



DESIGNING GENDER EQUALITY AS INSTITUTIONAL TRANSFORMATION AT A HIGHER EDUCATION INSTITUTION

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Abstract

Most academic systems and structures, as they exist today, are based on models which were designed centuries ago, at a time when men exclusively predominated in universities. There is certain scepticism towards what can be achieved, though. A continuing evident gap is apparent between principles, rhetoric and reality. In 2010, women were pursuing upper secondary and higher education more actively than men, but, evidently, women remain more strongly underrepresented among researchers than among highly qualified professionals in traditionally male-dominated scientific and professional fields. This could point towards a situation where the organisational culture mounts resistance against the integration of women. Briefly, they require but often lack conceptual frameworks. The purpose of this study was to examine how institutional culture promoted or impeded the implementation of one of the EU flagship initiatives ‘*Implementing structural change in research organizations / universities*’ in Lithuania, which should be designed to improve the institutional culture for women in science, technology, engineering and mathematics (STEM). This study was conducted in two stages. In the first stage, a conceptual framework and methodology was developed for designing institutional transformational change at STEM faculties of University to sustain the practice of gender equality. In the second stage, the design of the Model Institutional Transformational Change was attempted to be conceptualized in order to achieve change on institutional, departmental and individual levels.

Keywords: gender equality, institutional change, transformation, researcher’s career.

Introduction

The contemporary world is changing dramatically and the academy will need to respond to these changes in order to continue to serve the needs of a knowledge-intensive and increasingly global society, particularly in the present context of the global economic recession and the emerging global competitors in Asia and Latin America. The global recession, climate changes, energy supply, aging and health has a strong gender dimension, which, if disregarded, may result in missed opportunities for innovation in research and in the development of markets. It is widely acknowledged that research and innovation (R&I) are the main driving forces of a prosperous economy. In today’s global R&I marketplace, Europe has to compete with other regions where highly educated talent pools and markets for innovation exist, such as Singapore, China, India, Latin America, South Korea and the US. Europe needs to benefit substantially from its R&I systems and there is an urgent need to advance on gender equality in science. The mainstreaming of gender in the scientific system and

in the R&I marketplace offers an important competitive advantage for strengthening the scientific endeavour through more effective deployment of the female human capital, i.e. creating new markets which recognize the importance of gender; granting women the same rights, responsibilities and opportunities as men, and increasing the international competitiveness of Europe’s research workforce in general (Hausmann, Tyson, Zahidi, 2011). Promoting gender equality will also allow the industry to benefit from a wider talent pool of human resources. Many corporations are undertaking the organizational change of their science and technology systems to adapt to these new conditions. Universities which are able to anticipate and respond to these needs will be those which at once welcome change and are capable of managing institutional transformation. In turn, the ability to anticipate, absorb, and manage transformation will be critical for those seeking to produce successful academic change.

1. A challenge insisting upon institutional transformation in Higher Education Institution (HEI)

Gender equality has been on the agenda for several decades and while some important gains were made, the progress in recent years has been slow and patchy. Although governments and institutions consider gender justice an important issue, entirely fair and equitable participation of women in the world of work is still out of reach. The mere participation of women in the world of work does not by itself guarantee equality. Nevertheless, we are able to see some positive outcomes, as gender inequitable organizations produce gender inequitable effects *Maintaining existing values and work norms will not equalize the inequitable impact of organizations on the lives of women and men clients (...) and beneficiaries* (Rao, Kelleher, 1999).

While fulfilling an important societal role, institutions of higher education are challenged to respond to economic, social and political pressures. The manner in which universities and research organizations respond to pressures and opt to engage in organizational change is an important area of study. Understanding how higher education can be responsive to its environment is important if we are to maintain and enhance the quality of the educational enterprise. Higher education is central to both national and European research agenda. The European Commission presented its most ambitious policy for stimulating research and innovation to date - the Innovation Union flagship initiative (Commission adopts the Innovation Union, 2010). This initiative is one of the cornerstones of the Europe 2020 Strategy to stimulate smart, sustainable and inclusive growth in Europe. Boosting innovation means increasing the number of researchers in Europe by at least one million researchers, if they are to remain competitive and gather strength. There is a need to ensure that young people who start careers in research find it appealing to remain in the field of science. This is especially true for women in the EU: while 45% of doctorates are awarded to female students, only 30% of active researchers and 18% of full professors are women. Accordingly, 57.8% of doctorates are female students, 46% of active researchers and 19% of full professors are women, and no single university in Lithuania is headed by a woman.. In Lithuania, particularly since 1998, there has been an increased activity in developing equal opportunities in legislation and, consequently, in the policy making regarding the field of organizational equality between women and men. Most academic systems and structures, as they exist today, are based on models which were designed centuries ago at a time when men exclusively predominated in universities. There is certain scepticism towards what can be achieved, though. A continuing evident gap is apparent between principles, rhetoric and reality. In 2010, women were pursuing upper secondary and further education more actively than men. 90% of

women and 84% of men aged 20–24 received such education; the number of women graduates in natural, technical and applied sciences is much lower: there are 11 women and 26 men specialists in this area per 1000 of the population aged 20–29; 45,000 specialists graduated from higher education institutions, 66% of whom were women; most (87%) teaching staff at secondary schools are women. At colleges and vocational schools, women constitute 68%, while at universities – 49% of the academic staff; among researchers with a scientific degree or an academic title engaging in R&I (in the general government and higher education sectors), men accounted for 3,400, while women – for 2,800 (45% of all researchers with a scientific degree or an academic title); men researchers with a scientific degree or an academic title accounted for the major part in technical (75%) and physical (68%) sciences, while women researchers with a scientific degree or an academic title – in humanities and social (59% in each) and natural sciences (58%); employment of women researchers with a scientific degree (or an academic title) in R&D by field of science: 25% in technological, 32% in physical, 57% in biomedical sciences; the number of women researchers with a habilitated doctor's degree constituted 20%, women professors – 19%; 9 women out of 38 were Heads of Institutions in the Higher Education sector; 4 women academicians out of 91 were full Members of the Lithuanian Academy of Sciences; there has never been a female Rector of a university; very low use of parental leave (7.5% in 2010).

The data collected by *She Figures* (EC 2004 and 2009a) indicates that the underrepresentation of women in scientific decision-making committees and in leadership positions is even more marked: for EU-27, the average proportion of women on boards was 22%, whereas in LT – 18%. The proportion of female heads of institutions in the HE sector in EU-27 was 13% in contrast to 8% in LT. O'Dorchai's (2010) analysis shows the gender pay gap is higher in male-dominated occupations in Lithuania. This could point towards a situation where the organisational culture mounts resistance against the integration of women. The reference model in this occupation is defined in terms of masculine attributes. Women are consequently employed at lower levels and in lower-paying jobs. The meta-analysis of the literature carried out by Meulders et al. (2010) confirms these tendencies: women apply at a lower rate than men; success rates are not systematically lower for women than for men; the gender gap in applications for funding and in access to funding varies across disciplines; in general, it is more difficult for women to obtain high prestige awards. Access to a long-term position is also more difficult for women than for men. Female applicants have a higher success rate when they apply for small amounts of money than when they apply for large research grants. Finally, the higher the applicant's position in the hierarchy, the more difficult access to funding. The resulting low numbers of women in senior management and decision-making

positions in relation to scientific research is regarded to represent a democratic deficit (Road Map for Equality between Women and Men (2006-2010), creating a “discriminatory snowball effect” (She Figures, 2009), even though a target has been set for 25% women in leading positions of public sector research in the EU to drive organisational behaviour.

The ideals of the breadwinner man and the caring father do not easily co-exist in the lives of Lithuanian men; strong hierarchic organisational, academic and scientific structures at universities and research organisations; the role conflict, role overload and maternity leave are significant obstacles for women’s scientific, leadership or managerial career development. This, however, does not imply that women have equal opportunities to attain academic status equal to that of men. The existence of a ‘glass ceiling’ or a ‘sticky floor’ affects women who are attempting to progress to senior positions. It affects all sectors of occupation, even those which are dominated by women. The absence of women in leadership positions tends to be more acute in the occupations of science and technology than in other fields of science in Lithuania. Women are still unable to fully build a scientific career on equal terms with men. Therefore, the latest report (Meta-analysis of gender and science research. Synthesis report, 2012) indicates two main concerns. Firstly, the professions of research and technological development are less responsive to the social factors which are successfully leading to progress towards gender equality in other highly-skilled professions. And secondly, this trend is evidently at odds with the scientific ethos of universalism and meritocracy: if universalism and meritocracy were the actual rules, gender inequality would be less prevalent than in other professions.

To sum up, women remain more strongly underrepresented among researchers than among highly qualified professionals in traditionally male-dominated scientific and professional STEM fields. The increasing participation of women in science and engineering (or broadly speaking, in STEM) will not be successful if higher education and research institutions are not restructured. This leads to the account of (patriarchal) culture of university and of science (covert barriers and biases in organisational practices) in general, and they are analysed and questioned as well as the historical tradition of male-dominated fields, which are inequitable for women and men, and reward them for reflecting different values in their behaviour. Many universities and research institutions have sought to address the lack of women in their science departments, both as students and as staff. There are significant variations in the extent to which the relative lack of women in some STEM subjects and in senior positions in the academy is recognised as a problem in different countries. Despite the increasing recognition of the gender imbalance in science along with the development of initiatives, national policies of the EU and their universities and research institutions, the overall progress has been considerably slow. The

organization of R&I in Europe still relies on male and female stereotypes, thus resulting in disadvantages for science, technology and the economy. In addition, the lack of role models for women in senior positions has had a negative impact on high aspirations of other women. The outcome is a waste of talent, missed opportunities for scientific advancement and innovation, and a lack of clarity about what is meant by scientific excellence.

