



Female Empowerment in Science and Technology Academia

Expert Report 3.2

Individual Awareness Raising: research, development and implementation of training activities in four European universities.



TITLE: Individual Awareness Raising: research, development and implementation of training activities in four European universities.

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ABSTRACT

To raise gender awareness at an individual level, specifically among early- and mid- level women academics, research was undertaken in four universities, one each in Bulgaria, Denmark, Ireland and Turkey, to understand the differences in men and women's career trajectories. Overall, 106 men and women at early-, mid- and senior levels in the four case study universities participated in semi-structured interviews about their careers. The data was analysed and a range of themes were identified which facilitated the development of a training programme and a decision support software tool (FESTA Strategic Career Manager (SCM)). This report outlines the development, implementation and evaluation of the training programme and the beneficial outcome for individual women in terms of career advancement and for organizations in terms of gender awareness at all levels.

FESTA partners:

University of Uppsala, (Coordinator) Sweden
Southwest University, Neofit Rilski, Bulgaria
University of Southern Denmark
RWTH Aachen, Germany
University of Limerick, Ireland
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Executive Summary

Female Empowerment in Science and Technology in Academia (FESTA) is an EU-funded action-research project concerned with women's under-representation in Science, Technology, Engineering and Maths (STEM) disciplines in Europe. FESTA research focuses primarily on cultural, structural and organizational factors which impede women's progress in STEM. This sub-project, individual awareness raising, was undertaken to explore the ways gender operates at individual levels, specifically in relation to the way gender affects the different career trajectories of women and men in STEM. The aim of this sub-project is to improve women's participation in STEM, by empowering women to strategically manage their careers, to increase their awareness of the institutional procedures and politics that influence their work and careers, and help them to navigate the academic career system. The outcomes of this sub-project are a software tool (The FESTA SCM) and a training programme.

Four case studies were undertaken on universities in Ireland (University of Limerick) Bulgaria (South West University), Denmark (University of Southern Denmark) and Turkey (Istanbul Technical University). The career trajectories of men and women at early- mid- and senior levels were investigated to determine those factors which advance or impede a career in academia and a critical realist approach was adopted. The research sample included both men and women, based on their positions and their gender. Overall the sample included 106 individuals: fifty-seven men and forty-nine women.

Cross national analysis of the interview transcripts was undertaken using content analysis, following which a number of themes emerged. Themes included: the operation of gender at individual, interactional and institutional levels; the influence of family on women's careers; social supports differentially available by gender; constructions of masculinities and femininities and their implications for men's and women's careers in STEM and gender orders being maintained by academic capitalist career practices. This analysis facilitated the production of the competences, knowledge and skills required for a successful academic career in STEM. These competences were subsequently developed into the nine modules which make up the FESTA Career Training Programme and were also used to populate the knowledge base for the FESTA- SCM.

Overall, seven sets of competences, knowledge and skills were identified, which are required for a successful career in academia: Publications; gender in STEM – things you need to know; Personal resources and/or barriers; Strategic career planning (things you need to know and things you need to do); Visibility – locally, nationally and internationally; Networking and Skills. For each of these sets of competences, detailed definitions were developed. Once all sets of competences were

defined, it was possible to arrange them into the nine modules which make up the FESTA Training programme. The modules do not build on each other but can be used independently or in combination. However, the total nine modules offer a comprehensive career training programme. Modules are: Academic networking and visibility; Career paths and patterns; Career planning strategy; Publication Strategy; Women and negotiation; Power and politics - playing the game; Gender in academia; Institutional and individual support; and Work-life balance. The modules are designed to empower early- and mid-level academics and researchers by providing the skills and knowledge they need to accelerate their careers. The modules are unique in two aspects, firstly they explore the gender dimension of career progression in academia, particularly within STEM, and secondly they are grounded in empirical reality as they have been developed based on analysis of 106 qualitative interviews concerning academic career paths conducted in four different national and local settings within STEM and Higher Education.

The module on Academic Networking and Visibility was implemented in all four case study universities because skills for Academic Networking and Visibility are considered particularly career enhancing. FESTA research on individual awareness raising reveals that men are better at networking and have more visibility than women within the paid work context (O'Hagan et al, 2016), and men benefit from male networks (Bagilhole and Goode, 2001), from which women are frequently excluded (Morley, 2016). The training was evaluated positively in terms of respondents' reaction, learning, behaviour and results. A majority (74 per cent) of participants in the FESTA training programme on academic networking and visibility developed career goals.

The FESTA Career Development Management System (FESTA-SCM) was developed building on already available software. The knowledge base of the FESTA SCM was populated with recommendations developed from the same data set (106 academics at early-, mid- and senior-levels in four universities). The FESTA SCM was implemented and evaluated in Summer 2016 by respondents in the seven FESTA partner universities. Reactions to FESTA-SCM were largely positive on: first reactions; ease of navigation; relevance of content; new learning as a result of content. Respondents were very likely to act on the recommendations in the SCM and recommend the system to others.

Overall average female representation in STEM in the universities has also increased over the four years of this awareness raising task from 29 to 36 per cent on average across all four universities. In South West University in Bulgaria, women's representation in STEM on average rose from 38 to 48 per cent; in the University of Southern Denmark from 22 to 30 per cent; in the University of Limerick, from 15 to 22 per cent and in Istanbul Technical University, from 41 to 42 per

cent. Each university evaluated the impact of their work on raising awareness at an individual level, as well as other tasks in the FESTA project and concluded that awareness of gender has been raised at individual, interactional and institutional level in all four universities, as well as at national level in Denmark and Ireland as a result of FESTA work there.

Gender is a cross-cutting issue, and the impact of raising awareness of gender equality has resulted in significant change in the universities. At institutional level, equality policies and action plans have been implemented, and practices in relation to recruitment, hiring and training have changed. At an interactional level, gender has become a legitimate topic of conversation, organization actors are seeking advice and support in order to ensure bias-free practices and unconscious bias training is being provided to create awareness of gender bias in interactions. At the individual level, individuals at all levels in the four universities are demonstrating increased awareness and women are empowered to put themselves forward for appointments and promotions. This is reflected in the increased representation of women in STEM. Overall across the four universities, the average representation of women in academic positions has risen from 29 to 36 per cent. It is important that the gender awareness which has been created by this project is nurtured and sustained in the future.

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1. Introduction

Female Empowerment in Science and Technology in Academia (FESTA) is an EU-funded action-research project concerned with women's under-representation in Science, Technology, Engineering and Maths (STEM) disciplines internationally. FESTA research focuses primarily on cultural, structural and organizational factors which impede women's progress in STEM. A number of sub-projects are contained within the overall FESTA project, primarily concerned with organizational processes and practices such as *perceptions of excellence in hiring processes; gendering decision making and communications processes; PhD supervision; gendering meeting cultures; and gendered quantitative indicators and organisational awareness raising*. Because gender also operates at individual, as well as organizational levels, this sub-project - *individual awareness raising* - was undertaken to raise awareness of the ways gender operates at individual levels, specifically in relation to the way gender affects the different career trajectories of women and men in STEM. The aim of this sub-project is to improve women's participation in STEM, by empowering women to strategically manage their careers, to increase their awareness of the institutional procedures and politics that influence their work and careers, and help them to navigate the academic career system. The outcomes of this sub-project are a software tool (The FESTA SCM) and a training programme.

In general, women are underrepresented at senior levels in academia (EU 2015) and this is more pronounced in STEM. Four universities participated in this study, one each from Bulgaria, Denmark, Ireland and Turkey. They vary in size, age and technical focus. The University of Limerick, Ireland has over 13,000 students and 1,300 staff, with Science and Engineering being one of four faculties. The University of Southern Denmark with more than 27,000 students and 4,000 staff, emerged from a merger involving three separate colleges and universities. The Faculty of Science is one of its five faculties. South West University Bulgaria, with 14,000 students and 1,000 staff, has links to an older established university. The Faculty of Mathematics and Natural Science is one of its seven faculties and there also exists a College of Technical Science. Istanbul Technical University, is one of the oldest, largest and leading state technical universities in Turkey. It includes 13 faculties, the majority of them in Science and Engineering. It has 30,000 students and 2,300 staff.

These four universities are located in countries which vary widely in economic well-being and overall gender equality. Denmark exemplifies a country with high economic well-being and one which is characterised by relatively high gender equality (Table 1). Ireland is highly ranked in terms

of economic well-being. It has been seen by the OECD (2012) as progressive in its gender policies but poor in implementation, and it occupies a broadly mid-level position in most gender equality indices. Bulgaria, under communism, actively attempted to promote gender equality, although most of these policies have now been reversed and it scores at the lower end of national gender equality indices. Bulgaria scores relatively low in terms of economic well-being. Turkey is not included in the European indices, but the UN (2014) Gender Inequality Index places it below Bulgaria, and its economic well-being score is also low. However their positioning on these dimensions is in a somewhat paradoxical relationship with indicators of gender equality in the universities. Thus, on the Glass Ceiling Index, a national measure of gender equality in higher education, the ceiling is thickest in Denmark (not available for Ireland) and thinnest or most penetrable by women in Turkey and Bulgaria (Table 1). Similar patterns emerge as regards both the overall proportion of women at professorial level generally and specifically in STEM (Table 1).

Table 1: National and organisational indicators by country

Name of Country (abbreviation)	National Ranking on Human Development Index (UN, 2015)	UN Gender inequality Index	National HE Glass Ceiling Index (EU, 2013) ¹	National: Proportion of women at Grade A (EU, 2013)	Organisation overall proportion of women at full prof level in 2012	Organisation Proportion of women at full prof level in STEM in 2012
Bulgaria (BG)	58 th	.212	1.4	26%	39%	25%
Denmark (DK)	10 th	.048	1.94	15%	19%	9%
Ireland (IE)	11 th	.113	N/A	19%	32%	0%
Turkey (TR)	69 th	.359	1.25	28%	35%	35%
EU27 Average			1.8	20%		

¹ The higher the score the thicker the Glass Ceiling

There is also variation in career trajectories in the four contexts. Although there are many similarities, career paths vary in terms of number of 'steps' on the career ladder and the names of these positions. In the Bulgarian university, there are four positions on the academic ladder (Appendix A); in the Danish university, there are five steps on the career ladder (Appendix B); in the Irish university there are separate academic and research career tracks. On the academic track there are six positions; on the research track there are four positions (Appendix C); and in the Turkish university, there are four levels (Appendix D).

This research examines the impact of gender on careers in STEM in these different contexts. Chapter 2 reviews existing research into gender differences in STEM careers and women's under representation at senior levels. The methodology is outlined in Chapter 3, which details the approach, sample selection, data collection and analysis. The analysis of this research is summarised in Chapter 4, together with a summary of the findings, while the themes and issues which emerged are developed into the training programme which is outlined in Chapter 5. One module from the training programme was implemented and evaluated in all four contexts and this is discussed in Chapter 6. The FESTA Strategic Career Manager (SCM) which was also developed from the data set is outlined in Chapter 7. In Chapter 8, we review the effectiveness of this task in terms of raising gender awareness, and outline the impact of this on the four case study universities.

2. Gender and Careers in STEM

In most Western Societies, men and women are differently valued, with stereotypical cultural beliefs implicitly defining men as superior to women (Connell, 1987). This differential valuation is particularly reflected in male dominated areas (Thornton, 2013). Despite considerable efforts being made from time to time by individual corporations and national governments, women remain a minority in most science and technology careers in most western societies, and this pattern becomes more accentuated when we focus on those at senior levels. It has been suggested that this reflects women's preferences and biology (Ceci, Williams and Barnett, 2009; Ceci and Williams, 2011) and/or that it is a pipeline problem reflecting the impact of those preferences on the availability of women in those areas (Wolfinger, Mason and Goulden, 2008). Both explanations implicitly assume the normality of a masculine culture in academia in general and STEM in particular.

Attention has been paid to gender 'as a system of social practices that constitutes people as different and that organises relations of inequality' (Wharton, 2012). Risman and Davis (2013) highlighted the importance of status expectations (Ridgeway, 2011) and cognitive bias (Foschi, 1996, 2006) in perpetuating gender inequality in interactional contexts. There is evidence that men do not expect women to be as competent in the public arena so that even when they are, they are less likely to be seen as such, and have to be much better to be seen as equally good (Foschi, 1996, 2004, 2006; Moss-Racusin et al 2012; Sheltzer and Smith 2014; Weneras and Wold, 1997; van Den Brink and Benschop, 2012). Risman and Davis' (2013) suggest that gender is a social structure which operates at three analytically distinct but inter-related levels: individual, interactional and institutional:

Gender is deeply embedded as a basis for stratification not just in our personalities, our cultural rules, or institutions, but in all these, and in complicated ways. [It] has consequences on three dimensions: (1) at the individual level, for the development of gendered selves; (2) during interaction as men and women face different cultural expectations even when they fill the same identical structural positions; and (3) in institutional domains where both cultural logics and explicit regulations regarding resource distribution and material goods are gender specific (Risman and Davis, 2013:744).

It has been suggested that 'gender is at root a status inequality – an inequality between culturally defined types of people' (Ridgeway 2011, p.92). Doing masculinity, even when it occurs in an

organisational context (Wharton, 2012), reflects and reinforces wider gender status beliefs (Frazer, 2008, Ridgeway, 2011), which place greater value on masculinity than femininity (albeit that various types are differentially valued). Connell (1987; 2005) has argued that masculinity is hegemonic. Hegemonic features are those that serve the interests of those in a dominant position, legitimate their ascendancy, and encourage consent and compliance (Gramsci, 1971; Schippers, 2007). Hegemonic masculinity has increasingly been seen as varying in content within and across societies and organisations (Collinson and Hearn, 2005; Connell and Messerschmidt, 2005). Connell and Messerschmidt (2005: 853) argue that gender relations are always arenas of tension, and that a given pattern of hegemonic masculinity 'is hegemonic to the extent that it provides a solution to these tensions, tending to stabilize patriarchal power or to reconstitute it in new condition'. Messerschmidt (2012:65) claims that hegemonic masculinities are always open to challenge and that change often inspires new strategies in gender relations and results in new configurations of masculinity. Thus the widespread movement by western universities from collegial to managerial structures (Lynch, Grummel and Devine, 2012; Morley, 2013; O'Connor, 2014a) implicitly raises questions about its implications for changing constructions of masculinity.

