IB9K1-15 Digital Systems: Architecture and Lifecycle

27/28

Department
Warwick Business School
Level
Taught Postgraduate Level
Module leader
Mo Moeini
Credit value
15
Module duration
5 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

The module adopts a broad view of digital systems as integrated constellations of hardware, software, data, platforms, processes, and people that support and transform organisational activity. It introduces enterprise architecture as a way to understand how digital technologies are structured, connected, governed, and aligned across the organisation.

The module also examines the digital systems lifecycle, from project chartering and requirements extraction to system selection, implementation, adoption, use, resistance management, maintenance, and decommissioning. It combines conceptual frameworks, practical examples, and hands-on activities to help students analyse how digital systems are designed, managed, sustained, and retired in organisational contexts.

Module web page

Module aims

This module provides students with a strong conceptual and theoretical foundation for understanding contemporary digital systems in organisational contexts. It introduces key concepts,

terminology, and frameworks for analysing enterprise architecture and managing digital systems across their lifecycle, from initiation and selection to implementation, adoption, maintenance, and decommissioning. By linking theory to practice, the module equips students to evaluate how digital systems are structured, governed, and managed to support organisational activity and change.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The module begins by introducing digital systems in organisations as complex socio-technical arrangements of technologies, data, processes, people, and organisational practices. Students examine how such systems support strategy, coordinate work, shape performance, and create both opportunities and challenges for organisations.

The module then develops foundations in systems theory and systems thinking, providing students with conceptual tools to analyse digital systems as interconnected, dynamic, and evolving organisational phenomena. This foundation is used to introduce enterprise architecture as an overview of how digital technologies, applications, data, infrastructure, and business processes are structured and governed across the organisation.

The syllabus then examines key layers of enterprise architecture in greater depth. It considers business process analysis, including process representation, integration, improvement, augmentation, automation, and the diagnosis of added value. It also addresses enterprise data, including organisational representation, integration, data quality, and data governance. Business rules management is then introduced as a bridge between organisational decision logic and automation.

The second part of the module focuses on the digital systems lifecycle. It begins with an overview of the initial stages of system initiatives, including prospecting, problem framing, project chartering, governance, and links with enterprise architecture. It then considers requirements extraction and system selection, including requirements analysis, task-technology fit, and multi-criteria decision making. The module subsequently examines implementation, adoption, and use, with attention to post-adoption behaviour, effective use, deep feature use, and innovative use. It concludes by addressing resistance to use, change management, maintenance, and the eventual decommissioning of legacy systems.

Across the module, students engage with practical examples and hands-on activities, including modelling IT-enabled processes, analysing enterprise architectures, and working with real-world digital systems and business simulations.

Learning outcomes

By the end of the module, students should be able to:

- Demonstrate a comprehensive understanding of key concepts (e.g., complex systems), theories (e.g., organizational representation and integration), frameworks (e.g., enterprise architecture) regarding the design, implementing, management and governance of information systems and their effects in contemporary organizations.

- Exhibit a deep understanding of current critical issues over the lifecycle of information systems (e.g., managing legacy systems, system complexity, effective use, and user resistance)
- Demonstrate an advanced understanding of key foundational, trending, and emerging technologies (e.g., databases, ERPs, microservices) and related techniques/methodologies (e.g., process modelling, requirement analysis) at a level required for being confident to partake in managing and leading information systems
- Critically analyse advantages and disadvantages of available technology alternatives under the light of identified business requirements to identify most suitable solutions
- Evaluate the intertwined social and technical issues faced by implementing information systems

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

Conduct original analysis of a real business situation to define and analyse problems, elicit requirements, formulate ideas and identify/articulate satisfying solutions (e.g., enterprise architecture updates), and develop and execute plans to critically evaluate these

Transferable skills

Deliver written communications tailored to the audience by making well-evidenced and logically coherent arguments that make a reasonable use of relevant jargon

Demonstrate professional relationships with others (including collaborating with, managing, leading, and exchanging feedback with them) in the context of information systems and digital innovation considering professional/disciplinary norms

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Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (7%)
Other activity	20 hours (13%)
Private study	48 hours (32%)
Assessment	72 hours (48%)
Total	150 hours

Private study description

Private study to include preparation for lectures and workshops

Other activity description

10 x 2 hr workshops

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A5

	Weighting	Study time	Eligible for self-certification
Assessment component			
Individual Assignment	70%	50 hours	Yes (extension)
Reassessment component is the same			
Assessment component			
Group project	30%	22 hours	No
Reassessment component			
Individual assignment 1500 word limit (to replace group work)			Yes (extension)

Feedback on assessment

Verbal and written

Availability

Courses

Course availability information is based on the current academic year, so it may change.
This module is Core for:

- Year 1 of TIBS-G5N4 Postgraduate Taught Management of Information Systems and Digital Innovation