TRANSFORMING INFORMATION SYSTEMS EDUCATION

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Panel

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1 Introduction

The field of information systems continues to be challenged to stay relevant in terms of both what we research and what we teach. The rapid advancement and proliferation of advanced information technology capabilities is causing a convergence of what belongs to and is taught across computing disciplines. Recent developments in information and communication technologies such as AI/ML/Deep learning, cloud computing, IOT, edge computing and much more create both opportunities and challenges for people, organizations, and societies as they struggle to understand how best to adopt and ethically use these emerging systems and technologies.

2 Issues or dilemma

Our job as educators is to stay ahead of change and, indeed, to help lead it. Are we doing all we can to ensure leadership in our information systems and technology degree programs? Do we need to transform education in information systems and technology? If so, how do we get started? How does IS maintain its distinctiveness in terms of the training and education we provide to our students at all levels of education? How does our research and teaching influence the world around us? How should IS keep pace and stay true to its core? The panellists will engage with the audience on these questions with the goal of engaging the audience in assessing how to transform IS education.

The panel will engage the audience to address the following key issues:

- How satisfied are you with the state of education today in information systems and technology (IST)? Is the traditional model of core courses and electives working?
- Do we need to think entirely differently about IST education? An alternate model is to think in terms of major themes or “threads” that are infused throughout the curriculum, e.g., project management, design, emerging technologies (AI/ML, deep learning, cloud, blockchain, etc.), collaboration, data analytics/visualization, and cybersecurity.
- How can a school develop a shared set of values and vocabulary around who they are and the transformation that they desire to undergo?
- Given the above, How do we transform IS education to address the current and future state of IT?

3 Panel Structure

The panel will be organized to provide maximum engagement with the audience. Each panellist will first provide a short opening statement about their perspective of the future of IS education. Following the opening statement the moderator will regulate a discussion on the issues outlined above. The audience will be immediately engaged to follow-up with questions for the panel. The panellists represent perspectives from the USA, Germany, Sweden and Norway. Additionally, one panellist represents the industry perspective and will bring his enormous experience in digitalization of the SAS airline system to the discussion.

3.1 Panellists and Bios

Deepak Khazanchi will serve as the panel moderator. He is Associate Dean for Academic Affairs, Professor of Information Systems and Quantitative Analysis and the Community Engagement & Internationalization Officer in a unique interdisciplinary college of information science & technology (IS&T) at the University of Nebraska Omaha (UNO). He has global appointments in universities in Austria, Norway, India, and China. Deepak has been instrumental in leading efforts to develop interdisciplinary research and education initiatives at UNO. His current research and teaching interests are in the areas of globally distributed teams and project management, virtual teams during crisis, IT education, ethics of
IT, and the application of philosophy of science in the Information Systems discipline. He is currently very interested in discussing the challenges of training future technologists and engineers.

Karin Axelsson is professor in Information Systems at the Department of Management and Engineering, Linköping University, Sweden. She is also currently the dean at the Faculty of Arts and Sciences at Linköping University. Karin has many years of research and teaching experience in the IS field. Her research interests cover e-government, public e-services and smart cities. Many of Karin’s research projects have been conducted in public sector focusing on the relation between citizens and public stakeholders. She has also long history of leadership experience from different roles at Linköping University, for example director of PhD studies, deputy head of department responsible for research, graduate education and collaboration, vice dean, and director of a master program in IT and management.

Jörg Becker is a full professor for information systems and information management and one of the directors of the Department of Information Systems. In addition, he serves as academic director of the European Research Center for Information Systems (ERCIS). His focal areas of research include information management, information modelling (especially reference modelling), data management, retail information systems, and eGovernment. Jörg is one of the two founding Editors in Chief of Information Systems and e-Business Management. He serves regularly on various editorial boards such as for the journal Business Information Systems Engineering, and as a member of the program committees of leading international information systems conferences. His research has received funding by the EU as well as by the German Ministry of Research and Education and the German Research Foundation. Additionally, he is a partner of university spin-offs acting in the field of BPM consulting.

Mattias Forsberg is Executive Vice President & CIO responsible for digital transformation and innovation at Scandinavian Air System (SAS). Mattias has extensive experience of digital transformation in several industries. He is an experienced leader and has successfully managed turnarounds, digital transformation and accelerated changes. During 2013 Mattias was awarded the “CIO of the Year 2013”, the most prominent CIO award in Sweden. Mattias holds a Master Degree in Engineering Physics (specializing in signal processing and artificial intelligence) and a Bachelor Degree in Economics from the University of Uppsala (thesis in stock market artificial intelligence techniques).

Carl Erik Moe is head of Department of Information Systems at University of Agder, Norway. He served as department head for nearly 16 years (1996-2011), and he is back in the role since 2018. As a department head, Moe led the process of developing the university’s graduate program in IS and was also instrumental in establishing the PhD program. He has been leader of the Norwegian National Council for Information Science for a period. As a leader, Moe has focused on collaboration between research and practitioners and on international collaboration both in research and in education. His current research interests include e-government and e-health, with a specific focus on implementation of telemedicine and assistive technologies.

