

# Department of Digitalization Strategy 2021-2025

## *The Nexus of Digital Transformation*

### Foreword

The Department of Digitalization (DIGI) is located at Copenhagen Business School, where the aim is to impact business, society and the research community. These ambitions are reflected in our teaching and research activities, as well as our externally funded research projects and ongoing engagement with external partners.

Digitalization is visible in all aspects of individual and organizational life. DIGI provides an interdisciplinary Information Systems (IS) perspective, based on the socio-technical approach to the study of technology in context. The department hosts various academic profiles and it supports a multidisciplinary research agenda where each faculty can pursue their preferred aspects of digitalization. Hence, the department contributes to research and teaching on a broad range of aspects where digitalization and information technology can be used to support societal, organizational or individual processes.

Internationally, DIGI contains one of the most influential groups for IS research, as well as world-leading scholars from cognate disciplines. It has demonstrated the benefit of interpreting IS broadly and embracing input from multiple disciplines. It is among the largest IS-focused departments in Europe and its broad scope, network and visibility have made it an attractive partner for many education programs at CBS. Scholars of the department regularly publish in top international journals in their specific disciplines. DIGI further assumes a prominent position in the Association of Information Systems' institutional ranking, which scores institutions according to the number of publications in the IS Senior Scholar Basket of 8 top journals. At present DIGI is number one in Europe and number five internationally within IS. Further, DIGI faculty is consistently visible at core international IS conferences, as well as a number of highly specialized conferences and top international conferences in the cognate disciplines.

Impact of the department's work plays a central role. Agility is core and DIGI faculty is capable of responding to emergent crisis as well and planning for long term impact. DIGI faculty educates students and contributes to lifelong learning in all aspects digital transformation. Through active research and engaged scholarship the faculty builds a robust knowledge base for the benefit of businesses and society.

This strategy document outlines the specific actions we as a department pursue to remain a central contributor to the field and the disciplines we are research-active in. It describes how we teach and conduct research in practically all aspects of digitalization in our daily pursuits. This document also outlines how the department can contribute to the overall ambition of CBS i.e. *to conduct interdisciplinary research anchored in the Nordic research tradition through curiosity addressing major challenges posed on individuals, organizations and society*. This resonates closely with our focus on enabling new perspectives on digitalization, our interdisciplinarity, and our Scandinavian school of thought.

The strategy document furthermore provides sets of action points that guides how the department develops and maintains a unique and robust academic profile; a profile that is recognized within CBS and the international research community.

## Vision and Mission

DIGI's vision is to participate in meaningful collaboration with representatives from industry and society through engaged scholarship, while organizing research to accommodate the fast-moving pace and radical innovation that characterizes the IS and related fields we are active in. The mission statement of DIGI is:

*Co-creating knowledge with enduring consequences through the study of interrelationships and processes connecting people, data and digital technology.*

This mission statement provides the foundation for academic life at DIGI. With its focus on the interface between technology, organizations and individuals there is an emphasis on digital transformation of organizations and society. This emphasis materializes in a broad range of research interests and perspectives. Some of these are based on academic disciplines, and some based on emergent, topical, popular and dynamic phenomena.

DIGI faculty teaches and conducts research on a wide range of aspects of IS and related fields. We strive to understand consequences of digital innovation through empirical research and engaged scholarship. At DIGI, IS are viewed as socio-technical systems in which people interact with technology in the support of organizational as well as individual processes.

DIGI's aspirations are to:

- Graduate candidates in different aspects of digitalization that are in high demand by businesses and public institutions
- Generate knowledge about socio-technical phenomena that is publishable in highly respected journals and conferences, and furthermore used by practitioners
- Publish research that explores the increasingly complex relationship between humans, organizations and technology
- Demonstrate ability to engage in contemporary debates that make a difference and have societal impact
- Build internationally recognized individual academic profiles
- Create a vibrant research environment driven by curiosity and innovative thinking

## Research

A central part of academic life is the interaction between peers. Active and constructive engagement in everyday department life is highly valued at DIGI. This involves participation in the weekly department meetings, involvement in research themes, and attendance in seminars and workshops organized by the department. PhD fellows must attend work-in-progress seminars of their peers and participate in the PhD reading club. Non-tenured faculty are expected to participate in the paper development seminars organized by the department.