Gender mainstreaming has been one of the major strategies adopted by the European Union and the Member States for achieving gender equality (and, as a social policy strategy, it is considered a success). However, in science it is a relatively recent strategy which has not yet been fully embraced in universities or research institutions. Consequently, in relation to the problem of the underrepresentation and lack of promotion of women in science, it has not produced the anticipated results, as sex-disaggregated statistics on the hire for faculties, the size of them, and even the size of their laboratories have demonstrated that gender is a key organizing principle in academia. Sufficient research evidence indicates an obvious need to step up the support for structural change for the modernization of universities and research institutions, and to integrate gender issues into research as a resource to gain new knowledge and stimulate innovation. (*Strategy for equality between women and men 2010-2015*, 2010). Initiatives in supporting universities to undertake institutional transformation in order to increase the participation of women in science, engaged as *structural change* in universities and research institutions, suggests raising their gender awareness, thereby modernising their organizational culture. This has important implications for equal opportunities, full utilization of talent, appeal of scientific careers, and quality of scientific research. It implies systematic, integrated, long-term approaches rather than piecemeal short-term measures.

The problem of gender inequity in HEI is rooted in traditional notions of male and female, masculine and feminine, as fixed categories distinguished by a series of putatively natural, hierarchically-ranked oppositions. Male status as a fixed universal truth obfuscates the interests it serves and perpetuates the myth that organizational and social arrangements are gender-neutral (Meyerson, 1998). Administrative and social practices of the academic workplace thus tend to favour these men without question and often in subtle and insidious ways. Such practices include formal policies and procedures, such as work rules, labour contracts, management directives, job descriptions, and performance appraisal systems. They also include informal practices, norms and patterns of work, such as the rules of the institution or work group, as well as norms regarding how work is to be done and what kinds of relationships are required to do it, the distribution of roles and responsibilities, the information people receive about how to advance in the organization, and the organization’s tacit criteria for competence, commitment, and academic ethics. Job descriptions for authoritative positions which seek masculine traits such as aggressiveness, independence and competitiveness, without consideration of other

traits which may be equally or more relevant to the job requirements, are one example of a formal procedure in organizations which is oppressively gendered. Images and social interactions within which people construct and convey them can also assume oppressive forms and play a crucial role in the gendering process in organizations. This notion is based in our understanding of reality as socially constructed, maintained and modified, largely through the images, stories about particular persons or events told by members of organizations members and the media, and the sense they make more generally of what happens around them and the community of the university.

Promoting organizational and cultural change implies that the academic administration of universities, research institutions and funding bodies remove obstacles to women's professional careers. Action on an institutional level is required to ensure a greater presence of women in science and technology, particularly at the top of scientific careers. This can only be achieved in the framework of strengthened institutional policies and investments in gender equality, the effectiveness of equality legislations throughout Europe, as well as incentives for cultural changes. Greater gender equality in science will also ultimately help compete on an equal footing with the economic powers of the world.

In order to understand how to implement real change for gender equality in a positive way, it is critical to understand how organizations work at the deepest level. In this context, the purpose of this study is to identify the major obstacles facing those who wish to achieve successful academic change and, in turn, those strategies which are most likely to be successful in overcoming these obstacles. To that end, the study will examine the case of the University of Šiauliai in Lithuania. The questions addressed are: What is impeding careers for women? How to manage the change of an organization, particularly when introducing gender equality policies, strategies and actions? What of the institutional barriers to gender equality? All in all, how to expose the hidden values and cultures – 'the deep structure' – in order to stimulate and entrench new, gender-equitable ways of working, further by regarding gender as part of an organizational change management strategy rather than as a stand-alone item on the agenda? In regard to the main gaps identified in the literature and empirical work, i.e. its relevance in the presence of a competitive R&I market place and the absence of sound theoretical foundation for social innovation in STEM, the research objectives of this paper are threefold: 1) to review and synthesize the literature and empirical work on the institutional transformation of HEI in order to identify the theoretical approaches for the sustainable transformational institutional (structural) change; 2) to relate the literature streams which have studied institutional transformation of HEI over the past decade and to base the approach of the issues which have been identified in order to increase women's participation and progression within institution through the focus on structural change; 3) from the investigation theory-driven models and innovations related to the participation and advancement of women in the academic STEM disciplines, to design a model of institutional

transformational change at Šiauliai University.

The research methods applied in the present study include: 1) literature analysis which was used to provide different approaches to institutional change and its use in HEI and research organisations; 2) meta-analysis and systemic analysis were used to investigate and construct the multiple conceptual frameworks and models for institutional change; 3) modelling institutional transformational change at SU.

In the following stage of the project, approaches for transforming organizations into cultures which express gender equality will allow to plan an intervention of specific measures and strategies to favour equality, to take into account gender issues and what constitutes the foundation of organization, the strong biases underlying change management and decision making processes.

2. Fixing women into the higher education institutions. Integration through transforming structures and removing barriers

There is a general consensus that the existing system of higher education is far from perfect, preserving a lack of gender equality in study and research institutions and, therefore, needs to be modernised, and we would like to contribute to this process of modernisation. We are now moving away from an emphasis on '*fixing the women*' to '*fixing the system*', as expressed by L. Schiebinger. When we say '*fixing the women*', we do not just mean measures of mentoring, networking, role models, etc., but also measures '*to fix the women so that they fit into the existing system*'. But what better way to integrate women into HEI than by transforming institutional structures and removing the barriers?

Project PRAGES distinguished three strategic frameworks with the main aims to transform institutions of science and technology research into favourable environments for women to progress in a research organization. The first strategy consists of creating a friendly environment which enables women's progression and working life, and it addresses these main relevant aims: to promote change in the culture and traditional behaviours in work environments related to science and technology; to support the work-life balance for all; to provide early-stage career development. The second strategy aims to include the gender dimension in the very process of research and design of innovation. Two main objectives were identified in this regard: to overcome the stereotypes related to women and science; and to influence scientific contents and methods. The third strategy consists of promoting women in scientific leadership positions. In this case, four objectives were established from the analysis: to support the leadership of women in research practice; to support the leadership of women in research management; to support the role of women in science communication; and to increase the presence and influence of women in managing innovation processes and in related relationships of science and society (PRAGES: Guidelines for Gender Equality Programmes in Science, 2009).

The genSET Consensus Recommendations were adopted as the guiding principles for implementing Gender Action Plans specific to universities and research institutes which are sensitive to local conditions – used for ranking and as a competitive advantage (e.g. attract the best female) (Recommendations for Actions on the Gender Dimension in Science, 2010).

The US National Science Foundation's ADVANCE program (started in 2001) exemplifies a methodology for addressing each of the three dilemmas described in the previous section; it demonstrates how to: 1) sustain institutional learning and change; 2) discover normative and legal frameworks which uphold these efforts, and; 3) develop an intermediary role of the public, which offers an effective external accountability. The program uses public agency resources to promote women's advancement through institutional transformation at the university level, to develop public knowledge regarding effective strategies for institutional change, and to increase the incentives for universities to apply that knowledge to advance women in science. Although it has not been uniformly successful at each funded institution, many ADVANCE institutions have produced tangible institutional change.

The latest *Meta-analysis of gender and science research* (2012) report distinguished the main gendered structural constraints and subtle discrimination of women in academic settings over the last thirty years, as the following: the scientific career perceives the traditional life course of men as the norm and this entails difficulties for combining professional and personal lives for scientists, especially female ones; the 'rush hour' understood as the stage of life in which family and academic requirements for women most often collide, hence decisions related to having children and developing their academic career must be made; 'choose-or-lose' dilemma of either having a family and children or striving to achieve a high position in science¹; management of work – the reconciliation of personal life responsibilities has long been considered a solely private matter by academic employers, while universities must become aware of the 'child care question'. Institutional constraints and departmental culture, which reflects the lack of socio-structural mechanisms to provide better management of the compatibility of family roles and academic careers, is an important obstacle to women's advancement in science. There are the specific trends in academic culture which are highly individualistic and competitive in the initial stages of the academic career, making it extremely difficult to reconcile the demands of family and career; workplace context demands for foreign travel and work hours; academic pipeline or failure to adjust to the rigidity of the academic pace (e.g. career breaks, part-time work during specific periods, re-entries to the career track at a late age, etc.); women leave scientific careers in greater numbers than men, particularly female scientists willing to work at universities; men complain more about low salaries and the lack of opportunities for promotion,

