

The Department of Informatics

Strategic Plan 2014–2017

Informatics can be defined as the study of how computer systems are constructed and used. The very extensive use of computer systems in society gives the Department of Informatics (Ifi) a great responsibility as manager of a very important subject in terms of society. This strategic plan describes how the department wishes to develop in order to live up to this responsibility.

Background

The department's strategy relates to "Strategy 2020", which is the University of Oslo's (UiO's) overarching, governing document that sets the direction and level of ambition for UiO. The overall goal is for UiO to strengthen its international position as a leading research university through a close interaction between research, education, communication and innovation. Core values and central attitudes that are highlighted are that

- the university must seek quality in all its activities;
- the university must take a clearer responsibility for helping to meet the challenges the world is facing;
- there must be a balance between investing in selected cutting-edge research environments and ensuring development and renewal in other research environments;
- dissemination of knowledge to society takes place most efficiently through the candidates being trained;
- the university must pursue an active policy for gender equality and a recruitment policy that provides diversity.

Ifi itself has a responsibility to analyse its challenges in research and education. At the same time, the department will draw inspiration from other analyses and from national and transnational research policy studies, including the comprehensive analyses that the EU has carried out in advance of Horizon 2020.

The Department's Overall Tasks

The ever-increasing importance of informatics for societal development demands a dynamic disciplinary development in close interaction with society's application of informatics. As a university department, Ifi has a particular responsibility for knowledge development of a generic nature, but the department wants this to be combined with active contributions to solving important societal challenges of both a national and international nature. Informatics is expected to have an essential role in the interdisciplinary

environments that will be central to the solutions to the challenges, and for Ifi medicine and health as well as energy and the environment stand out as areas where the department can make important contributions.

Dissemination of knowledge is central to Ifi, and must be ensured through scientific publication, through dissemination to business stakeholders and the general public as a contribution to the development of society's general level of knowledge and culture, and not least through research-based education of tomorrow's workforce.

Economic Frame Conditions

At the start of the planning period, Ifi has a large accounting deficit. At the end of the period, the department must be in balance. It is expected that income will increase due to a good supply of students and an increase in externally funded activities, but the opposite seems to be the case with the low enrollment figures for the PhD programme. Savings are therefore necessary, and must primarily be made by bringing the number of recruitment positions down to the Faculty's target number. Throughout the period, there will be a special focus on making the best possible use of the department's total educational resources, including adjunct positions and candidates with teaching duties.

Academic Profile and Research

Research goal At the start of this planning period, the Department of Informatics has 12 well-established research groups, and research is mainly organised and prioritised through these. The main goal for the department is that all the research groups have the resources - including research time - to carry out research at an international level, that the groups succeed in this, and that at least half of the groups are at a high international level. A high international level of quality is considered to be present if the group receives major grants from international arenas or is awarded SFI/SFF by the Research Council of Norway. The research activity will also be followed via bibliometrics with a focus on the development of high-level publications.

Overall professional profile Ifi wants an academic balance where the department develops theory and methods in informatics as well as carries out research inspired by and aimed at societal challenges. Issues that require fundamental long-term research will naturally have a high priority at a university department.

The department wants each individual research group to have focused research, but at the same time all central parts of the IT field should be covered sufficiently well so that the department can provide high-quality education based on good subject and methodological insight. Today, the department has a broad profile, but with some weaknesses relative to teaching and being able to form larger research teams in important areas: the department does not cover software engineering (SE) and security sufficiently well.

In the coming years (2015-2020) there will be significant departures in permanent scientific positions, and the department will be able to advertise positions. Ifi will use this to prioritise the development of SE understood as the field of the development and management of high-quality software systems within given time and cost frames. The department's aim is that positions in SE also strengthen activity in academically related areas, including communication, security and information science, and that the department retains strong general competence in programming. This means that the positions should preferably be positioned so that they also acquire skills that are useful for the further development of existing activities, and that the position holder can contribute to building bridges between research groups. Positions are initially planned to be placed in the current OMS group.