In addition to moving from collegial to managerialist structures, universities are behaving more like private enterprises than public organizations, embracing academic capitalism. Morley (2016) claims that neo-liberalism's policy agenda in higher education involves for-profit activity and market-like competition among faculty and institutions for resources. 'Students have become consumers, colleges have turned into vendors, and research is being commercialized in applied fields marking a new era in higher education as an entrepreneurial institution' (Bullard, 2007, p. 3). Academic capitalism also involves the shift toward managerial authority, accountability and performance auditing using accounting conventions (Connell, 2013; McGettigan, 2013). Academic capitalism has blurred the link between private and public funding and academic staff of publicly funded universities operate in an increasingly market-like competitive environment, deploying and acquiring academic capital. For Bourdieu (1986), capital denotes assets of various kinds that are produced, deployed and transformed as actors engage with one another and with social institutions. Academic capital is a sub-set of symbolic capital (Moore, 2008, p.104). For academics, this may involve teaching, research, consultancy, patents and spin off companies (Deem, 2001, p.14). Thornton (2013, p.127) claims the ideal academic has become a 'technopreneur' i.e. a scientific researcher with business acumen who produces academic capitalism, while Slaughter and Leslie (1997) describe those faculty who produce academic capitalism as academic capitalists.

According to Raddon (2002, p.390), the 'successful academic' devotes all of their time and energy to the university (David et al 1996; Goode, 2000), networks both in and out of work hours (Poole and Bomholt, 1998), builds a reputation for research (Heward, Taylor and Vickers, 1997), is career-oriented, productive, hardworking and enthusiastic, publishes in the 'right' outlets (Harris, Thiele and Currie, 1998), focuses on research rather than teaching, administration or the academic caring role (Bagilhole, 1993; Edwards, 2000) and has a particularly high research output in the early years of their career (Heward, Taylor and Vickers, 1997). Traditional career models involve individuals progressing in a linear trajectory through a number of positions, hierarchically ordered from junior to senior (Smithson and Stokoe, 2005). Academic cultures and structures are male dominated and 'evince a distinctly masculinist hue' (Thornton, 2013, p.127). Scientific careers are still conceived as a rigid and out of date sequence of educational and occupational stages that are expected to be achieved at a certain age. The inflexible nature of the academic workplace is configured around an 'ideal' male life course and career model established in the 19th Century (Wolfinger, Mason and Goulden, 2008) Deviations or delays in achieving career stages are taken to indicate a lack of commitment to the scientific career and are thus penalised (NAS, 2007).

In academia, caregiving is often seen as competing for the time and attention needed to succeed in highly competitive fields 'the academic profession as it stands does not appear to accept married women with children, although there are many highly successful male academics in the same situation' (Bagilhole, 1993, p.272). Beauregard (2007 p.120) argued that: 'as long as stereotyped views of mothers as primary caregivers for children and women as keepers of the household continue, women will struggle with progressing their academic careers alongside marriage and parenthood'. It is suggested that social support can significantly aid academic career progression, however this too is gendered. Reevy and Maslach (2001) identified separate gender-related variables that are relevant to social support: independence, autonomy and self-confidence associated with masculinity and nurturance and affiliation associated with femininity and demonstrated that differences in social support behaviour are not necessarily sex-linked, but are more clearly a function of gender-linked factors (regardless of sex).

In STEM, women continue to be benchmarked in relation to male norms, entering a matrix of declared and hidden rules (Lynch, Grummell and Devine, 2012). Thornton (2013, p. 128) argues that the neoliberal turn, the corporatisation of the university and the embrace of academic capitalism is contributing to the re-masculinisation of the academy and academic capitalism exercises an incidental gender effect. Academic capitalism has produced the ideal academic, who 'evinces a distinctly masculinist hue in contrast to the less-than-ideal academic' who is more likely to

be both casualised and feminised (Thornton, 2013, p.127). In this context, women and men construct and navigate their careers in STEM in academia.

3. Methodology

Four case studies were undertaken on universities in Ireland (University of Limerick - UL), Bulgaria (South West University -SWU), Denmark (University of Southern Denmark -SDU) and Turkey (Istanbul Technical University - ITU). As careers are a combination of subjective experiences and objective facts, we specifically investigated positive and negative factors which influenced careers, individual and organisational supports as well as critical incidences. Documentary review was also conducted in the case study organisations to examine policies regarding hiring and promotion which can advance careers in the universities. The career trajectories of men and women at early- mid- and senior levels were investigated to determine those factors which advance or impede a career in academia. The methodology is both processual and reflexive, in the grounded theory tradition (Padgett, 2008). The study uses qualitative methods because it is concerned with peoples' subjective experiences. Interview guides were developed designed to enhance understanding of the phenomena of men's and women's career trajectories and their relationship to women's underrepresentation at senior levels in the four universities. A critical realist approach (Scambler, 2001) was adopted in the study. It denies that we can have any objective or certain knowledge of the world, and accepts the possibility of alternative valid accounts of phenomena (Maxwell, 2012). Hence the focus is on respondents' perceptions

The questions driving this study are *What are the differences between men's and women's careers? What are the critical points in a career trajectory? What organizational and individual factors advance or impede men's and women's academic careers?* These questions were informed by the international literature on academic careers, but modified by partners to fit local contexts. Interview guides contained a combination of open and closed questions, as well as reflections on critical incidents (Appendix E).

The research sample included both men and women, based on their positions and their gender. It was expected to include a purposive sample of 50/50 men and women, but the research team agreed not to compromise by including alternative positions (higher or lower) where there was no female comparator, in order to highlight women's under-representation in STEM. The numbers of men and women at different positions in the four case studies were established and positions at early-, mid-, and senior-levels were selected at points where there appeared to be critical thresholds, i.e., the points at which the numbers of women increase/reduce dramatically. Interviews were conducted with men and women at early-, mid- and senior levels in the four universities. Overall the sample included 106 individuals: fifty-seven men and forty-nine women,

including sixteen men and fourteen women in the Bulgarian university; twelve men and twelve women in the Danish university, eighteen men and eleven women in the Irish university; and eleven men and twelve women in the Turkish university.

Ethical approval was received where required. In three of the four universities information letters and/or project brochures and information were provided to respondents prior to interview. Respondents signed consent forms and selected pseudonyms in these universities. In the fourth university, participants agreed verbally to participate. All partners recorded and transcribed interviews and in the Irish and Bulgarian universities (but not in the Turkish and Danish ones) respondents received transcripts post interview. Such variation reflects different national practices.

Qualitative data analysis software was not available in the four languages, so manual data analysis was conducted, using a content analysis approach. Content analysis is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Krippendorff, 1980; Weber, 1990). Each unit of analysis was a word or piece of text from the interview transcripts. Each of the questions was linked to a code and these were sorted into emergent categories and themes, and then into meaningful clusters for analysis. A cross-national coding map was developed linking codes to categories, clusters and themes. Analysis of the qualitative data involved extrapolating conceptual categories from the codes, followed by cycles of further coding, categorisation and theory building through the emergence of categories in the data (Charmaz 2006, p.188). Coding facilitated 'fracturing the data' (Holton 2007, p.266) which was then brought together in new ways that conceptualised and explained what was emerging.

This analysis facilitated the production of competences, knowledge and skills which are necessary for a successful academic career in STEM. These were subsequently developed into the nine modules which make up the FESTA Career Training Programme (see Chapter 5) and also used to populate the knowledge base for the FESTA-SCM (See Chapter 7).

4. Summary analysis and findings

A number of themes emerged from the data analysis. Themes have been developed as journal articles by different lead authors. Some have been published, others will be submitted for publication in the future. As journal publishers are unlikely to accept articles which have been published elsewhere, abstracts are included here with a short summary of the findings. Full texts are available in published journals, or can be requested directly from the lead author.

Themes which emerged during the cross-national analysis of the interview transcripts included: the operation of gender at individual, interactional and institutional levels; the influence of family on women's careers; social supports differentially available by gender; constructions of masculinities and femininities and their implications for men's and women's careers in STEM, and gender orders being maintained by academic capitalist career practices.

The operation of gender at individual, interactional, organizational and institutional levels.

Title: The identification and application of an analytical framework for understanding gender as an organising force and its implications for management

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Abstract:

Although gender is still an important source of inequality its 'gendered effects are being increasingly concealed and denied' with a widespread perception that 'gender problems' have been 'solved' (Broadbridge and Simpson, 2011, p.9). This article uses a modified version of Risman and Davis (2013) analytical framework to illustrate the way gender 'works' (i.e. at individual, interactional; organisational and institutional levels). It draws on interview data from 106 men and women in science, technology, engineering and mathematics (STEM) in Danish, Irish, Turkish and Bulgarian organisations. At the individual level, gender works in the Irish and Danish contexts through a felt lack of entitlement, and in all contexts through women's caring responsibilities (whether depicted as choices or not). At the interactional level subtle day-to-day processes are challenged by a minority of women in the Irish and Danish organisations. At the institutional level, men in the Bulgarian and

Turkish organisations endorse gender stereotypes: implicitly suggesting that women who want to access these areas are 'unnatural'. At the organizational level, maternity was problematic in all four organisations. The article provides an explanatory framework for understanding the way gender 'works' and so enables managers to appreciate the complexity of gender and to devise appropriate ways of tackling it.

Key words: gender, analytical framework, STEM, cross-national, universities, management, individual, interactional, organisational, institutional

Summary of findings:

At the individual level, women in the Irish and Danish organisations referred to low levels of entitlement and individual choice (entitlement was invisible to the men: Flood and Pease, 2005). Women's caring responsibilities were also referred to by the women in Turkey and Bulgaria: but as pragmatic realities, which restricted their available choices in those contexts. At the interactional level, a minority of women in the Irish and Danish universities challenged the way gender 'works' interactionally and in terms of organisational structure and culture to maintain gender inequality. In Bulgaria and Turkey, organisational initiatives for women were referred to positively. At an organizational level, maternity was offered as an explanation for women's underrepresentation, while at the institutional level, cultural stereotypes are most likely to be endorsed by men in Turkey and Bulgaria.

Title: 'My career will never really reach what it could'. A multi-level approach to gender in STEM careers in an Irish university

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Abstract:

Women are under-represented in Science, Technology, Engineering and Maths (STEM) careers in most western societies. Using interview data from men and women in STEM careers in an Irish university (at early-, mid- and senior-career stage), the article applies Risman and Davis' (2013) multi-level theory of gender as a social structure to explore the under-representation of women. The three levels they identify: individual, interactional and institutional, are analytically distinct, although in practice they frequently inter-relate. At the individual level, different gendered selves are evident

in attitudes and behaviours as regards entitlement and caring responsibilities; at the interactional level, different cultural expectations and practices are evident in exclusion, homosociability and othering; while cultural stereotypes reflected in organisational processes and practices are evident at the institutional level. The multi-level nature of the gender structure shows how difficult it is to create gendered change.

Key words: careers; gender, STEM; university; multi-level

Summary of findings:

The most socially acceptable explanation for the under-representation of women is at the individual level. Such an explanation underlines the importance of the creation of gendered selves, reflected in women's lower levels of entitlement, an unwillingness to self-promote and the assumption of caring responsibilities. At the interactional level, the practicing of gender reflects gendered micro-politics. Gender bias was evident in the informal behaviours of those who participated in promotion and recruitment boards and particularly in othering, exclusion and homosociability. At the institutional level processes and systems are male dominated and resources are controlled by male gatekeepers. Such processes and structures are underpinned by cultural scripts (Martin, 2004) which legitimate gendered decisions which favour men. The focus on gender as a social structure operating at different levels usefully forces us to move away from simply identifying women as 'the problem'. It encourages a wider and deeper perspective on the interactional, structural and cultural contexts which militate against women's careers. The pervasiveness of the gender structure helps us to see just how difficult it is to create sustainable change and how insufficient it is to simply focus on one level and assume that this will be sufficient to create change.

Influence of family on women's careers

Title: Family and Gender in Academia : Limits and Supports

Authors: Gulsun Saglamer, Mine G. Tan, Hulya Caglayan, Clare O'Hagan, Pat O'Connor, Liv Baisner, Eva Sophia Myers, Georgi Apostolov, Irina Topuzova.

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Abstract:

This article aims to explore the intersecting dynamics of academics' experiences with regard to the subject of 'family'. Based on in-depth interviews carried out in four partner institutions, it explores

both the negative and positive impacts of ‘family’ on academics’ careers. Family-related constraints on women’s careers that emerge from this study illustrate that care work matters to women’s careers and gendered care activities favor male academicians in terms of time and mobility. The word ‘family’ as it is associated with the family of origin, especially by female researchers, appeared in some contexts to be a key factor that supports academic careers and it interrelates with the notion of ‘capital’. The interviews also illustrated the strategies male and female academics employed to establish a work-family balance by ‘satisficing’ and the similarities/differences involved in different national contexts. Female academics often faced severe difficulties in their struggle to establish a work-family balance and paid for this with feelings of guilt and remorse as well as ‘slowing down’. It was observed from respondents that gender roles are normalized and internalized in higher education, which perpetuates gender prejudices and inequalities.

Keywords: work-life balance, gender in academia, satisficing

Summary of findings:

This study supports the findings from previous research that having and raising children while shouldering the domestic workload matters to women’s academic careers and the pace of change has been slow. Although family is often more of a barrier for women academics, FESTA research revealed the other side of the coin too. Because of the various kinds of capital, the family of origin particularly emerged as a source of support for researchers’ careers in many of the interviews. Family was also supportive and influential for women in providing the necessary motivation, financial means, services, and childcare. This research was important for revealing the role of family members in the organization of care activities. It was observed in Turkey and Bulgaria where such cases were recorded that women academics considered family members’ support as an asset in terms of cultural capital. Previous research was careful to point out that in the familized care regimes where women’s gendered responsibilities for childcare are transmitted to such female kin as grandmothers, gender roles once again are normalized and gender inequalities inevitably reproduced.