while women refer to a more complex set of reasons, including difficulties in balancing work and family life and a female-unfriendly environment; better work-life balance is a consistent 'pull' reason not only for many women, but also for men who do not conform to traditional masculinity. Maternity leave is in many cases perceived as a 'push' factor specific to women, especially to those on temporary contracts, because they might lose the contracts in academia or be unable to keep up with recent findings and write articles. Women also mention another set of reasons related to the sense of not 'fitting in', isolation and a lack of support, etc.; women held a weaker and unequal position in the scientific community and felt geographical mobility constraints related to family; particularly at the PhD or post-doctoral stage; the age, duration and career planning of women is more aligned than ever to that of their male colleagues; women's childbearing years and the unequal distribution of domestic work are difficult to reconcile with what are considered the 'ideal' rhythms of career, which usually imply promotion at a 'young' stage and this operates as the indirect form of gender discrimination. The deep-rooted assumption that the progression of future career relies on the performance during the early years of a scientific career has a detrimental effect on women's careers: not being the 'right age' is penalised; the culture of work penalises women (institutions may choose to offer scientists in intermediate positions more opportunities for flexible working hours and reconciliation, manage the time to attend meetings at antisocial hours, travelling abroad or engaging in networking activities outside of work); scientific productivity (number of papers, books and citations produced, as important criteria for recruitment, promotion and other forms of scientific recognition) less than men. When academic track, academic position, type of institution and available resources are constant, men and women scientists are equally productive and their family status (marriage, parenthood) has no impact on productivity. Gender differences in scientific productivity have thus been attributed to reduced integration of women into the scientific community and low occupation of the highest academic posts, such as influential posts in scientific associations or membership on editorial boards of journals; lower probabilities of climbing the career ladder and much weaker networking resources; the negative effect of childcare on women's productivity when the children are small; structural barriers related to time and mobility constraints might be treated as indirect forms of gender discrimination. The academic ladder is a hierarchy of power, recognition and income, and gender segregation is not only the result of constraints on women's time and mobility – the formal procedures of recruitment and promotion in academia, analysing power relations, gatekeeping practices and informal networks as a source of tacit knowledge, support and recognition. Instituting more bureaucratic rules and levels of hierarchy may increase the power and salience of informal, hidden

modes of operation. When the hierarchy is male-dominated, as in academia, bureaucratisation may fail to counteract the practices of gender discrimination. Academic institutions are perceived as gendered institutions in which women face more difficulties than their male peers when entering the circles of academic power; and the salience of informal male-dominated networks (old boy clubs) is highlighted along with such a well-known concept as gatekeeping. The trend towards transparency and accountability in academic assessment procedures is aimed at counteracting the hidden power dynamics which are at play when any decision regarding funding or appointment is made. The higher we climb the academic hierarchy towards the elite, the more informal power dynamics, which all organizations have, are developed through the so-called '*invisible colleges*' or '*old boys*' networks'. Valian (2005) wrote that gender disparities are sometimes attributed to the problem of acculturation, with women not socialized to play by men's rules. The mechanisms of gendered inclusion or exclusion appear to be embedded in the standards and cultures of academic institutions and scientific disciplines, channelled through homosocial practices into informal networks and gatekeeping processes; gender discrimination is perceived as a lack of informal support in career advancement and a hostile work climate which leads to discouragement; procedures of formal assessment, which lead to unequal access to research funding or academic positions, are used; the '*Matilda effect*' (or accumulated disadvantage – the systematic repression and denial of the contribution of women scientists in research, whose work is often attributed to their male colleagues) prevails; the '*Matthew effect*' (or accumulated advantage – receiving symbolic and material rewards for their results tends to accumulate for some scientists and scientific organizations): an eminent scientist will often gain more benefits than a comparatively unknown researcher, even if their work is similar; it also means that benefits will usually be provided to researchers who are already famous; a habitual scientific lifestyle has developed historically under male domination and this establishes subtle 'gender borders' which women cannot cross easily. Informal networks are a pivotal source of support for career advancement in science. Networks provide the feeling of belonging to the scientific community, access to professional resources, opportunities for advancement and encouragement. The poorer networking resources of women are a powerful, albeit subtle, explanatory, exchanging contacts, knowledge and information, professional self-esteem mechanism for understanding the greater attrition rate of women and their slower career progression compared to that of men. Furthermore, the lack of support and direct encouragement is perceived as one of the relevant factors in explaining the lower tendency for women to apply for promotion and research funding; young women reported feelings of isolation and lack of support from peers, mentors or advisors and, in general, senior faculty. Undoubtedly,

women face more severe constraints on their time and mobility, which occupies a role in cooling out processes, but dedication occupies a highly symbolical role and women are first treated as female and potential mothers rather than as committed scientists.

The fact remains that women are and feel less supported and encouraged to pursue an academic career, they are less aware of the criteria and processes regarding promotion, are less likely than men to have employer provision, and more likely to seek it in their professional societies. Research has highlighted that the structural location of men and women differs considerably, even among scientists of a similar rank. The overall trend is that women tend to be overrepresented in less prestigious institutions and less prestigious tasks, with a more peripheral position in scientific networks and poorer access to institutional resources for doing science. Great attention has been directed to the kind of academic tasks which men and women perform. The unequal distribution of academic tasks between men and women is a sensitive topic, as the criteria for promotion are usually based on research outcomes, albeit teaching and administrative tasks may require substantial energy and time, and sometimes women tend to dedicate less time to research and more to training than their male colleagues. At the professorial level, women are more likely to be invited to contribute to prestigious, high-level conferences. The organisation and culture of STEM departments constrains women at a professional level too: women are much less likely than men to head departments, but do perform at least a fair share of all the other administrative/management roles; men feel that their departments 'treated or supported them better'; women feel their 'disadvantage' far more strongly than their male colleagues do, particularly in relation to promotion and visibility in senior management. Insufficient flexibility during the working day, working year and working life reflects why over half of female professors and senior lecturers had taken career breaks; for women who had taken career breaks, high quality child care and flexible work time were the most important factors in returning to work; significantly more women lecturers than men rated meetings which finish on time or are being held in core time as important. (Athena Forum, 2007).

Gender discrimination may operate not only through subtle forms of isolation and discouragement, but also in formal processes of assessment which have a direct effect on the allocation of opportunities, e.g. who receives a grant or who is appointed to a certain position. Double standards are obvious when: the performance of men with connections to the committee members was systematically overestimated, whilst that of men with no connections and women was underestimated. A female applicant had to be 2.5 times more productive than the average male applicant to receive the same score as he did. Women without connections suffered a double handicap and, in order to achieve a score as high as that of a man with connections, they had to demonstrate a

high level of productivity (Wennerås & Wold, 1997). In order to avoid any possible gender bias, an explicit call to increase the transparency and accountability of the peer-review system is required, despite the multiplicity of factors which may bias the definition and measurement of merit across the whole academic career track, the procedures followed for allocating grants, fellowships and research funding in general (*The Gender Challenge in Research Funding*, 2009). There is a lack of objective analysis of the practices of the different bodies and scientific committees which award research grants, funds and assess scientific excellence. Only scarce and scattered information exists on the practices of recruitment to gatekeeping positions. There is also a lack of studies on the exclusion of women from relevant information and tacit knowledge which may be crucial in gaining positions and research funding (Meulders et al., 2010). For example, research on gender composition of task distribution within the editorial boards of Lithuanian engineering and technology journals has revealed that women scientists are on average underrepresented on these boards, the allocation of roles is heavily gendered, i.e. men are mostly appointed to honorific positions, while women do the editorial work (Šidlauskienė, 2005). The lack of transparency and accountability in the whole academic system prevails, particularly in relation to the access to the scientific elite, in which the procedures for recognition are far less transparent and the criteria more diffuse and intangible.

In processes of peer review and evaluation procedures, the majority of both men and women tend to unconsciously rate the quality of men's work higher than that of women when they are aware of the sex of the person to be evaluated, but not when the sex is unknown. Experiments conducted by Foschi (2000) indicate the pervasive, albeit unconscious, use of gender-based double standards, with stricter standards for women than for men. It appeared that when men and women had equally high productivity scores, women were more often characterized as 'good researchers' while men were described as 'brilliant researchers' (Brouns, 2000). Although it is widely agreed that more transparency is needed to remove potential biases in assessment procedures, either gender-related or not, the scrutiny of peer-review systems is usually met with reticence by academic institutions (Křížková, 2009). Low participation of women (in contrast to high participation of men) produces stereotypes.

Gender and scientific excellence (2010) examines the criteria for research evaluation. Assessment procedures which rely solely on bibliometric measures not only exacerbate existing inequalities between men and women in the scientific system, but might not be the best way to assess the scientific potential of candidates. Particularly, slight differences in the number of publications at an early stage of the scientific career might result in wide differences in the allocation of opportunities for conducting research, and this might have a determining impact on career outcomes – greater time constraints due

to traditional gender roles (Thorvalsdóttir, 2004; Ledin et al., 2007). Undervaluation of non-research activities is a relevant factor to be taken into account.

A large body of the literature highlights that the evaluation system prizes the knowledge produced by established scientists. This fact entails bias against non-mainstream research subjects and methods, which are more frequently used by women than by men due to their more peripheral situation in the scientific system (Hearn, 2001). The main factor which influences access to the highest scientific positions is gender (Palomba, 2006; Sabatier et al., 2006): men had a significantly higher probability of being promoted, when women had to demonstrate a higher level of involvement in professional networks to be promoted. For a woman to enter into the highest academic grade (professorship) means, firstly, to pass through the same filter of scientific performance as men and to achieve as much as men; then, there is the patriarchal filter which forces them to behave like men; and thirdly, they have to bear the burden of being singled out as pioneers in academia (García de León, 2005). Zimmermann (2000) adopts a similar approach in analysing the appointment of professors at German universities, focusing on the hidden power games that are at play behind the closed doors. It demonstrates how the criteria for quality and decision making in appointment procedures (which are supposedly handled objectively) are negotiated, situationally modified and rewritten several times. Therefore, suitability is constructed as the mechanism for the persistence of male homosocial recruitment patterns which are enormously stable in higher academic positions. The established professors negotiate the necessary qualifications for new faculty members, choose the candidates and decide whether they fit into the faculty or whether qualifications should be re-interpreted in order to make them suitable. Van den Brink (2009) revealed various gender practices tied in with professorial recruitment and selection, such as the predominant recruitment by invitation, in which gatekeepers recruit new professors from their own homogeneous male networks. Committee members appear to engage in micro politics to bend the rules to their own advantage.