In security it is important to give students a good offer so that all students get basic knowledge and that students who want to specialise in security have the opportunity to do so. The department will try to utilise collaboration with other institutions such as SIMULA, UNIK and UiB to ensure a good offer, but the aim is also to strengthen security with a new position.

The intention with new positions within SE/security should also be that Ifi collectively gets a portfolio that provides a high level of expertise in the construction and use of large, reliable, user-friendly systems. The purpose is to be able to contribute to the solution of key challenges in the ICT area, and to be well positioned in relation to important competition arenas such as the Research Council's ICT initiatives and Horizon 2020.

That SE and security are to be strengthened means that the department aims to place some of the first advertised positions here. However, other areas can also be considered for new positions either for reasons of education or to develop strong groups/leading environments. Since new positions will primarily come towards the end of the planning period or early in the next period, a decision is not now being taken on precise professional arrangements.

Many of the department's groups also work with methods from machine learning. However, the coordination across the department is weak, and the department will assess possible synergies and possibly allocate resources to measures within the area.

Priority application areas The EU's Lund Declaration deals with the importance of research for solving major societal challenges (Grand Challenges). The importance of interdisciplinary approaches is emphasised very strongly, and in such integrated approaches computer science will naturally have a central place. Two central challenges that are both highlighted in the declaration and in the Norwegian government's white papers constitute natural areas of focus where Ifi will further develop its expertise and develop cutting-edge research environments:

Medicine and health involve most of the department's research groups, and include bioinformatics, image processing, robotics, ultrasound, robust networks, sensor technology, journal and information systems and welfare technology. The department wants to further develop this activity. In order to ensure high relevance, Ifi will work for an even closer and more comprehensive collaboration with the health institutions, especially Oslo University Hospital and Helse SørØst. In addition, the department wants to take an active part in UiO's commitment to life sciences, including the opportunities that a new life science building will provide. The department will also place great emphasis on supporting the internationally extensive and important activity aimed at health information systems and mobile services in countries with weak infrastructure.

Within *Energy and the Environment* the department currently has significant activity in several research groups, particularly around the production of oil and gas. The activity includes Integrated Operations, analysis of large heterogeneous data volumes, seismic imaging, sonar technology, detection of oil spills and "smart grids". The department wants to further develop this research in collaboration with important business stakeholders. The department will also look at the possibility of activities aimed at renewable energy. In addition, significant parts of the department's more generic research have the potential for broad and rapid application, this applies for instance to research around sensor networks and aimed at the internet.

Externally funded research All research groups are expected to participate in relevant national and international competitions for research projects. In recent years, the proportion of external funding has been 32-37%. The department aims to achieve growth in external funding, though primarily through larger, long-term projects or centres that can also contribute to the development of cutting edge environments. As part of this, Ifi will actively use or develop support around the writing of applications; the Faculty's EU

advisor in ICT constitutes a central resource here. The department will also offer a process for reviewing applications ahead of important application deadlines.

Education

The aim of the department is to offer education at a high international level and adapted to the needs of the Norwegian society. This requires a continuous update of the content and form of the education and a focus on study quality.

Study programmes The Faculty will carry out a review of its study programmes with an aim to implementing new programmes from 2016. The department will prioritise in its work

- a review of the coherence of the course portfolios within the programmes, with the aim that the students receive a course of study with a clear overall goal and with good internal coherence between the individual courses;
- a review of the first year of the course of study with the aim of designing and implementing a more holistic scheme which promotes learning and mastery, and which discourages dropouts. The Study lab is a central resource in this work.

For the electronics programmes, the department will carry out a thorough review of content and structure together with the Department of Physics. A study programme within “Data Science”/“Big Data” will be investigated in collaboration with the Department of Mathematics.

In recent years, Ifi has had an almost constant number of courses. During the planning period, the department must keep the number constant or slightly decreasing, and prioritise guidance and good course content over an increase in the number of subjects.