The interviews conducted in the four partner universities of the FESTA project illustrated how work-life balance was maintained by academics in different contexts. It also gave evidence of the consequences as a result of the various mechanisms employed in ‘satisficing’. Even dropping out was regarded as an option under the circumstances. Those who stayed in STEM careers recalled missed opportunities related to work or bad conscience related to children. There were still others who felt no remorse for having chosen to be with the family although they admired those who gave

priority to academic commitments. The results suggest that the needs and concerns of these caregivers cannot be ignored by academic institutions.

Social supports differentially available by gender.

Title: Social support – men’s invisible advantage in STEM

Authors: Clare O’ Hagan, Pat O’Connor, Eva Sophia Myers, Liv Baisner, Georgi Apostolov, Irina Topuzova, Gulsun Saglamer, Mine G. Tan and Hülya Çağlayan.

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Abstract:

This article explores the types and sources of social support for women and men in male dominated Science, Technology, Engineering and Maths (STEM) disciplines in four universities in Bulgaria, Denmark, Ireland and Turkey. Social support in workplaces has been examined which demonstrates the positive relationship between social support and well-being (Lakey and Cohen, 2000; Cutrona and Russell, 1987). Gender differences in social support have been researched which reveal that women are associated with emotional support, while men are associated with instrumental support (Lindorff, 2005). Social support for female students in STEM subjects has been researched (Rosenthal et al 2011), and social support in academia has been researched (Bagilhole and Goode, 2001), but the effects of social support on careers in STEM disciplines has not been explored. This article reveals that men are the beneficiaries of social support in male dominated STEM disciplines from both male and female sources. This social support gives men in STEM an invisible advantage which is significantly career enhancing. Women’s unawareness of this advantage further marginalises their position and contributes to women’s under-representation at senior levels.

Key words: Social support, STEM, gender.

Summary of findings:

At the early-career stage, instrumental and emotional support is provided by PhD supervisors, and instrumental support by Heads of Department (HoD). In the case of PhD Supervision, gender was most obvious, with gender homophily evident in the support of male supervisors to male students, while female supervisors were reported to be supportive of both male and female students. In all four contexts, male supervisors demonstrated problems with maternity, reflecting the dominance of

the cultural stereotype that scientist = man. HoDs provided instrumental support to both male and female academics. At the mid-career stage, academics and researchers received instrumental support from superiors in accessing and developing professional networks in all contexts. In the Turkish and Irish universities women were excluded from internal and external networks and women highlighted the necessity of greater instrumental support for women to develop networks in STEM. In Ireland and Denmark, formal mentoring programmes were in place for both men and women. However, sponsorship is more effective as a career enhancer, and informal sponsorship arrangements were evident in the Bulgarian and Irish universities, where senior male academics sponsored junior male and female academics. There were no accounts of female sponsors, reflecting women's under-representation at senior levels, and perhaps reflecting women's lack of leverage.

Social support is an invisible accelerator of men's careers in STEM. The lack of support for women and women's low expectation of support further enhances men's advantageous situation. These findings contradict earlier research which found that women received more emotional support than men in workplace settings (Stokes and Wilson, 1984; Olson and Shultz, 1994; Reevy and Maslach, 2001). In the masculinist STEM cultures, it was predominantly men who receive social support and have reliable support providers. Men's taken for granted expectation of this support and women's lack of awareness of it contributes to our understanding of the way the culture in STEM is uniquely gendered. Gendered social support maintains and preserves male dominance in STEM.

Constructions of masculinities and femininities and their implications for men's and women's careers in STEM

Title: Exploration of masculinities in academic organisations: A tentative typology using career and relationship commitment

Authors: Pat O'Connor, Clare O'Hagan and Julia Brannen

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Abstract:

In the Irish context and internationally a good deal of attention has been paid to the performance of masculinity among school students. However with a small number of notable exceptions, relatively little attention has been paid to masculinities in academic organisations. Drawing on a qualitative study in one university, this article proposes a tentative typology of masculinities in such an organisation. This typology involves two axes: career commitment and relationship commitment (with respondents classified as strong or weak on each dimension). Four types of masculinities are identified: Type 1: Careerist masculinity: Weak relationship and strong career commitment; Type 2: Enterprising masculinity: Strong relationship and strong career commitment; Type 3: Pure scientific masculinity: Weak relationship and weak career commitment; Type 4: Family oriented breadwinning masculinity: Strong relationship and weak career commitment. Titles referring to careerist and family orientation reflect generic characteristics. The names of the other two types reflect the data derived from this particular sample. Since one of the important contributions of this article is an understanding of masculinities in an academic context, labels which relate to that context have been used. Although three of these types modify hegemonic careerist masculinity, they all reflect the persistence of an underlying system of male privileging in the changing landscape of higher education. This typology is seen as potentially having implications for theories and practices of motivation and management in academic organisations.

Key words: typology, masculinities, academic organisations.

Summary of findings:

Universities as knowledge based, but increasingly managerialist organisations, operate with three objectives: teaching, research and organisational efficiency. It is implicitly assumed that all those involved in these organisations are motivated by a desire to progress in the career structure. Type 1 Careerist masculinity was only characterised by those at the top of the academic hierarchy. Equally however the kind of passionate commitment to science (Type 3) which has been seen as characteristic of universities was a minority pattern in this small study. New forms of masculinity are represented in the typology. Type 2, Enterprising masculinity, demonstrates a high degree of individualism regarding career management, combined with high relational concerns, in an enterprising approach which maximises both relationship and career commitment. This is commitment to a 'reflexive project of the self' rather than to discipline or organisation, following Bauman (2000), Beck and Beck-Gernsheim (2001) and Giddens (1991, p.5). Type 4, Family oriented breadwinning masculinity was the most common among those in this small study. Relationship

considerations impact on their careers. None of them however considered giving up full-time employment or even working part time for a substantial period of time. Caring was included in their commitment to a breadwinner status, rather than replacing it. Their relationship commitment blunted the edge of their commitment to paid employment: but it also remained limited.

New ways of doing masculinity are being practiced in the changing landscape of higher education. Risman and Davis (2013, p.747) asked if 'we could explore when people refuse to do gender whether they 'undo' it or simply do gender differently, forging alternative masculinities and femininities'. This article demonstrates that men are doing gender differently, and some men are forging alternative masculinities, but in a way which still preserves masculine privileges. The typology has implications for theories and practices of motivation and management in the academic environment. It contributes to an understanding of theoretical sense making at the micro level (Christensen and Jensen, 2014) and hence ultimately to the study of men and masculinity, including the persistence of patriarchal privileging.

Title: Femininities in STEM - Outsiders within

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Abstract:

This article is based on a study of women staff in Science, Technology, Engineering and Maths (STEM) disciplines in an Irish university. It takes a typology of masculinities developed to explore the dynamics of gender in this field (O'Connor, O'Hagan and Brannen, 2015) with its axes relating to career and (non-work) relationship commitment as a starting point for considering the ways in which femininity is inhabited, performed and articulated by 25 women in STEM disciplines. The general absence of typologies of femininities contrasts with a tradition of masculine typologies (Connell, 2005). The typology acts as a heuristic device for exploring those femininities permitted for women in STEM and what this might tell us about the gender dynamics of this male-dominated academic domain. It points to the variation, complexity and contradictions in how women as outsiders do gender in the STEM environment in academia.

Keywords: femininities, outsiders, typology, STEM, university, case study, work, family

Summary of findings:

By investigating the ways in which women in STEM do femininity and position themselves in these male dominated organizational contexts, this article developed a typological framework as a heuristic device that would stimulate new questions about how femininities are negotiated by women in this field. For Paechter (2006, p.262) femininities represent ‘actual ways that real people construct and understand themselves in terms of how they ‘do’ boy/man or girl/woman’. The accounts suggest that femininity is inhabited and enacted by these women in STEM always in relation to an idealised and institutionalised masculine norm. Through social practices that variously prioritise, or reconcile career and non-work relationships, the hierarchical relationship between masculinity(ies) and femininity(ies) is kept in place. The typology of femininities presented helps illuminate the ways in which this hierarchical relationship shapes the gendered culture and relations that institutionalise women’s under-representation in STEM. This article demonstrates that women are doing femininity differently, but there is little evidence of undoing gender in the sense of increasing the valorisation of the feminine in the STEM workplace. For example, career orientation for most of the women in this study involved adopting characteristics associated with masculinity (although experienced and read as feminine) and required remaining silent about sexism and making constant efforts to ‘blend in’. While always schematic and broad-brush, typologies are useful in opening up new questions for research. The typology presented here sensitises us to particular patterns and practices of femininity within the conventionally masculine work culture of STEM. It points to the need for research that is attentive to the life cycle, value conflicts and how these are negotiated in gendered ways; the persistence of sexism and the need to name and address it; as well as the ways in which the privileging of measurable outputs over qualitative experiences may disadvantage women in the workplace.

Gender orders being maintained by academic capitalist career practices

Title: Perpetuating academic capitalism and maintaining gender orders through career practices in STEM in universities

Authors: Clare O’ Hagan, Pat O’Connor, Eva Sophia Myers, Liv Baisner, Georgi Apostolov, Irina Topuzova, Gulsun Saglamer, Mine G. Tan and Hülya Çağlayan.

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<http://www.tandfonline.com/doi/full/10.1080/17508487.2016.1238403>.

Abstract:

Academic capitalism is an outcome of the interplay between neoliberalism, globalisation, markets and universities (Slaughter and Leslie, 1997; 2001). Universities have embraced the commercialisation of knowledge, technology transfer and research funding as well as introducing performance and audit practices (Slaughter and Rhoades, 2000; 2004). Academic capitalism has become internalised as a regulatory mechanism by academics who attempt to accumulate academic capital (Morley, 2014). Universities are traditionally gendered organisations, reflecting the societal gender order. Despite fears regarding the feminisation of the academy, Thornton (2013, p.128) argues that the embrace of academic capitalism is contributing to its re-masculinisation and exercises an incidental gender effect. Practicing is the means by which the gender order is constituted at work (Martin 2003, p. 354). Three practices in which academics engage are examined as exemplars of the way academics increase their academic capital stock in Science, Technology, Engineering and Maths (STEM) faculties in four European universities, in Bulgaria, Denmark, Ireland and Turkey. These practices tend to be more achievable and likely to be engaged in by men, thus, career practices are the mechanism through which the gender effect of academic capitalism is achieved, academic capitalism perpetuated and the gender order maintained in STEM in academia.

Keywords: academic capitalism; career practices; gender order; gender effect; STEM;

Summary of findings:

Individualism is the process through which the internalisation of academic capitalism occurs. At a micro level, academics internalise academic capitalism by engaging in the career practices of acquiring visibility, cultivating connections and managing time to acquire academic capital. These practices perpetuate academic capitalism in universities. Practicing is the means by which the gender order is constituted in STEM in universities (Martin, 2003, p.354). These practices are gendered, and provide an indication of the way gendered privilege inter-acts with the global research economy to ensure that women remain firmly shut out (Morley, 2016). Most women and men indicate that they have internalised the obligation to engage in those activities which are valued in academic capitalism, however these career practices are differentially available to men and women, differentially enacted by men and women, and the cultural scripts drawn on reinforce gendered stereotypes (i.e. that scientists are male and women's greater responsibility for caring and teaching) (van den Brink and Benschop, 2012).

Academics in all contexts engaged in these career practices. Practices are embodied and a skilled body is basic to their accomplishment (Martin, 2003, p.361). Thus, under academic capitalism, in all contexts, male bodies are skilled at those career practices which achieve academic capital, while women who may be no less skilled, find it difficult to achieve academic capital, because these practices are differentially available and achievable for women. The practices of professional visibility and cultivating political connections advantaged men and disadvantaged women, while managing time disadvantaged women.

5. Training Programme.

Liv Baisner, Eva Sophia Myers and Clare O'Hagan

In order to raise awareness of gender among researchers and academics, and to empower women by providing the skills and knowledge to strategically manage their careers in academia, a training programme was developed based on the empirical research conducted with 106 men and women across the four case study universities.

Competency development

Following analysis of the data, and detailed review of respondents experiences of barriers and enablers to academic careers, the competence, knowledge and skills which are required for a successful career in academia were identified under seven broad themes: Publications; Gender in STEM – things you need to know; Personal resources and/or barriers; Strategic career planning (things you need to know and things you need to do); Visibility – locally, nationally and internationally; Networking and Skills.

For each of these themes, competency definitions were developed, which provide clear and detailed explanations of the concepts embedded in the themes.

Theme: Publications

Competences / Abilities / Knowledge	Definition
Publish strategically / Target High Impact Journals	Different disciplines have different vehicles which are more/less effective in advancing an academic career. The Journal <i>Nature</i> is most prestigious in science, while IEEE is most prestigious in engineering. You need to know which vehicle is most strategic for your discipline.
Develop relationships with established academics and publish jointly	One way to advance your publication output is to publish/collaborate on a publication with an established academic.
Develop relationships with journal editors	Another way to advance your publication output is to review journal articles and develop relationships with journal editors. Look out specifically for special editions in your field.