Despite many years of work to minimize gender bias in the workplace, women researchers often "disappear" after about a decade in academia, and this shows that women's advancement in science is too slow as this phenomenon continues to reoccur. It unravels and exposes the subtle mechanisms which maintain gender inequalities in higher education and research institutions, and demonstrates that the traditional view of science as gender-neutral is flawed.

The idea that we are not working towards a profound change on all levels at our institutions is a viewpoint which has been inspired by Ely & Meyerson (2000). We agree with their argumentation for working towards incremental change in parts of the organization, rather than aiming for an overall gender revolution: big overall

changes are difficult to achieve, power relations are not changed overnight and gender relations are contextualized in many different ways and, consequently, any efforts for change have to take these differences into account. Because gender relations are contextual, Ely & Meyerson also describe change processes as experimenting, until the desired effect has been achieved, rather than implementing ready-made solutions – which also appeals to us, as our experiences tell us that plans often do not work quite as intended and that continuing to experiment with different modifications is a more fruitful strategy than abandoning the work altogether. Therefore, the notion of a change process as a process of learning is, for both agents of change and the organization, in accordance with our experiences and also with the flagship initiative. Ely & Meyerson also suggest that, instead of achieving certain measurable results, an aim for a change flagship initiative should be stimulating an ongoing process of learning, regarding the ways in which gender relations are constituted in the organization and how they can be made more equal. We do believe in measurable results, where such can be expected in a timeframe of a project, but we agree that, as work for gender equality has to necessarily be perceived in a long-term perspective, initiating a positive cycle which will result in new action after the end of the project is even more valuable. In our approach, we are also inspired by other institutional transformation projects. Among them are Morrissey & Schmidt (2008), whose transformative project resembles our actions, such as basing the transformation on careful collection and analysis of statistical data, as well as identifying and supporting women on their way to leadership positions.

The nature and scale of the problem, how it is evolving, and why gender balance in HEI and research organisations matters was identified so far. The following chapter identifies the structural barriers and constraints which need to be removed in order to bring forward gender equality in HEI and research organisations.

3. Gender equality as Higher Education institutional transformation strategy

This article has reviewed the literature which addresses gendered structural constraints and subtle discrimination in both Higher Education Institutions (HEI) and research organizations. The focus has been placed on the mechanisms which account for the persistence of gender inequality in science despite the societal trend towards politics for more equal gender relations. Now the focus will be shifted towards the current changes in research institutions and their ambivalent impact on gender equality in science. Institutional change in universities as well as research organizations is driven by the so-called initiatives of New Public Management (NMP), which are intended to resolve the alleged inefficiency and excessive bureaucracy of public institutions by introducing market logic in the non-mercantile public sector. Central to this restructuring is the fostering of competition for

financial and personal resources within and between academic institutions. Therefore, NMP challenges the fundamental tenets of the traditional model of academic freedom, i.e. unconditional funding and minimal state intervention in the management of the system (Prichard & Willmott, 1997). Managerialism is channelled through the development of higher levels of quality monitoring of both institutions and individuals via a range of regulated evaluation schemes and performance measures which are designed to foster efficiency by increasing competition and financial accountability. In the managerial model, top-down decisions are made and university is transformed into a business enterprise – accountability, evaluation and economic efficiency are the key words. NMP initiatives first developed in the 1980s in UK universities and later expanded to other national contexts, increasing competition for public funding and placing emphasis on transparency and accountability in the allocation of funds around the EU: detailed control of inputs and processes by national ministries are replaced by control of outputs and results, with greater external evaluation of research production, teaching and social partnership.

The gender dimension of this institutional change has been approached very differently across national contexts: one explores the ways in which NPM might serve to foster gender equality in academia; Thomas and Davies (2002) contend that the restructuring of higher education appears to be geared towards a highly individualistic and competitive culture which promotes a masculine subjectivity and a career path which does not contemplate other career options and domestic commitments. Their qualitative study in three universities presents the extent of concerns of female faculties regarding the intensification of work and the increased working hours, coupled with increasing student numbers, shrinking resources, the widening range of academic tasks, the increase in administrative tasks and greater accountability for performance. Barry et al. (2006) claim that women academics in both countries face more difficult compromises than their male counterparts in order to continue working in higher education. Other empirical studies have also highlighted the way in which some academics have so far been able to maintain their power and autonomy (Carvalho & Santiago, 2010). Other authors discuss, mainly theoretically, the potential benefits of NMP restructuring for gender equity in academia (Castaño et al., 2010). Departmental cultures are important for fostering women's presence and career advancement in academia with more supportive, collegial, inclusive, family-friendly environment, when the overall academic culture is particularly individualistic and competitive. One of the most comprehensive studies is that of Etzkowitz et al. (2000) in the US. Their study identifies the most successful type of strategy for change which can help make departmental cultures more relational – a strategy for departmental reform: initiatives led by the departmental manager or those who hold departmental power. This type of strategy may reflect the potential of

the new organisation in scientific work, if it can involve a critical mass of male and female faculty members who are like-minded in terms of issues concerning career and family balance, the tenure clock and other specific obstacles which many women and some men face along their scientific career path.

Although all accounts of gender mainstreaming imply significant changes to gendered institutions, a range of different visions or models of gender equality have been invoked. Three models of gender equality have often been identified as the key ones (Rees, 1998). The first model is the one in which equality based on *sameness* is fostered, especially where women enter formerly male domains, and the existing male norm remains the standard. In the second one, there is a move towards the *equal evaluation* of existing and different contributions of women and men in a gender-segregated society. The third model is one where there is a new standard for both men and women, that is, the *transformation of gender relations*. Rees (1998) describes the first model as 'tinkering' with gender inequality; the second as 'tailoring' situations to fit the needs of women; the third as 'transformation' in which there are new standards for everyone, which replace the segregated institutions and standards associated with masculinity and femininity.

R. J. Ely and D. E. Meyerson (2000) considered three traditional approaches (frames) to gender and organizational change. They discussed the limitations of each as a basis for organizational analysis and change, and proposed a fourth non-traditional approach, which treats gender as a complex set of social relations enacted across a range of social practices in organizations. This typology is rooted in the distinctions which we perceive in different conceptions of gender and the resulting courses of actions the organizations have taken to address the problem of gender inequity. Typology is valuable for us because each approach is conceptualized as a "frame" for understanding what gender is and why inequities exist between men and women at work. From the perspective of first frame, *Fix the women*, gender is an individual characteristic marked by one's biological classification as male or female. Sex-role socialization produces individual differences in attitudes and behaviours between men and women, which have rendered women less skilled than men to compete in the world of work. These socialized differences account for inequalities between men and women in the workplace. Accordingly, if women developed appropriate traits and skills, they would be better equipped to compete with men. They would advance at rates comparable to men and would assume a proportionate share of leadership positions. Within this frame, organizational interventions designed to eliminate sex inequality eradicate socialized differences by strengthening the skills of women in order to provide them with the wherewithal, as individuals, to perform on a par with men. Women are the sole targets of such efforts. According to this approach, educating and training more women for business and professional

careers is key to easing the difficulties organizations have faced when recruiting women into positions traditionally held by men. These efforts produce an enhanced applicant pool and create a pipeline of qualified women to fill these positions. Executive training programs, leadership development courses, networking workshops, and assertiveness training programs which focus on helping women develop the skills and styles considered requisite for success are representative of this approach. These interventions which are aimed at "fixing" women, are the ameliorative strategies organizational researchers commonly recommend for achieving greater equality in the workplace. The generally acknowledged paradigm shift in research and in policy building has occurred over the years, moving away from focusing mainly on the coping strategies of women towards addressing barriers to gender equality in organisations. Interventions recommended in this frame purposely leave the existing organizational policies and structures intact and are meant to assimilate (some) women with minimal disruption to the *status quo*.

According to the second frame, *Value the feminine*, "women's difference" from men is, in particular, their "relationship-orientation" which has traditionally marked them. Women have been disadvantaged as organizations place a higher value on behaviours, styles, and forms of work traditionally associated with men, masculinity and the public sphere of work, while devaluing, suppressing or otherwise ignoring those traditionally associated with women - femininity and the private sphere of home and family. The goal of interventions developed within this frame is, therefore, to give voice to women's point of view, to articulate the ways of being and interests of women. Interventions suggested by this approach include consciousness-raising and training people to become aware of the differences between styles, skills and perspectives of women and men; to point out the ways in which feminine activities, such as listening, collaborating, nurturing, and behind-the-scenes peace-making, have been devalued in the public sphere of work; and to demonstrate the benefits of these activities. Organizational interventions based on the second frame not only fail to challenge the hierarchical valuing of these categories, but also are erroneously based on particular versions of masculine and feminine as if these were universal, enacted in the same way with the same meaning across all groups of men and women. As a result, this approach also targets a limited group of women.

The third approach, *Create equal opportunities* to gender equity, focuses on structural barriers against the recruitment and advancement of women. From this perspective, gender is still framed as differences between men and women; however, these differences result not from socialization processes, but from differential structures of opportunity and power which impair women's access and advancement. These include hiring, evaluation, and promotion processes which not only reflect sexist attitudes towards and expectations

of women, but also reward men's structural position over women's. The aim of interventions in this frame is to create equal opportunities for men and women in the organization by dismantling these structural barriers to equality. Interventions designed within this frame are largely policy-based. They include a number of familiar remedies, such as: instituting affirmative action programs which revise recruiting procedures with the aim of increasing the proportion of women in positions traditionally held by men; establishing more transparent promotion policies to ensure fairness; instituting formal mentoring programs to compensate for greater access for men to informal networks; constructing a range of possible career paths to provide alternatives to "up or out" internal labour market practices (Schwartz, 1989); and introducing flexible work requirements and other work-family programs to accommodate the disproportionate responsibility for dependent care, which typically falls to women. All of these policy-based programs are designed to eliminate or compensate for the structural barriers which make it more difficult for women to compete with men. These interventions have undoubtedly helped improve the material conditions of women's lives. In particular, they have helped organizations recruit, retain, and promote more women in entry and middle levels and, to a lesser extent, senior levels as well. This, in turn, has increased the number of role models and same-sex mentors for women and decreased the constraints and stresses of tokenism, creating an environment which is more hospitable to women, but they have provided no panacea.

