

ISICO 2021 IS2020 UPDATING THE MODEL CURRICULUM



- IS 2020 -- review and revision
- IS 2010 (Topi, et al)
- IS 2002 (Gorgone, et al)
- IS'97 (Longenecker et al)
- IS'90 (Longenecker, et al)
- DPMA '86 (DPMA)
- IS'81 (Nunamaker, et al)
- IS'72 (Teichroew, et al)

CONTENTS OF THE PRESENTATION

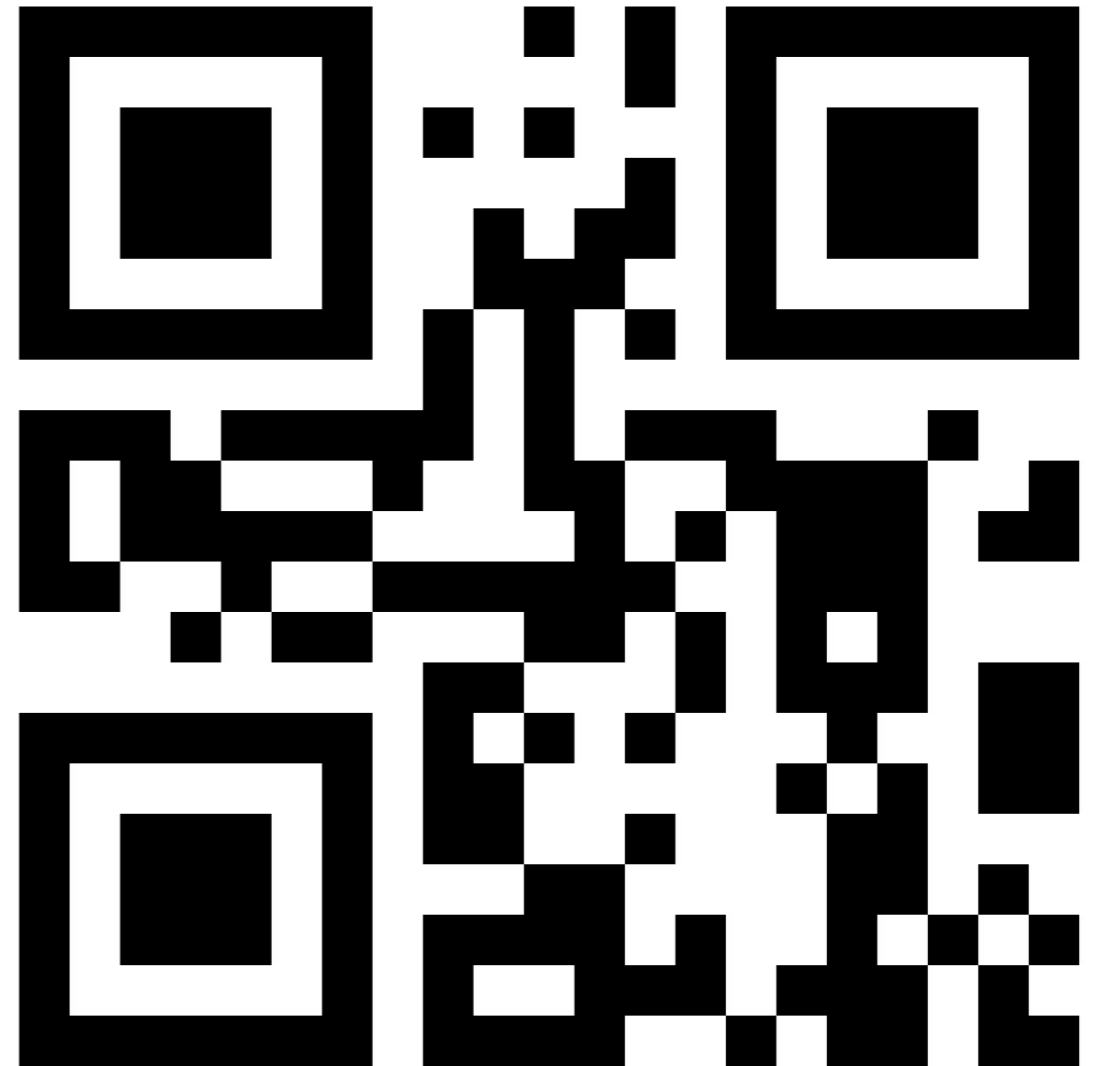
- ▶ Introducing to IS2020
 - ▶ Key principles
 - ▶ From Courses to Competencies
 - ▶ Competency areas in IS2020 - old and new
 - ▶ Inside Competencies: Knowledge / Skills / Dispositions
- ▶ Q&A and discussion
 - ▶ Why follow curriculum trends that move towards the use of competency models?
 - ▶ How to align with the industry shift towards strong technical skills?
 - ▶ What are the main insights for updating curricula or faculty career plans?

