## Gender distribution beyond coarse measurements

Balancing gender distribution in professor positions at UiT from 2020 onwards

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Prestige Project: Gender Balance in Research Leadership at the UiT
Report 01/2020

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## Preface

UiT The Arctic University of Norway has built a strong tradition of promoting gender balance within the institution. After decades of research and systematic measures, the University has increased the share of women in professor positions from $9 \%$ in 2000 to almost $40 \%$ in 2020 (Figure 2). While this has been happening very slowly, with an annual average increase of 1,5\% for the last 20 years, a more rapid change above $2 \%$ annually occurred from 2010 to 2011 and from 2017 to 2019. From 2011 to 2017, there has been a period of stagnation and from 2014 to 2015, there was even been an increase in the proportion of men among UiT's staff (DHB 2020). A combination of measures have contributed to improving gender balance in professor positions at UiT over the years. Among them are changes to recruiting strategies that focus on hiring associate professors instead of professors for vacant positions and the subsequent promotion of women in associate professor positions to full professorships. Today, UiT leads the national ranking in that category, being the university with lowest male overrepresentation in professor positions among the comprehensive Norwegian Higher Education institutions (DBH 2020) ${ }^{1}$.

For 2022, as stated in the new Action Plan for Equality, Diversity, and Inclusion (UiT 2020, Handlingsplan for 2020-2022), UiT has a concrete goal of reaching greater gender balance in these top academic positions, with at least $40 \%$ female representation. This is just $10 \%$ below the ideal numerical parity of $50 / 50$. While, according to the changing rates of the past few years, this goal is clearly feasible at a university level that is almost achieved, the situation is very different at the department and centre levels.

As of January 2020, women hold around $39 \%$ of all professor positions at the university level. In that coarse view at the university level, the total distribution of men and women in professor positions at the university shows an 10-11\% gender gap with reference to the ideal 50/50 distribution. A closer look at the data, however, reveals great gender disparities in several of the individual units (faculties and departments/centres) at the University. STEM fields are, for example, way behind the target, while health care, social sciences, and education are already above it (Figure 3).

The danger of relying on coarse data to measure the success of interventions that promote gender balance creates a false impression that the gender struggle in academia is finally coming to an end. A more nuanced view of the data reveals, however, that the

[^0]overrepresentation of women in fields commonly associated with female activities, such as social care and education, inflates the overall results for the better (Figure 3). While it is positive that the overall rate of women professors has increased at UiT, this increase has to be interpreted with caution. If, by 2022, UiT has even more women working in fields commonly associated with female activities, and nothing has changed in the STEM fields, the overall impact could easily and mistakenly be considered a success in terms of promote greater gender balance.

In this report, Prestige wants to draw attention to the fact that, at the level of individual units, UiT is actually further away from the 2022 goal than a coarse view on the data suggests. We argue that in order to meaningfully achieve gender balance at the university, even merely in the terms of numerical parity, the gender distribution within and across the units must matter. To accomplish this task, we will show how uneven the gender distribution is at faculty and department/centre levels and discuss some measures for overcoming it. We suggest future interventions to be field-specific, though still anchored and supported by the University's top administration.

Prestige is financed by the BALANSE Program and it is both a research and an intervention project. The project's goal is twofold: (1) advance knowledge on gendered quality assessments and implicit biases by uncovering how they affect career opportunities and the distribution of power and resources in research; (2) foster increasing awareness about the relevance of gender balance in research leadership and promote research-based organizational changes at UiT.

The Prestige Project is hosted at the Centre for Women's and Gender Research at the UiT in close collaboration with UiT's Equality and Diversity Committee. The project is led by Kenneth Ruud, the Vice-Chancellor for research and development and leader of the Equality and Diversity Committee. From 2018-2019, the project was coordinated by Sigfrid Kjeldaas, current Postdoctoral Fellow at Genøk. It is now (2020-2021) coordinated by Melina Duarte, Associate Professor at the Department of Philosophy and Researcher at the Centre for Women's and Gender Research.

Gender distribution beyond coarse measurements is the first preliminary report officially released by The Prestige Project: Gender Balance in Research Leadership at the UiT. This report is an output of the work-package on quantitative research led by Adrianna Kochanska, Researcher at the Centre for Women's and Gender Research in connection to Prestige Project and at the BRIDGE Research Group at BFE.

> Melina Duarte, Adrianna Kochanska \& Torill Nustad Troms $\varnothing$, October 2020.

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## List of Abbreviations

Table 1 Faculty and department/centres names, abbreviations and English translations

|  | FACULTY |  | DEPARTMENT |
| :---: | :---: | :---: | :---: |
| BFE | Faculty of Biosciences, Fisheries and Economics | AMB <br> HHT <br> NFH | Department of Arctic and Marine Biology School of Business and Economics. Norwegian College of Fishery Science |
| HELSE | Faculty of Health Sciences | IFA <br> IH <br> IHO <br> IKM <br> IKO <br> IMB <br> IPS <br> ISM <br> IVP <br> RKBU | Department of Pharmacy <br> School of sport sciences <br> Department of Health and Care Sciences <br> Department of Clinical Medicine <br> Department of Clinical Dentistry <br> Department of Medical Biology <br> Department of Psychology <br> Department of Community Medicine <br> Department of Social Education <br> Regional Centre for Child and Adolescent Mental Health |
| HSL | Faculty of Humanities, Social Sciences and Education | BAI CPS IAHR IBS IFF ILP IRNS ISK ISV SESAM SKK | Barents Institute <br> Centre for Peace Studies <br> Department of Archaeology, History, Religious Studies and Theology <br> Department of Child Welfare and Social Work <br> Department of Philosophy <br> Department of Education <br> Department of Tourism \& Northern Studies <br> Department of Language and Culture <br> Department of Social Sciences <br> Centre for Sami Studies <br> Centre for Women's and Gender Research |
| IVT | Faculty of Engineering Science and Technology | IAP <br> IBEM <br> IDI <br> IET <br> IIT | Department of Automation and Process Engineering <br> Department of Building, Energy and Material Technology <br> Department of Computer Science and Computational <br> Engineering <br> Department of Electrical Engineering <br> Department of Industrial Engineering |
| JURIDISK | Faculty of Law |  |  |
| NT | Faculty of Science and Technology | IFI <br> IFT <br> IG <br> ITS <br> IK <br> IMS | Department of Computer Science <br> Department of Physics and Technology <br> Department of Geosciences <br> Department of Technology and Safety <br> Department of Chemistry <br> Department of Mathematics and Statistics |
| UB | The University Library |  |  |
| UMAK | The Arctic University Museum of Norway and Academy of Arts | KA MK <br> TMU | Academy of Contemporary Art and Creative Writing Department of Music and Drama <br> The Arctic University Museum of Norway |

## Note on graphs

The graphs used to illustrate the data are called "diverging pips". This type of graphs is designed to facilitate the identification of imbalances between two groups, where both raw numbers and the percentages are important indicators (Morey, 2020). As a single square represents one person, the visual appearance of the graphs makes it easier to draw comparisons and monitor small changes happening over time. The illustration below indicates how the graphs should be read and interpreted.


For example, the fictional graph above shows a variation of the proportion between men and women in a certain unit from 2017 to 2020 . It shows that the proportion of women has decreased from $35 \%$ to $24 \%$ in 2020 due not only to a reduction of two women among the staff, but also to a higher increase in rate and absolute numbers of men among the staff during the same period. Relatively, the graph shows that the proportion of men has increased from $65 \%$ in 2017 to $76 \%$ in 2020 due not only to an increase of 22 men among the staff, but also to a reduction in rate and absolute numbers of women among the staff during the same period.

The code for reproducing "diverging pips" graphs in R can be found at https://github.com/richarddmorey/divergingPips


Figure 1 Organizational map of UiT

## 1 Introduction

UiT The Artic University of Norway is a relatively young university by European standards. In 2022, it will have been 50 years since the institution received its first students (Nordmo 2020). This means that the creation and establishment of the University came around the same time that women were more radically entering the Norwegian job market (OECD Observer 2012). Entering the job market generally and the academic job market specifically entailed, however, different challenges. Active efforts promoting the inclusion of women at the University was therefore necessary.

The trajectory of interventions promoting gender balance at UiT started with initiatives coming from the few women academics and professors working at University in the 1970s. In the late 1970 s, a Committee for Gender Equality was established for the first time at the UiT and has since operated under a variety of forms that has included different structures, compositions, roles within the institution, and level/scope of activities. In 1985, a Network for Women in Science was created at UiT, which provided an important forum for discussing the challenges faced by women in academia at the time.