The most valuable for our purposes is the fourth frame, *A nontraditional approach to gender*, due to its conception of gender and its grounding in a different set of theoretical and epistemological positions. From this perspective, gender is neither an individual characteristic nor simply a basis for discrimination. Instead, it is a complex set of social relations enacted across a range of social practices which exist both within and outside of formal organizations. Here we focus our attention on the social practices, ranging from formal policies and procedures to informal patterns of everyday social interaction within formal organizations. These social practices tend to reflect and support the experiences and life situations of men, because they have been created largely by and for men (Acker, 1990; Martin, 1996; West and Zimmerman, 1987) and when considered in organizational life, they appear to be gender-neutral. These social practices, however, maintain a gendered social order in which men and particular forms of masculinity predominate, because they emerge from the conditions which characterize men's lives. The HEI workplace social practices include *formal policies and procedures*, such as work rules, labour contracts, managerial directives, job descriptions, and performance appraisal systems. They also include *informal practices, norms, and patterns of work*, such as the norms of an organization or a work group regarding how work is to

be done and what kinds of relationships are required to do it, the distribution of roles and responsibilities, the information people receive regarding advancement in the organization, and the organization's tacit criteria for competence, commitment, and "fit." Many of these practices implicitly or explicitly place a higher value on the prototypical male, masculine identity, gender scheme or masculine experience. Job descriptions for positions of authority which seek masculine-gendered traits, such as aggressiveness, independence and competitiveness, without consideration of other traits which may be equally or more relevant to the job requirements, are one example of a formal procedure in organizations which is oppressively gendered. An example of an informal practice which is oppressively gendered is using unrestricted availability to work as evidence of one's commitment to the organization, which disadvantages women, who, as the traditional caretakers of home and family, typically have more demands on their time outside of work. The informal practice of using geographical mobility as a prerequisite to upward mobility is also gendered because, although applied equally to men and women, it is more limiting for women, who are more likely to be in dual career situations than men. These social practices which recognize and reward committed, hard-working employees who seek aggressively to advance their own and the HEI's goals, seem gender-neutral, even honourable, on the surface. The *social interactions* within HEI, which people construct and convey, can also assume oppressive forms and play a crucial role in the gendering process in organizations. These social practices create systematic distinctions between and among men and women, depending partially on their ability and willingness to conform to the dominant cultural images these practices uphold, i.e. distinctions which serve to justify disparities in the material conditions of their lives. Consequently, these social practices constrain and limit opportunities not only for women, but for many men as well. Identifying these social practices and documenting their effects on the experiences of both women and men forms the basis for an analysis of gender inequity within non-traditional frame. The intervention strategy implicated in this conception of gender is one which continuously identifies and disrupts that social order and revises the structural, interactive, and interpretive practices in organizations accordingly (Meyerson & Fletcher, 2000). There is no identifiable endpoint to this approach; rather, the process of change it advocates is both its means and ends.

In order to conceptualise the design of institutional change at SU, we profoundly analysed the different theoretical perspectives to explain the exclusion of women researchers, as well as the related structures and barriers. *Transformational change* is defined by Eckel and Kezar (2003) as a particular type of change associated with intentional strategies to influence deep levels of organizational behaviour over a period of time. The conceptual models, cultural, social-cognition, and

political, are models for analysing and understanding change. Research which regards cultural, social-cognition, and political models demonstrate that transformational change is unlikely at most institutions, while incremental adjustment is more likely (Kezar, 2001).

In order to design institutional transformation in this study, we explore the definition of *transformational change* in terms of Expert Group on Structural Changes (EG-SC, 2011). *Transformational change* is a strategic means which is steered by institutions which employ research staff. Through operating transformational change, research institutions demonstrate significant gender awareness and competency to employ gender as a resource to produce new knowledge and stimulate innovation by modernizing their organizational culture. The ultimate objective of the change process is to work towards a better relation between genders and an equal representation of both sexes at all levels of staff in an institution. Operating transformational change effectively demands awareness of the statistical base, periodical examination of institutional processes (such as recruitment, promotion, retention), the willingness at the top of the institution to open up discussion, to sustain the process of self-study and change, and support the achievement of organizational goals within a supportive climate. Institutional transformation initiatives are expected to include innovative and systemic organizational approaches to transform institutions of higher education in ways which will increase the participation and advancement of women in STEM academic careers. Nevertheless, structural changes at HEI and research organizations which enhance professional excellence, gender equality and efficiency in research and innovation are studied as well. Institutions often consider it necessary to redesign the structure of the company due to influences from the internal or / and external environment. Structural changes involve the hierarchy of authority, goals, structural characteristics, administrative procedures, and management systems. Almost all of the changes in the ways an organization is managed falls under the category of structural change.

Structural change in universities and research institutions refers to increasing gender-awareness in human resource management in universities and research institutions, thereby modernising their organizational culture. This has important implications for equal opportunities, full realization of talent, appeal of scientific careers, and quality of scientific research. It implies systemic, integrated, long-term approaches rather than piecemeal short term measures. A structural change may be as simple as restructuring the institution to meet the needs of academic and research staff more effectively.

As a result, it is high time to review the key strategies associated with institutional transformational change. Eckel and Kezar (2003) identified five core strategies for implementing institutional transformation in higher education: 1) active participation of senior administrators (leadership, key administrators); 2) involvement of key

stakeholders (broad participation, lobbying, partnering); 3) flexible vision (being strategic, framing); 4) staff development (expertise); 5) visible actions and outcomes (broad participation?). Institutional transformation changes, “organizational structures and processes, leads to reorganized priorities, [and] affects organizational assumptions and ideologies” (Eckel & Kezar, 2003, p. 53). Eckel and Kezar (2003) presented a Mobile Model for Transformational Change with five core strategies: a) senior administrative support, b) collaborative leadership, c) flexible vision, d) staff development, and e) visible action. These core strategies provide leadership guidance through the change process and a structure to conceptualize the transformation process.

The report *Structural change in research institutions*, et. al. (2012) reveals the essential elements of structural change, which are needed in order to overcome the barriers to effective practice which are created unwittingly within organizations over time:

- 1) Knowing the organization;
- 2) Securing top-level support;
- 3) Generating effective management practice.

The underlying aim is to dismantle the no longer justifiable gendered hierarchies and to establish more democracy in research and higher education institutions. The five problems facing research institutions can be transformed into five solutions:

- a) Making decision making transparent by co-opting more women into boards, etc. and suggested measures imply: making in-house women more visible, forming gender-balanced committees, making nomination and election to committees and boards more transparent;
- b) Removing unconscious bias from institutional practices. Suggested measures: training (up skilling) decision makers; funding comprehensive structural change efforts designed to create models for effective practice; rewarding effective practices and providing recognition, such as awards for research institutions which demonstrate effective leadership on gender equity; creating measures such as periodic reports on key indicators;
- c) Promoting excellence through diversity for tackling societal challenges. The key areas where impact can be made are: enhanced cognitive creativity and more effective capacity in collaborative work and problem-solving in research teams and project consortia; enhanced scientific human capital for knowledge production and utilization; improved scientific cultures (by diversifying the values of the participants in scientific discourse and diluting prevailing implicit stereotypes);
- d) Improving research by integrating a gender perspective;
- e) Modernising the management of human resources and the working environment: to take substantial steps towards addressing the gender pay gap and the working conditions in research, and for the reconciliation of work and family life.

Specific barriers and constraints which need to be removed to achieve systemic change may be summarised as follows: lack of policy commitment to structural

change; opaque recruitment methods; work environment and working conditions; appraisal system for career evolution does not sufficiently regard life course development; stability of employment is lacking in the early stages of research; career development strategies in research organisations are often non-existent or opaque; mobility of researchers often fails to include career breaks and career reintegration; management of research which shapes hiring, tenure, promotion, nomination for prizes practices, decisions on the strategic research orientation, choice of topics and projects, definition and evaluation of research excellence, continues to be male-dominated; content of research does not sufficiently include gender as a subject matter; gender education is not sufficiently incorporated in the curricula of the education system. All data of experimentation suggests that different strategies work best for different kinds of change.

I. Steven and I. V. Lamoen (2001) provide a more systemic approach to gender mainstreaming at universities as a general instrument for introducing equal opportunities in knowledge-based organizations and as a strategy to improve the quality of culture for academia. It is based on the European Foundation for Equality Management model (EFQM, 1999), promoting gender equality to the quality of core activities of academics, and to the efficiency and effectiveness of the managerial practices in these matters.