HOW TO CONTRIBUTE?

- ▶ Introducing IS2020 Guidelines
 - ▶ Ask immediately (raise hand...)
 - ▶ Add questions and comments to conference chat
 - ▶ Comments/questions in chat will be reviewed after introduction
- ▶ Discussion
 - ▶ Join discussion, raise hand, add question or comment to chat...

LINK FOR
DOWNLOADING
THE REPORT:

IS2020.org



OR:

<https://www.acm.org/education/curricula-recommendations>

IS2020 CURRICULUM TASKFORCE

Paul Leidig (co-chair) - ACM
Grand Valley State University

Hannu Salmela (co-chair) - AIS
Turku School of Economics

Brenda Scholtz – ACM
Nelson Mandela University

Greg Anderson – AIS
Brigham Young University

Raja Sooriamurthi – ACM
Carnegie Mellon University

Lesley Gardner – AIS
University of Auckland

Mark Thouin - ACM
University of Texas at Dallas

Venky Shankararaman – AIS
Singapore Management University

Jay F. Nunamaker Jr – ACM
University of Arizona

Carina de Villiers – AIS
University of Pretoria

Jeffry Babb – EDSIG
West Texas A&M University

GUIDING PRINCIPLES (EXPLORATORY TASKFORCE)

The model curriculum should:

1. represent a consensus from the IS community.
2. be designed to help IS programs produce competent and confident entry-level graduates well suited to workplace responsibilities.
3. guide but not prescribe.
4. be flexible and adaptable to most IS programs.
5. not be restricted to a specific application domain.
6. determine whether the model curriculum must have a core of content that is common to all IS programs globally.
7. not focus on specific issues related to pedagogy.
8. be coordinated and aligned with CC2020.

TASKFORCE TIMELINE

- ▶ First F2F meeting – Cancun, 8/2019
- ▶ AIS AMCIS – Cancun, 8/2019
- ▶ EDSIGCon – Cleveland, 11/2019
- ▶ Second F2F meeting – Munich 12/2019
- ▶ AIS SIGEd, Munich 12/2019
- ▶ ACM SIGCSE – 3/2020
- ▶ ACM-SIGMIS – 6/2020
- ▶ AIS-AMCIS – 8/2020
- ▶ EDSIGCon – 11/2020
- ▶ AIS ICIS – 12/2020 *Report released*
- ▶ *Approval by ACM Education Board 2/2021*
- ▶ *Approval by AIS Council 3/2021*

LEARNING OUTCOMES AND COMPETENCIES

- ▶ IS curricula and LOs have traditionally been represented mainly through courses: Core and Electives (IS 2002, IS 2010)
- ▶ Trend towards IS curricula and LOs represented by competency areas (MSIS 2016, CC2020, IS2020)
 - ▶ What (tasks) an individual is able to *DO* on completing a course (Baumgartner and Shankararaman. 2013)
 - ▶ Competencies = Knowledge (K) + Skills (S) + Dispositions (D)
 - ▶ Competency Framework: In the context of a competency, a disposition helps to order knowledge and skill in context; to connect the ability (knowledge and skill) with the follow-through of the appropriate behavior. (Frezza et al., 2018)
- ▶ Source: MSIS 2016: Global Competency Model for Graduate Degree Programs in Information Systems