A central requirement of the individual researcher is to develop a distinct academic profile. Depending on level of seniority, a distinct research profile involves intellectual originality and scientific autonomy that results in research based knowledge which is recognized by peers. A research profile develops over time for the individual faculty who must, at a minimum, reflect on the profile's development with peers on an annual basis. The status of the profile is further a subject at the annual performance review with the HoD.

## Organizing research based on individual interests

### Research themes

Research activities in the department are organized in research themes. Each individual researcher participates in one or more research themes, according to their interests. Research in the themes focuses on emergent topics where digital technologies lead to new individual, organizational or societal processes and practices. The themes provide a platform for researchers to collaborate on cross-disciplinary topics of shared interest. They also help faculty stay updated on the latest developments driven by new technologies. The themes vary in size and activities. While some themes focus on teaching activities such as curriculum development and classroom activities, others direct their attention on research and the pursuit of external funding.

Each research theme:

- Is grassroots-driven, loosely organized, and a flexible cooperation platform
- Covers emergent research topics
- Fosters organic innovation in the department
- Is easy to initiate, emerging from the discussions and interaction among DIGI faculty

In order to keep the grassroots and organic nature of research themes, their initiation procedure will remain simple with low entry barriers but with high demands for their continuity.

### Research Centers

Research centers can be established in parallel with the research themes. A research center typically has a longer life-cycle than a research theme. Each research center:

- Is formalized, with official budget and own staff
- Includes a clear mechanism to acquire (external) funding
- Fosters inter-departmental/ inter-organizational collaboration
- Fosters topic-based electives (lecturer independent)

At present, DIGI hosts the CBS Business Data Analytics center (cbsBDA). Though integrated with the department administratively and economically, the center differs in its approach to research. The center focuses on lab-centered basic research at the socio-technical intersections of computer science and social science. The center hosts department members with an interest in business data analytics, computer science, statistics, mathematics, and areas with a technical foundation. It furthermore collaborates with colleagues from other departments, such as marketing and economics, who share an interest in experimental research involving large datasets.

### Action points to organizing of research

- Stimulate an engaged academic discussion
- Team up with peers to establish research themes that can contribute to the CBS-wide cross-cutting research questions as well as local initiatives
- Develop distinct academic profiles which are recognized in the respective research community of the individual faculty. The outline of the academic profile along with publication ambition should be shared and discussed with peers in their respective research group or theme on an annual basis.

### Output

The guiding principle for research output is that DIGI wants to support individual researchers excelling in their unique ways. In doing so, we would draw on the wide backgrounds of DIGI faculty, many of whom have

experience working with different international funding agencies, research impact systems, and academic environments

In recognition of the multi-disciplinary composition of DIGI faculty there is emphasis on publishing in top journals where technology in context is appreciated. Instead of having a set list of journals and conferences, the individual researcher must develop a distinct research profile based on a robust publication portfolio consisting of top ranked journal publications within the research domain.

Criteria to identify top outlets include the national BFI list, journal impact factor, discipline specific rankings, and the FT50 and AJG lists which specifically are of importance to the business school.

Given that DIGI has the ambition to maintain and strengthen its position among the leading IS departments in the world there is a continued emphasis on publishing in the Senior Scholar Basket of 8 (Bo8) journals and/or highly ranked journals on the FT50 and AJG list (levels 3, 4 & 4\*). These journals along with a distinct research profile of the individual researcher is a central requirement of the DIGI faculty.

Furthermore, active participation at conferences play a central role in establishing visibility of DIGI faculty. A specific target in relation to conferences is that DIGI faculty are active players in panels and workshops at core conferences and further take the lead in organizing international conferences as well as acting as keynote speakers at core conferences.