Theme: Gender in STEM – things you need to know

Competences / Abilities / Knowledge	Definition
Awareness of entitlement	Women tend to be low in entitlement and men tend to be high. Men behave as if they are more entitled than women to belong and succeed in the workplace. They take as their due, or their right to be promoted and advanced whereas women wait to be asked to go forward for promotion. Women are as entitled as men to everything a career offers.
Understand stereotyping	Gender stereotypes are cultural scripts that are deeply embedded in people’s minds. The idea that a man is a hunter while a woman is a carer, are stereotypes. Behavior that society considers appropriate is assigned to men and women because of gender stereotypes such as men are agentic and ambitious whereas women are nurturing and sensitive.
Understand unconscious gender bias	Ideas about gender appropriate behavior for men and women are known as unconscious gender bias. People are not deliberately or even consciously expecting different behaviors of men and women. But they do expect different behaviors and when men and women behave in unexpected ways, they are seen as transgressing gender norms. An example of unconscious bias is that the majority of people (men and women) consider that a scientist is a white man in a white coat with white hair. Type Professor into the google search bar and click images – see how many not-white, not-old, not-men, appear!
Awareness of gender differences	Being aware that sex is biological (women can bear children) and gender is socially constructed.
Awareness of resistance	Unfortunately, when people’s views about gender are challenged, some people tend to resist. This is not hatred and fear of women (misogyny), but fear of changing long held, traditional ideas.

Theme: Personal Resources/Barriers

Competences / Abilities / Knowledge	Definition
Family support	For anyone with a committed career, family support is necessary. Family of origin is important in selecting and establishing oneself. Spouse is particularly important in maintaining or advancing a career.
Get work life balance	Achieving a balance between work and home life which ensures a distribution of time between both that is satisfactory. When there is an imbalance in work/life, this can be stressful.
Know your individual resources	Understanding your own level of resistance, endurance and ability to tolerate stress, pressure and other factors you will encounter during your career.
Know your challenges	Understanding those factors that you find difficult to manage and developing coping strategies.
Know your priorities/ Manage your priorities	Understanding what is important – a priority – for you in your career/life and ensuring you manage to achieve it.

Theme: Strategic Career Planning (things you need to know)

Competences / Abilities / Knowledge	Definition
Know informal decision making processes and understand power structures	Universities are typically bureaucratic, formal, hierarchical organisations with formal decision making power devolved throughout the hierarchy from the top of the organisation down to the individual units/departments. Typically formal decisions are made by individual power holders/managers/deans/heads of departments, or by committees set up to make a particular decisions (allocating resources, making appointments, promotions etc). It is possible to influence formal decision making by influencing decision makers, prior to the formal convening of a committee (e.g. on the golf course).
Know the unwritten rules of advancement	The written rules of advancement are research, teaching and scholarship. The unwritten rules

	are connections with established international collaborators, patronage/sponsorship of a powerful other in the organisation, funding received, reputation and visibility.
Know your competitors	Know your competitors professionally, e.g. those who are working in your area of expertise, internationally. Know your competitors locally, i.e. those who are at the same level as you in the organisation hierarchy and who will be competing with you for promotion. In both cases, stay informed about your competitors work, research, funding, teaching, publications and visibility and benchmark yourself against their output.
Know your institutions support structures	Find out what resources / supports are available to you that will enhance your possibility of promotion, e.g. training programmes for skill development; opportunities to network and collaborate; available conference funding.
Awareness of the promotion game	There are overt and covert rules of advancement The cover rules are connections with established international collaborators, funding received, reputation and visibility. Ensure you take opportunities to support/collaborate with those people who are likely to be participating in promotion committees at university/faculty level.
Know the excellence criteria (for promotion) and in the discipline internationally	Find out what the criteria are for promotion in other institutions and cross nationally to give you every opportunity for advancement.

Theme: Strategic Career Planning (things you need to do)

Competences / Abilities / Knowledge	Definition
Select a PhD supervisor carefully	PhD supervisors can be powerful allies or not. A good PhD supervisor will ensure you acquire all the skills you need for a successful academic career while you are conducting your PhD research with them. Such skills include presenting research at conferences, publishing

Supervise PhD students	Throughput of PhD students is important to advance your career. Make sure you supervise students who will be successful and who will complete good projects fast. Make sure you publish with your students.
Obtain a powerful (management) position	As soon as you consider yourself ready, apply for a position as head of department/assistant dean /dean. Such positions are administratively challenging and can negatively affect your research output, however, you will have the opportunity to work with the most powerful people in the organisation and you will have the power to allocate resources, and chair recruitment panels.

Theme: Visibility - Locally/Nationally/Internationally

Competences / Abilities / Knowledge	Definition
International visibility	Being visible means that you can be seen by those people you want to be aware of you. Such international visibility comes from publishing in international journals, speaking at international conferences, becoming involved in international research consortia. Other vehicles for international visibility include Academia edu and Research Gate.
Be internationally mobile, Study abroad	Take every opportunity to work or conduct study/research abroad, even for a short period of time to develop international collaborators.
Promote your work/ build a high profile inside and outside your own organization / Demand recognition/ Gain prestige / visibility within the organization and externally	Do not be shy about your work. Promote your work on your Research Gate, Adademia edu, Linked-In and Facebook accounts. Develop relationships with journalists and the media so that you are asked to comment on relevant news items. Tweet about your work, issue press releases and join digital conversations where possible to give you widespread visibility. Organize conferences, establish new journals, wherever there is an opportunity for you to

	promote your work, take it!
Write funding proposals / Join research consortia	Collaborate with international partners in making funding proposals. Attend networking meetings arranged by national agencies in order to meet potential research partners and go introduce yourself.

Theme: Networking

Competences/Abilities/Knowledge	Definition
Do not leave your contacts to chance: set yourself clear and realistic targets	This requires a little reflection on your own position. Where do you stand right now in your career and what do you want to achieve? What support might you need? Identify those people within your organization and your discipline who you need to get to know. And don't forget, what do you have to offer in return?
Give your network partners and yourself time to get to know each other	Good networks are not created overnight; they take time and need to be maintained and developed over the longer term. You should therefore start early to create your network. Networks are based on cooperation and collaboration, so be prepared to give as well as take.
Embrace the concept of giving and taking	Let others share in your successes and contacts. Give willingly, but not carelessly. Ask others for advice and support. And, most importantly, make sure to thank others when you have received help or information. Politeness, reliability and genuine appreciation are important factors in networking.
Learning by doing	Make use of every opportunity to enter into contact with your colleagues. Become a member of academic societies within your discipline. Attend presentations, conferences and colloquia. Get involved in groups, teams and research clusters at your university
Do not focus only on the highest level contacts	Horizontal contacts are just as valuable as vertical ones. When planning your network, aim to include contacts at all levels. It will be easier

	to be introduced to those at the highest levels by those who are closer to them.
Concentrate on common goals and synergies	You do not have to work in the same field with someone to collaborate with them. Consider interdisciplinary research and areas for collaboration outside your comfort zone.

Theme: Skills

Competences / Abilities / Knowledge	Definition				
Negotiating skills / Negotiate deals	<p>To negotiate is to : bargain, deal, contract, discuss, debate, consult, confer, mediate, hold talks, arbitrate, discuss terms.</p> <p>The essence of negotiating is trading – giving and taking.</p>				
Different gendered styles	<p>The Gender Stereotype-Negotiation Link:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; vertical-align: top;"> <p>Effective Negotiator</p> <p>Strong Dominant Assertive Rational</p> </td> <td style="text-align: center; vertical-align: top;"> <p>Ineffective Negotiator</p> <p>Weak Submissive Accommodating Emotional</p> </td> </tr> <tr> <td style="text-align: center; vertical-align: top;"> <p>Male Attributes</p> <p>Strong Dominant Assertive Rational</p> </td> <td style="text-align: center; vertical-align: top;"> <p>Female Attributes</p> <p>Weak Submissive Accommodating Emotional</p> </td> </tr> </table>	<p>Effective Negotiator</p> <p>Strong Dominant Assertive Rational</p>	<p>Ineffective Negotiator</p> <p>Weak Submissive Accommodating Emotional</p>	<p>Male Attributes</p> <p>Strong Dominant Assertive Rational</p>	<p>Female Attributes</p> <p>Weak Submissive Accommodating Emotional</p>
<p>Effective Negotiator</p> <p>Strong Dominant Assertive Rational</p>	<p>Ineffective Negotiator</p> <p>Weak Submissive Accommodating Emotional</p>				
<p>Male Attributes</p> <p>Strong Dominant Assertive Rational</p>	<p>Female Attributes</p> <p>Weak Submissive Accommodating Emotional</p>				
Time management techniques	Use the urgent/important tool to assign your tasks and manage your time				

	URGENT	NOT URGENT
IMPORTANT	1 Do Now	2 Plan to do
NOT IMPORTANT	3 Reject and explain (diplomatically)	4 Resist and Cease

Module Development

Once all competencies were defined, it was possible to arrange the themes into nine modules. The modules do not build on each other but can be used or presented independently of one another and as fits a specific need, group or institution. However, the total nine modules offer a comprehensive career training programme. Each module is built up as a three hour workshop including specific information on how to plan and conduct the workshops, introduce and facilitate exercises, present materials as well as other supplementary resources such as specific handouts, further background information, references, and facilitator’s tips and tools. The intention with this format has been to make it as inspiring and hands-on as possible while allowing for local and contextual adaptation. The modules contain training which will empower early- and mid-level academics and researchers by providing the skills and knowledge they need to accelerate their careers.

The modules are unique in two aspects, firstly they explore the gender dimension of career progression in academia, particularly within STEM, and secondly they are grounded in empirical reality. The training modules are written with a training facilitator in mind or someone who is concerned with offering career counselling or guidance to junior scientists – HR-staff trainer, manager, research leader or senior scientist. The explicit focus is on young female scientists, but this does not preclude men from benefitting from the focus, exercises and reflections offered in the modules.

FESTA Career Training Programme

Women in STEM :Modules for career advancement

Academic networking and visibility

Career paths and patterns

Career planning strategy

Publication strategy

Women and negotiation

Power and politics – playing the game

Gender in academia

Institutional and individual support and your career advancement

Work-life balance

Course Title		
Academic Networking & Visibility		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level women academics and researchers, PhD students
Course Objectives
At the end of the training participants will be able to: <ul style="list-style-type: none"> - gain a sound understanding of research career dynamics - understand the concepts of professional visibility and research excellence and their interrelationship - critically assess the role of different factors which have significant impact on career progression - be able to implement helpful tools and structures for professional networking - apply approaches and instruments for professional improvement - deal with complex issues regarding career planning and scientific advancement
Course content
<ul style="list-style-type: none"> - Why network? - What is a good networker? - Your existing networks - Expanding your networks - Being visible – how? - Drawing out one’s strengths - Working with networking and visibility
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training
Course Title

Career Paths and Patterns		Lecturer/s
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level academics and researchers
Course Objectives
At the end of the training, participants have developed an understanding of an academic career, how to use and make use of one's competences, a career profile and high performance pattern.
Course content
Career paths at your institution A research career and excellence criteria Talent and high performance pattern Unwritten rules of advancement
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Course Title		
Career Planning Strategy		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level academics and researchers
Course Objectives
At the end of the training, participants will understand the necessary prerequisites to developing a successful career planning strategy
Course content
<ul style="list-style-type: none"> - Being strategic in your career planning - Understanding the 5 P's: Practice, Publications, PhD students, Proposals, Prestige - Understanding rules, power structures, your role and what you need - The art of finding your strengths, resources and what drives you - The SOAC model (Success stories, Opportunities, Ambitions for the future and Competences) - Modelling Career Plans
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic.
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Course Title		
Publication Strategy		
	Lecturer/s	
	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early- and mid-level academics and researchers, PhD students
Course Objectives
At the end of the training, participants will have learned: <ul style="list-style-type: none"> - the importance of a publications strategy - how to improve publications and access research collaborators - how to be strategic and tactical in their publications - how to get involved in promising research collaborations - how to reach the publishers that have high prestige in the field
Course content
<ul style="list-style-type: none"> - Being strategic when publishing - Where are you now? - The steps leading up to the goal - Maximizing your chances
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic.
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Course Title		
Women and Negotiation		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level women academics and researchers, PhD students
Course Objectives
At the end of the training, participants have been introduced to: <ul style="list-style-type: none"> - negotiating styles - negotiating strategies - an understanding that career negotiations extend far beyond salary and bonus
Course content
<ul style="list-style-type: none"> - Key points on negotiation - Personal inventory – a recent negotiation, your counterpart, issues and options - Practicing skills - Negotiation styles and strategies – based on cases - Women and negotiation
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Course Title		
Power and Politics – playing the game		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level women academics and researchers, PhD students
Course Objectives
At the end of the training, participants will be able to: <ul style="list-style-type: none"> - Identify strengths and weaknesses in various aspects of formal and informal decision-making processes and practices - Critically assess the consequences of informal relations (based on doing favors) on the departmental/institutional culture - Understand the impact of inner circles (informal relations) for the institution's performance in general and their own career in particular
Course content
<ul style="list-style-type: none"> - Enablers, barriers, resistance - Informal decision making processes - Decision making processes and how they influence your career - Master Suppression Techniques - Strategies to counter disempowerment - Power, politics and your career in Academia
Course prerequisites
Participants need to be employed in a higher education institution as an academic or researcher
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Course Title		
Gender in Academia		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level academics and researchers, PhD students
Course Objectives
At the end of the training, participants have learned: <ul style="list-style-type: none"> - to examine existing gender equality practices - to identify initiatives that will induce cultural and structural change - how gender bias influence one's career - to ensure that meritocracy is being sustained along with the equal opportunities
Course content
<ul style="list-style-type: none"> - the Privilege Walk - challenges in creating gendered organizational change - how to deal with resistance - transformation of resistance into support - being a change agent
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Gender in Science		
Institutional & Individual Support and your career advancement		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level academics and researchers, PhD students
Course objectives
At the end of the training, participants will have gained: <ul style="list-style-type: none"> - an understanding of the importance of mentoring and supervision for success in academia - an insight into currently implemented support schemes and structures at your institution - a knowledge of how mechanisms at the institution influence one's career development
Course content
<ul style="list-style-type: none"> - Women's low take-up of support structures - The importance of mentoring and supervision - You, your profession and your organization - Support and resources for advancement - Your institution's resources and support structures - The importance of sponsorship and ideas for career advancement
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Gender in Science		
Work-life balance		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level academics and researchers, PhD students
Course objectives
This training course aims to support participants in the development of skills that will reduce work-life conflict and create a healthy work-life balance
Course content
<ul style="list-style-type: none"> - Realistic working hours - high ambitions - Expectations as a young researcher – does not see the structures - Work – part of the community – to work A LOT - The Work-Life Balance Cake Model - Priorities - Main challenges - Defining the playing field - Making prioritizes - Reflections on Work-Life Balance
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

6. Implementation and evaluation of training module

Georgi Apostolov, Irina Topuzova and Clare O’Hagan

The module on Academic Networking and Visibility (Appendix F) was implemented in all four case study universities to create gender awareness at the level of the individual. Academic Networking and Visibility is considered particularly career enhancing and FESTA research on individual awareness raising reveals that men are better at networking and have more visibility than women within the paid work context (O’Hagan et al, 2016), and men benefit from male networks (Bagilhole and Goode, 2001), from which women are frequently excluded (O’Connor, 2014b; Morley, 2016).