IS 2010 ACM/AIS CURRICULUM GUIDELINES FOR INFORMATION SYSTEMS

IS 2010 Core Courses

IS 2010.1
Foundations of
Information Systems



IS 2010.2
Data and
Information
Management

IS 2010.3
Enterprise
Architecture

IS 2010.4
IS Project
Management

IS 2010.5
IT
Infrastructure

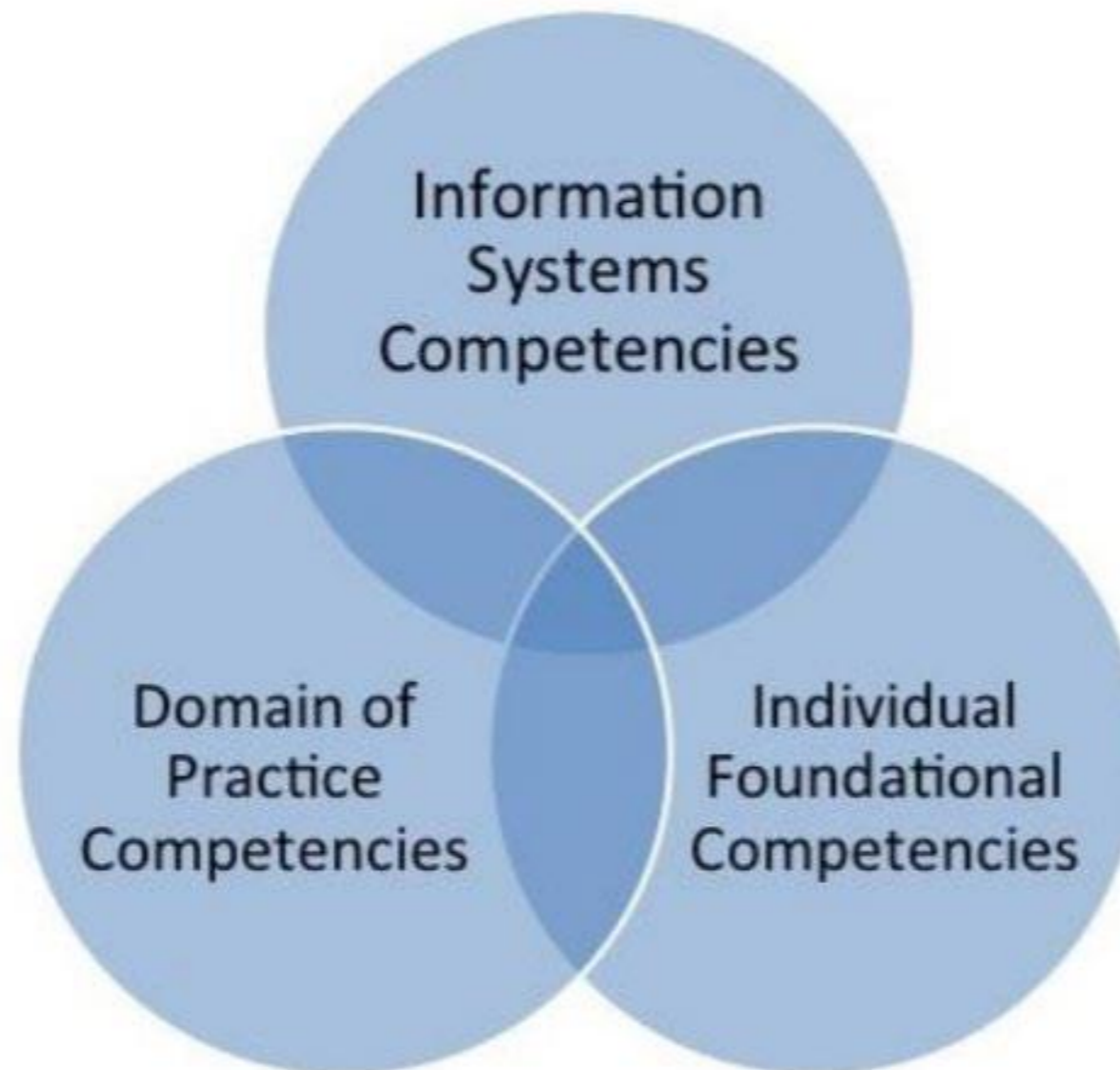
IS 2010.6
Systems
Analysis &
Design



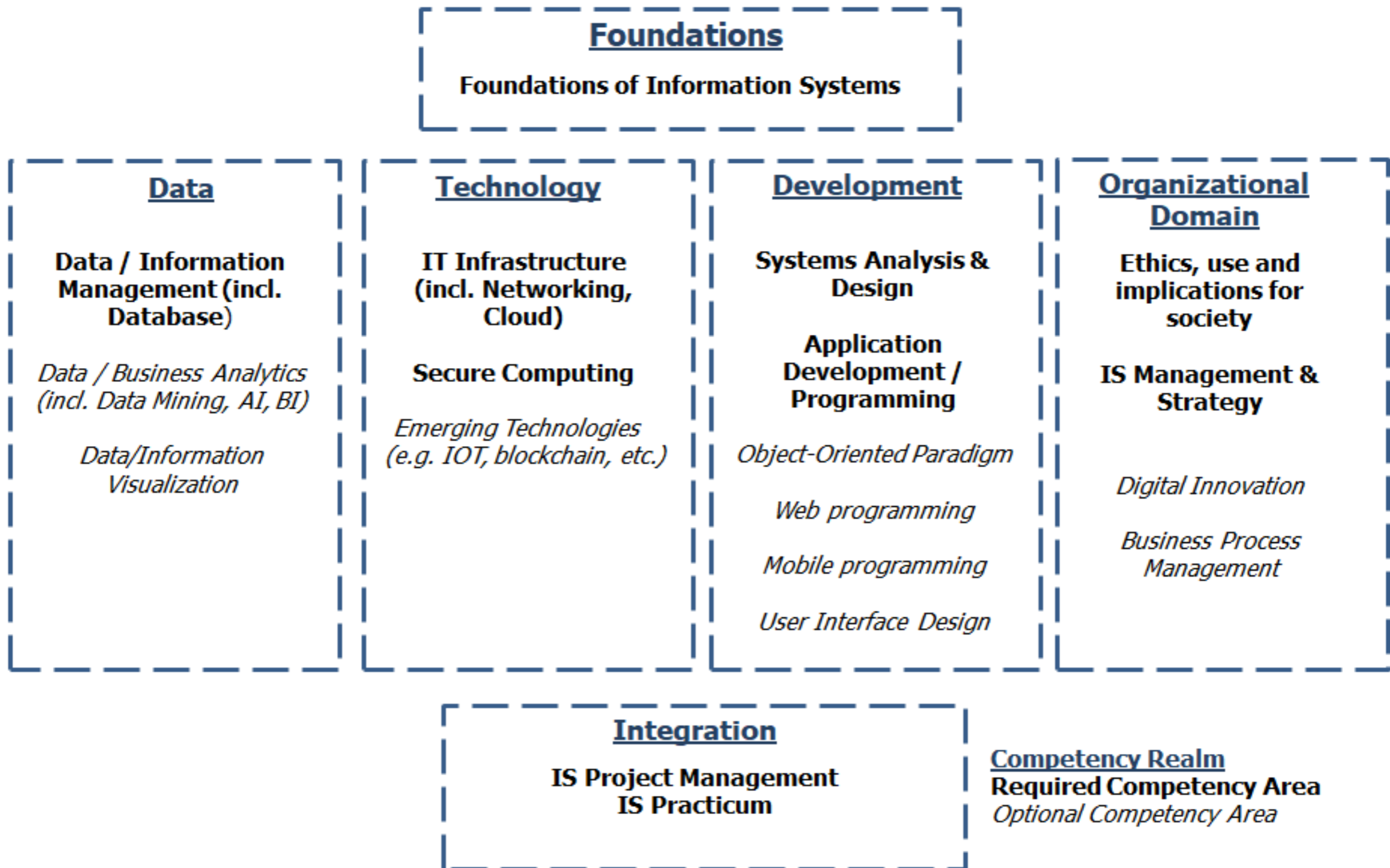
IS 2010.7 IS Strategy,
Management, and
Acquisition