Instead of increasing its subject portfolio itself, the department will primarily seek closer cooperation with other educational institutions with the aim of expanding the students’ total offer of subjects and programmes in a cost-effective manner.

The department must also continuously assess new forms of teaching, including open online courses, preferably developed in collaboration with other institutions.

The Faculty is planning a major investment in study quality, and the department wants to be a very active player in this work. The Study lab is intended to play a central role, but the work will encompass all parts of the department.

Lifelong learning The department has established a permanent lifelong learning offer in the form of an experience-based master’s degree in “IT and management”. The department believes that the offer fills an important need, and assuming growth in demand, the department aims to gradually strengthen the offer, including offering adapted continuing education courses for companies and administration, also within other parts of the department’s professional fields.

Recruitment and Dissemination

A particularly important task for Ifi is to ensure good recruitment at all levels. After a few years of relatively weak recruitment to the studies, the supply of applicants is now good. However, further improvement in

access to good applicants, and especially female applicants, is desirable. The department must therefore further develop its work towards school pupils, and a central point will be to make use of the great breadth of the subject and that the study therefore is suitable for students with a wide range of interests and talent.

Recently, recruitment to research fellow positions has been unsatisfactory in several key subject areas, and in particular there has been a failure in the supply of Norwegian applicants to many advertised positions. The department must therefore change its recruitment strategy. The department will carry out targeted recruitment work towards its own students, both in general information material and during the course of the education. Application deadlines must be adjusted so that master's candidates have a good opportunity to move directly into a research fellow position.

Dissemination is one of the university's prioritised tasks. Ifi is generally very positive about staff and students' communication activities and will support the zealous people on whom this activity depends. As a department, Ifi will give particular priority to communication that contributes to recruitment, and the students' activity through the "Informative" initiative will be a high priority.

Innovation and cooperation with business and administration

Informatics is a subject with great opportunities for innovation aimed at both the public and private sectors. The department wants to make good arrangements for such activity and will enter into a closer collaboration with Inven2 with the aim of identifying ideas with innovation potential and enabling their application. From 2014, innovation will pay out in incentive funds to the groups.

Through various projects, Ifi has significant cooperation with business and administration. The department sees such contact as essential to fulfilling its social mission. While the specific research collaboration primarily will be managed by the research groups, the department will centrally seek collaboration with important actors, particularly with a view to improving the funding situation for ICT research.

The Centre for Entrepreneurship (SFE) is now a centre at the department. The department will actively support SFE's activities and try to utilise synergy opportunities to strengthen innovation and entrepreneurship activity, both in education and among the students, while Ifi will emphasise that the centre should serve the university as a whole. In its work to support student creativity, the department will also use other channels, especially the Zone for experimental informatics.

Personnel, Administration and Infrastructure

Management The department's board is the department's overall decision-making and strategy body and must be submitted all important questions. In the ongoing strategy development, the department management will particularly rely on the Group leaders' meeting. At the same time, the contact between the student organisations and the department management is to be strengthened through regular meetings, so that the students' influence is ensured, especially in matters of the study environment and education.

During the planning period, the department will have a focus on the role of group leader, both with the aim of developing efficient and expedient management adapted to a knowledge-producing organisation, and with the aim of ensuring good staff follow-up. The management structure, including the group leader role, will be evaluated at the start of 2015.

Student bodies and associations The Student council at the Department of Informatics (FUI) is the students' formal body at the department, and also takes care of important tasks such as pre-courses

and students' evaluation of the course teaching. It is important to Ifi that FUI is highly active and the department will therefore support FUI's activity and ensure regular contact between FUI and the department management. Cybernetisk Selskab is responsible for the student cellar ESCAPE and, together with the other student associations, ensures a rich student culture in Ole-Johan Dahl's house. Other important student-run activities are business contact via navet@ifi and through dagen@ifi, which also brings in funding that is important for all the student organisations. The department will also support the student activities financially and hold six-monthly contact meetings with the student organisations with the aim of facilitating good conditions for the various activities.