It was not considered appropriate to discriminate against men, so in all four organizations, the programme was advertised as a general training programme, open to both women and men. In all four organizations, the training programmes were widely advertised with the objective of attracting as many participants as possible.

In the Bulgarian university, the training for PhD students on ‘Academic Networking and Visibility’ was held on 30 June, 2015. The workshop was promoted to doctoral students through the departments of two faculties – the Faculty of Natural Sciences and Mathematics (FSM) and the Technical Faculty (TF). The opportunity to take part in such a training attracted many PhD students but only 12 were able to participate due to the very specific organization of the PhD studies. The workshop lasted about three hours and the facilitators were two associate professors from the FESTA team.

Table 2 Participants in training programme in the Bulgarian university

Position	Gender
PhD Students	6 men, 6 women

In the Danish university, the training for female and male PhD students on Academic Networking and Visibility was held on 27 August, 2015. PhD students at the faculty of Science were targeted and the workshop was promoted through a folder in each PhD student’s private letterbox. The training attracted six participants, and the gender breakdown was three female and three male. The workshop lasted three hours. The training was facilitated by the HR department at SDU, which has a central department which provides all staff training. This department runs a year-long PhD training programme designed to develop skills and which includes goal setting and career planning.

Each student received ½ ECTS point for participating in the programme. The FESTA module on Academic Networking and Visibility was integrated into the training programme.

Table 3: Participants in training programme in the Danish university

Position	Gender
PhD Students	3 men, 3 women.

In the Irish university, the workshop on Academic Networking and Visibility was implemented by the FESTA researcher, facilitated by the graduate studies department. The workshop was advertised widely to researchers/academics at junior levels, and 18 participated. It was held on the 12 June 2015 and lasted about two hours. Because the training was advertised as being arranged and delivered by FESTA, it attracted more women.

Table 4 Participants in training programme in the Irish university

Position	Gender
PhD Students	4 men, 11 women
Careers Adviser	1 woman
Librarian	1 woman
Postdoctoral Researcher	1 woman

In the Turkish university, the training programme was carried out on Academic Networking and Visibility and held at the Faculty of Computers and Informatics. The training programme for researchers/academics attracted 11 participants who were mostly junior academics at the levels of research assistant and assistant professor. Although it was expected to reach more female academics, only three out of 11 were female.

Table 5: Participants in training programme in the Turkish organization

Position	Gender
Research Assistant	6 men, 1 woman
PhD Student	1 man, 2 women
Lecturer	1 man

Evaluation Method

The training modules were evaluated according to Kirkpatrick's (1959) evaluation of training model. The model evaluates training at four levels: Level 1: reaction, which measures how participants reacted to the training programme; Level 2: learning, which assesses what participants have learned, the extent to which their knowledge has increased as a result of the training, and if the learning objectives were met; Level 3: behaviour, which evaluates changes in participant's behaviour based on the training intervention and the ways in which the learning is applied; and Level 4: results, which evaluates outcomes as a result of the training. While it is difficult to evaluate changes in behaviour and results in a short time frame, it is suggested that positive changes in these domains are anticipated from this evaluation.

This model was selected because it evaluates training primarily on outcomes (Newstrom, 1995). Kirkpatrick's model fostered recognition that single outcome measures cannot adequately reflect the complexity of organizational training programmes, and highlighted the importance of examining multiple measures of training effectiveness. Significantly for FESTA, the model promoted awareness of the importance of thinking about assessing training in terms of organization change (Wang, 2003). Furthermore, the distinction between learning (level two) and behaviour (level three) has drawn increased attention to the importance of the learning transfer process in making training truly effective (Bates, 2004).

Given the different organizational contexts in which the training programmes took place, the model usefully simplified the complex process of training evaluation. The four classes of outcome data were collected after the training programmes had been completed which facilitated the collection of uniform data. In addition, because conclusions about training effectiveness are based on outcome measures, the model is useful for evaluating the extent to which attitudes, behaviours and organization changes have taken place.

The training programme was evaluated by means of a summative evaluation questionnaire at the end of the module in all case study organizations (Appendix G).

Reaction

In the Bulgarian university, the overall reaction to the workshop was very positive. Nine participants out of twelve strongly agreed and three agreed that 'The overall quality of the workshop was high'. Respondents found the training very valuable for their current work and personal development. It was considered a good opportunity to meet other colleagues and reflect on issues of mutual interest as well as to learn how others cope with some specific challenges: 'It was very interesting for me to learn about how others feel when face problems similar to those I've already experienced'. Participants expressed their satisfaction with the information and advice they received in a number of ways – they were active during the session, asked lots of clarifying questions, needed more sources of information, and provided their contact details for further communication. Gender equality was also regarded as an interesting part since most participants had never reflected on this issue: 'listening to stories and discussing examples' of manifestation of hidden gender biases was considered 'fun' as well as 'a serious topic of discussion'. It helped participants reflect on their own behaviour and attitudes and find evidence from their own experience. All twelve participating PhD students strongly agreed that: 'The content and the delivery of information were appropriate for this workshop', with seven strongly agreeing and five agreeing that: 'The workshop structure was easy to understand'. Some of the strengths of the training, mentioned by the participants, were:

- The opportunity to meet and interact with colleagues and see things from their perspective;
- Access to important information and valuable advice about how to build up a personal network and become more visible in the scientific community;
- The chance to talk about personal experiences, difficulties, biases and to learn how others deal with them.

In the Danish university, the overall reaction to the workshop was positive. Four participants agreed that: 'the overall quality of the workshop was high'. Respondents identified the group work, the pitch session, and the skills of the facilitator as strengths which contributed to engaging participants with the issues of professional networking and in activities to increase their visibility. It was noted that the workshop was: 'very interactive'. There were also a number of suggestions provided about how to improve the workshop:

- more concrete examples/cases;
- getting to think about new things/new ways to do things/new things to do;

- more concrete examples on the abstract concepts;

In the Irish university, the overall reaction to the workshop was positive. All participants agreed that the quality of the workshop was high, with 12 agreeing and six strongly agreeing that: 'The overall quality of the workshop was high'. Respondents identified the: 'evidence based research to support the workshop', as a strength which convinced participants of the need to engage in professional networking and in activities to increase their visibility. It was noted that the workshop was a: 'good starting point, gets you thinking'. The practical nature of the workshop was also considered a strength, with participants specifically noting as positive

- getting tips on what to do;
- the skills/plan for networking and visibility;
- making participants think about their own qualities and how to sell themselves.

The only weakness identified was the shortage of time, with participants suggesting a longer workshop would be more beneficial: 'more time, more questions, more time for discussion'.

In the Turkish university, most of the participants were junior academics, and were excited to improve their networking skills, which would help their promotion prospects. Of the eleven participants, six declared that the workshop was 'very successful' and five agreed that the workshop was 'successful'. The venue was a place where participants have frequently held meetings; therefore, they felt comfortable to be there. Only two people out of 11 mentioned that they were not very satisfied with the workshop material. The strengths have been listed by participants as:

- Self- awareness about one's own networking
- Quality, coherence and clear-cut formulation
- The recommendations to improve networking/visibility were great. It reminds me of the important points, which I have forgotten such as keeping the connections active.

Weaknesses noted by participants were:

- The recommendations are not easy to realize for building a network
- More examples are needed
- Need to cover more gender related issues.

Learning

In the Bulgarian university, eight out of twelve participants strongly agreed and four agreed that: 'The information that was covered on the workshop will be beneficial to me in my workplace/business'. Participants learned about how important it was to have appropriate professional contacts not only at the university but nationally and especially internationally. They were satisfied with finding out practical ways to communicate and expand their own professional networks. Discussing different aspects of visibility turned to be of special interest for them since most of the students were not very familiar with the specific requirements for publishing in journals with high 'impact factor' and 'impact rank'. The tips and advice they received about how to search for appropriate publishers and scientific fora, as well as how to prepare their own papers and presentations were rated as 'extremely important'. Discussing gender biases and equality in academia turned out to be something new, but at the same time: 'an interesting learning experience about ourselves'. Reflecting on personal feelings, attitudes and behaviours was considered as 'positive' and also as 'fun' and an enjoyable way to learn.

In the Danish university, two out of six participants agreed that: 'the information that was covered on the workshop will be beneficial to me in my workplace/business', and four agreed that: 'the content and the delivery of information were appropriate for this workshop'. Three strongly agreed and two agreed that: 'The workshop structure was easy to understand', and three agreed that: 'the workshop covered the material I expected'. Participants found the exercise of presenting themselves in the pitch session very informative and learned from it. Respondents also agreed and strongly agreed that: 'the facilitator demonstrated knowledge of and encouragement debate about the material', and they stated that they enjoyed the group work, suggesting their engagement with the material in the workshop.

In the Irish university, all eighteen participants agreed that: 'the information that was covered on the workshop will be beneficial to me in my workplace/business', with eleven strongly agreeing and seven agreeing. Participants engaged with the exercises in the workshop and all were able to identify members of their networks who were 'strong / active' connections and those who were 'weak/passive' members of their network. The activity which prompted most learning was the exercise 'digging for gold' where participants were required to reflect on their own work and the three tasks which give them greatest satisfaction and to share these within a small group. Other members of the group listened for positive characteristics, skills and strengths which would facilitate the participant in growing their networks and achieving visibility. Much learning took place during

this exercise in which participants learned positive aspects about themselves and about their ability to network. Overall, it was evident that learning had taken place in the workshop with participants noting the workshop prompted: 're-thinking of own networking', and in one case the learning reassured the participant: 'realising I am already doing some things correctly'.

In the Turkish university, during the training, participants were invited to assess their existing networks and encouraged to find out new strategies to make themselves and their work more visible. They especially enjoyed the discussion about their 'passive contacts' since it helped them to remember those contacts which they had forgotten. Some of them shared that they will try to convert those to active. Participants were also interested in the activity which invited them to 'write about the three tasks that they perform best in terms of skills, strengths, values and positive characteristics'. The training helped them to recognize and remember certain knowledge and experiences which can contribute to their academic careers. It also worked as a re-learning process for the participants as they questioned and learned about gender equality in academia and gender in STEM. According to Kirkpatrick (1959): 'if the overall organizational culture isn't set up for any behaviour changes, the trainees might not be able to apply what they've learned'. In a recent meeting with several academics at decision-making levels (vice rector, deans, directors of institutions) commitment was made to prepare and implement a gender equality action plan for the Turkish university. Such an implementation will assist in providing the necessary conditions for academics to apply what they have learned in the training.

Behaviour

In the Bulgarian university, four out of twelve participants strongly agreed, and seven agreed that: 'I will consider making changes to my attitude/behaviour/way of working, following the workshop', suggesting that lasting changes will result from the workshop in terms of the way these participants will approach networking and visibility in the future. An important outcome was that nine of the participants strongly agreed and three agreed that: 'I would recommend the training to others'. All participants provided positive comments about their overall satisfaction: 'I really enjoyed every aspect of the training', 'Thanks for the fascinating experience I've gained', 'It was a very interesting workshop'. After the workshop seven out of twelve participants asked facilitators for additional information, materials and/or advice via e-mail.

In the Danish university, in the summative evaluation, five participants agreed that: 'I will consider making changes to my attitude/behaviour/way of working, following the workshop', suggesting that changes will result from the workshop. In the Irish university, in the summative

evaluation, four participants agreed, and twelve strongly agreed that: 'I will consider making changes to my attitude/behaviour/way of working, following the workshop', suggesting that changes will result from the workshop in terms of the way these participants will approach networking and visibility in the future.

Although Kirkpatrick reminds that measuring behaviour is challenging, as it is a: 'longer-term activity that should take place weeks or months after the initial training'. However, in the Turkish university, it was possible to observe some changes during the course of the training. During the first phase of the training, participants were hesitant to express their positive and strong abilities/strengths, nevertheless, in the later steps they were encouraged to evaluate themselves better and a more interactive discussion started. Especially when they learned that their social abilities (such as being a member of backgammon club) could help them in their academic career as those may provide networking, they started to share personal stories/experiences. In the evaluation forms four of the participants made 'strong commitment', while six made a commitment' to make changes in their attitude/behaviour/way of working, following the workshop.

Results

In the Bulgarian university, one of the exercises in the workshop was goal setting, in which participants were required to set three short term goals to increase their visibility and/or to broaden their network, which they would achieve within six months. Although the workshop lasted around three hours, there was not much time left for this exercise so the participants were asked to send their responses via e-mail after the training. Seven out of twelve participants (58 per cent) completed the exercise by sending their short term goals to the FESTA team. Most of the goals were quite generally defined but there existed also very specific ones: e.g. 'I'll find out experts from Greece in the field of my dissertation – ecology, biological diversity and protected areas and establish contacts with them', and: 'I'll participate in a conference in the UK'.

In the Danish university, the participants were active during the workshop as well as the evaluation session. One of the exercises in the workshop was goal setting, in which participants were required to set short term goals, some to be achieved in three months, and others to be achieved in six months. All participants (100 per cent) set these short term career goals. They were asked to also write the goals on a post-card. The HR department collected the post cards, and six weeks after the training posted the cards to each participant as a reminder of the goals they had set. It was not possible to obtain information regarding their implementation, but it is hoped that the reminder post-card would prompt achievement of these goals.