In 1992, the work for gender balance started to become more formalised and more strongly anchored to the University's administration. A task force, formed by representatives of all faculties, was established with the sole purpose of providing knowledge and guidance to the University's administration on how to organize efforts to promote women in science and gender research at the institution. In 1994, the University Board gave all faculties a seat at the Committee for Gender Equality, today named the Equality and Diversity Committee. At that year, the Committee released its first Action Plan with a focus on strengthening the position of women at the University and in science. It also approved the creation of the Centre for Women's and Gender Research, at the time known as "Kvinnforsk"(S 201/94). The Centre for Women's and Gender Research was established in 1995 and has since been an important driver in the work for gender balance within and beyond UiT.

Important rights for women scholars were achieved in 1997 at UiT. Following an executive summary from the Committee for Gender Equality, the University Director, Harald Overvåg, was convinced that a higher recruitment of female MA and PhD students was insufficient to reach gender balance among the permanent staff positions. Following his recommendations, the University Board at the time approved three important measures: (1) the extension of PhD positions for parents, allowing them to deduct the time spent on parental leave from their work contracts; (2) the provision of mentorship to women in associate professor positions; and, (3) a policy allowing some of the new recruitment posts to be reserved for women (S 148/97). Since 2003, UiT has upheld a program for direct appointment of women academics to adjunct professor positions within units that have a low proportion of women, with the goal
of implementing the inclusion of gender and diversity perspectives in teaching. Altogether, 31 women have held these positions and nearly $50 \%$ of them have been recruited from universities outside Norway.

One of the most effective measures promoting gender balance in top academic positions at UiT has been the Promotion Project initiated in 2010. As participants in the project, women in associate professor positions were given time and support to focus on their career development and apply for promotion to professorships. Since 2010, the Promotion Project has been run three times with a fourth program just recently being launched in October 2020 (Gjengedal 2020). The Promotion Project has successfully contributed to raising UiT to the top of the national ranking in gender balance at the professorship level among the comprehensive universities. The Promotion Project addresses, however, only the needs of department/centres where the number of women holding associate professor positions is significant enough to make a difference. This is not the case for some like the Departments of Chemistry, Physics and Technology, Computer Science, and Computer Science and Computational Engineering. These departments are currently among the most unbalanced work environments at UiT and the place where the promotion of women from associate professor positions to professorships would represent an increase of at most one or two women in professor positions. For these cases, the emphasis of the measures has to be, first and foremost, on the recruitment of women for the forthcoming vacant positions that will replace retirees.

Today, UiT is clearly a much larger and more consolidated institution than it was 50 years ago, but the struggle for achieving gender balance at the institution remains. UiT is among the top three Universities in Norway (The World University Rankings 2021) and has currently approximately 3.650 full-time employees and more than 16.500 students. Among these, women account for more than half of the research fellows and nearly half of the permanent staff. Yet, men remain overrepresented in professor positions in several fields. In 2008, 2013, and 2015, the institution merged with the University Colleges in Tromsø, Finnmark, and in Harstad and Narvik, respectively. While two of these mergers resulted in a numerical improvement of gender balance among the staff at the whole institution, the positive effect was restricted to lectureship positions (Figure 21). UiT is currently organized into six faculties and 38 departments/centres (Figure 1) and the proportion of men/women among the scientific staff have continued to be uneven in many of these units.

This brief historical overview shows that despite a number of positive actions, the academic job market has had many barriers for women. This is true even for a university that is located in a country that is top-ranked globally for its gender balance and that leads the gender balance ranking at the national level among universities with a broad educational portfolio. For women, getting into UiT has not resulted in being proportionally represented within every field of knowledge, nor in proportional access to the most prestigious academic positions.

With this in mind, Prestige Project's main goal in this report is to make these walls and barriers more visible and evidence-based in order to enable the coordination of more effective interventions at the institution from 2020 onwards. Since many professor positions at UiT were established in the 1980s, several of them are now about to retire. Recruitment policies that focus on gender are therefore crucial for achieving long-lasting results.

Gender distribution beyond course measurements focuses primarily on analysing the proportions of women and men in professor positions across and within the individual units composing UiT. While the Prestige Project aims to contribute to the more complex debate on gender equality - which entails not only a fair distribution of top positions within the different units comprising the University, but also a fair distribution of power, prestige, and research resources - the scope of this report is limited to an account about gender balance, i.e., about the numerical distribution between men and women in professor positions at UiT. Forthcoming reports will extend this scope on gender balance to the analysis of the numerical distribution between men and women in the leadership of research groups and research projects at UiT. The binary gender perspective in this report is explained by the limitations of the datasets we used, but we would like datasets in the future to overcome such a limitation.

The Prestige Project takes that while a minimal degree of gender balance in numerical terms is a necessary condition for achieving gender equality, it is by no means a sufficient one. We can, for instance, have five women and five men in a department holding similar positions without necessarily altering the power relations between the groups. Nevertheless, we can agree that being in a $5 / 5$ relation is definitely better than in a $9 / 1$. This example is merely meant to be illustrative, but it turns out that reality can be even worse than an idealization of a worst-case scenario. At the Department of Chemistry (IK), for instance, the ratio of women to men in professor positions today is $1 / 11$ (Figure 8). This is a reality that has to change if we want to approach gender equality in the organization.

Why is this change necessary? Is the lack of women in professor positions in certain fields explained by individual career choices? If women deliberately chose other career paths, it is certain that there would be no problem in them being underrepresented in that field or other specific fields. The problem is that what counts as a deliberate choice can, however, be quite questionable. Jennifer Saul (2003) illustrates this problem well, with the case of a woman that, when asked why she changed career path after having children, replied that she chose to switch to a less demanding job in order to be able to spend more time with the children. But when asked whether she would have kept her previous job if the work arrangements had not demanded from her to neglect her children, she replied that she would have certainly rather kept the job. This illustration serves to show that when one's pool of choices is excessively restricted, a selection between a seemingly equal set of available options might not be a simple free choice. Even if many women chose freely not to become a professor in chemistry or in any other field, which is understandable, it is unreasonable to think that in the pool of
qualified academics in the field (nationally and internationally), five or six women willing and competent enough to become a professor at UiT do not exist. On a positive note, we notice that at the associate professor level women account more recently for $40 \%$ of the positions.

Aiming for gender equality in the organization can have many instrumental advantages to the institution in terms of increasing the diversity of perspectives among other knowledge development and improving work environments. It is however important to keep in mind that the need for gender equality does not emerge only from instrumental advantages, but also even primarily - from a quest for justice. Justice is here understood in Amartya Sen's sense, as deriving not from principles, but from our perceptions of manifest and remediable injustices (Sen, 2009). This means that justice is understood in a comparative way where the main focus of analysis consists in the identification of remediable injustices against women in academia manifested in the lack of equality. In this sense, the measurement of gender imbalances in professor positions within and across units at UiT allows the Prestige Project to address the difficult task of identifying and documenting the sources of inequality that result from the perpetuation of remediable injustices against women in the organization. This problem is by no means exclusive to UiT as an organization. The exclusive focus on this institution is explained by the openness of the administration and staff and their commitment to rectify these injustices.

This report has the following structure: Section II clarifies the methodology used for data collection and analysis. Section III presents the results at three different levels (University, Faculty, and Department/Centre levels) in looking at professor positions and the path to professorship. Section IV puts the results into perspective and discusses alternative measures for improving gender balance in professor positions at the three levels. Section V concludes with a summary of the recommendations for future interventions and needs for further research.

The summary of the findings is found in a factsheet at the end of this report. The factsheet can be downloaded separately from our website (www.uit.no/research/prestige).

An additional tool for measuring gender balance in organizations within and across the different units is also available on our website (www.uit.no/resources/balancinator). The tool is produced and enhanced by Mittner\&Mittner 2020 based on this report.

## 2 Methods

The data used in this report comes from two separate sources. Dataset (1), extracted from the National Database for Statistics on Higher Education, contains historical data (2000 to 2020) concerning the distribution of men and women in various academic positions at the university level (DBH, 2020). The numbers extracted from DBH are based on "arsverk", which is the measurement unit corresponding to a full-time equivalent position. Dataset (2), extracted from the UiT staff register, contains information with regards to gender, position, faculty, department/centres for the years 2017 and 2020. The data was collected by the University's administration, Division of Organization and Finance, in January 2020 and provided to the Prestige Project. The positions were grouped by scientific position codes in accordance with the National Database for Statistics on Higher Education (DBH, 2015). Position codes and their Norwegian and English translations can be found in Table 3. In the 2017 and 2020 dataset, employees are counted "per head".

In order to provide more accurate comparisons, employees in positions of 20\% or lower and secondary, part-time positions (such as Professor 2 and Associate Professor 2) were removed from both datasets. The difference in data collection between the two data sets (årsverk vs. per head count) prevents a direct comparison. However, the similar emerging trends provide a good basis for discussion and allow the for extrapolation of findings.

Both datasets were initially gathered in Excel and later analysed and illustrated in R Studio using the "Diverging Pips" graphs and in Excel using Pie Charts. Dataset (2) was delivered to the Prestige Project by the University's administration, Division of Organization and Finance in an excel file. The data was validated by the authors and any discrepancies were resolved. Data was restructured to fit the working format of R Studio.