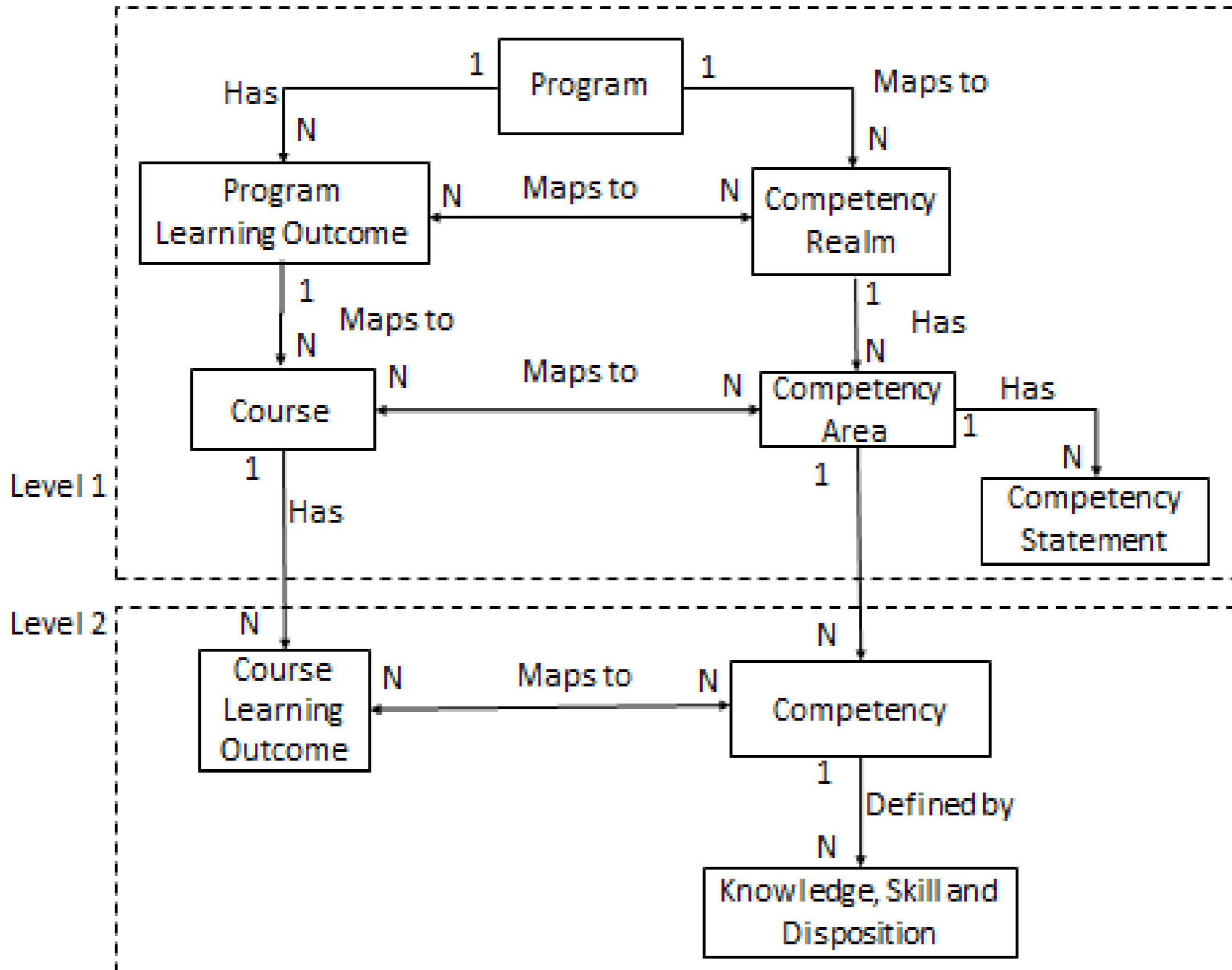
HIGH LEVEL COMPETENCY REALMS

IS 2010 -> MSIS 2016 -> IS2020



IS 2020 - COMPETENCY MODEL FOR UNDERGRADUATE IS PROGRAMS





COMPETENCY AREAS AND COMPETENCIES – FOR HIGH LEVEL CURRICULUM PLANNING

A3.1 Foundations Competency Realm

A3.1.1 Competency Area - Foundations of Information Systems

Competency Area Statement:

Students who meet the competencies of IS Foundations can understand the fundamental concepts of IS (including hardware, software, and information acquisition) and the support that IS provides for transactional, decisional, and collaborative business processes. They will also be able to understand the collection, processing, storage, distribution, and value of information and be able to make recommendations regarding IS that support and enable individuals in their daily lives as well as the management, customers, and suppliers of the enterprise. This competency includes the ability to conduct an organizational business analysis, and assess processes, and systems.

