common approaches.

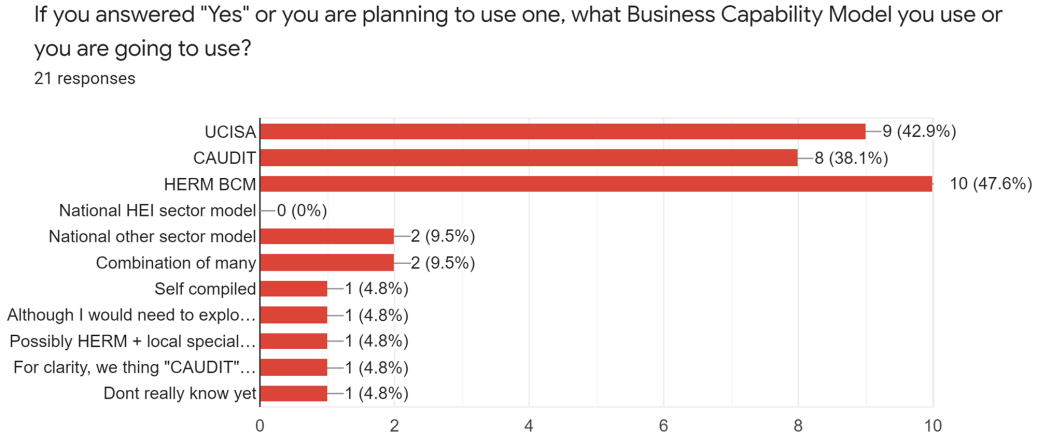

Figure 2: Responses to the question "what Capability Model do you use/?"

We asked how people use the models and it is clear that most are using them at a mainly strategic level at the moment. The commonest response was to get a 'big picture' overview followed by responses that this is part of the core landscape documentation and support strategic alignment.

The other main use of the model was as a 'common language' across different departments within the organisation. 65% of respondents were using it for this purpose whereas only 24% used it to improve

communication with other universities and a similar percentage used it in communication with suppliers.

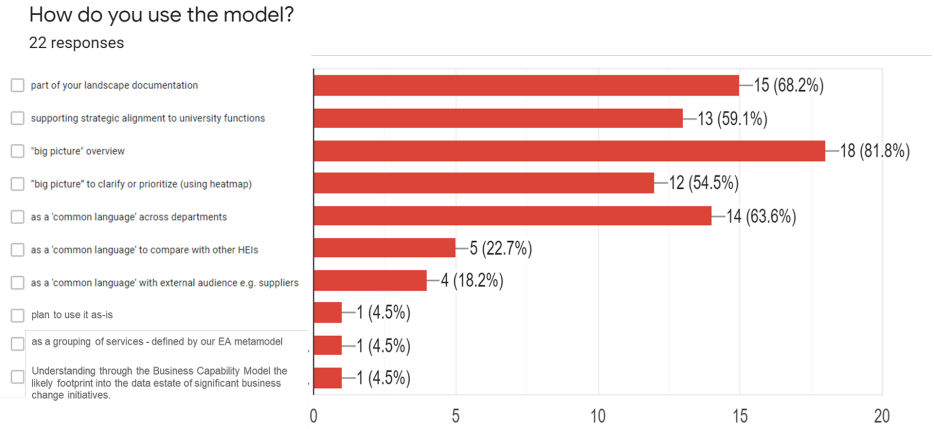

Figure 3: Responses to the question "How do you use the model?"

We asked about the challenges members faced in using a business capability model. This allowed for free text responses and the replies can be grouped as follows:

- low levels of EA maturity/understanding within the organisation
- translation and terminology issues (in most cases, these relate to translating international models to the local context, but one respondent referred to getting the organisation to understand the difference between business functions and capabilities)
- how to get started (deciding what to use and where ownership sits within the organisation)
- gaining ownership and buy-in from decision-makers
- having enough data to support effective decision-making

To conclude, we see a strong uptake of Business Capability Models as part of the EA practice at the different higher education institutions. Importantly, there is also a clear interest in HERM.

We now turn to ongoing work in the field of interoperability, a domain that we believe can benefit from HERM. We also think practical experiences from these efforts will benefit future collaboration.

3.3 EDU-API

On a global level, members of the EA SIG are contributing to the development of the open standard Edu-API that will transform our ability to improve administrative processes by making it easier to reuse data currently 'locked into' student record systems, thus reducing duplication of effort and improving data quality (IMS Global Learning Consortium, 2018).

The experience of working on practical interoperability brings valuable insight into the same kind of 'local' differences that matter when devising theoretical models that work across different contexts. Whether or not one entity can be directly translated into another and applicable laws on data protection and privacy are just a couple of examples.

Work on interoperability standards is being led by IMS Europe (soon to be known as 1EdTech). There is a partnership agreement between our two organisations and a considerable overlap in membership. A proof-of-concept implementation of Edu-API has taken place in Sweden, led by LADOK. Lessons are also being drawn from a national project in Norway to profile the OneRoster standard to work across all Norwegian schools.

