

History has shown that it is not the biggest, strongest or cleverest that succeed but rather those that can adapt to changing circumstances. Enterprise Architecture is about enabling organisations to adapt to change by defining, in a generic way, how their business processes work in tandem with their Information and Communications Technology (ICT) systems. With this clarity of purpose, organisations are able to reconfigure or replace their systems with a clear understanding of how these changes might impact on business processes across the organisation.

Enterprise Architecture is already well established in the commercial sector and is now being adopted by a growing number of UK colleges and universities, supported by the Joint Information Systems Committee (JISC), the Universities and Colleges Information Systems Association (UCISA) and other professional bodies.

What is Enterprise Architecture?

Enterprise Architecture is an enterprise-wide approach for aligning ICT strategy and implementation with organisation strategy, so that ICT services work together properly and realise the organisation's vision. The Enterprise Architecture approach enables consistency between business processes and all the elements of an ICT architecture – information, applications, services, data, infrastructure and security.

The use of the word 'architecture' conjures up images of the construction of beautiful buildings, and this is deliberate. Like that of a traditional architect, the office of the enterprise architect is replete with blueprints, views, plans, drawings and models. But Enterprise Architecture is about far more than an edifice under construction – it is a new way of thinking about and implementing change involving ICT, and its benefits are measured through the impact on service, flexibility, cost and the benefits of the new business and organisational processes it enables.

Why consider Enterprise Architecture?

Universities and colleges are increasingly complex socio-technical organisations that are hard to change, and yet they face enormous pressures to increase operational efficiencies and adapt to new challenges. In recent years, senior management teams have made large investments in corporate information systems to try to tackle some of these challenges.

To really profit from the strategic potential of Enterprise Architecture, an organisation needs to optimise the skills, methods and tools of its architects, and give them the right position in the organisation.

Marc Lankhorst et al. (2005) Enterprise Architecture at Work: Modelling, Communication and Analysis

Predominantly, these systems have been supplier-led, with managers investing in-house resources on ensuring integration between different products. Often these products have overlapping functionality, for example fee billing can be part of a student record system or a finance system. Sometimes, niche systems are used to supplement the inadequate functionality of core systems. This environment is complex, costly to operate and maintain, and often only understood by a small number of people, which makes change difficult and risky.

Advocates of Enterprise Architecture, such as Jeanne Ross and Peter Weill at Massachusetts Institute of Technology Sloan Centre, believe that this is just one symptom of many. They argue that organisations that handle change well have what they describe as 'a better foundation for execution'. Such organisations have embedded ICT in such a way that there is transparency between organisational strategy and information systems strategy. In addition, Ross and Weill's research found that the companies that had fully and successively digitised their processes were more profitable, had faster product development times, were more adaptable to changing environments and, intriguingly, had lower ICT costs.

However, it is important to remember that Enterprise Architecture is more than just a process for modelling, mapping and communicating the way in which existing business and ICT systems interact (something that is often referred to as the 'as is' state). It is also about providing a 'roadmap' to the future – how these systems might work in line with the vision and strategy of the organisation (the 'to be' state). It is therefore important to understand the Enterprise Architecture as a way to facilitate a transitional process: planning and designing at the organisational level for business evolution, change and agility where information systems are involved.

Enterprise Architecture

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Simply a way of making the things work together effectively – better, quicker, more flexible, saving money.

John Townsend, Deputy Director of Corporate Information Systems at Liverpool John Moores University

Doing Enterprise Architecture

Undertaking Enterprise Architecture is a process with a repeating lifecycle that is constantly evolving. A number of formalised methods or frameworks have been developed to describe a step-by-step approach to develop and communicate the architecture and the deliverables that are produced at each stage. All of these methods take account of four common architectural areas or domains: business processes, applications/services, information/data, technology. These domains contain components, which interact in certain ways to address the day-to-day requirements (the concerns) of key people, departments and functions (the stakeholders). Each of these stakeholders has a different view of the way the whole fits together.

But perhaps even more important than the particular method or framework is the role of the architect. The architect's role is to engage colleagues from across the organisation, analyse how it all fits together, communicate models and views of that fit and to ask whether ICT infrastructure and business processes can work together holistically to deliver an organisation's strategic plans and overall mission. Architects operate at the level where business objectives, operations, processes and management interact with information systems technology. Enterprise Architecture captures the essentials of a business and answers the question as to whether the organisation's information infrastructure is capable of meeting changing education and management needs. It is absolutely critical to the success of any Enterprise Architecture process that the practices and products of the architect are embedded into the organisational life of the enterprise in such a way that even the most senior managers engage with, and are informed by, the work of the architect.

Enterprise Architecture in further and higher education

In 2008 four institutions were funded as part of JISC's Enterprise Architecture Group Pilot project to explore and evaluate the application of Enterprise Architecture within the context of UK further and higher education, concluding that Enterprise Architecture is about enabling change and not just about the technology.

JISC continues to explore the application of Enterprise Architecture in education and to communicate activities and outcomes as experience is gained. With Enterprise Architecture so inextricably linked to strategic innovation and organisational

change, it provides an essential component to the JISC Flexible Service Delivery programme. Enterprise Architecture provides a framework and methodology to support organisational change and improvement, and the flexible service delivery projects provide the agents and drivers for change. This change programme is supporting over 30 UK colleges and universities make efficiency savings and improve agility through business process improvement and cost effective integration and sharing of their information systems. It is also supporting institutions to streamline their service provision to staff and students and consider new modes of delivery, such as shared services, while avoiding unpopular cuts in essential service.

Practitioners and managers who are using, adopting or interested in the Enterprise Architecture approach to support strategic change and improvement with their institutions can participate in the new JISC Enterprise Architecture Practice Group. Its aim is to help UK institutions and their Enterprise Architecture champions move more rapidly and successfully in 'doing Enterprise Architecture', by sharing knowledge, experience and challenges from real projects.

John Townsend, Deputy Director of Corporate Information Systems at Liverpool John Moores University, is an active member of the Enterprise Architecture Practice Group, and is a member of the Flexible Service Delivery programme 'Steering Group'. He believes that 'you don't "do" an Enterprise Architecture project; you "do Enterprise Architecture", and it is as much a way of thinking, a journey through change, as it is an end result. If there is an end result – an Enterprise Architecture – it should always start with organisation and business processes, before information, applications and infrastructure'.

This briefing paper was originally written by Paul Anderson and Gaynor Backhouse of Intelligent Content in September 2008. It has been updated by Alex Hawker, JISC Programme Manager. Alternative formats of this briefing paper can be found at: www.jisc.ac.uk/publications

Further Information

Doing Enterprise Architecture: Enabling the agile institution (JISC TechWatch, 2009)
www.jisc.ac.uk/publications/programmerelated/2009/doingenterprisearchitecture

Enterprise Architecture Practice Group Information Portal
www.jiscinfonet.ac.uk/flexible-service-delivery/ea

Flexible Service Delivery programme
www.jiscinfonet.ac.uk/flexible-service-delivery

Lankhorst, M. et al. (2005) Enterprise Architecture at Work: Modelling, Communication and Analysis. Berlin: Springer-Verlag and Heidelberg GmbH & Co.

Ross, J., Weill, P. & Robertson, D. (2006) Enterprise Architecture as Strategy: Creating a Foundation for Business Execution. Boston: Harvard Business School Press.