Competencies: Graduates will be able to:

1. Classify the components, elements, operations and impact of IS
2. Interpret the dimensions, characteristics and value of quality information.
3. Explain the roles, responsibilities, and characteristics of the IS professional
4. Recommend techniques for using information and knowledge for business decision making and strategic value
5. Analyze a business case and critique appropriate IS solutions to common business problems, based on the different components, elements, types, and levels of IS
6. Critique and recommend Enterprise Systems for a given business problem and processes.
7. Identify techniques for transmitting and securing information in an organization.
8. Demonstrate an ability to solve basic computational and design problems using IS development with appropriate methodologies, software tools and innovative methods for improving processes and organizational change

DEFINING AN INDIVIDUAL COMPETENCY (FOR DETAILING A LEARNING OBJECTIVE)

Competency Area: Foundations of Information Systems

Competency 1: Classify the components, elements, operations and impact of IS.

Key Dispositions: Self-directed, Inventive, Purpose Driven

Knowledge-Skill Pairs:

Knowledge Element	Skill Level (Bloom cognitive level)
Components of IS - technology (hardware, software, communication media), data, people and procedures/processes.	2 - Understand
Operations of IS (the processing cycle of input, processing, storage, output, control)	3 - Apply
The ways in which IS help us deal with information	3 - Apply
Functions (and operations) of IS and their impact on facilitating organizational change	3 - Apply
Common types of IS (e.g. Transaction Processing Systems, Enterprise Systems)	2 - Understand

INITIAL IDEAS FOR A MORE CONTINUOUS PROCESS FOR SUSTAINING IS2020

- ▶ Commit to the IS community to a more ongoing development of the IS curriculum
- ▶ Support faculty and institutions in the use of IS curricular models
- ▶ Facilitate the understanding and adoption of a competency-based curriculum
- ▶ Provide a repository and tooling for the development and use of competencies
- ▶ Provide an open community of discourse and review
- ▶ Structure the elements of a yearly update within the community
- ▶ Garner the ongoing support of ACM, AIS, ISCAP-EDSIG, etc.
- ▶ Ongoing realization of “Living Document”

**GENERAL QUESTIONS / COMMENTS
REGARDING IS2020 GUIDELINES?**

DISCUSSION QUESTION 1:

WHY FOLLOW CURRICULUM TRENDS THAT
MOVE TOWARDS THE USE OF COMPETENCY
MODELS?

SOME VIEWS ON THE VALUE

- ▶ Topi (2019) identifies the following benefits of a competency-based approach.
 - ▶ Competencies focus on what the students need to learn, not what educators need to teach.
 - ▶ Competencies effectively communicate expectations of graduates to external stakeholders.
 - ▶ Competencies encourage reflection on student learning.
 - ▶ Competencies can be used globally in diverse contexts.
 - ▶ Competencies fit well with most accrediting agencies that use an outcome-focused approach.

DISCUSSION QUESTION 2:

HOW TO ALIGN WITH THE INDUSTRY SHIFT TOWARDS
STRONGER TECHNICAL SKILLS?

DISCUSSION QUESTION 3:

WHAT ARE THE MAIN INSIGHTS FOR UPDATING CURRICULA
OR FACULTY CAREER PLANS?

FUTURE ACTIVITIES

- ▶ Curriculum development workshop in AMCIS 2021, Thursday, August 12, 2021:
 - ▶ Workshop: Institutional Curriculum Mapping to the IS2020 Competency Model 7:30 a.m. - 9:30 a.m. (All listed times are in Eastern Daylight Time (EDT – same as New York))
- ▶ Planned:
 - ▶ Workshop in AIS SIGED conference, December 2021
 - ▶ Workshop in HICSS, January 2022

THANK YOU!