## 3 Results

### 3.1 Professor positions

### 3.1.1 University level

The number of full-time professor positions filled by women has steadily increased over the past 20 years. While in 2000 there was only 15.5 full time equivalent (FTE) professorships filled by women at the university level, this number increased to 164.9 by 2020 (Figure 2). This represents a change from $9 \%$ to almost $40 \%$ based on these years. Despite the clear increase in absolute numbers, the percentage increase in women's share of the overall distribution averaged $1.5 \%$ points per year. This percentage increase in women's share illustrates that just as the number of women increased so has the number of men. Nevertheless, from 2010 to 2011 and since 2017, the women's share of the overall distribution has increased significantly by around $2.5 \%$ points each year.

Gender distribution in professor positions at UiT, 2000-2020


Figure 2 Gender Distribution in Professor Positions, 2000-2020 (Full time equivalent position - årsverk)

The new Action Plan for Gender Equality, Diversity, and Inclusion at UiT aims to increase the women's share of the top scientific positions to at least 40\% by 2022. Currently, 39,36\% (per head count) of the professors across UiT are filled by women, suggesting that the minimum 40\% goal is just around the corner. Nevertheless, reaching the goal at the university level does not necessarily mean that the gender balance has been achieved since great disparities remain at lower levels.

### 3.1.2 Faculty level

A closer view on the gender distribution of professor positions at the faculty level reveals great gender imbalances across the faculties. Data from January 2020 shows that HELSE, HSL, and UMAK are all within a $3 \%$ range of achieving an ideal gender balance of $50 / 50$ split between men and women in professor positions. It is clear that these three faculties are, however, significantly contributing to the inflation of the gender balance rate at the university level. The BFE and LAW faculties are $6 \%$ and $9 \%$ away from the minimum $40 \%$ goal, whereas the IVT and NT faculties are both much farther behind. Men's proportion of the professor positions accounts for $76 \%$ at the IVT and $84 \%$ at the NT faculties, meaning that these two faculties alone are $24 \%$ and $16 \%$ points away from the minimum goal of $40 \%$.

While the proportion of women in professor positions has increased in each of the faculties between 2017 and 2020, there has been significant differences in the way this change has been achieved. There has been a decrease in the number of men and a simultaneous increase in the number of women at BFE, HELSE, and HSL, resulting in a distribution shift of $6 \%, 8 \%$ and $11 \%$, respectively. The LAW and NT faculties have increased both the number of men and the number of women resulting in respectively small distribution shifts of $2 \%$ and $4 \%$. UMAK is the only faculty that has kept the number of men constant while increasing the number of women. This has resulted in an overall distribution shift of $14 \%$ points. The only faculty that increased the gender distribution rate without increasing the number of women was IVT. At IVT, the proportion of women has increased by $5 \%$ while the number of women remained constant, which was caused by a decrease in the number of men.

Gender distribution in professor positions at faculty level, 2017 \& 2020


Figure 3 Gender Distribution in Professor Positions across Faculties (2017 \& 2020)

### 3.1.3 Department/Centre level

Department/centre level measures provide a better understanding with regards to the relationship between gender distribution and the academic fields of knowledge. Departments with the largest proportions of women in professor positions match the fields commonly associated with women's tasks/jobs such as humanities and social sciences in general (Henningsen\&Liestøl, 2013). The STEM fields remain highly overrepresented by men. Nevertheless, going beyond the faculty level uncovers that even larger variations occur between departments/centres. These variations at the department/centre level suggests that the particular portfolio of academic and professional disciplines also play an important role in affecting the gender balance.

### 3.1.3.1 Departments at the Faculty of Biosciences, Fisheries and Economics (BFE)

The Faculty of Biosciences, Fisheries and Economics has increased the proportion of women in professor positions by $6 \%$ points between 2017 and 2020. However, not all departments within BFE contributed to this increase. There was no change in professorships at the Norwegian Fisheries College (NFH) between 2017 and 2020. The largest percentage change took place at the Tromsø University Business School (HHT), where the proportion of women increased by $13 \%$ points - reflecting an increase of the absolute number of women by 2 . This has resulted in a $31 \%$ to $69 \%$ distribution between women and men. An increase of $8 \%$ points in the proportion of women took place at the Department of Arctic and Marine Biology (AMB), which was largely caused by a decrease in men (5) and a smaller increase in women (2).

BFE Faculty, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 4 BFE faculty, Gender Distribution in the Professor Positions at Department level, 2017 \& 2020

### 3.1.3.2 Departments at the Faculty of Health Sciences (HELSE)

The Faculty of Health Sciences increased the proportion of women by $8 \%$ between 2017 and 2020. However, significant variations exist between the ten departments found in the faculty. The great majority of the departments increased the number of women in professor positions during this period.

HELSE Faculty, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 5 HELSE Faculty, Gender Distribution in the Professor Positions at Department level, 2017 \& 2020

The largest increase in numerical terms took place in the Department of Clinical Medicine (IKM), where the number of women increased by four resulted in a $14 \%$ points increase of the total share. A similarly big shift took place at the Department of Health and Care Sciences (IHO), where the proportion of women increased from $75 \%$ to $90 \%$ as a result of a decrease in the number of men. In this case, due to small number of men in these departments, a small change in numerical terms can lead to a large shift in the distribution. This is evident for the Department of Psychology (IPS), where an increase of two women and no change in the number of men has led to an increase in women's share by $11 \%$. A similarly proportional shift took place in the Department of Pharmacy (IFA), where an increase of two women and one man has led to a $10 \%$ shift in the distribution and an ideal 50/50 split. The Department of Medical Biology (IMB) and the Department of Community Medicine (ISM) have both increased women's share by 4\%, while IMB simultaneously increased the number of women while decreasing the number of men by one in each instance. The ISM held the number of men constant, while increasing the number of women by two. The Regional Centre for Child and

Adolescent Mental Health (RKBU) saw a decrease of women's share towards greater equality. In 2017, women accounted for $100 \%$ of the professor positions, whereas in 2020 this has shrunk by $25 \%$ as a result of increasing the number of men by two while also increasing the number of women by three.

The professor positions in the Department of Clinical Dentistry (IKO) have decreased from a total of eight to a total of three. While in 2017, women accounted for $25 \%$ of the professor positions, the proportion of women has now decreased to zero following the shrinking of the professor positions at the IKO department. The School of Sport Sciences (IH) has kept the proportion of women at zero while the number of men increased from one to two. The Department of Social Education kept the number of men (2) and women (1) constant with women's proportion of the professor positions accounting for $33 \%$.

### 3.1.3.3 Departments at the Faculty of Humanities, Social Sciences and Education (HSL)

The Faculty of Humanities, Social Sciences and Education has increased the proportion of women in professorships by $11 \%$ between 2017 and 2020. This change was caused by an actual increase in the number of women in the majority of the HSL departments and a simultaneous decrease in the number of men.

HSL Faculty, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 6 HSL Faculty, Gender Distribution in the Professor Positions at Department level, 2017 \& 2020

The largest numerical increase took place at the Department of Education (ILP). In 2017, the gender distribution at the ILP was close to ideal parity, though an increase in the number of
women by 4 and a decrease in the number of men by 1 has led to a $15 \%$ increase in the proportion of women leading to a bigger gender gap in which women is overrepresented. A comparable significant shift took place at the Department of Social Sciences (ISV), where an increase of one woman and a decrease of five men led to a $16 \%$ increase in the proportion of women in professor positions. This has resulted in a more balanced distribution, $4 \%$ away from the ideal 50/50 parity. The Centre for Sami Studies (SESAM) and the Department of Tourism \& Northern Studies (IRNS) have both reached the 50/50 ideal distribution in 2020. While SESAM increased the number of men by one, the IRNS has increased the number of women by two and held the number of men constant, causing shifts in the distributions by $50 \%$ and $25 \%$ respectively. The Department of Archaeology, History, Religious Studies and Theology (IAHR) has increased the number of women by one and decreased the number of men by four. This has resulted in a shift of $11 \%$ between 2017 and 2020, leading towards a more equal distribution. An increase of one woman and a simultaneous decrease by one man at the Department of Language and Culture (ISK) has led to a $3 \%$ shift in the distribution. The ISK is the largest department in terms of absolute numbers ( 15 women and 17 men ) and it is only $3 \%$ away from an ideal 50/50 distribution. The Department of Philosophy (IFF) has increased the proportion of women by $5 \%$, which was done by simultaneously increasing the number of women and men by one. The current distribution is $12 \%$ away from an ideal 50/50 parity, although at IFF women are largely underrepresented if we take into account associate professor positions. While in 2017 the ratio between men and women for the total number of academic staff was 20/4, in 2020 it was 20/9. The main difference occurs among temporary staff such as PhDs and Post doctors. The Centre for Women and Gender Research (SKK) and the Department of Child Welfare and Social Work (IBS) have both kept the number of professorships constant. In both instances, however, women's proportion of the professor position is $100 \%$. The Centre for Peace Studies (CPS) and the Barents Institute (BAI) did not have any professor positions in 2017. Currently both departments have one woman each, which account for $100 \%$ of the proportion of women in professor position.