#### **Action points to research output**

- Continue to pursue the Bo8 but recognize the differentiation between AJG 4 and 4\* journals and the rest of the Bo8 journals at AJG level 3. Our aspiration, as a department, is to keep our No. 1 ranking in Europe on the Bo8 list and be in the top 5 Worldwide
- Be in the top 10 in the world for AJG 4 and 4\* journals at the Bo8 list
- Publish in the best possible outlets that support each individual academic profile. Focus should be on publishing in core IS journals (Bo8) and/or highly ranked journals along with journals that are highly recognized in the discipline/field of individual researcher. Measures of quality include AJG level 3, 4 and 4\*, national BFI level 2, and impact factor >3
- Continue the monthly practice of knowledge sharing of published research at the “First Tuesday” meeting
- Create visibility at conferences through active involvement in panels and workshops, participation in organizing conferences and obtaining invitations to present keynotes at core conferences

The timespan for meeting the publishing requirement is 5 years. The next 5-year period starts from January 2021.

#### **Societal impact of DIGI research**

Research at DIGI focuses on both long and short term impact. As stated in the mission statement, our focus is on co-creating knowledge with enduring consequences. DIGI research aims at making a difference for organizations as well as individuals contributing to the solution of specific challenges and problems. Furthermore, as the world struggles with attending to the 17 UN Sustainability Development Goals, including climate change, inequality, health crisis, political polarization, refugee crises, and unemployment, research with societal impact is becoming increasingly important. DIGI will react promptly and demonstrate ability to direct research activities towards emergent crises. Part of this initiative is that researchers in the department engage in ongoing discussions and communicate through channels such as CBS’s official website in the domain “find an expert”.

DIGI actively engages in the strategic CBS thematic cross-cutting initiatives that have a digitalization focus and contributes to cross-cutting initiatives where digitalization can make a difference. The research themes work actively to define thematic local initiatives that pursues the overall goals of the CBS strategy.

The socio-technical perspective on information technology in society provides the ideal stage for a focus on both the positive and negative impacts of IT in society. The department wants to participate in pushing research in the direction of societal impact. In line with this, DIGI researchers will establish a practice to write a societal implications section (or at least a sentence) in every paper and PhD thesis to drive bottom-up change.

### **Action points to impact**

- Organize a new dedicated event to discuss research with societal impact (once a year). The event will be a half-day workshop bringing together different DIGI research themes to discuss common interests, opportunities for funding and publication strategies. In doing so, we would draw on the wide backgrounds of DIGI faculty, many of whom have experience working with different international funding agencies, research impact systems, and academic environments.
- Participate in local outreach events each year, e.g. book a scientist and similar
- Propose special issues on social issues in AJG level 3, 4 or 4\* journals
- Contribute to the CBS strategy with thematic cross-cutting and thematic local initiatives in the domain of digitalization
- Clearly communicate societal and business impact in research and media
- Include socially-focused publications in the selected publications on CBS website
- Publish teaching cases
- Volunteer for roles on external advisory boards for businesses in particular socially responsible organizations
- Maintain personal websites or blogs to disseminate own research to the broader public

### **PhD recruitment and education**

PhD Fellows at DIGI are considered a key part of the faculty and they participate in all department activities along with the rest of the DIGI faculty. The department has a variety of PhD Fellows: CBS funded PhDs, Industrial funded PhDs, Sino-Danish PhDs, PhDs funded through endowments for professorial chairs, and privately funded PhDs. The majority of the DIGI PhD Fellows are industrial PhDs. Therefore, it is part of the DIGI tenured faculty task to actively work on attracting industrial and privately funded PhD Fellows. The standard duration of a PhD at CBS is 3 years but a 4th year can be granted.