In the Irish university, all participants at the workshop (100 per cent) completed the goal-setting exercise. One participant noted the workshop: 'helped focus my mind and encouraged me to use the opportunities/ connections I have, while another stated: 'I need to follow up for my future career', indicating both an understanding of the importance of networking and visibility and a commitment to following up on the lessons learned in the workshop. In a follow up communication with participants three months later, four participants provided updates on their progress. One reported: 'I've made some very modest steps in terms of increasing my visibility, I've created a twitter account for my academic endeavours and I attended my first conference since I attended your seminar. Off the back of the conference I established some very useful connections with academics in other colleges'. Another participant reported on her progress: 'I presented at a World Congress in my field in Florida in June, which was amazing and increased my international visibility big time. After the seminar you gave I had the confidence to approach key researchers in my area and have some email and twitter communication since, thus expanding my connections with powerful others. I am even considering applying for the Fulbright Student Award and visiting one of their labs. Also I published in an open access journal to increase my visibility and citations. Finally, I have become a fan of twitter, and as my supervisor calls it, subtle self-promotion. I remember you saying that: 'visibility= perceived excellence' and I think it could not be more true! Another participant said she re-visits the goals she set at the workshop regularly, while the fourth stated: 'I have together with my supervisor put a strategic writing plan in place with one paper submitted and a few others lined up – all is going well!' Four of the seventeen participants have demonstrated increased visibility or commitment to goals. The other respondents did not reply, however this does not suggest that the workshop did not produce results for them.

In the Turkish university, participants were asked to set short term goals to increase their visibility and/or to broaden their network, which they would achieve within six months. Only four academics out of 11 filled the form where we asked them to identify their short-term career plans (36 per cent). The low response rate was probably due to their busy schedules and being tired of filling too many different forms. This result tells us that we should find more applicable and practical tools so that participants can get more excited about identifying their short terms career plans and goals. However, in the Turkish university, a significant result is the development of a gender equality action plan. In a recent meeting with several academics at decision-making levels -vice rector, deans, directors of institutions- commitment was made to prepare and implement a gender equality action plan for the Turkish university. At an individual level, seven of the participants shared that they will 'strongly recommend' the training to others, which can be considered as an important

result. The other four also declared that they would 'recommend' training to others. Such metrics suggest that the training was successful.

Conclusion

In the four organizations, the training programmes were evaluated as effective, with positive reactions from the majority of participants in terms of reaction, learning, behaviour and results. The evaluation shows that participants received useful information and valuable practical tips about how to build up their own professional networks and how to increase their professional visibility. Participants also engaged in reflexive exercises which increased their confidence in their ability to develop networks and engage in profile building activities.

The majority of participants in all four universities committed to achieving short term goals; in Bulgaria 58 per cent, in Denmark 100 per cent, in Ireland 100 per cent and in Turkey 36 per cent of participants set career goals. Overall an average of 74 per cent of respondents established short term career goals, and success at achieving these goals was evident with some participants demonstrating increased visibility and expanded networks. The workshops also provided the opportunity to observe gendered processes in academia more carefully. In many cases, women reported an increase in their self-esteem and self-confidence.

The purpose of implementing programmes to empower women is to create awareness of gender so as to create change at the level of individual women, in contexts where FESTA has created gendered organisation change at cultural and structural levels. It is anticipated that results, in terms of women's career development, will follow from these training programmes in all four organizations.

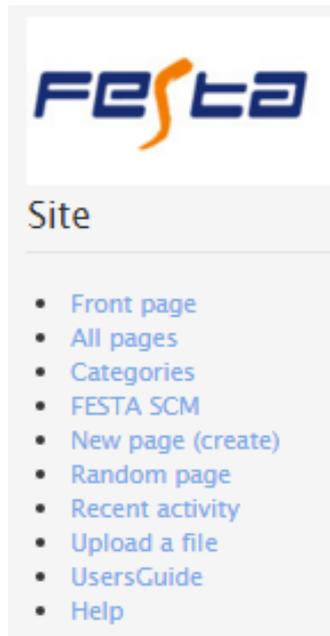
7. FESTA Strategic Career Manager

The FESTA Strategic Career Manager (SCM) was developed building on already available software, developed in Lero at the University of Limerick. This decision-support software, known as aSPIRE, is a system used for the global teaming model (Noll et al, 2014). This approach is based on the use of process patterns. In general, a pattern starts with a description of a specific problem (design, organizational, or process) that the pattern addresses. Background is included that explains the problem, the context in which it occurs, and other information to help the reader to understand the problem and its solution. The use of patterns is relevant to the problem of women's under representation at senior levels in STEM, as it is possible to identify specific problems in relation to aspects of academic careers, identify solutions and provide both empirical evidence and international research literature pertaining to each of these aspects. The process pattern approach was incorporated into a Decision Support System framework called FESTA Strategic Career Manager (SCM). The goal was to develop a useful product for people interested in career development, while allowing us to structure the knowledge collected and analysed by the FESTA Work Package 3.1 team into a usable format. The approach we adopted for FESTA-SCM is based on the concept of process patterns. This approach has two advantages: patterns present solutions in a concise format that is familiar to practitioners; and patterns are straightforward to create from existing research results.

The data set involves the accounts of 106 academics at early- mid- and senior-career levels, who reflected on their careers, specifically critical incidences, barriers and enablers, as well as their ambitions and career goals. Following thematic data analysis, FESTA Researchers in the University of Limerick (Dr Clare O'Hagan) and the University of Southern Denmark (Ms Liv Baisner) identified fifty recommendations and developed them into the pattern structure. In addition to identifying recommendations, the WP3.1 Research team also grouped them into categories and sub-categories. Once recommendations were identified, it was possible to develop the knowledge base for FESTA-SCM.

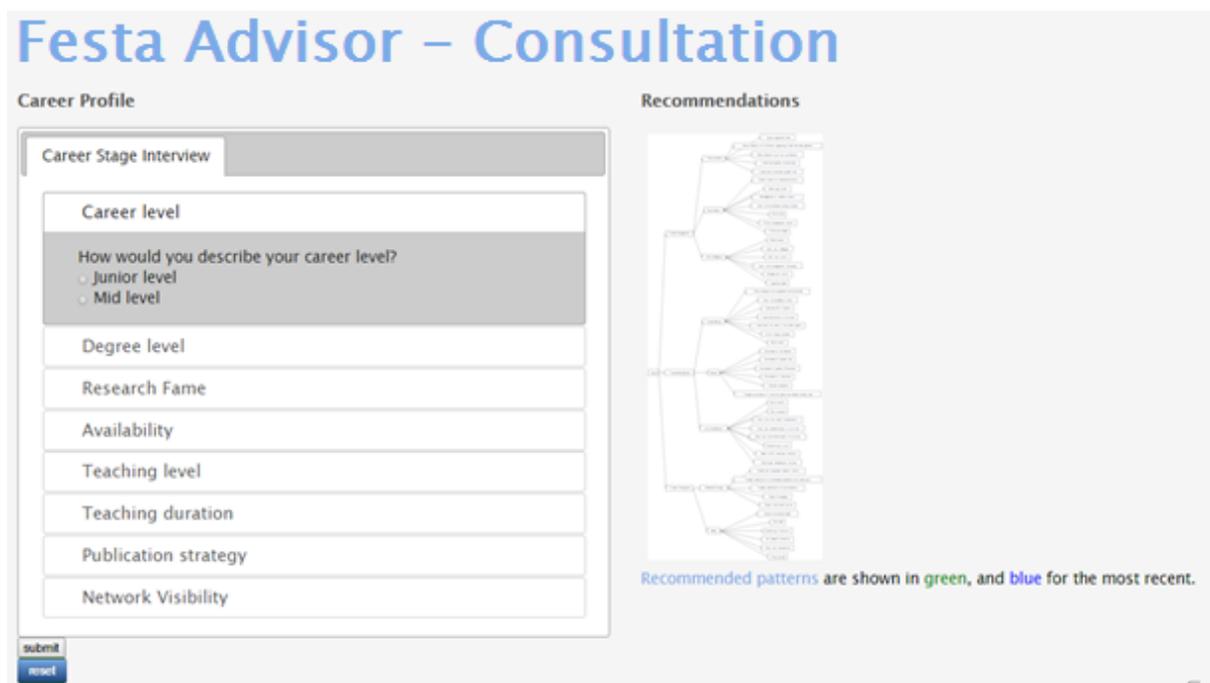
Users click on the address [\[http://proisis.lero.ie/festa/App/Consult \]](http://proisis.lero.ie/festa/App/Consult) and the FESTA Strategic Career Manager will open, with this menu on the left of the screen:

Figure 1: FESTA SCM Menu



When users select **FESTA SCM**, they are presented with this screen

Figure 2: FESTA SCM Career Stage Interview



There are two panels – Career Profile and Recommendations. To establish a personal profile, users click on each of the questions in the Career Stage Interview, and choose answers from each of the options given. This will generate their personal profile.

They are then presented with a number of recommendations designed to help them make strategic career decisions. Recommendations are shown in blue and green, blue being those that are based on their most recent answer.

When users click on a recommendation, details of that career activity will open. The recommendations include information regarding its importance, its relevance, the evidence base for the recommendation, guidelines on how to achieve it, related links to other recommendations and references from international literature to support the evidence base.

Implementation and evaluation

Once FESTA-SCM was populated with all recommendations, the system was piloted among the FESTA Project Team and with researchers locally at the University of Limerick, and a user guide was developed to facilitate its implementation. The FESTA SCM was introduced in all seven FESTA partners in the summer of 2016, and an online survey was designed to facilitate simultaneous evaluations across all seven partners <https://www.surveymonkey.com/r/9XLK9YL>.

Respondents in the seven FESTA partner universities completed an online survey, which contained open and closed questions designed to measure reaction, learning, behaviour, results and provided an opportunity for free form comments and suggestions. Respondents in all FESTA partners evaluated the SCM, and there was an overall 52 per cent response rate. Reactions to FESTA-SCM were largely positive on the dimensions: first reactions, ease of navigation, relevance of content, new learning as a result of content, act on the recommendations in the SCM and recommend the system to others. Respondents were positive about the concept of the SCM, but commented on issues relating to content, technical issues regarding access, issues with the user-interface and made suggestions for improvement including resolving the technical issues, providing explanatory notes and ongoing support.

The FESTA-SCM Decision Support System has been developed based on FESTA Work Package 3.1 Research. It is available on-line for Academics and Researchers to use internationally at <http://proisis.lero.ie/festa/App/Consult> . It is envisaged that the system can be further developed to overcome technical shortcomings and upgraded.

8. Awareness raising and impact

Clare O’Hagan, Pat O’Connor, Liv Baisner, Eva Sophia Myers, Gulsun Saglamer, Mine G. Tan, Hulya Caglayan, Georgi Apostolov, Irina Topuzova.

Work package 3.1 is concerned with creating change at the level of the individual in order to: ‘enable women researchers to make effective decisions in regard to their career paths...and by providing tools for evaluating alternatives in career related decisions’ (FESTA, 2012, p.9). To raise awareness at the level of the individual, we developed the FESTA training programme and the FESTA Strategic Career Manager (SCM). The training programme and the FESTA SCM are developed from the data we collected. In all four universities, a workshop on ‘Academic Networking and Visibility’ was held in 2015 and the FESTA SCM was introduced in 2016. Both workshop and FESTA SCM were evaluated positively.

Overall, awareness of gender has been raised in all four institutions, this is reflected in the increased average representation of women in STEM in all four participating universities.

Table 6: Female representation in South West University Bulgaria 2012 and 2016

Faculty of Mathematics and Natural Sciences & Technical College/Technical Faculty

% female academics and researchers

Position	2012	2016
Professor	17	22
Associate professor	28	36
Chief assistant professor	64	69
Assistant professor	42	64
Average representation %	38	48

As can be seen from the figures there has been an increase in female representation in the four positions, which is significant at the lower level (Assistant professor) and slight at the highest level (Professor). Overall, there has been an average increase in female representation from 38 to 48 per cent in the period of this task on awareness raising.

Table 7: Female representation in University of Southern Denmark 2012 and 2016

Faculty of Science

% female academics and researchers

Position	2012	2016
Professor	14	13
Assoc. Prof.	19	21
Assist. Prof.	0	42
Post Doc	30	29
PhD	48	46
Average representation %	22	30

There has been an increase in female representation in two of the four positions, however, these are significantly greater than the decrease in the other two. There were no assistant professors in the Faculty of Science in 2012, and there 42 per cent of assistant professors are female in 2016. This suggests improvements in the pipeline as participation levels for Postdocs have remained relatively static. Overall, there has been an average increase in female participation from 22 to 30 per cent in the period of this task on awareness raising.

Table 8: Female representation in University of Limerick, Ireland 2012 and 2016

**Faculty of Science and Engineering
% female academics and researchers**

Position	2012	2016
Professor	0	9
Associate Professor	8	13
Senior Lecturer	16	10
Lecturer above the bar	17	28
Lecturer below the bar	29	31
Senior Research Fellow	0	10
Research Fellow	24	34
Post-doctoral researcher	27	39
Average representation %	15	22

In the faculty of Science + Engineering, there has been an improvement in women's representation at all levels, with the exception of Senior lecturer. It is suggested that the promotion of senior lecturers to professorial positions accounts for this. The increase in the most senior levels are significant. In 2012 there were no female professors or senior research fellows, while in 2016, there are nine and ten per cent respectively. Overall, there has been an average increase in female representation in STEM from 15 to 22 per cent in the period of this task on awareness raising.

Table 9: Female representation in Istanbul Technical University 2012 and 2016

**Istanbul Technical University
% female academics and researchers**

Position	2012	2016
Professor	35	37
Assoc. Prof.	41	43
Assist. Prof.	42	40
Res. Assistant	46	47
Average representation %	41	42

There has been an improvement in women's representation in three of the four levels in Istanbul Technical University. Only the proportion of women at assistant professor level decreased, it is suggested that the promotion of assistant professors to associate professors accounts for this.