### 3.1.3.4 Departments at the Faculty of Engineering Science and Technology (IVT)

The Faculty of Engineering Science and Technology has increased the proportion of women by $5 \%$ between 2017 and 2020. However, during this period there was no increase in the absolute numbers of women professors in any of the departments found at IVT.
The Department of Electrical Engineering (IET) and the Department of Industrial Engineering (IIT) have both decreased the number of men by one, which resulted in increasing the proportion of women in professor positions by $8 \%$ and $17 \%$ respectively. The Department of Computer Science and Computational Engineering (IDI) have decreased the number of men by two. However, due to a particularly unequal gender distribution in 2017 ( $9 \%$ Women, $91 \%$ Men) this change has led to a very small shift in the distribution. The proportion of women in professor positions has increased by 2\%. The Department of Building, Energy and Material

Technology (IBEM) has kept the number of professorships constant between 2017 and 2020. The gender distribution continues to be of $33 \%$ women and $67 \%$ men.

IVT Faculty, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 7 IVT Faculty, Gender Distribution in the Professorship Positions at Department level, 2017 \& 2020

### 3.1.3.5 Departments at the Faculty of Science and Technology (NT)

The Faculty of Science and Technology has increased the proportion of women in professor positions by $4 \%$ between 2017 and 2020. However, there are significant variations between the departments.

NT Faculty, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 8 NT Faculty, Gender Distribution in the Professor Positions at Department level, 2017 \& 2020

The largest increase in the proportion of women took place within the Department of Geosciences (IG), where an increase of two women in professor positions and no change in the number of men led to a $13 \%$ shift in the distribution. The Department of Chemistry (IK)
has increased the proportion of women from $0 \%$ to $8 \%$ between 2017 and 2020. There was an increase of one woman in this period. Nevertheless, the absolute number of men has increased by two within the same period. The Department of Physics and Technology (IFT) has increased the number of women by one while simultaneously increasing the number of men by two. This has resulted in $2 \%$ points increase in the proportion of women in the professor positions. The Department of Mathematics and Statistics (IMS) has kept the overall number of professorships constant with women accounting for $0 \%$ of the total distribution. Comparable to IMS, the Department of Technology and Safety has also kept the proportion of women at $0 \%$, while increasing the number of men in professorship positions by two. The Department of Computer Science has increased both the number of women and the number of men in professor positions, although the size of the increase ( 5 men, 1 woman) has led to a $2 \%$ reduction in the proportion of women in professor positions.

### 3.1.3.6 Departments at the Faculty of Law (JURIDISK)

LAW Faculty, Gender distribution in professor positions, 2017 \& 2020


The Faculty of Law is not divided into separate departments, though the relatively small size of the faculty allows us to avoid describing the data in a coarse way. Between 2017 and 2020, the gender distribution at the Faculty of Law has shifted by $2 \%$ points, increasing the proportion of women. This was caused by a parallel increase in the number of men (1)
and the number of women (1).

Figure 9 LAW faculty, Gender Distribution in the
Professor positions at Department level, 2017 \& 2020

### 3.1.3.7 Departments at the Arctic University Museum and Academy of Arts (UMAK)

The Arctic University Museum and Academy of Arts (UMAK) is divided into three separate units. Between 2017 and 2020, the proportion of women in professor positions increased in all units. A numerical increase of one woman at the Academy of Contemporary Art and Creative Writing (KA) led to a shift in the gender distribution by $50 \%$, resulting in a 50/50 split. The Department of Music and Drama (MK) saw an increase of two women and one man, which led to an increase of the proportion of women by $16 \%$. The initial distribution in 2017 at the Arctic University Museum of Norway (TMU) was 50/50. An increase of one woman and a decrease of one man has since led to a $12 \%$ shift in the distribution.

UMAK, Gender distribution in professor positions at department level, 2017 \& 2020


Figure 10 UMAK faculty, Gender Distribution in the Professor positions at Department level, 2017 \& 2020

### 3.2 Path to professorship

### 3.2.1 University level

There has been a significant increase both in the number of men and women in PhD positions between 2017 and 2020. The gender distribution, however, has remained constant with women accounting for $58 \%$ of the total PhD positions at the university level. As the research career progresses, the distribution shifts in favour of men. In 2017, the gender parity was achieved at the post doc level across the university, yet, as of January 2020, there has been an increase of $5 \%$ in the men's share of the total post doc positions. Between 2017 and 2020, both men and women have increased in numbers at the associate professor position.
However, the increase in the number of men was slightly greater causing a $1 \%$ increase in the men's share of the total distribution. There has been a significant increase in the women's share of the professor positions between 2017 and 2020. A 7\% increase can be explained by a decrease in the number of men and simultaneous increase in the number of women in professor positions.

Gender Distribution in Positions Leading to a Professorship, University Level - 2017 \& 2020


Figure 11 Gender Distribution in Positions leading to Professorship (2017 \& 2020)

### 3.2.2 Faculty level

### 3.2.2.1 Faculty of Biosciences, Fisheries and Economics (BFE)

The proportion of women at the BFE faculty in PhD positions is $62 \%, 4 \%$ above the university level. This trend continues into the post doc positions where the proportion of women accounts for $58 \%$ of the total distribution, or $13 \%$ above the university level. Nevertheless, from this point forward the trend reverses and the proportion of women in associate professorships drops to $39 \%$. The proportion of women declines further at the professorship level resulting in a distribution of $34 \% / 66 \%$. Despite an initial underrepresentation of men at the PhD level, the proportion of men continues to grow at each position in the career progression path. The proportion of women decreases substantially over the same career path; there are $28 \%$ less women at the professorship level than there are at the PhD level.

BFE Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 12 BFE Faculty, Gender Distribution in Positions leading to a Professorship, 2017 \& 2020

### 3.2.2.2 Faculty of Health Sciences (HELSE)

The proportion of women at the HELSE faculty at the PhD level is $65 \%$, with is $7 \%$ above the university level. However, as women progress to post doc positions, the proportion drops substantially by $13 \%$. Nevertheless, this leads to a more balanced distribution between men and women in post doc positions at the HELSE faculty ( $52 \%$ women, $48 \%$ men). Women at the Associate Professor positions account for $63 \%$ of the total distribution. This is $17 \%$ above the university level rate and illustrates that a large proportion of women stay in the career path up to this level. However, as we move onward to the professorship level, the proportion of women suddenly drops to $47 \%$. Nevertheless, the HELSE faculty is only $3 \%$ from an ideal parity and $8 \%$ above the university level rate.

HELSE Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 13 HELSE Faculty, Gender Distribution in Positions leading to a Professorship, 2017 \& 2020

### 3.2.2.3 Faculty of Humanities, Social Sciences and Education (HSL)

The HSL faculty has one of the largest proportions of women at the PhD level as women account for $69 \%$ of PhD positions. This trend continues to the post doc level where the proportion of women is $65 \%$, second highest after UMAK (75\%) and $20 \%$ above the university level rate. As the career progresses the proportion of women drops to $48 \%$ at the associate professor level and to $52 \%$ at the professor level. Despite these decreases, the HSL faculty is close to the ideal gender distribution of 50/50 at the two highest positions in the research career path. Overall, the HSL faculty is above the university level rates in all positions leading up to and including a professorship.

HSL Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 14 HSL Faculty, Gender Distribution in Positions leading to a Professorship, 2017 \& 2020

### 3.2.2.4 Faculty of Engineering Science and Technology (IVT)

The proportion of women in the IVT faculty at the PhD level is $41 \%$, which is $17 \%$ below the university level rate. At the post doc level there is only one position, a man, who makes up $100 \%$ of the post docs. At the associate professor level, the proportion of women is $18 \%-$ the lowest ratio among all faculties at UiT. The proportion of women at the professor level is $24 \%$. The proportion of women at the IVT faculty is consistently below the university level average for all positions.

IVT Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 15 IVT Faculty, Gender Distribution in positions leading to a Professorship, 2017 \& 2020

### 3.2.2.5 Faculty of Science and Technology (NT)

The proportion of women in PhD positions at the NT faculty is $37 \%$. This is the lowest proportion of women at the PhD level out of all faculties at UiT and it is $21 \%$ below the university level current average. The low proportion of women continues on to the post doc level, where once again it is the lowest rate across the UiT faculties (excluding the IVT faculty where the number of employees is only 1). Furthermore, the proportion of women in post doc positions has actually decreased between 2017 and 2020 by $9 \%$. The proportion of women at the associate professor level is $28 \%$ (second lowest among all faculties). Furthermore, the gender gap in the distribution at the professor level is even larger with only $16 \%$ women in professor positions.