S. Sturm (2006) developed a multi-level systems approach for developing and sustaining efforts to address structural inequality and to advance full participation within institutions. It is intended as a framework which is useful to those engaged in the process of understanding and promoting institutional change which advances full participation at HEI. The *Architecture of Inclusion* framework integrates theories which combine the “what” (pragmatic vision), the “how” (mechanisms and strategies) and the “who” (change agents). The multi-level systems framework consists of: individual (micro), relational, unit, institutional, inter-institutional and ecosystem levels. S. P. Sturm, et. al. (2011) developed a new normative framework and methodology for pursuing inclusive institutions and for building the foundations to sustain the practice of inclusiveness. A crucial step in her work is the move towards institutions as the focus for analysis and intervention. Interventions aimed at institutional practice have the appeal to improve the conditions which shape the experiences of individuals and to connect local experimentation to national networks. Institutions, such as universities and their constituent departments, organize the decision making and activities of individuals. They shape how individuals participate in their workplace, while also managing the relationship of individuals with the profession and society in broader terms. They often operate within a network of similar institutions, such as other universities, disciplines and professional associations. Institutions are both lasting and permeable. They mediate how norms and policies are translated into practice. They are an

important location for cultural meaning-making and for producing sustainable change. S. P. Sturm offers three related ideas in service of advancing workplace equity through institutional transformation: development of norm of institutional citizenship as a justification and goal for diversity initiatives; development of new institutional roles to energize the pursuit of institutional citizenship known as “organizational catalysts”, acting as information entrepreneurs and bridge builders at pivot points which can leverage change; introduces the role of institutional intermediaries in sustaining and providing accountability for this institutional change process. Institutional intermediaries are public or quasi-public organizations which leverage their position within pre-existing communities of practice in order to foster change and provide meaningful accountability.

A wider range of research identifies social, psychological and organisational processes which contribute to the reproduction of workplace inequality. These processes persist because they are embedded in and reinforced by everyday norms of behaviours, structures of knowledge and belief systems which are taken for granted and, therefore, not held up to scrutiny. Gender inequalities persist in HEI workplaces because the processes which create them are part of the normal and legitimate workings of contemporary institutions. Universities operate in highly institutionalized environments, such that many of the structures, rationales, regulations, orders and ceremonies which govern university life persist for reasons outside of their instrumental value. Professions, disciplines, study courses or research areas shape and constrain the nature and form of knowledge, careers are organized by discipline, and tenure preserves the sanctity of academic freedom. Therefore, the representation and advancement of women in academic STEM positions is affected by many external factors which are unrelated to a woman’s ability, interest and technical skills. Such factors include, but are not limited to: stereotype threat, societal impacts, organizational constraints of academic institutions; differential effect of work and family demands; implicit and explicit bias; and lack of women in academic leadership and decision-making positions. The cumulative effect of such diverse factors has led to the creation of infrastructural barriers which impact the number of women entering, persisting and advancing in STEM careers.

Therefore, in order to transform a university, a project of paradigmatic institutional change is needed, which requires a change of structures, as well as a change of managerial knowledge, understanding, and beliefs which have long been taken for granted as normal, neutral and legitimate.

4. Designing a conceptual framework by employing the model of institutional transformational change at Siauliai University

Transformational change is a holistic and system approach, deriving its power from attending equally

to the hearts and the minds (the inner life of human beings), human behaviour, and the social systems and structures in which they exist. Therefore, it tends to be multi-disciplinary, integrating a range of approaches and methodologies. By approaching all elements of human systems holistically, transformational change aims to be irreversible and enduring. Studies, measures and actions in this regard have been the object of intense debate, which has gradually revealed the need for a new paradigm for policies to promote women in science. Indeed, these policies should increasingly aim to strengthen the capacity of research and innovation in research institutions through a structural change focused on the appreciation of all the different skills and competencies available. In particular, ADVANCE NSF, Athena SWAN, GENDERA, PRAGES has demonstrated that, to create an impact and achieve results in the medium and long-term actions for gender equality, it is essential to concurrently adopt a holistic approach (able to take into account the full spectrum of topics and issues to be addressed) and an analytical one (grounded on the knowledge of the actual context in which it occurs) in order to identify the most effective solutions. ADVANCE's integrative and inclusive approach goes a long way in establishing its constitutionality during more than one decade. European research, empirical studies and good practice are oriented more towards theoretical recommendations for effective initialization of structural change, requirements for making structural change sustainable, and requirements for monitoring and measuring impact. Shared views which promote the focus on any single issue, be it managerial practices or unconscious gender bias, can achieve temporal success, but a comprehensive strategy is necessary for achieving systemic improvement of gender equality in HEI and research. However, systemic improvement can challenge systemic changes effectively, and it can be initiated and sustained by both holistic and integrated approaches with tools for addressing each and all multi-layered dimensions: recruitment practices; work environment and working conditions, appraisal system for career evolution; stability of employment; mobility of researchers; supporting dual researcher couples; management of research; content of research; and gender education (Avramov, 2011). Conceptual framework of the model of institutional transformational change at Šiauliai University is related to social innovation by capacity building: developing adequate knowledge, incentives and institutional infrastructure, so that the university can tackle the difficult problem of increasing the participation of women. The implementation of innovation as described by Eckel and Kezar (2003) includes new, specific, tangible products, processes, services, or procedures (in our case, T-GAP) which are intentionally introduced within an organization with an expectation for positive and perhaps significant benefits. Innovation pushes the organization to respond beyond its current established processes. Leadership recognizes the potential contributions of the new innovation within the

organization, and adopts the specific, tangible product, process, service, or procedure.

In developing our approach to institutional transformational change, multiple conceptual frameworks were employed: holistic approach focusing on women researchers and structural reorganizations considering the needs in professional lives of women (Declich, 2011; PRAGES, 2009; Sturm, 2006); culture of the institution, including quality (declared, aimed at conduct, ethical standards and values of a community, conditioned by national, socio-political and legal traditions), development and change (Kazlauskienė *et al.*, 2012); structural / institutional approach to gender or gender structure approach which emphasizes the factors which are external to individuals, such as the organization of social institutions, including the concentration of power, the legal system, and organizational barriers which promote inequality (Eitzen & Baca-Zinn, 2006); system approach – identification, understanding and managing interconnected processes as a single system with the aim of improving gender equality in ŠU; process approach – a desirable result is achieved more effectively when interrelated resources and activities are managed as a single process; gender-sensitive or equality approach (treats gender as a fundamental and ubiquitous problem², with women and men both “needing to change”) through gender analysis (Sinnes, 2006; Lorber, 2001); the transformation of gender relations describing new standards for everyone, replacing the segregated institutions and standards associated with masculinity and femininity (Rees, 1998); synthesis of modelling institutional transformation change (Sturm, 2011; Plummer, 2006; Eckel and Kezar, 2003) using: 1) cultural change models which assume that change occurs in response to alterations in the internal human environment (Morgan, 1986), including alteration of values, beliefs, myths and rituals (Kezar, 2001; Eckel & Kezar, 2003). The cultural models tend to place emphasis on the collective process of change and the significant role of each individual in the process of change. Such change is long-term, slow, unpredictable, non-sequential, and seemingly unmanageable (Kezar, 2001), and 2) social-cognition models (Collins, 1998; Kezar, 2001) incorporating human behaviour, individual learning and individual sense-making, and alters individual beliefs and construction of reality. The social cognition models emphasize discussion and learning among the participants, the opportunity for participants to discuss, debate, reframe and make sense of the proposed changes allows for creative results.

Although there are many elements of other research and/or evaluation paradigms (e.g. constructivism with a lens of social justice or what Creswell & Piano Clark (2009) call an advocacy and participatory paradigm), we tend to identify more with those belief systems which Mertens (2009) define as the transformative research paradigm. The transformative research paradigm is a useful theoretical umbrella under which to explore the

philosophical assumptions and guide methodological choices for research approaches which have been labelled as critical theory, feminist, participatory inclusive, human rights based, etc. Briefly, it is a framework of belief systems which directly engages members of culturally diverse groups with a focus on increased social justice. It focuses on the tensions which arise when unequal power relations permeate a research context which addresses intransigent social problems (Mertens, 2009; 2010; 2011; Green, 2007). The basic beliefs of the transformative paradigm are: axiology, ontology, epistemology and methodology. The assumptions of the transformative research paradigm are logically derived from the three following assumptions (Mertens, 2011):

1. Axiological assumption leads to participating researchers planning their research in accord with research guidelines developed by the community of the Faculties itself.

2. Ontological assumption calls upon researcher to develop strategies for determining different versions of reality, the factors which are related to those versions in terms of power and privilege, and the unveiling of the potential for social change associated with those different versions of reality.

3. Epistemological assumption leads to establishing relationships in order to determine ways in which the study can be more culturally responsive.

Transformative methodological assumptions suggest that: researchers start with collecting qualitative data to learn about the community and to begin establishing trusting relationships; supplementing qualitative data with quantitative data, e.g. statistical repositories, also suggests that data collection would rarely occur as a single collection of data with previous type; most likely mixed methods with cyclical collection of data and data iteration.

Having clearly stated the conceptual framework, the identification of relevant research findings and construction on existing research and practice suggest a Model of Institutional Transformation change, in which initiatives are implemented at various institutional levels, leadership and communication strategies are employed to advance the change effort, and all elements are compatible with the culture of the institution. This Model is built on the integrative gender equality approach, i.e. on interventions typical of the other three frames (empowering women or fixing women; valuing differences or female-friendly approach; creating equal opportunities or opportunities which are gender sensitive or equal through gender analysis), but it is broader and more profound, focusing on systemic changes in work culture and practices which will benefit women, men, and the organization (revised and transformed academic work culture). Following this approach, the gender equality approach in our case refers to an equal shares of assets and is conceptualised rather broadly as an equal shares of paid work, money, decision-making power, knowledge and time.