There is focus on attracting a diverse group of PhD fellows. PhD fellows are vital for a dynamic environment and the development of novel perspectives in all aspects of digitalization. They are viewed as important drivers of research. PhD fellows are recruited internationally. The admission requirement to the PhD program at CBS is a full five-year university degree. When hiring for the few CBS funded PhD positions, key criteria include the candidate's current contributions to academia, the novelty and originality of their research proposal and their potential integration within department research. The department has a PhD recruitment process that prioritizes candidates with whom DIGI faculty have been collaborating, either in their master studies at CBS or through international projects. Candidates are recruited from an open call.

PhD Fellows follow courses on both qualitative and quantitative methods to assure they have the needed skills for their own projects and are able to participate in key academic activities, such as reviewing for journals and conferences. To provide a common platform for all our PhD Fellows, DIGI also offers a foundational information systems course that all our PhD Fellows take during their studies. The course is primarily taught by DIGI faculty and covers diverse research areas within the field. Finally, PhD Fellows at

DIGI are also required to participate in a reading club which discusses high-quality academic work. This reading club is led by DIGI faculty in collaboration with the PhD Fellows as a vehicle to discuss varied issues such as argument structure, politics of journals, methodology and societal impact.

PhD candidates who have graduated from DIGI are generally not recruited directly to Tenure Track positions at the department. It is an ambition to prepare the candidates to the international job-market particularly aiming at reputed institutions.

### Action points on PhDs at DIGI

- Tenured faculty actively pursue funding for Industrial and privately funded PhD fellows to the department
- All DIGI faculty contribute to the foundational information systems course
- All DIGI PhD fellows participate in the foundational information systems course and the reading club

## Education & Teaching

It is an explicit ambition that DIGI faculty educate students to be innovative and capable practitioners in the area of development and use of information technology in an organizational context. It is furthermore an explicit goal that students acquire the ability to be reflective and critical in relation to organizational and societal perspectives of information technology. To maintain high levels of student satisfaction pedagogical development has a high priority and sharing of pedagogical experiences and capabilities is considered an integrated part of department life.

Research-based teaching has a high priority at DIGI. The ambition is that faculty teach what they research, and vice versa. This is enabled by our focus on engaged scholarship and empirical research in the department. There is furthermore large involvement from faculty in the supervision of students' empirical projects. Many, in particular elective courses, focus on innovative technologies and peer-developed teaching activities based on relevant research. Other courses focus on more traditional business and IS disciplines. Our focus on digital innovation in teaching is also reflected in the research interests of several faculty members.

### CBS wide development

The DIGI department is deeply committed to the development of digital skills for business students. The department has a major role in initiating, developing, piloting, running, and supporting mandatory courses, electives, internal development, and student initiatives addressing digitalization. Further growth in teaching outside the programs traditionally run by DIGI faculty is done in various ways:

- DIGI as the **incubator** that develops new courses on request that, once established, are transferred to faculty at other departments ('incubator model'); or
- Faculty from DIGI and other departments **collaborate jointly** in pairs to develop and run new courses ('paired collaboration model'); or
- Mixed form of collaboration that emerges from the **interaction** with other study programs ('case-by-case model').

### Studies anchored in the department

DIGI has largely overseen the IT studies at CBS, providing research-based teaching in the areas of IT, data science, IS and digitalization. The department hosts a Program Director and four line coordinators, representing the four affiliated studies. DIGI faculty primarily contribute to the following studies:

- the bachelor of business administration and IT (HA.it);
- the master of science in business administration and information systems (CM.it);
- the master of science in data science (CM.it);
- the master of science in business administration and e-business (MSc.it).

The employability of candidates from the IT programmes is a central priority. Each program has an advisory board constituting of representatives from industry. The advisory board provides feed-back on the overall structure of the program and individual courses/qualifications, which are in high demand in the industry. Apart from this formal interaction with industry, the faculty often invite speakers from industry to their courses.

Faculty from the department are also engaged in many of CBS's executive education initiatives. DIGI faculty teach several courses at CBS Executive and the CBS MBA programs. DIGI faculty deliver core courses and electives to the flexible Master of Business Development (MBD) program, the Graduate Diploma (GD) program and faculty development programmes via CBS's Teaching and Learning Department.