NT Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 16 NT Faculty, Gender Distribution in positions leading to a Professorship, 2017 \& 2020

### 3.2.2.6 Faculty of Law (JURIDISK)

The proportion of women at the faculty of law in PhD positions is $69 \%$, which dis one of the highest among all faculties. However, the proportion of women drops substantially at the post doc level, down to $33 \%$. Nevertheless, the total number of post docs is only three in 2020. The law faculty is the only faculty with an ideal 50/50 gender distribution at the associate professorship level. For professorships, the proportion of women is $31 \%$. Comparing this rate to the proportion of women at the PhD level, it is the biggest percentage point difference between the proportion of women at PhD and professorship level within a single faculty.

LAW Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 17 LAW Faculty, Gender Distribution in positions leading to a Professorship, 2017 \& 2020

### 3.2.2.7 The Arctic University Museum and Academy of Arts (UMAK)

The proportion of women at the PhD level at UMAK is $62 \%$, which is $4 \%$ above the university level current rate. The total number of post doc positions is relatively small (4), with women making up 75\% of those positions. Next along the career progression, women's proportion decreases as seen at the associate professorship level where the proportion of women is $37 \%$ ( $9 \%$ below university level rate). However, at the professorship the proportion of women is just 3\% away from a 50/50 split.

UMAK, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 18 UMAK Faculty, Gender Distribution in Positions leading to a Professorship, 2017 \& 2020

### 3.2.2.8 The University Library (UB)

The University library is a relatively small section of the university, which is reflected in the number of employees at each of the positions leading up to a professorship. A small change in numbers leads to a big change in terms of percentage. Between 2017 and 2020, the number of women in PhD positions has increased by two as the number of men decreased by two, resulting in a $50 \%$ increase in the women's proportion of the PhD positions. Currently, there are no men or women in post doc positions at UB. The number of men and women at associate professor positions was kept constant between 2017 and 2020 and the proportion of women remains at $50 \%$. The gender distribution at the professor level is an ideal $50 / 50$ split, with a total number of one man and one woman.

UB Faculty, Gender Distribution in Positions Leading to a Professorship, 2017 \& 2020


Figure 19 UB Faculty, Gender Distribution in Positions leading to a Professorship, 2017 \& 2020

### 3.2.3 Department/Centre level

| 2020 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| FACULTY <br> DEPARTMENT | $\begin{aligned} & \text { PhD } \\ & \text { Fellow } \end{aligned}$ | Post Doc | Associate Professor | Professor |
| BFE: | 62 | 58 | 39 | 34 |
| AMB | 67 | 47 | 50 | 36 |
| HHT | 44 |  | 38 | 31 |
| NFH | 65 | 78 | 33 | 32 |
| HELSE | 65 | 52 | 63 | 47 |
| IFA | 62 | 40 | 50 | 50 |
| IH | 29 |  | 20 | 0* |
| IHO | 86 | 100* | 77 | 90 |
| IKM | 55 | 44 | 50 | 33 |
| IKO | 50 | 50* | 56 | 0* |
| IMB | 59 | 47 | 65 | 43 |
| IPS | 71 | 40 | 57 | 38 |
| ISM | 72 | 67* | 69 | 52 |
| IVP | 83* |  | 100 | 33* |
| RKBU | 100* | 100* | 67 | 75 |
| HSL | 69 | 65 | 48 | 52 |
| BAI | 100* | 100* |  | 100* |
| CPS | 50* | 50* | 50* | 100* |
| IAHR | 47 | 0* | 55 | 33 |
| IBS | 83* |  | 63 | 100* |
| IFF | 40 | 50* | 9 | 38 |
| ILP | 65 | 100* | 57 | 69 |
| IRNS | 100* |  | 50* | 50* |
| ISK | 76 | 62 | 38 | 47 |
| ISV | 75 | 100* | 53 | 56 |
| SESAM | 100* | 100* | 0* | 50* |
| SKK | 100* | 100* | 100* | 100* |
| IVT: | 41 | 0* | 18 | 24 |
| IBEM | 83* |  | 25 | 33* |
| IDI | 33 |  | 0* | 11 |
| IET | 20* | 0* | 17* | 33* |
| IIT | 50* |  | 20* | 50* |
| JURIDISK | 69 | 33* | 50 | 31 |
| NT: | 37 | 24 | 28 | 16 |
| IFI | 6 | 0* | 14 | 18 |
| IFT | 32 | 17 | 20 | 25 |
| IG | 58 | 38 | 20* | 31 |
| ITS | 20 |  | 33 | 0 |
| IK | 44 | 27 | 40* | 8 |
| IMS | 42 | 25* | 38 | 0 |
| UB | 100* |  | 50* | 50* |
| UMAK | 62 | 75 | 37 | 47 |
| KA | 80* |  | 75* | 50* |
| MK |  |  | 17 | 33 |
| TMU | 60 | 0* | 45 | 62 |

Table 2 summarizes the percentage of women in each position leading up to a professorship at all departments/centres at UiT. A more detailed illustration can be found in the appendix ( 9.3 to 9.7 ). The percentage table reveals that the majority of departments within the BFE, HELSE, HSL, UB and UMAK have a proportion of women in PhD positions larger than $50 \%$. This is also the case for IBEM and IIT at the IVT faculty and IG at the NT faculty. Only 11 out of 40 departments have a proportion of women of less than $50 \%$ in PhD positions and seven of these departments can be found in IVT and NT. A similar trend is found at the post doc level, where 13 of the departments have less than $50 \%$ of post doc positions filled by women. The number of departments where the proportion of women is less than $50 \%$ further increases to 18 at the associate professor level and to 22 at the professor level. An interesting phenomenon takes place at the NFH department where, at the PhD and post doc levels, the proportion of women is $65 \%$ and $68 \%$. However, the trend suddenly reverses at the associate professor and professor levels, where the proportion of women is $33 \%$ and $32 \%$, respectively. The proportion of women decreases at almost all departments between the PhD and the professor level.

Table 2 Percentage of women at PhD, post


### 3.2.3.1 Leaky pipeline

An initial look at the 2017 and 2019 gender distribution among the PhD fellows (Figure 11), suggests that in the future we could theoretically expect a greater number of women in professor positions. However, as we take a closer look at the historical data it is clear that the gender distribution among the PhD fellows has been around a $50 / 50$ split for the past 20 years. Moreover, after 2002 the proportion of women in PhD positions has been constantly greater than the proportion of men, peaking at $60.44 \%$ in 2010.

Gender Distribution in PhD Position, 2000-2019


Figure 20 Gender Distribution in PhD Positions, 2000-2019 (Full time equivalent position årsverk)

## 4 Discussion

In the results section, we have seen that although the gender distribution in professor positions at the university level is now reaching a ratio of $39 / 61$ for women and men, great disparities remain at the faculty and department/centre levels. This means that even though we are very close to reaching the goal of a minimum 40/60 ratio, further reflection on the value of this coarse metric for indicating gender balance at the institution is needed. In this section, we problematize this coarse metric and argue that a more even gender distribution within and across the different faculties and department/centres is necessary for meaningfully achieving gender balance at the institution as a whole. In order to accomplish this task, we start by discussing the advantages and limitations of the coarse metric at the university level and argue that measuring the evenness of the distribution matters for monitoring gender balance. We then introduce our proposition for a more precise metric that could better serve the purpose of monitoring the need and scope of future interventions intending to promote gender balance in professor positions at UiT. Our proposition consists of a scatter diagram of departments/centres plotted according to their current numerical distribution of women and men in professor positions and the change rate over the past few years. According to this more precise metric, UiT would be closer to achieving gender balance when most of the units are approaching the midpoint of the plot (green area), which indicates a more even gender distribution.

### 4.1 Advantages and limitations of a coarse metric at the university level

Every metric is a simplification of reality. Metrics are meant to enable the measurement and evaluation of a certain type of variation related to one or more phenomena. In that sense, it is fair to say that every metric is, in relation to reality, coarse by definition. This does not mean, however, that different metrics are coarse to the same extent and that this difference in extent does not affect the optimal fulfilment of the purpose for which they are used. A satellite image and a picture taken by a drone, for example, certainly contain different information for the users and have therefore a different function in the fulfilment of the purpose to which they are designed. Thus, the diverse potentials of these different metrics and their role in contributing to the achievement of a purpose have to be clarified and explored.

The course metric for gender distribution in professor positions at the university level is like a satellite image. It works as an accurate indicator of the proportion of women and men enrolled in professor positions at UiT and it comes with the advantages of being generally informative and facilitating national comparisons among institutions. This metric is able to inform administrators, staff, and students about whether the proportions of women and men in professor positions at UiT are overall increasing or decreasing. As a tool, this metric might be especially useful for administrators from the University Board and for those who have to keep track of the general performance of the whole university. Yet, it is a tool that becomes limited
when it comes to assisting in the decision-making processes over interventions promoting gender balance.