Therefore, the aim of the model is to produce sustainable structural change for the benefit of scientific research institutions or universities and the career paths of women researchers by implementing contextualised transformational gender action plans and using tested tools and instruments to support an effective and comprehensive organisational gender management strategy. The model clarifies the connection between the *conceptual framework*, the issues identified through the analysis of institutional data, the proposed plan (T-GAP) and participative action research; build the *infrastructure* necessary to implement the proposed T-GAP (defines a management plan which details how implementation is organized; the plan describes leadership, participants and partners and identifies their expertise, roles and level of effort) *interventions*, namely: empowerment of HEI's decision makers; change in organisational structure; career progression for female researchers, development and support; balancing of work-life; *ongoing internal and external monitoring and evaluation* of T-GAP progress and impact; objectives, benchmarks, and indicators of progress which will enrich stakeholders' understanding of essential factors for judging accountability, which are both quantitative (for example, indicators of the representation of women in various academic ranks, in recruitment and promotion pools) and qualitative (the process of change in organizational culture, experiences of academic climate, work culture).

This model suggests the centrality of the culture of an institution as a force which shapes the change efforts, while simultaneously being the target for improvement:

I. Political context:

a) Historical heritage plays an important role in the explanation of the position of women in scientific professions. During the 1970s and 1980s, the percentage of women scientists and engineers was considerably higher than it was in Western Europe. According to Reingarde (2009), the importance of education in the Soviet past has led to the emergence of a considerable proportion of highly-qualified women active in all public spheres, notably in science. The transitional period has led to the restructuring of research systems in Central and Eastern European countries and has generally been characterised by a sharp decline in funding allocated to science, a decrease of the research population, changes of formal and informal requirements for scientific productivity, and numerous reforms of the legal basis and institutional structures of the Lithuanian system of science and education. Even though these changes equally affected male and female scientists, the consequences of the transition have left women scientists in a more vulnerable situation;

b) Integration into EU Higher Education and research areas: in 2006–2011, the University was implementing a reorganisation of the study process in accordance with Dublin Descriptors, studies have been reorganised to become student-centred and more internationalized. While conducting research and producing art, SU bases its

activities on the documents of European RE (the Lisbon Strategy, documents of EUA, documents of the Bologna Process, 2020 Europe: The Strategy of Progressive, Sustainable and International Development, 2020 A Vision of European Research, the Green Book “European Research Area. New Prospects,” etc.). The University aims to achieve the aim of the ERA, which is to create an era of open knowledge and technologies in which opportunities provided by international collaboration could be comprehensively exploited. EU communiqués, in order to implement the Lisbon Strategy, set three main objectives for HE: to achieve a high level of quality, to improve management and to increase financing received from various sources. The implementation of these criteria is achieved via the following subprocesses: research internationalization, participation in research programmes, international dissemination of research and outcome, encouragement of free movement of researchers, knowledge and technologies, reinforcing participation in EUA and other international association networks, promoting international collaboration in the spheres of science, and training of researchers. SU research is oriented towards more interdisciplinarity, and is expanded to other spheres – technologies, biomedicine, and agriculture (which was traditionally dominant in the science of education before 1998);

c) Law on equal opportunities for women and men came into force in 1999, Law on equal treatment – in 2005. When becoming a member of the EU, Lithuania fulfilled the requirements for national policy-making mechanisms which integrate gender equality and gender mainstreaming. However, the government has made a clear political choice by choosing an “expert bureaucratic” model for implementing gender³ (Šidlauskienė, 2005)

II. Analysis of organisational culture to gender – declared, demonstrated and aimed at conduct, ethical standards and values of a community by national, socio-political and legal traditions; status and profile, external relationships, mission (statement: *We are here to generate new ideas, disseminate new knowledge and apply it, and to develop society and its leaders!*), vision, commitment to community by fostering a friendly environment, attitudes, behaviour, norms and values (openness, responsibility, creativity, enthusiasm) of the institution staff members and the work unit’s identity and history.

Strategic aims and strategies set to achieve them in the SU Strategic Development Plan for 2009-2020 are related to the implementation of SU’s mission and compatible with the provisions of strategic documents of national and European research and study policy.

Structure: Organizational chart; positions in the institution and Faculties; division of tasks; responsibility and authority.

System: Procedures and tools for T-GAP analysis, planning, monitoring and evaluation; decision-making processes within the Faculties.

Process management – efficiency of decision making, delegating responsibility and accountability, allocation

of resources, involvement of interested parties (partners), orientation towards strategic aims and outcomes. The management of University is based on the latest national legal acts, according to which the main governing body of University is the Council, the Senate, and the Rector. The implementation of the main management processes is based on the requirements of the Internal (Studies) Quality Management System (ISQMS). SU has distinguished three groups of processes: leadership (strategic and quality management), key (studies, science and art) and additional (all other processes, according to the ISQMS model). The responsibility and accountability for the processes, activities and procedures is divided according to the levels – from top to bottom – and according to the activities. All the activities related to the processes are carried out in accordance with internal and external documents

Management of human resources includes: Organizational structure; data of gender statistics; personnel dynamics; optimization of management process; provisions of academic ethics and procedures for their assurance; knowledge and information (produced and accessible within the institution and Faculties); International dissemination of research and art; free movement of researchers, knowledge and technologies; research ethics and intellectual ownership rights.

The academic and research staff of SU improve their competence which is assessed every 5 years (at the institutional level on the basis of *The Interim Regulations of Assessment of SU Staff Members and Lecturers for the position*, 2010) or more frequently as unconventional assessment.

Distributing the academic load, the competence of lecturers, according to the research publications relevant to the subjects taught, is taken into consideration. The departments have the teaching and methodological activity plans of their lecturers, in which every teacher plans activities in order to improve their competences.

All the enumerated elements below need to be assessed for the effects on the capacity of faculty work to promote gender equality.

III. Gender Study and Research Centre is a structural interdisciplinary unit of SU (since 1997) responsible for the implementation of gender equality and gender mainstreaming at the institution. In 2005-2010, EQUAL initiative realised the social innovation *Family-friendly University* at SU. The main aim of the framework of family-friendly institution was to create and test innovative methodology and means for educational institutions and organizations, initially reconciling family and professional life and attempting to change the stereotypical gender roles in family and in work, by creating a family-friendly study and work environment.

IV. Implementation and communication (relational) infrastructure as change agents.

1. Management structure and procedures

The overall management system for the project operates via two interlinked and complementary

management structures: the Implementation structure, replicated in organisation, which delivers practical implementation in this organisation, and the project structure, which manages the project across the organisation. Key personnel fulfil roles within both structures in order to enhance coordination and communication between the two throughout the duration of the project. Implementation Management structure framed off the Senior Management Team is the executive function at SU. Two members of this team will also constitute a part of the Institutional Implementation Team to enhance communication between the two levels and demonstrate commitment to management. At SU, these members will be the Rector and the internal auditor. The Senior Management Team will receive reports on key issues, successes and obstacles to implementation, along with recommendations on how these will be resolved and embedded within the institution as a whole. The Institutional Implementation Team (“tens”) is composed of the two senior management team members, the gender expert, the Head of Unit where the local implementation will take place, and a senior scientist from the Faculties, who will ensure that the voice of the group is heard at implementation level. They will develop, agree on and champion the T-GAP, consider the knowledge gained from local implementation and how this can be transferred to the institution as a whole, and submit recommendations to the Senior Management Team. The Institutional Implementation Team will receive reports from the evaluators and participate in the Exchange of Experience Seminars. The Local Implementation Team (“sixes”) is responsible for implementing the T-GAP at the local level within the faculties of Mathematics and Informatics and Technology. Members will monitor and review progress on implementation, and reports will be presented to the Institution Implementation Team. The member with career development responsibilities will maintain and overview the impact on women’s careers within the local unit. These two interdisciplinary teams (“sixes”, “tens”) being at moment change, addressing the process of change and manage the implementation the T-GAP. These interdisciplinary transition management teams are initially formed, they require interdisciplinary team building and team development, acquisition of change management skills: how to use information to promote changes, how to motivate diverse constituencies to assume responsibility for addressing the barriers to the participation of women within their own domain; how to share roles and develop strategies for institutional learning and change; preparing for change; acquiring change management capabilities; managing change; projecting change management plans and activities customized based on the characteristics of the change and the unique attributes of the institution acting as change agents.

2. Advice and consultations with project ambassadors, sister EU projects, external experts, institutional external monitors; reviewers in evaluation of outcomes, report with outcomes and lessons learned.

V. Change initiative at the faculties of Mathematics and Informatics and Technology as well as their departments using Transformational Gender (equality) Action Plan (T-GAP) **strategies** Tasks, which are undertaken to implement the strategies and achieve the objectives and outcomes of the institution.

5.1. Moving from an individual change plan to a departmental change plan (*I am learning and changing – we are learning and we are changing*) by using learning critical feedback (mapping or narrative).

5.2. Preliminary qualitative and quantitative indicators of lasting transformational institutional change, using pervasiveness and criteria for depth, according to the typology of change (Eckel and Kezar, 2003) by Gender Quality Questionnaire: What is the quality of the Faculties’ implementation of the institution’s T-GAP gender policy? The outcome of the expected institutional transformational change in culture is a change from the mixed role-power culture (bureaucratic; line management; hierarchical decision making; significance of leaders; competitive; emphasis on results, outcomes) to achievement-support culture (following Harrison, 1994) indicators which are person-centered; formal and informal support services; consensus-based; personal empowerment; limited constraints on staff).

VI. Reproducibility/Transferability elements: describes the T-GAP elements (tools, measures, etc.) which can be reproduced in other contexts.