These implementations are giving us practical experience of learning how to make global models work in each of the countries in Europe. The 'profiling' approach being used for IMS standards is allowing us to develop a sustainable approach that works for all users:

- where a change request benefits a significant number of users (and does not adversely affect any others), the core standard is amended
- where the national requirement is specific, it becomes an optional extension to the standard

3.4 European Interoperability Framework

Turning to the EU, we can note that the European Commission (EC) has far-reaching ambitions for borderless education that make it imperative for universities to collaborate effectively across business processes and systems. The European Commission emphasises the value of "joint digital strategies" and how these may be "contributing to the interoperability, digital readiness, data sovereignty and responsibility of higher education systems" (EC, 2020).

This call for interoperability can be understood in the broader context of a single digital market the EU is aiming for. Here, the European Interoperability Framework (EIF) is seen as a critical enabler (European Commission, 2017). The Commission states the main benefits: the EIF "will ensure that services are accessible, not only within their national borders but also across countries and policy areas. In other words, they will apply interoperability in practice. This way, public administrations can to save time, reduce costs, increase transparency, and improve the quality of services that they offer to citizens and businesses." EIF is the result of taking into account new EU policies, such as the revised Directive on the reuse of Public Sector Information, the INSPIRE Directive, and the eIDAS Regulation. New EU initiatives, such as the European Cloud Initiative, the EU eGovernment Action Plan 2016-2020, and envisaged ones, such as the Single Digital Gateway, are also considered.

The framework emphasises how interoperability principles and models should be applied in practice. The interoperability recommendations are relatively specific to facilitate their implementation, with a stronger focus on openness and information management, data portability, interoperability governance, and integrated service delivery.

EUNIS EA-SIG is a strong supporter of interoperability and has thus aligned its work to the EIF framework to support the initiative and build a better understanding of the practical part that each organisation can do to ensure greater interoperability.

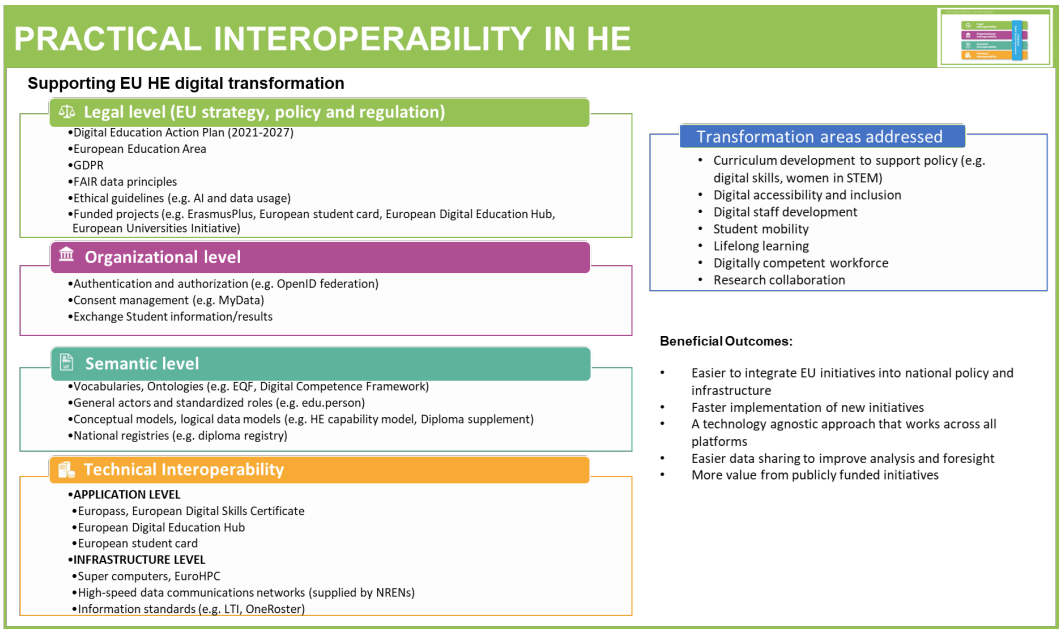

Figure 4: Practical interoperability in Higher Education mapped to EIF

We have tried to envision practical work and initiatives impacting interoperability. Many areas will transform through the work done to develop this capability. Yes, interoperability is a high-level capability, but at the same time the impact is seen on a daily basis. Below is a simple picture summarising activities that drive, support and build on interoperability.

The experience of working on practical interoperability brings valuable insight into the same kind of 'local' differences that matter when devising models such as HERM that need to work across different contexts. Whether or not one entity can be directly translated into another and applicable laws on data protection and privacy are just a couple of examples.

In conclusion, ongoing work in interoperability provides us with valuable experiences to draw on when participating in the international collaboration on HERM.

4 The Next Steps–Consolidation and Collaboration

4.1 How many models do we need?

This may sound like an odd question coming immediately after the announcement that we are collaborating on a single model. It is however a question that both national groups and individual institutions will be asking.

In order for models to have credibility and be adopted, they need to be seen to fit the local context. At the most basic level, this involves translation into the local language, and, at this stage, it often becomes evident that there is no direct translation because capabilities do not map precisely.