The main justification for this argument is that this course metric says far too little about gender balance and even less about gender equality, which are both stated intentions of the institution when resorting to this metric in the first place. As long as the proportion of women enrolled in professor positions is below $50 \%$, the metric might retain a certain utility, but it might become even harmful to the fulfilment of its very purpose after that. This is because achieving the ideal 50/50 split at the university level might be mistaken by the achievement of gender balance at the institution and cause the retraction of interventions while the drone pictures still show otherwise. While it is likely that a university reaching a 40/60 ratio between women and men in professor positions is more gender balanced than another one that has a ratio of only 30/70, this metric ignores at least one crucial element for measuring gender balance: the evenness of distribution within and across smaller scales. In light of such limitations, we argue that this coarse metric should not be used by administrators and other stakeholders when deciding whether interventions promoting gender balance should be prioritized at the university.

To illustrate this point, it might be helpful to think of the functioning of an antique mechanical scale, i.e., those scaling weights through a balance. With such scales, a beam, supported by a fulcrum at the centre, suspends two pans of equal weight and distance at each end. For weighting an object, an equilibrium must be reached. The equilibrium is reached when the beam is perfectly horizontal, i.e., when both pans are at their perfect midpoint. For this to happen, however, it is necessary that we have the exact same weight in both pans. This means that for the balance to be achieved, it is not enough that we set aside objects with the same weight, but it is also needed that we place them in the right location on the scale. Only the evenness of the distribution of weights between the two pans will result in a balance.

This occurs when we talk about gender balance at an institution, though with gender balance we could also reach the equilibrium by approximation. The analogy highlights that for a balance to be achieved, it is not enough to have approximately a 50/50 split between women and men in professor positions at the university level, but that these positions must be distributed more evenly within and across the lower levels at the institution.

If we now revisit the minimal aimed ratio of $40 / 60$ for women and men in professor positions by 2022 at the university, keeping in mind that a more even distribution is needed for a balance, we see that a balance is not about to be achieved when $82 \%$ of professor positions in the STEM fields at UiT are still filled by men. We also see that a balance is not about to be achieved when the overall rate continues to be inflated by the accumulation of women in some of the disciplines that have been commonly associated with women's work. If we, for example, in a theoretical exercise, remove from the analysis the data from the small
departments roughly representing professionalising disciplines involving care, child care, education, and also women's studies such as IHO, RKRU, IVP, IBS, ILP and SKK, a more accurate rate for the university level would today be 35/65 for women and men in professor positions. According to this latter rate, achieving the 40/60 ratio by 2022 would be much less likely, especially when considering the $1,5 \%$ average rate of increase in women's share of the professor positions over the last 20 years. ${ }^{2}$

By using this 1,5\% average rate of increase in women's share of the professor positions to forecast when faculties and departments/centres would be achieving the $40 \%$ goal and the $50 \%$ distributive ideal, we can see more clearly how far away UiT might be from these goals. While we acknowledge that the $40 \%$ goal was never meant to address faculties and departments/centres directly ${ }^{3}$, we believe that such extrapolation can be justified by the previous establishment of the need for measuring the evenness of distribution of women and men within and across fields of knowledge and disciplines when assessing gender balance at the institution. We do not claim that such extrapolations are a prediction of the state of these units in the future. Such a task would require a closer analysis of the development potential of each of these units and also on market analysis, which would be a demanding task falling outside the scope of this project. By forecast, we mean a thought experiment based on the extrapolation of the data that we currently have.

Assuming that the total number of professor positions remain constant, which is not unrealistic considering how the expected demographic changes in the region are already affecting hiring strategies at the university, the $1,5 \%$ average rate of increase in women's share of the professor positions would result in the IVT and NT faculties taking more than a decade to achieve the $40 \%$ goal and $50 \%$ ideal. The IVT faculty would take around 11 years to meet the $40 \%$ goal and 16 years to meet the $50 \%$ ideal. Given, however, that there has been no increase in women professors at the IVT faculty over the past three years, meeting the $40 \%$ goal would likely take even longer. The NT faculty would require the longest time of all faculties to reach the $40 \%$ distribution goal and the $50 \%$ ideal, namely 18 and 23 years, respectively. However, considering that between 2017 and 2020, the number of men in professor positions has increased by twice as much as the number of women (11/5), reaching the $40 \%$ goal does not seem realistic.

When we apply the same extrapolation to departments/centres, we see that IH and IKO at the HELSE faculty as well as IIS and IMS at the NT faculty would take the longest time to reach the $40 \%$ goal and $50 \%$ ideal of all the departments. Each of them would take around 27 years to achieve the former and 33 years to achieve the latter. IK would also take a long time as it

[^1]would be reaching these goals in around 21 and 28 years, followed by IDI which would be just a couple of years quicker.

The main conclusion we take from this reflection is that measuring the proportion of women and men in professor positions at the university level is currently very limited for a meaningful monitoring of gender balance in these positions at the University. This is because this metric does not allow the monitoring of disparities within and across the different fields of knowledge and disciplines constituting the broad educational and research portfolio of the institution, neither the monitoring of effects of interventions at the units' level. A combination of important measures for gender balance such as the recruitment strategies and promotion projects might have had a larger positive effect at the individual unit level that is not apparent at the university level. In the Promotion Project alone, $27 \%$ of the participants belong to units that are now located in the green zone. Considering this limitation, we have argued that, though generally informative, this coarse metric should not be used for monitoring the need for boosting or retracting interventions promoting gender balance at the institution. These limitations show that there is a need for more precise indicators for enabling the monitoring and evaluation of significant progress/regress in gender balance. Only a more precise metric can more effectively guide gender-aware management practices at the institution.

### 4.2 Creating a more precise mechanism for monitoring and evaluating significant changes for gender balance in professor positions at UiT

We have seen above that measuring the disparities at the different levels of the university is essential for monitoring significant changes for gender balance in professor positions at the institution. In this subsection, we introduce our alternative metric that better responds to this need. A condition we imposed on ourselves, when designing the new metric, is that it should be simple enough to continue to be generally informative about the proportion of women and men in professor positions at the institution as the previous metric, while also going more indepth into the internal gender distributions.

In order to satisfy this condition, we propose a colour-coded scatter diagram for gender balance in professor positions at UiT, where departments/centres are plotted according to their performances towards/or away from the achievement of this goal. The scatter diagram plots two variables along two axes. The vertical axis displays the current values of proportion of women in professor positions at UiT. The horizontal axis displays the percentage of change in these proportions over the last three years. From 2017 to 2020, we have observed a more rapid change in gender distribution at the university level, potentially marking the beginning of a new trend, we have calculated the rate of change on the horizontal axis as accounting for this period as well, i.e. the rate of change was calculated according to variations occurring in the past three years. The Prestige Project also began a year after 2017, suggesting that this has the additional benefit of showing the short-term effects of the interventions promoted by the Project.

The colour-coded pattern and the location of departments/centres on the chart indicates the correlation between gender distribution and speed of change. The green zone is the most balanced one and the red zones, above and below the horizontal midpoint, are the least balanced ones. Between these zones are yellow zones, where most of the departments are now located. The green zone is a range of $10 \%$ distance from the ideal $50 / 50$ split. The yellow zones are in range of $10 \%-20 \%$ distance from the green zone. The red zones are in a range of $20 \%-40 \%$ distance from the green zone.

Above the green zone are departments/centres with an overrepresentation of women. Below the green zone are departments/centres with an overrepresentation of men. While there are six departments/centres with an overrepresentation of women, there are 28 departments/centres with an overrepresentation of men. In absolute numbers this accounts for 36 out of 48 professor positions held by women in the six departments/centres where women are overrepresented and for 171 out of 237 professor positions held by men in the departments/centres where men are overrepresented.

Departments/centres plotted at the centre of the green zone have achieved the 50/50 ideal gender split. This is the case for SESAM, IFA, ITT and IRNS. Their locations vary along the midline according to the percentage change in the proportion of women between 2017 and 2020. While the proportion of women has decreased by $50 \%$ at SESAM, it has increased by $50 \%$ at KA. It's worth noting that all these departments/centres have a very low number of professor positions, ranging from two to eight positions. Moving away from the centre upwards and downwards, but still within the green zone, are four departments/centres. In the upper part are ISV and ISM, with the respective proportion of women and men in professor positions are $9 / 7$ and $12 / 11$. In the lower part are ISK and IMB with the respective proportion of women and men in professor positions of $15 / 17$ and 10/13. While ISV has increased the representation of women in professor positions between 2017 and 2020 by 16\%, the other three had a rate of change between $3 \%$ and $4 \%$.