Overall, there has been an average increase in female representation from 41 to 42 per cent in the period of this task on awareness raising.

Impact

At the end of the FESTA project (November 2016) significant gender awareness has been created, We summarise the impact of such raised gender awareness in the four universities which participated in this sub-project on individual awareness raising.

South West University (Neofit Rilski) Bulgaria

The South-West University is a unique case in comparison with all other partner institutions. Gender considerations do not exist in regulations and there is no institutional body, office or even an officer dealing with gender issues. In addition, gender matters have never been discussed at university, faculty or departmental levels prior to FESTA and it could be said that the academic community at the institution was completely gender blind at that time. Thus, the variety of project activities during the last several years made gender part of the institutional discourse along with other essential topics of discussion like: research excellence, international visibility, promotion and decision making, these activities raised awareness of gender. The project team has been trying to utilize every opportunity to put forward the gender aspect and initiate talks about gender equality and its implications. At the beginning, it was something new, interesting and attractive, so that the academics involved in the FESTA initiatives were enthusiastic and actively supported the team. Later, when the team tried to propose structural or cultural changes, different kinds of resistance started appearing. Nevertheless, gender equality is now a part of the academic life at the South-West University and there is much evidence that the FESTA project activities have been highly effective.

Individual level

Many people were involved in different project activities: interviews, seminars and workshops, training sessions, e-mail communication and so on. These were young and senior researchers, members or heads of different institutional bodies and committees, faculty deans, their deputies, department chairs, PhD students and their supervisors. The fact that participants in all those events were coming voluntarily, despite their heavy workload and they were participating actively, asking for additional information and providing their personal contacts for future communication, proves that the project has had a significant impact at an individual level. The project team members

became a source of information, and a centre for providing different kinds of support. Requests for support and information were very frequent on some occasions and many members of the academic hierarchy at the university started using gender equality language in their everyday communication. The FESTA project team members became more self-confident and content with the fact that the new topics and initiatives they were proposing were accepted and the people were interested and supportive. The effectiveness of the awareness raising activities could also be seen and measured during the second rounds of interviews and surveys, as well as recurring events along implementation of different work packages. Participants became more open and engaged, asking many more questions, providing longer answers, showing serious concern and deeper understanding of different aspects of gender equality. In their narratives (written or oral) they demonstrated that gender as an issue had been internalized and had begun to influence their attitudes and behaviours.

Interactional level

Most of the participants involved in different project activities had never participated in gender events or even thought about gender aspects of their scientific work and academic life before FESTA. When they were contacted, invited or participated in the first meetings, interviews or workshops, they were mostly silent, somehow shy, disinterested or amazed by a topic far removed from their subject area belonging to the fields of STEM. Their questions were rare, their responses were naïve, and quite often discussing specific gender issues raised laughs and jokes. During the time of this work package, their participation became more active, more concerned and they started posing serious questions and providing reasonable remarks, comments or well-grounded opinions. Interactions during the interviews, workshops, meetings and trainings created trust and shared perceptions among and between participants and the FESTA team members. Thus, a community of people bound together around the gender problem started emerging. New links and relationships have been established between people from different faculties and departments, as well as from different subject fields. All these bonds have made communication easier and made implementing the project tasks much more efficient. Gender work done under FESTA has had also many other implications for everyday communication and for implementing other academic tasks and duties, as well.

Organisational level

The implementation of the FESTA project benefited from the positions occupied by the FESTA team members – dean, vice-deans, members of committees and administrative bodies. The team members used their links, channels and management resources to expand the influence of the project over the institution and promote gender equality issues among the academic community. In

order to institutionalise their efforts, strengthen the positions at the university and ensure sustainability, a Gender Equality Centre has been established and a full-time PhD student in Gender Studies (for the first time ever) has been enrolled. The team also succeeded in obtaining financial and material resources from University Research Funds in order to support FESTA but also to promote gender equality work. Plenty of information (contact information, administrative structures descriptions and graphs, literature, results of surveys) has been accumulated and the Gender Equality Centre started functioning as a knowledge, expert and logistics support unit. The team managed to create constituencies of support at top and middle levels of university governance who can and do support gender equality work.

University of Southern Denmark (SDU)

In the University of Southern Denmark (SDU), awareness raising occurred at individual, interactional and organizational levels.

Individual level

In general, the fact that FESTA has taken place at the Faculty of Science has meant that the question of gender in relation to academia in general and Science in particular has come to the attention of a number of people, who were otherwise not keyed into this issue. Raised awareness at the individual level has been facilitated by the FESTA project through the interviews concerning career paths, the dialogues in departments and units on the basis of gender data, the study circles for PhD-supervisors, the career training sessions, and the many times gender has been on the agenda of meetings in the faculty management, academic council, liaison committee, departments and units, strategic seminars, both as an issue in its own right and as a perspective on recruitment and employment procedures, funding, resource allocation, and career guidance. This has been evident in the spontaneously initiated reactions to members of the FESTA team, from people who have participated in these activities.

Moreover, during the FESTA project we have seen a change in the response of the above mentioned individuals, from being emotionally charged and often marked by hostility and defensive outbursts at the beginning of the FESTA project to becoming driven by curiosity and acceptance that the question of gender and equality is as necessary and relevant a point on an academic agenda as are the questions of excellence, resources and advancement. FESTA has had the good fortune to run concurrently to a number of initiatives that have increased the focus on gender as a parameter in EU- and Danish national research funding. Whatever the collected influences, the FESTA team has noted an increase in spontaneous initiations of discussions of gender issues also in contexts that are

not directly about gender and/or equality, leading to our assumption that the gender actions and outcomes at organizational level have contributed to an enhanced orientation toward gender and awareness at individual level. Individuals have greater awareness now of the need to be open and responsive to questions and issues concerned with gender, equality and diversity.

Interactional level

On the basis of the FESTA activities concerned with recruitment, career development, statistically founded dialogues concerning gender imbalance, inclusive meeting practices and gender sensitive PhD-supervisor training, the FESTA team has seen an increase in spontaneous requests for supervision and knowledge exchange in areas such as inclusive meeting processes, gender sensitive PhD-supervision and career development from research leaders, supervisors, administrators and heads of department. Moreover, at a more grassroots level, there has been an increase in for-women-only networking activities entirely initiated and facilitated locally by research groups and departments.

Organizational level

The FESTA-project has served as a catalyst at both the Faculty of Science and the university in general for actions and activities, resulting in a number of initiatives, policies and actions being implemented in parallel with FESTA – and as a direct consequence of the focused activity of the project.

At the Faculty of Science, which is the focus of the FESTA project, a number of policies have been implemented, including:

- Formalization of an Equality Committee at the Faculty
- A policy for equal opportunities, which includes five main themes:
 - Management (administrative management and research management)
 - Recruitment and staff retention
 - Career development
 - Working environment
 - Awareness
- Annual status and action plan of gender balance:
 - at all academic career levels and management, which includes an annual compilation of gender statistics – following the dictum that you get what you measure (YGWYM)
- Changes in recruitment practices:
 - broad announcements which allow for a large number of applicants and thus a fairer competition;

- gender balanced assessment boards and hiring committees;
 - only hiring if there are three or more qualified applicants for the position.
 - In the two years since this practice has been fully implemented, there has been a marked increase in the ratio of women being hired for an academic position (from 8-16% to 40-62%).
- Gender sensitive career counselling and supervision of junior researchers

At the University of Southern Denmark the following initiatives are being implemented, partly based on experiences at the Faculty of Science, and partly as a direct consequence of the pioneering work done in FESTA – a development supported by the FESTA task leader’s membership of the university’s gender and equality board throughout the project-period:

- Formalization of equality committees at each of the five faculties at the university
- Development of gender data: an equality index for the university (to be implemented)
- Gender and awareness of unconscious biases incorporated into activities hosted and run by the University’s HR-development and training unit. These include the University’s lecturer training programme, PhD-supervisor training, career counselling and coaching, and meeting facilitation training
- Wider use of FESTA-generated tools and formats such as PhD-supervisor-tool², study groups for PhD-supervisors, career decision making tool³, training modules, and training for meeting facilitators.

FESTA has had an impact at national level in Denmark through its impact in the University of Southern Denmark. At both university and national level, the FESTA actions and outcomes have been highlighted as recommendations for good practice, and are included in the recommendations from the Taskforce for more women in research in 2015⁴, established by the Danish Minister for Research and Education.

University of Limerick (UL)

In the University of Limerick (UL) FESTA activity has raised awareness of gender at individual, interactional and organizational levels. While initially involving the sponsorship of HR, the FESTA project remained rooted in academia.

² This tool is available at <http://www.festatool.eu> It has been incorporated into the European Institute for Gender Equality (EIGE)’s examples of gender mainstreaming actions on their website: www.eige.eu.

³ <http://proisis.lero.ie/festa/App/Consult>

⁴ http://ufm.dk/en/publications/2015/recommendations-from-the-taskforce-for-more-women-in-research?set_language=en&cl=en

Individual level.

Research was conducted on raising awareness, formal decision making, PhD supervision, perceptions of excellence, and resistance to gender equality measures. Overall, 71 people (34 F; 37 M) participated in focus groups and interviews, which were recorded and transcribed. These respondents were selected by random (42) and purposive sampling (29) and represented a wide range of positions: Academic Manager (13); Academic (24); Researcher (15); Support (8) and PhD Student (11). Such participation was significant in raising awareness at the level of the individual. Some of these individuals changed their position on gender equality, from being actively resistant to being enthusiastic supporters of gender equality initiatives over the period of the project. FESTA training for women on 'Academic Networking and Visibility' supported women to establish career goals and create strategic career plans, and ultimately apply for positions/promotions which became available during the period.

Interactional level

At the interactional level, FESTA has been successful in raising awareness, because the training provided for leaders created the motivation to improve gender equality and develop a university-wide gender equality action plan. The most significant impact at the interactional level has been creating awareness of unconscious bias and the way it influences interactions and expectations between men and women with gendered outcomes. Unconscious bias training is now a prerequisite for participation in recruitment and hiring committees, and the gender composition of recruitment and hiring committees has been changed, from representation (one woman) to gender balance (>30% of either gender).

Organizational level

In UL, 70 per cent of the recommendations made by FESTA under work package 4.1 have been implemented. These recommendations are at structural, cultural and individual levels. FESTA, together with other EU funded gender projects INTEGER and GENOVATE, lobbied to bring the Athena SWAN gender equality programme to Ireland. UL was successful in achieving an Athena SWAN university award and two department awards. UL developed a Gender Equality Action plan for its Athena SWAN application, which contains 25 FESTA recommendations. The action plan will be implemented by March 2018. The remaining FESTA recommendations are included in the HEA National Review of Gender Equality, which contains 22 recommendations for HEIs, linked to KPIs, and ultimately to funding.

FESTA worked at structural, cultural and individual levels, examining policies, procedures and practices to see where bias can creep in. Awareness among decision makers and leadership is crucial in order to change processes and practices, effecting structural and cultural change. The

development of a gender equality action plan, the achievement of a recognition award for gender equality (Athena SWAN) ensured organisation support for gender equality. EU funding for the FESTA project gave it status among the research community, while dedicated people and resources ensured all tasks were achieved and implemented. FESTA raised awareness at all levels and widespread dissemination of progress within the faculty and university maintained momentum.

At a national level, FESTA Principal Investigator Prof Pat O'Connor was a member of the five person Expert Review Group which produced the HEA National Review of Gender Equality in Irish Higher Education Institutions. This is the most systemic, radical, evidence based and implementable review ever undertaken on gender equality in Irish Higher Education. GENOVATE, INTEGER and FESTA researchers made presentations to the expert group. Thus FESTA raised awareness at a national level, and had an impact on national policy on gender equality in higher education⁵. Overall, the impact has been significant. The University of Limerick continues to have the highest percentage of women at professorial level in Ireland, at 31 per cent. This compares to a national average of only 19 per cent.

Istanbul Technical University (ITU)

In order to fulfil the objectives of this task, we have targeted awareness raising for the individual and for the organization in the Turkish university.

Individual level.

Raising awareness for the individual was assumed to enable women researchers to make effective decisions in regard to their career paths. We started by analyzing the career paths of men and women in Science, Technology, Engineering and Maths. Our sample included 23 (12 female, 11 male) academics. In the Turkish context, the workshop/training sessions on Professional Networking and Visibility gave participants a better understanding of both the barriers to their careers in academia and the strategies to advance. Several academics acknowledged that they gained new information and strategies that may help their academic career. The awareness raising functions with regard to the concepts of excellence, formal and informal processes of decision making were found to be especially commendable. Some of the participants admitted that interrelatedness of such concepts with gender were completely novel discussion topics for them triggering their awareness on gender equality at an individual level.

⁵ Higher Education Authority Expert Review on gender in higher education:
http://www.heai.ie/sites/default/files/hea_review_of_gender_equality_in_irish_higher_education.pdf

Interactional level

As stressed above although the Turkish organization had a fairly balanced female representation at all academic levels, these proportions have not been reflected at decision making positions. Thus, creating an awareness on the uneven representation of women in management levels was a special accomplishment of this work task at the interactional level.

Organizational Level

The Turkish organization was a partner of several EU Projects supported under FP6 and FP7 on the subject of women in STEM since 2006. Following the organization and hosting of first European Women Rectors Conference in 2008 the university established the Women's Studies Centre in Science, Engineering and Technology (WSC in SET) in 2009. This centre organized several meetings and workshops with the aim of developing strategies for gender mainstreaming and encouraging woman academics to become more visible. In 2010, the promotion of gender equality was included in the University Strategic Plan and in 2014 new regulations for sexual harassment were accepted. Therefore, it was assumed that 'gender equality' is a concept with which the organization's staff is familiar. Nevertheless, due to institutional statistics which display a fairly balanced representation of women from junior to senior positions many of the academics think "gender equality" already has been accomplished in the institution. In Istanbul Technical University, women constitute 37 per cent of professors, 45 per cent of associate professors, 40 per cent of assistant professors and 47 per cent of research assistants. Therefore, FESTA team chose to define their aims as to create an awareness about the uneven representation of different genders in different academic fields and the management levels in the Turkish Organization.