In some cases, capabilities may be missing, e.g., management of museums and archive collections is an important higher education responsibility in some countries but not others. In some cases, there may be simply a different perspective, e.g., France views '*insertion professionnelle,*' i.e., employability as a core component of learning and teaching.

Therefore, it is not a straightforward matter to use someone else's model. Even when looking at this from the point of view of a single institution, there are decisions to be made about when you need to add a new capability or when you can live with a translation that is not quite an exact equivalent. It is even more complex to work collaboratively across different education systems. It seems unlikely that we will ever arrive at a common European model, but it is essential to try to harmonise as far as possible.

4.2 A framework for EUNIS contributions to HERM

The CAUDIT Higher Education Reference Models Working Groups (HERM WG for short) are responsible for the governance of different parts of HERM, including managing feedback from the higher education EA community. Defining a process by which the HERM WG can continue to develop the HERM with input from the international community will be one of the first tasks to consider. As we write this paper, this process is in its early stages, but the EUNIS SIG has started to discuss how such a process might unfold.

This diagram suggests how EUNIS might promote the existing model to European universities and suggest updates to the HERM working groups.

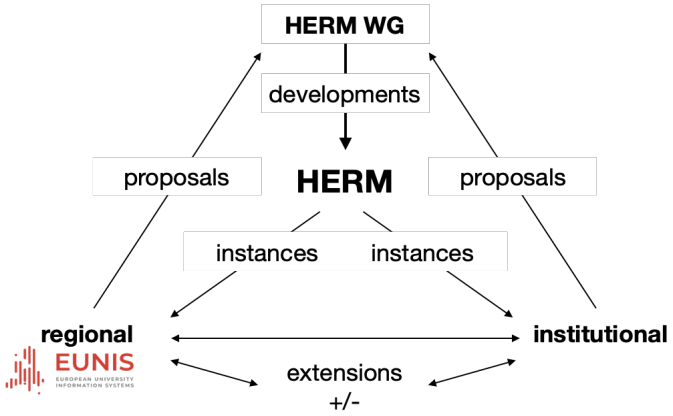

Figure 5: A potential framework for EUNIS contributions to HERM

At the centre we have HERM. This reference model will be instantiated at the HEI level (right side), which may or may not extend the model (by adding or removing parts). These ideas may be submitted to the HERM WG as proposals.

However, looking at the European arena, we will likely see regional instances (this can be on a national level or a EUNIS level). There will thus be an additional level of complexity where regional and local models are negotiated. Development proposals can reach the HERM WG either way. We argue that they usually should be discussed at the regional level so as not to overload the working groups. Contributing to HERM and Edu-API are high on the agenda of the EUNIS EA SIG. EUNIS aims to influence its immediate members and the higher education sector–including national research and education network organisations (NRENs) and suppliers–to raise awareness about the importance of collaboration around these models and open standards. We believe this work will benefit the development of the European higher education infrastructure and ultimately benefit global cooperation in the higher education sector.

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5 Author biographies

Gill Ferrell has led the EUNIS Learning and Teaching SIG since 2009. She also has an interest in data and information management. Working for Jisc, she supported early EA work in the UK and she is a member of the EUNIS EA SIG. In 2021 she joined IMS Global Learning Consortium (now known as 1EdTech) as IMS Europe Program Director.
https://www.linkedin.com/in/gillferrell/

Valérie Le Strat is a member of EUNIS EA-SIG since 2020. She has been working for Amue as an Enterprise Architect for five years and was previously project manager of the student management systems offered by Amue to its members. As an Enterprise Architect, she promotes the enterprise architecture approach to Amue members as well as internally and co-manages the EA group of French higher education with the Csiesr. She is also a member of the "club urba-EA", a non-profit association that promotes interaction and good practice between enterprise architects in France, whatever their field. Valérie Le Strat holds a PhD in molecular chemistry.
https://www.linkedin.com/in/val%C3%A9rie-le-strat-52688117

Patrik Maltusch is the head of EA architecture team at Aalto University. He chairs the Finnish EA-SIG, EUNIS EA-SIG and has been one of the lead educators coaching administration staff in the national Higher Education EA program. Early experience, including working as a customer service instructor and further fifteen years as a network architect and business owner for infrastructure design in a global Telco company. Patrik is also a distinguished and accredited security professional, risk manager, system auditor and Education Enterprise Architect. As an entrepreneur and start-up facilitator, he understands what staying practical means for business. For Patrik, interoperability is the key to mastering the ever-growing digitalisation needs in a more complex and complicated ecosystem landscape.
https://www.linkedin.com/in/maltusch

Gerolf Nauwerck is a business architect at Uppsala University and a member of the working group on digitalisation at the Association of Swedish Higher Education Institutions (SUHF). In his spare time he is also active in the EUSSET research community, which is focused on practice-oriented computing.
http://www.linkedin.com/in/gerolf

Esa Suominen works as an Enterprise Architect at the University of Helsinki. He is also secretary of the EUNIS EA SIG and the Finnish EA SIG. He has long experience in IT sector at Higher Education Institute. He holds M.Sc. from the University of Lappeenranta. He is interested in to implement Enterprise architecture in a practical way in organisations.
https://www.linkedin.com/in/esa-j-suominen