Within the upper yellow zone are RKBU, ILP and TMU. The proportion of women and men in these departments/centres are respectively $6 / 2,11 / 6$, and $5 / 3$. However, while RKBU has decreased the representation of women in professor positions between 2017 and 2020 by $25 \%$ and moved towards the green zone, ILP and TMU have increased it by $12 \%$ and $15 \%$ and moved away from the green zone. A third of all departments/centres at UiT are within the lower yellow zone. These departments/centres are listed here accompanied by the absolute numbers of women and men in professor positions: IPS (5/8), IFF (3/5), AMB (10/13), MK (6/3), IET (1/2), IBEM (1/2), IVP (1/2), IKM (9/18), IAHR (5/10), NFH (7/15), IG (4/9), HHT (4/9), and IFT (4/12). While IBEM, IVP, and NFH stagnated, IPS, IAHR, HHT, IG, IKM and MK had an increase of the proportion of women in professor positions from 10-16\% over the past three years. JUR and IFT had a small increase of $2 \%$ and IFF, AMB, and IET had increases between 58\%.

Finally, within the upper red zone are IBS, SKK, IHO, CPS and BAI. IBS, SKK, CPS and BAI have a number of professor positions below two. This means that they would quickly move to the green zone with just one or two men being hired into professor positions. Reaching the green zone would not be so easy for IHO , which had a ratio of $9 / 1$ for women and men in professorships in January 2020. While IBS and SKK have stagnated over the past three years, IHO has increased the representation of women in professor positions by 15\%. CPS and BAI did not have any professor positions in 2017 so by 2020 they have a changing rate of $100 \%$ given that new positions were filled at that level. Within the lower red zone are the following departments/centres accompanied by the absolute numbers of women and men in professor positions: IFI (2/9), IDI (1/8), IK (1/11), IMS ( $0 / 8$ ), IIS ( $0 / 7$ ), IH ( $0 / 2$ ), and IKO ( $0 / 3$ ). IK had the largest increase in the proportion of women in professor positions over the last three years, a change of $8 \%$, and IKO had the largest decrease in this proportion, a change of $25 \%$. IMS, IIS, and IH have stagnated and IFI and IDI had small changes of 2\%. While at IFI there has been a decrease of $2 \%$ in the proportion of women in professor positions, at IDI there has been an increase.

In this reading of the scatter diagram, we have included details indicating the precise sizes of departments/centres. The size differences are represented in the plot by the variations in the radii of the circles that correspond to departments/centres. The radii of the circles are proportional to the square root of the number of staff members meaning that larger units are represented by larger circles. This information is relevant for evaluating how much effort is needed to move red departments/centres into the green zone and how strong/weak are the positions of those placed in the green zone. Large circles tend to have a more stable changing rate in relation to the medium and small circles. This means that larger circles located outside the green zone require more efforts to achieve gender balance in relation to smaller circles, but also that they required less supervision once they have moved to the green zone. For example, judging by the sizes, apart from IHO, it would be a much easier task to move the departments/centres from the upper red zone downwards than to move the departments/centres from the lower red zone upwards. At the same time, while SESAM and KA tend to have a more fragile position at the green zone, ISM, ISK and IMB tend to have a stronger position at this zone. However, for setting more concrete and achievable goals for departments/centres as well as predicting future conversions or diversions from the green zone, more precise knowledge about the individual potentials of each unit in relation to future potential expansions or shrinkages of the discipline at UiT would be required. Although we were not able to provide these analyses, we believe faculties and departments/centres can find in this report the basic toolkit for starting the creation of particular mechanisms for monitoring gender balance more closely within their units. In this report, we have moved from a satellite to drone images. The next step is to move towards the hand-held camera images.

### 4.3 Scatterplot of gender distribution in professor positions at UiT

 (January 2020) and the percentage change between 2017 and 2020

## 5 Conclusion \& recommendations for future interventions

In this report, we have drawn attention to the problems of relying on a coarse metric at the university level for setting goals and monitoring the need for interventions that aim to promote gender balance at the institution. We have argued for the need of a narrower metric that enables the evaluation of the large existing internal disparities in the distribution of women and men in professor positions among the different fields of knowledge and disciplines. Responding to this need, we have proposed a colour-coded scatterplot of gender balance in professor positions at the UiT by department/centre. This scatterplot takes into account both the current proportion of women in professor positions and the percentage of change in these proportions over the last three years. The colour-coded pattern and the location of departments/centres in the plot indicates the correlation between the gender distribution and speed of change. The green zone is the most gender balanced and the red zones are the least balanced. University administrators, staff, and students will know that the university is approaching gender balance when most of the departments/centres move from red and yellow areas towards the green area. This metric is superior to the previous one for monitoring gender balance at the institution because it measures the evenness of the gender distribution within and across different departments/centres composing the UiT and the effects of interventions at the units' level. It can thus better direct future interventions. When UiT has achieved the ratio of 40/60 in professor positions, the next action plan for promoting gender balance at the institution should focus on moving a higher number of departments/centres to the green area of the plot. Future interventions should then have a clearer target and be more field- or discipline-specific, though still initiated at the central administration level. Below is a list of recommendations from Prestige Project to improve the effectiveness of future interventions promoting gender balance at UiT.

### 5.1 List of recommendations

- The decisions of administrators on whether boost or decrease interventions aiming to improve gender balance at the institution should be based on narrow scale and comparative data, preferably focusing from the department/centre level upwards, such as the scatterplot we proposed. A tool called "UiT Balancinator for Organizations" is made available by Prestige Project (See Mittner\&Mittner 2020).
- Interventions must be field- or discipline-specific and target more urgently the departments/centres that are located within the red zones of the scatterplot. These are currently: IBS, SKK, CPS, BAI and IHO with a current overrepresentation of women; and IMS, IIS, IH, IKO, IK, IDI, and IFI with a current overrepresentation of men.
- The next Action Plan for Equality, Diversity, and Inclusion must contain more concrete goals and tasks targeting departments/centres emerging from the analyses of their particular challenges.
- Heads of departments/centres should be acquainted with the content of this report and aware of the updated position of their units in the scatterplot for gender balance in professorship positions.
- Heads of departments/centres should be trained into gender-aware administration and management. The scatterplot we provide should be used in conjunction with their own analysis of the particular challenges and potentials within their units.
- Gender balance should be acknowledged and encouraged by the leadership at the department/centre level and become a regular topic in staff meetings within the units, following a demand from the above administrative levels.
- Heads of departments/centres should be requested to periodically report to the faculty evaluations of the strategies implemented to develop gender-aware practices and improve gender balance in their units. Faculties should be required to set up deadlines and establish a committee to follow up on such reports and assist departments/centres with their further development.
- Promotion interventions assisting women in associate professor positions in their path to professorships are currently likely to have a greater impact on the gender distribution in professor positions in the following departments/centres: IKO, IMB, IPS, IAHR and ISV.
- Recruitment strategies for increasing the representation of women in professor positions are currently likely to have a greater impact at the following departments/centres: IH, IFF, IBEM, IDI, IET, IFT, IG, IFI, ITS, IMS, and IK.
- At the university level, 48 professors are expected to retire within the next 3 years, with 41 of them being men. Recruitment strategies should focus on the replacement of professors who are expected to retire within the next 3 years, especially in the STEM fields.
- Administrators at all levels should master the advantages and limitations of the different metrics for monitoring the progression/retraction of gender balance at the institution.
- Administrators, academics, and students at UiT should have a clear understanding between important conceptual differences such as gender balance and gender equality.
- Future research is needed to further development the scatterplot for gender balance in professor positions at UiT to become more aggregative and more representative of the
general gender balance at the institution. We suggest the inclusion or crossing of other positions in addition to professor positions.
- Future research is needed to deepen our local understanding of the large variations in gender distribution in different fields of knowledge and disciplines. It is important to verify whether these large variations coincide with international and national trends or if some of them are particular challenges that exist at UiT.


## 6 Abstract

UiT The Arctic University of Norway has built a strong tradition of promoting gender balance within the institution. After decades of research and systematic measures, the university has increased the share of women in professor positions from 9\% in 2000 to almost $40 \%$ in 2020. Today, UiT leads the national ranking in that category, being the university with highest representation of women in professor positions among the comprehensive Higher Education institutions in Norway. While this is a great achievement for the institution, Prestige Project calls, in this report, for a cautious interpretation of these results. While almost $40 \%$ of women hold professor positions at the university level, great disparities remain within and across knowledge fields and disciplines. A more nuanced view on the data shows that as of January 2020, $82 \%$ of the professor positions in the STEM fields at UiT were still held by men (NT and IVT Faculties combined). In addition, the overrepresentation of women in the fields commonly associated with female activities such as social sciences, care, and education have inflated the overall results for the better.