### Teaching quality and development

It is the department ambition that faculty strive for good student evaluations on all parameters measured at CBS. Input from student evaluations as well as from peers are an integrated part of the individual faculty's pedagogical development. An anonymized list of all evaluations is discussed bi-annually, with the purpose of establishing a common understanding of the importance of achieving good student and peer evaluations. The evaluations of the individual faculty is further a subject at the annual MUS-conversations with the HoD. Evaluations are compared with individual teaching loads. In the case of high teaching load and low evaluations, it is discussed with the individual faculty how to prioritize and engage in less teaching activities. It is crucial to find the best possible match between teaching activities and the individual faculty's research profile.

The department prioritizes pedagogical development and actively pursues to stimulate knowledge sharing from individual teaching practices. The department has furthermore successfully worked with peer "teaching buddies". Teaching buddies are groups of faculty who form teams of three. The teaching buddy teams visit each other's classes and observe classroom activities for the purpose of providing positive and constructive feedback. The teams are self-selected based on personal preferences. The department dedicates the third Tuesday of the month to a Teaching Tuesday where faculty shares tips and tricks from teaching.

### Action points on teaching

- Contribute to the IT studies and faculty development programmes
- Arrange teaching buddies before the semester starts
- A monthly meeting dedicated for knowledge sharing of individual teaching practices "Teaching Tuesday"
- Consider how to develop teaching portfolios that fit the academic profile of the individual researcher

### External lectures at DIGI

Increasing the number of external lecturers (henceforth DVIPs) is a key concern for the department in the quest to ease the pressure on department faculty (VIPs) with excessive teaching loads and foster strong ties to practice in the education. DIGI has in the past been generally successful in preserving teaching quality when using DVIPs and key examples show the capacity of DVIPs to connect the classroom to practice. Most DVIPs have been recruited from our alumni. Moving forward, it will be critical to expand the use of DVIPs

while not compromising quality, and to ensure that increased use actually translates in easing the pressure on research faculty.

#### **Action points on DVIPs**

- Strengthen the coordination between the DVIP and the relevant line and course coordinators
- Actively collaborate with DVIPs

## Faculty

Faculty members' expertise is key to fulfilling the DIGI aspirations. It is an explicit ambition to foster a group of international researchers from a broad range of academic disciplines. This multidisciplinary approach affords a broad approach to teaching a diverse range of IT related topics along with the study of digitalization from various academic perspectives. Common for faculty is that requirements and promotion is outlined in the REEAD criteria outlined for their respective level employment.

The department has experienced an extensive growth in faculty during the last few years. The fast growth requires a strengthened internal research communication and coordination through department routines such as the weekly Tuesday meetings and bi-annual seminars. The purpose of research communication is to share our successes, stimulate collaboration and include new-comers in a fast-growing department.

Apart from the 2 Endowed Professors that joined DIGI in 2019 it is common for the professors is that they have been promoted after having had employment as Associate Professors at the department. With the new National promotion regulation the department will introduce new promotion routines from associate professor to full professor. Part of the new set-up is to appoint a professorial committee who will assess candidates upon application and make recommendations to the HoD and Dean of Faculty.

The majority of young faculty are recruited internationally as Tenure Track Assistant Professors. However, junior faculty can join the department in two ways:

- International Tenure Track Assistant Professors
- PostDocs who are recruited for externally funded projects

The department recruits Tenure Track Assistant Professors from the international job market. PostDocs and Assistant Professors are recruited to work in externally funded projects. It is the project-owners who decides who to recruit based on the specific qualifications needed for the project. Depending on the scope of the project it can be decided if the junior faculty will have teaching obligations.

DIGI does generally not recruit its own PhD Fellows for Tenure Track positions, whereas the externally funded Assistant Professors, in some cases, have received their Ph.D. from DIGI.