Equality The proportion of women both among students and employees is now approximately 20%. Although this represents an increase among employees, the level is not satisfactory. At student level, a girls' project has therefore been initiated and will be further developed. Important elements in the past two years have been measures aimed at recruiting girls from upper secondary school, including JenteCamp, as well as measures during the studies to provide girls with a good social environment in an environment dominated by boys. The department will continue to prioritise these activities, and will also prioritise measures that apply to all students and staff, but which are particularly important for women, such as ensuring that introductory teaching is well adapted to students without prior programming experience. For recruitment, effective utilisation of the professional breadth of informatics will also be important. The department's long-term goal is to have a clearly higher number of female employees, especially in top positions. As part of the work, Ifi will assess whether elements of the professional or social culture at the department are detrimental to achieving a better gender balance, and the department will, in collaboration with the Faculty, initiate a project to strengthen the career opportunities for female employees.

Administration and HSE The administration is in a demanding period, with growth in the number of students at both bachelor's and master's level, and with the start of large research projects. This, in addition to the fact that some central computer systems are still heavy-duty and communicate poorly with each other, means that there has been no basis for significant efficiency gains to date. But overall the administration has a unique competence and experience in all administrative areas, and wants to be a driving force in the work that is going on at the Faculty and centrally to improve the systems and interaction. The aim is, as in the previous strategic plan, that relatively less effort will be spent on bureaucratic routines, and more on recruitment, information and guidance. The transfer of SFE to the department will be followed up by a review of which administrative tasks can be solved jointly by the two units.

Extensive work will be initiated to review the organisation of the support services (the administration at Ifi and SFE, and IT operations), which have traditionally been organised as separate entities. Joint tasks that can improve interaction must be identified, and, for example through more use of students engaged on an hourly basis, service and efficiency must be improved, and more exciting tasks must be created in the borderland between traditional administration and IT operations.

In order to improve and simplify the administrative work, "Easy guides" are to be continuously prepared which, via easily accessible web pages, describe the procedures in frequently occurring areas, both for students and employees.

The department will carry out its HSE work (primarily related to fire, other preparedness and training) in accordance with the regulations and orders given by the Faculty and by UiO centrally. Although the HSE work at the department is less demanding than at the natural science departments, several research groups here too (NANO, ROBIN and DSB) have laboratories that set extra requirements for safety. The calibration of room temperature and other measures related to the new building are assumed to be clarified at the start of the planning period, but will otherwise be followed up with a view to a quick solution.

IT services Ifi's IT operations group (Ifidrift) has as its main task to provide services in the form of advice, expertise, procurement and practical assistance to all groups and users at Ifi. The services currently include IT equipment, AV equipment and other building-related equipment at Ifi as well as MatNat student IT. The most important goals for Ifidrift are to maintain high availability, show a good service attitude and be able to contribute good expertise to Ifi's users. Ifidrift's tasks are therefore to a large extent governed by the needs requested by users, as well as the IT strategy adopted centrally at UiO.

Today Ifidrift is responsible for both a large number of fixed and portable machines. In connection with phasing out the fixed machines that were acquired in connection with moving into Ole-Johan Dahl's house, it will be considered whether fixed machines should be discontinued (with some exceptions). The possibilities for purchasing agreements for the students will be investigated.

Ifidrift currently performs tasks that are peripheral in relation to IT/AV, among other things related to building infrastructure. It is desirable to focus resources around the best possible service within IT/AV, and the department will therefore try to find solutions that reduce Ifidrift's responsibility for other tasks. Tasks to which it is desirable to give higher priority are recording, streaming, podcast etc. in connection with teaching.

It will be assessed whether Ifidrift's service provision is to be systematised through the introduction of ITIL or a similar framework.

Follow-up

A report on the status of follow-up of the strategic plan will be provided annually to the board.