If all these elements are aligned, then they combine together to achieve success. Transformational change, the profound and lasting change, requires time and energy, intention, congruency, and interrelatedness across departments and employee groups. Innovative intervention as change initiative is an ongoing process of enquiry, experimentation, learning and participative action research. This process is a challenging task, a long-term and interactive process. To initiate change, two faculties along with administrative leaders and change agents (an interdisciplinary team) must communicate the value of the change effort and be persuasive enough by having credibility and organizational authority.

Conclusions

1. The last decades have witnessed impressive advances of women in education and science, the enforcement of equality legislation, the progressive loss of importance of physical attributes for productivity, changes in family roles and the challenging of traditional gender norms by gender equality policy. But women remain more severely underrepresented among researchers than among other highly qualified professionals in the STEM field.

2. The review and synthesis of the literature and empirical work on the institutional transformation of higher education institutions reflects that only systemic improvement can effectively challenge systemic changes, be initiated and sustained by a holistic approach and an integrated approach with tools to address each and all

multi-layered dimensions: recruitment practices; work environment and working conditions, appraisal system for career evolution; stability of employment; mobility of researchers; supporting dual researcher couples; management of research; content of research; and gender education.

3. There is an increasing recognition that the lack of full participation of women at the senior level of higher education institutions is often a systemic consequence of academic culture. In order to catalyze change which will transform academic environments in ways which enhance the participation and advancement of women in science and engineering, Šiauliai University seeks a model for institutional transformation. Much of this persistent inequality is structural in nature; it results from institutional and cultural dynamics which reproduce

patterns of underrepresentation and exclusion. Through this research experience, I have gained a deeper, wider and more complex understanding of transformational change within higher education, as well as of the processes of change used to implement the Model of Institutional Transformation at Šiauliai University. The suggested Model of Institutional Transformation foresees T-GAP in which planned measures will be implemented at various institutional levels, strategies of leadership and communication, and will be employed to advance the change effort, with all elements compatible with the culture of the institution. The designed model suggests the centrality of the institutional culture as a force which shapes the change effort while simultaneously being the target for improvement.

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(Endnotes)

1 There is no conclusive research regarding the impact of maintaining the 'dual role' on women's dedication to science and scientific production. Nevertheless, it has been confirmed that there is a link between a profession in research and family choices – female scientists are more often unmarried and childless than their male colleagues and women in general.

2 This position is supplemented with intersectional feminism, which views gender as a fundamental and ubiquitous problem, with women and men both "needing to change." Here, bias itself is a gendered concept, limited and framed within the current gender system. Connections with other social divisions, differences and oppressions are central, as are deconstructions of categories of sex, sexuality and gender, and the dualities often (re)produced through them. Gender categories are themselves open to change (Lorber, 2001).

3 Under the expert-bureaucratic model, assessing gender impact is regarded as a task to be performed by specialists. Those specialists might be gender experts with specialized training as well as a sophisticated understanding of gender relations. Alternatively, mainstreaming might be seen as the prerogative of administrators. While they may be thoroughly familiar with the policy-making process and the policy area in question, they are unlikely to possess a highly developed understanding of gender relations or a proper appreciation of the exact purpose of gender impact assessment. Under the alternative participatory-democratic model, a range of individuals and organizations are encouraged to contribute to any assessment of gender impact. This model promotes participation and access to policy-making and emphasizes the accountability of experts and officials (Beveridge et al 2000; 390).

LYČIŲ LYGYBĖS ĮTVIRTINIMAS AUKŠTOJO MOKSLO, KAIP INSTITUCIJOS TRANSFORMACIJOS PRIELAIDA

Santrauka

Dauguma, dabar egzistuojančių, akademinį sistemų ir struktūrų remiasi prieš šimtmetį sukurtais modeliais, kai vyrų vaidmuo šiose institucijose buvo dominuojantis. Šiuo metu vis dar egzistuoja daug skepticizmo galimų pokyčių atžvilgiu. Pastebimas akivaizdus atotrūkis tarp principų, retorikos ir realybės. 2010 m. moterys, daug aktyviau nei vyrai, siekė aukštojo mokslo bei aukštesniojo išsilavinimo, tačiau akivaizdu, jog moterų mokslininkų skaičius yra ryškiai mažesnis nei aukštą profesinę kvalifikaciją įgijusių vyrų mokslininkų. Galima daryti prielaidą, jog aukštojo mokslo institucijų kultūra bei sandara priešinasi moterų-mokslininkų integracijai į vyrų dominuojamą erdvę. Dažnai akademinės aplinka kelia aukštus reikalavimus moterims-mokslininkėms., bet retai gali konceptualiai tuos reikalavimus pagrįsti.

Šio straipsnio tikslas yra ištirti kaip aukštojo mokslo institucinė struktūra skatina arba užkerta kelią vienai iš esminių ES iniciatyvų „Realizuoti struktūrinius pokyčius mokslinėse Lietuvos institucijose bei universitetuose“, kurie turėtų pagerinti vidinę institucijų kultūrą, nukreiptą į moterų vaidmens pokyčius mokslo, technologijos, inžinerijos bei matematikos srityse (MTIM). Šis mokslinis tyrimas buvo atliekamas dviem etapais. Pirmasis etapas apima tyrimo koncepcijos bei metodologijos parengimą – kaip realizuoti institucijos kultūros pokyčius, siekiant darnios proporcijos tarp moterų ir vyrų mokslininkų MTIM struktūrose. Antroje tyrimo pakopoje bandyta parengti konceptualų institucijos pokyčių modelį, kuris įgalintų kaitą instituciniame, katedrų bei asmeniniame lygmenyse.

Nors dauguma įvairialyčių mokslo institucijų deklaruoja, kad lyčių lygybės klausimai yra sprendžiami, vis dar išlieka dauguma vyrų ir moterų, atstovaujančius fakultetų tarybų veiklą, manančių, kad moterims mokslininkėms yra sunku derinti karjerą ir šeimą. Pasak Rees (1998) egzistuoja 3 lyčių lygybės modeliai: 1) pirmasis modelis yra grindžiamas „panašumo“ tarp vyrų ir moterų principu, ypač tose srityse, kur dominuoja vyrai; 2) antrasis modelis orientuojasi į vienodą vyrų ir moterų indėlio į mokslinę veiklą vertinimu lytis segreguojančioje visuomenėje; 3) trečiasis modelis kelia naujus reikalavimus vyrams ir moterims, t.y. ragina transformuoti lyčių santykius.

Straipsnyje tai pat atskleidžiami trys tradiciniai požiūriai į lytiškumą bei organizacinius pokyčius (R. J. Ely and D. E. Meyerson 2000). Pirmasis požiūris „Moterų įvardijimas/fiksacija“. Moterys ir vyrai skirtingi tiek biologinėje, tiek ir socialinėje plotmėse. Socialiniai skirtumai išprovokuoja nelygybę darbo sferoje. Remiantis šiuo požiūriu, moterys turi tobulinti savo socialinius įgūdžius, kad lygiomis teisėmis galėtų konkuruoti biznio, mokslo srityse su vyrais. Laikantis moterų „fiksacijos“ požiūrio, organizacinė struktūra lieka nepakitusi, tai reiškia, kad moterys pačios turi prisitaikyti, asimiliuotis prie nusistovėjusios institucijos tvarkos. Antrasis požiūris „Moteriškumas yra vertybė“ arba moterys skiriasi nuo vyrų. Šis požiūris kovoja su nuostata, jog moteris yra silpna, jos vieta namie. Priešingai, jai reikia suteikti žodžio laisvę, gerbti jos moteriškumą, leisti moterims reikštingi ugdymo, auklėjimo srityse. Instituciniame lygmenyje šis požiūris menkai padidina lyčių lygybės galimybes, greičiau jas dar labiau paryškina.

Trečiasis požiūris „Sukurk lygias galimybes“ pasisako už lygias moterų galimybes įsidarbinant bei siekiant karjeros aukštumų įvairiose gyvenimo srityse. Ketvirtasis požiūris „Netradicinis požiūris į lyti“ atliekant šį tyrimą buvo naudingiausias, nes jis grindžiamas visiškai skirtinga teorine bei epistemologine pozicijomis. Lytis nėra laikoma nei specifine individo charakteristika, nei pagrindu diskriminacijai.

Socialinė patirtis rodo, kad vyrai vis dar dominuoja aukštojo mokslo institucijose, tačiau transformaciniai pokyčiai institucijose gali šią situaciją pakeisti. Tai susiję su institucijose kintančiais konceptualiais elgsenos modeliais, kultūrinio, socialinio pažinimo veiksniai bei politiniais sprendimais.

Struktūriniai pokyčiai mokslo institucijose nevyksta greitai, tai yra laipsniškas procesas naikinantis lytiškumu grindžiamą hierarchiją aukštojo mokslo įstaigose, demokratiškumo raidą mokslinių tyrimų srityse.

Apibendrinant tyrimo duomenis galima teigti, jog vis dar pasigendame aktyvaus moterų dalyvavimo aukšto akademinio lygmens tyrimuose. Tai įrodo, kad transformacijos aukštojo mokslo institucijose yra neišvengiamos. Empiriniai tyrimai, atlikti Šiaulių universitete Technologijos mokslų fakultete, patvirtina, kad lyčių nelygybę šiame fakultete sąlygoja institucijos struktūra, skatinanti moterų mokslininkų eliminavimą bei menką reprezentatyvumą aukšto lygio moksliniuose tyrimuose. Šiaulių universitetas yra pasirengęs įgyvendinti siūlomą institucijos transformacijos modelį įvairiais lygmenimis. Tai turėtų pakeisti institucijos kultūrą bei skatinti pokyčių siekimą.