#### **Action points on faculty**

- Ensure that recruitment is based on careful international search
- Carefully examine teaching skills, innovativeness and ambitions on course development, and pedagogical aspirations
- Continue a supportive culture in the department that helps newcomers to integrate

## External funding

The individual faculty at DIGI has a high level of research integrity with respect to the pursuit of types of external funding including scale and scope of the funding. The themes are considered a central vehicle for



identifying research projects suitable for external funding applications as they provide a bridge for establishing contacts to collaboration partners in academia and industry. However, faculty are not limited to the themes when developing or participating in external funding activities.

The pursuit for external funding should at all times be for research money that supports the research profile of the individual researchers as well as groups of researchers. The research projects should lead to engaged interaction with practitioners and industry, as well as data and insights that can be published in quality outlets.

The department has a dedicated external funding coordinator, who oversees the portfolio of applications and guides applicants in finding appropriate reviewers for proposals. The internal guideline is that any proposal originating from DIGI has to be reviewed by a generalist and specialist before it is submitted. The coordinator furthermore ensures that CBS processes are followed with respect to timelines and content, for example, budgeting, which is done centrally by the CBS Research Support. The department funding strategy outlines the specific types of funding that the department prioritizes.

### **Action points on external funding**

- Dedicate attention to relevant external funding opportunities in the research themes. Themes must provide a plan for funding ambitions
- Stay updated on possible external funding that is attractive for the further development of the individual academic profile
- Engage in networks that can lead to research collaboration and application for funding

## External collaboration

The emphasis on global recruitment of Tenure Track Assistant professors has demonstrated value by not only attracting talented researchers and good colleagues to the department, but also in fostering international collaboration.

This has resulted in many leading IS scholars visiting DIGI as part of their sabbaticals or through for example the Otto Mønsted Visiting Professor grants program. Another vehicle for establishing international collaboration is the “Renowned Scholar Seminars” series. Since its start in 2012, +75 scholars from IS and related disciplines have visited the department and given interactive talks on Friday mornings (usually once a month). There is a continued focus on attracting high profile scholars to DIGI for short and long visits

In the national context, DIGI is part of the network of IT departments across all Danish Universities. More recently the national collaboration has led to stronger collaboration with computer science and engineering environments at Danish universities. For DIGI, this type of collaboration provides a stronger foothold in STEM education, which has received increased attention from CBS. In relation to STEM, DIGI has the advantage that while other Universities focus basic research on advanced technologies, DIGI contributes to the socio-technical and business perspectives, focusing on how technologies influence individuals, organizations and markets.

## Research networks

The department will continue to play a role in the research community by taking responsibility of reviewing and acting as editors in key journals. Efforts should be made to support succession of editors from more junior to senior positions when possible. DIGI faculty will continue to actively pursue editorship of special issues in those journals that are considered core of the individual’s research profile. Given its size DIGI should

be represented in bodies such as the AIS Council, as well as taking the lead in international IS conferences in organizing, providing keynotes and being active in organizing panels and workshops.

#### **Action points on external collaboration**

- Take responsibilities e.g. organizing conferences, editing journals and proposing special issues
- Seek influence in research networks
- Organize panels and workshops at core conferences

## Benchmark

### Internationally

Given its home in the IS discipline, the department keeps track of its publication activity within the AIS Senior Scholar Basket of 8 (Bo8) list of journals, which are recognized as representative of the IS field. The list is generated annually both for Europe and the globe. Throughout the history of the department, the list has been central for comparison and assessment.

In Europe, we have consistently benchmarked DIGI performance in comparison to the University of Warwick and London School of Economics. Internationally, we have consistently done so in comparison to Georgia State and City University of Hong Kong (established IS departments with publication profiles to aspire towards) as well as Bentley and UNSW Australia (young IS departments similar to DIGI that have performed extremely well).

### Nationally

In the network of IT departments across all Danish Universities. An annual benchmark on teaching, faculty, and fundraising is made to compare across institutions.

#### **Action points on benchmark**

- Annual status of comparison with relevant communities
- Identification of long term benchmarks for the purpose of measuring the impact of DIGI