Anna Ståhlbröst is a Chaired Professor in Information Systems at Luleå University of Technology, Sweden. Anna’s research focus is on the possibilities and challenges with the ongoing digital transformation for people, organisations and society. In particular, her interest is how the digitalization of society has an impact on citizens’ everyday practices as well as how these citizens can be engaged in the processes of developing digital innovations by applying a Living Lab approach. Her research has been carried out in different application areas such as smart regions, cities and villages (especially sparsely populated and rural areas), crowdsourcing, and online privacy.
3.2 Brief Perspectives of Panellists.

Deepak Khazanchi will argue that we need to accept that IS will never develop enough stability as an academic discipline to be a core science and we should accept that it will remain a frontier discipline (Cole, 1983). Deepak agrees with Cole (1983) when he argues that “[T]he frontiers of science are generally located at the interstices between and intersections among disciplines,” “[E]xciting developments often come at the edges of established research fields and at the boundaries between fields,” and that “[I]nterdisciplinary thinking is integral to many areas of research because of the need to understand “the inherent complexity of nature and society” and “to solve societal problems.” Consequently Deepak will argue that advancements in IS teaching (and research) will come from new interdisciplinary work in IS with other disciplines plus IT empowering other disciplines and practice. Additionally, if this is not the approach taken, a convergence of IS with its core areas (computer science and social sciences) and other established core disciplines will dilute and negatively impact the academic IS discipline. Thus the need to transform our thinking about academic IS.

Jörg Becker brings the following perceptive to the panel: The discipline of Information Systems bridges the gap between the fields of Business Administration and Computer Science. As such, IS not only embraces parts of the two former fields but extends them with its own methods, tools and techniques. Hence, IS consists of three areas: Business Administration, Computer Science, and “core IS”. Based on economic sciences, IS focuses on solving real-world problems under economically limiting factors. IS students need to learn how to structure problems and rethink them at a conceptual level. With their knowledge from Computer Science, IS students should be able to do rapid prototyping to demonstrate or validate new concepts. Seminars and project work which challenge students to a degree higher than what they could achieve by themselves are an integral part of an IS Master program. With physical presence and team work, IS students are developing soft skills. E-learning tools can be used to complement the learning process, where adequate and useful. “Pure” e-Learning institutions and “Presence-universities”, both will play an important role in the future.

Karin Axelsson will bring the following perspective to the panel. Karin will argue that even though information technology advances and transforms many aspects of our society, there is still need for generic skills in for example modelling, problem solving, and analytical thinking that IS education should provide. Educators must stay true to the core aspects of the IS discipline while future employers ask for specific competence in certain programming languages, systems and other technologies. On the other hand, there are current challenges in society, such as environmental and sustainability issues, fake news in social media, and increasing disbelief in scientific knowledge, that put new demands on the role of IS education. The IS discipline has to acknowledge its importance both as knowledge contributor and possible problem solver. Karin also sees a shift in student groups (at least in Sweden) where life-long learning is very much in focus. This also creates new challenges and a need to transform IS education, both regarding form and content.

Mattias Forsberg will bring his extensive experience in the private sector to inform his perspective on the future of IS. As a student of AI since 1998 and seeing AI grow in the last five years, he believes that this and other emerging technologies are soon going to be ready and available for general consumption. However, Mattias will argue that we need to balance the old traditional skills in mathematics and the natural sciences infused with new techniques for programming, team work, etc. It is his view that schools and universities should primarily give students the foundational tools to learn on their own along with basic computational and analytical skills; the rest of the learning would happen through work experience. Mattias believes that the real risk for educators is that we educate people with narrow modern skills/technologies/techniques that become “old” in a few years.

Carl E Moe will provide the following perspective. Education in IS in the future needs to take into account several changes: Changes in the way students (and all of us) learn; Changes in the way people...
work; Changes in the society; and Changes in technology, and in systems development. The first change has already hit us, and this necessitates new ways of teaching and of organizing education. Learning Analytics may prove to be a valuable tool for us running the programs and carrying out the teaching. The second change relates to growing emphasis on ideas such as globalization, flex-work, interorganizational collaboration and co-creation. The third change relates to the ongoing digitalization of all aspects of work and life, and our students need to gain a holistic understanding of these changes, and they need to be able to reflect on dilemmas and on ethical issues and make sound choices. And the last changes relates to technology, with IoT, AI/ML, Big Data and others. Our students need to learn to master these up to a certain level, and understand their potential and related challenges, including security issues. The most important of these changes will relate to the way people work; our students will be crucial in implementing the related change processes.

Anna Stålbröst will take the following perspective on the panel. In the era of digital transformation, automation, servitization and robotisation it is important as educators in IS to be aware of this development and make that a vital part of our educations while at the same time educate our students and support them in becoming knowledgeable, insightful and cultivated. Students should not only learn about the latest technologies, but they should also learn about theories, models, methodologies and literature which expands, encourage and challenge their way of thinking and acting. And as important as what we teach is also how we teach, how can we make new technologies part of the way we teach so we do not teach about them, but also use them as an integrated part of our educations. For example, how can we use of robots and/or AI as a tool in our way of teaching?

References