This report argues that the measurements of proportion of women and men in professor positions at the university level is a limited tool for a meaningful monitoring of gender balance in these positions at the university. This is because this metric does not allow for the monitoring of disparities within and across the different fields of knowledge and disciplines constituting the broad educational and research portfolio of the institution, neither for evaluating the effects of interventions at the units' level. These limitations show that there is a need for more precise indicators for enabling the monitoring and evaluation of significant progress/deterioration in gender balance. In this perspective, a more precise metric can better serve as guidance for the generation of effective and more gender-aware management practices at the institution. Prestige Project proposes in this report an alternative metric that intends to better respond to this need: the scatterplot for gender balance in professor positions at UiT.

Keywords: Gender Balance; Organizational Changes; Gender-aware management practices; Metric for monitoring and evaluating gender balance within and across fields of knowledge and disciplines.

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## 9 Appendix

### 9.1 Position Codes

Table 3 Position codes and their Norwegian and English translations

| Code | Norwegian | English |
| :--- | :--- | :--- |
| 1017, | Stipendiat | PhD Fellow |
| 1378 |  |  |
| 1352 | Postdoc | Post doc |
| 1011 | Førsteamanuensis | Associate Professor |
| 8028 | Førsteamanuensis 2 | Associate Professor 2 |
| 1198 | Førstelektor | Lecturer |
| 1013, | Professor | Professor |
| 1404 |  |  |
| 8013, | Professor 2 | Professor 2 |
| 9301 |  |  |
| 1532 | Dosent | Docent |
| 1109 | Forsker | Researcher |
| 1183 | Forsker | University Lecturer |
| 1009 | Universitetslektor | College Teacher |
| 1007 | Høgskolelærer |  |

### 9.2 Gender Distribution in Lecturer positions



Figure 21 Gender Distribution in Lecturer Positions, University Level - 2000-2019

### 9.3 Departments at the Faculty of Biosciences, Fisheries and Economics (BFE)

## Faculty of Biosciences, Fisheries and Economics January 2020



Figure 22 Proportion of Women in Positions leading up to a Professorship, Departments at the BFE Faculty - 2020

### 9.4 Departments at the Faculty of Health Sciences (HELSE)

Faculty of Health Sciences, January 2020


Figure 23 Proportion of Women in Positions leading up to a Professorship, Departments at the HELSE Faculty, 1/2-2020

Faculty of Health Sciences, January 2020


Figure 24 Proportion of Women in Positions leading up to a Professorship, Departments at the HELSE Faculty, 2/2-2020

### 9.5 Departments at the Faculty of Humanities, Social Sciences and Education (HSL)

Faculty of Humanities, Social Sciences and Education, January 2020


Figure 25 Proportion of Women in Positions leading up to a Professorship, Departments at the HSL Faculty, 1/2-2020

Faculty of Humanities, Social Sciences and Education, January 2020

Figure 26 Proportion of Women in Positions leading up to a Professorship, Departments at the HSL Faculty, 2/2-2020

### 9.6 Departments at the Faculty of Engineering Science and Technology (IVT)

## Faculty of Engineering Science and Technology, January 2020



Figure 27 Proportion of Women in Positions leading up to a Professorship, Departments at the IVT Faculty - 2020

### 9.7 Departments at the Faculty of Science and Technology (NT)

Faculty of Science and Technology, January 2020


Figure 28 Proportion of Women in Positions leading up to a Professorship, Departments at the NT Faculty - 2020

Balancing gender distribution in professor positions at UiT from 2020 onwards

UiT has increased the share of women in professor positions from 9\% in 2000 to almost 40\% in 2020. Today, UiT leads the national ranking in that category, being the university with highest representation of women in professor positions among the comprehensive Higher Education institutions in Norway. Nevertheless, great disparities remain within and across knowledge fields and disciplines.

As of January 2020, 82\% of the professor positions in the STEM fields at UiT were still held by men (NT and IVT combined). In addition, the overrepresentation of women in the fields commonly associated with female activities such as social sciences, care, and education have inflated the overall results for the better.

Prestige proposes the scatterplot for gender balance as a more precise monitoring mechanism that takes into account internal disparities.

It is estimated that in the next three years 48 professors are up for retirement, 41 of them are men. This creates a window of opportunity, where the focus of intervention should be on recruitment strategies to create a more gender balanced environment in the future.

The scatterplot combines values of two variables: the current proportion of women in professor positions on the vertical axis and the percentage change in the proportion of women in professor positions between 2017 and 2020 on the horizontal axis. The colourcoded pattern and the location of the circles representing departments/centers indicate the correlation between distribution and speed of change. The green zone is the most balance and the red zones, the least. Circles sizes indicate the size of the units. Departments found in the upper red zone have a higher proportion of women. Departments found in the lower red zone have a higher proportion of men.
For example, the proportion of women at IKO decreases by $25 \%$ between 2017 and 2020, this has resulted in no women in professor position at IKO as of January 2020. IKO is represented by a small circle corresponding to the size of the department.

Scatterplot of gender distribution in professor positions at UiT (January 2020) and the percentage change between 2017 and 2020


Percentage change in the proportion of women in professor positions between 2017\&2020

RCN (2018-2021/281862)

## Gender distribution beyond coarse measurements:

Balancing gender distribution in professor positions at UiT from 2020 onwards
$\checkmark$ The decisions of administrators on whether boost or decrease interventions aiming to improve gender balance at the institution should be based on narrow scale and comparative data, preferably focusing from the department/centre level upwards, such as the scatterplot we proposed. A tool called "UiT Balancinator for Organizations" is made available by Prestige Project (See Mittner\&Mittner 2020).
$\checkmark$ Interventions must be field- or discipline-specific and target more urgently the departments/centres that are located within the red zones of the scatterplot. These are currently: IBS, SKK, CPS, BAI and IHO with a current overrepresentation of women; and IMS, IIS, IH, IKO, IK, IDI, and IFI with a current overrepresentation of men.
$\checkmark$ The next Action Plan for Equality, Diversity, and Inclusion must contain more concrete goals and tasks targeting departments/centres emerging from the analyses of their particular challenges.
$\checkmark$ Heads of departments/centres should be acquainted with the content of this report and aware of the updated position of their units in the scatterplot for gender balance in professorship positions.
$\checkmark$ Heads of departments/centres should be trained into gender-aware administration and management. The scatterplot we provide should be used in conjunction with their own analysis of the particular challenges and potentials within their units.
$\checkmark$ Gender balance should be acknowledged and encouraged by the leadership at the department/centre level and become a regular topic in staff meetings within the units, following a demand from the above administrative levels.
$\checkmark$ Heads of departments/centres should be requested to periodically report to the faculty evaluations of the strategies implemented to develop gender-aware practices and improve gender balance in their units. Faculties should be required to set up deadlines and establish a committee to follow up on such reports and assist departments/centres with their further development.
$\checkmark$ Promotion interventions assisting women in associate professor positions in their path to professorships are currently likely to have a greater impact on the gender distribution in professor positions in the following departments/centres: IKO, IMB, IPS, IAHR and ISV.
$\checkmark$ Recruitment strategies for increasing the representation of women in professor positions are currently likely to have a greater impact at the following departments/centres: IH, IFF, IBEM, IDI, IET, IFT, IG, IFI, ITS, IMS, and IK.
$\checkmark$ At the university level, 48 professors are expected to retire within the next 3 years, with 41 of them being men. Recruitment strategies should focus on the replacement of professors who are expected to retire within the next $\mathbf{3}$ years, especially in the STEM fields.
$\checkmark$ Administrators at atl levels should master the advantages and limitations of the different metrics for monitoring the progression/retraction of gender balance at the institution.
$\checkmark$ Administrators, academics, and students at UiT should have a clear understanding between important conceptual differences such as gender balance and gender equality.
$\checkmark$ Future research is needed to further development the scatterplot for gender balance in professor positions at UiT to become more aggregative and more representative of the general gender balance at the institution. We suggest the inclusion or crossing of other positions in addition to professor positions.
$\checkmark$ Future research is needed to deepen our local understanding of the large variations in gender distribution in different fields of knowledge and disciplines. It is important to verify whether these large variations coincide with international and national trends or if some of them are particular challenges that exist at UiT.

SKK
25 years



[^0]:    ${ }^{1}$ See the list of comprehensive Universities and Norway and their current share of women in professor positions according to DBH 2020: UiO ( $33,6 \%$ ), UiB ( $30,9 \%$ ), NTNU $(26,88)$, and UiT ( $39,93 \%$ ). OsloMet has the highest share of women in such positions, $53,73 \%$, but it is not a comprehensive University. UiS has a higher share than UiO, UiB, and NTNU, 34,23\%, but like OlsoMet, UiS is not among the comprehensive Universities in Norway.

[^1]:    ${ }^{2}$ The average rate of change of women's share of the professor positions was calculated based on historical data extracted from the DBH database.
    ${ }^{3}$ The 2020-2022 Action Plan for Equality, Diversity, and Inclusion states that each faculty "shall draw up plans for equality and diversity containing numerical values adopted to meet the special challenges at each unit".