Academics' interviewed during the course of FESTA activities and the participants of workshops in the Turkish organization especially emphasized the funding needed for research, publications or travel for conferences. They stressed the scarcity of university funding as limiting their networking and visibility capabilities. The significance of increasing the research funding available to both male and female academics together with the necessity of making women visible in the administrative positions constituted an important part of the awareness raising process at the organizational level.

Conclusion

Overall awareness of gender has been raised at an individual level in all four universities, this is reflected in the increased participation of women in STEM. Gender is a cross-cutting issue, and the impact of raising awareness of gender equality has resulted in significant change in the universities.

Change happens through people. Raising awareness at individual level is significant, not just for women, but for people at all levels if change is to occur. The participation of men and women at early- mid- and senior- levels in interviews for this task was significant in raising awareness at an individual level. At structural level, equality policies and action plans have been implemented, committees and gender equality centres have been established, the composition and practices of recruitment, selection and training have changed. At an interactional level, gender has become a legitimate topic of conversation, organization actors are seeking advice and support in order to ensure bias-free practices and unconscious bias training is being provided to create awareness of gender bias in interactions.

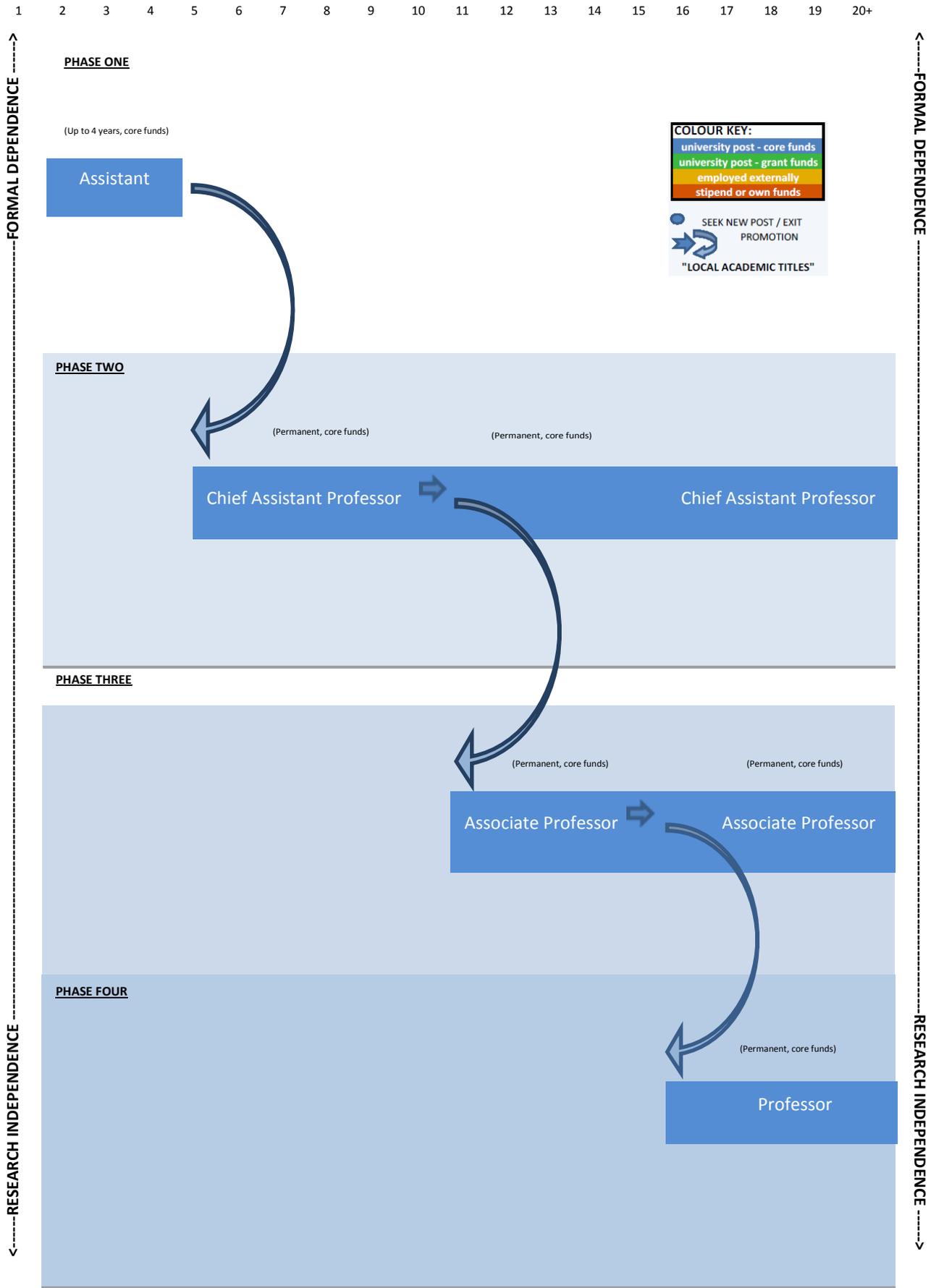
Of all participants in the FESTA training programme on academic networking and visibility, 74 per cent developed career goals. Overall (on average) female participation in STEM in the universities has also increased over the four years of this awareness raising task: in South West University in Bulgaria, from 38 to 48 per cent; in the University of Southern Denmark from 22 to 30 per cent; in the University of Limerick, from 15 to 22 per cent and in Istanbul Technical University, there has been an average increase in female participation from 41 to 42 per cent. Each university evaluated the impact of their work on raising awareness at an individual level, as well as the awareness that was raised by involvement in other FESTA tasks, and concluded that awareness of gender has been raised at individual, interactional and organizational level in all four universities, as well as at national level in Denmark and Ireland as a result of FESTA work there.

At the individual level, people at all levels are aware of gender; women have participated in training programmes which have empowered them to make and achieve career goals and to put themselves forward for appointments and promotions. Coalitions of support for gender equality have been established in all four universities, and it is important that the gender awareness which has been created by this project is nurtured and sustained in the future.

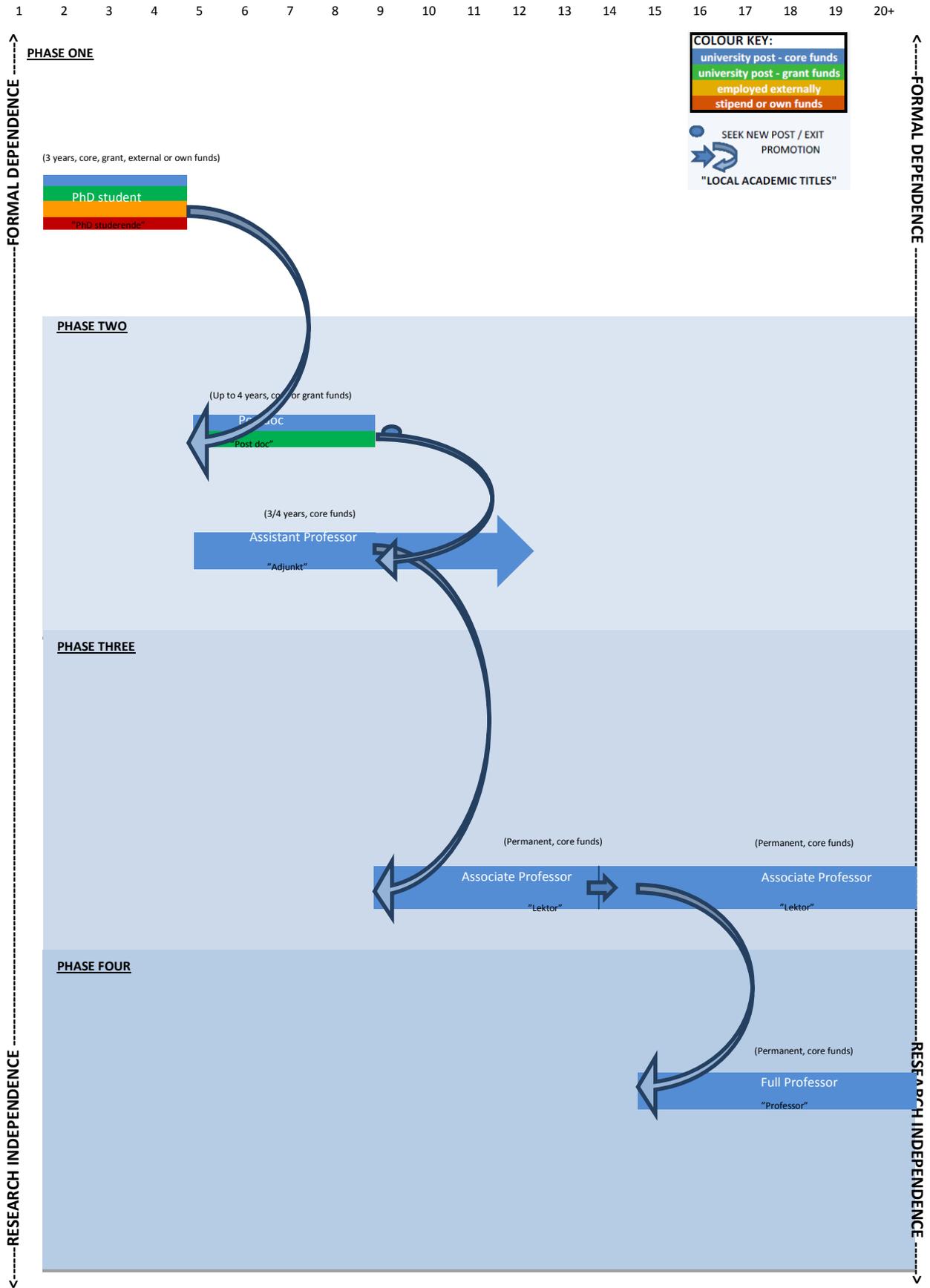
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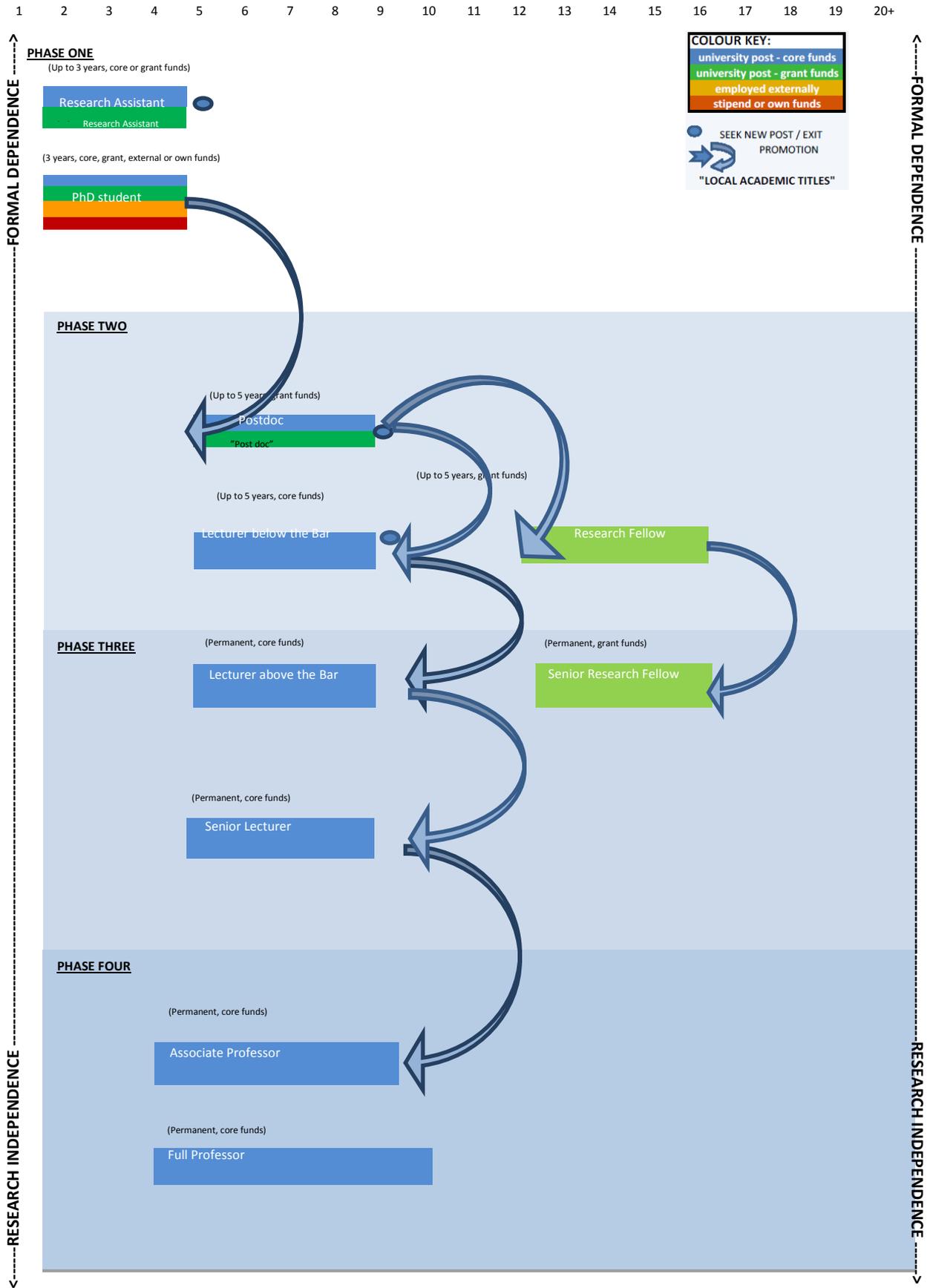
Appendix A: POSSIBLE RESEARCH CAREER PATHS IN Bulgaria



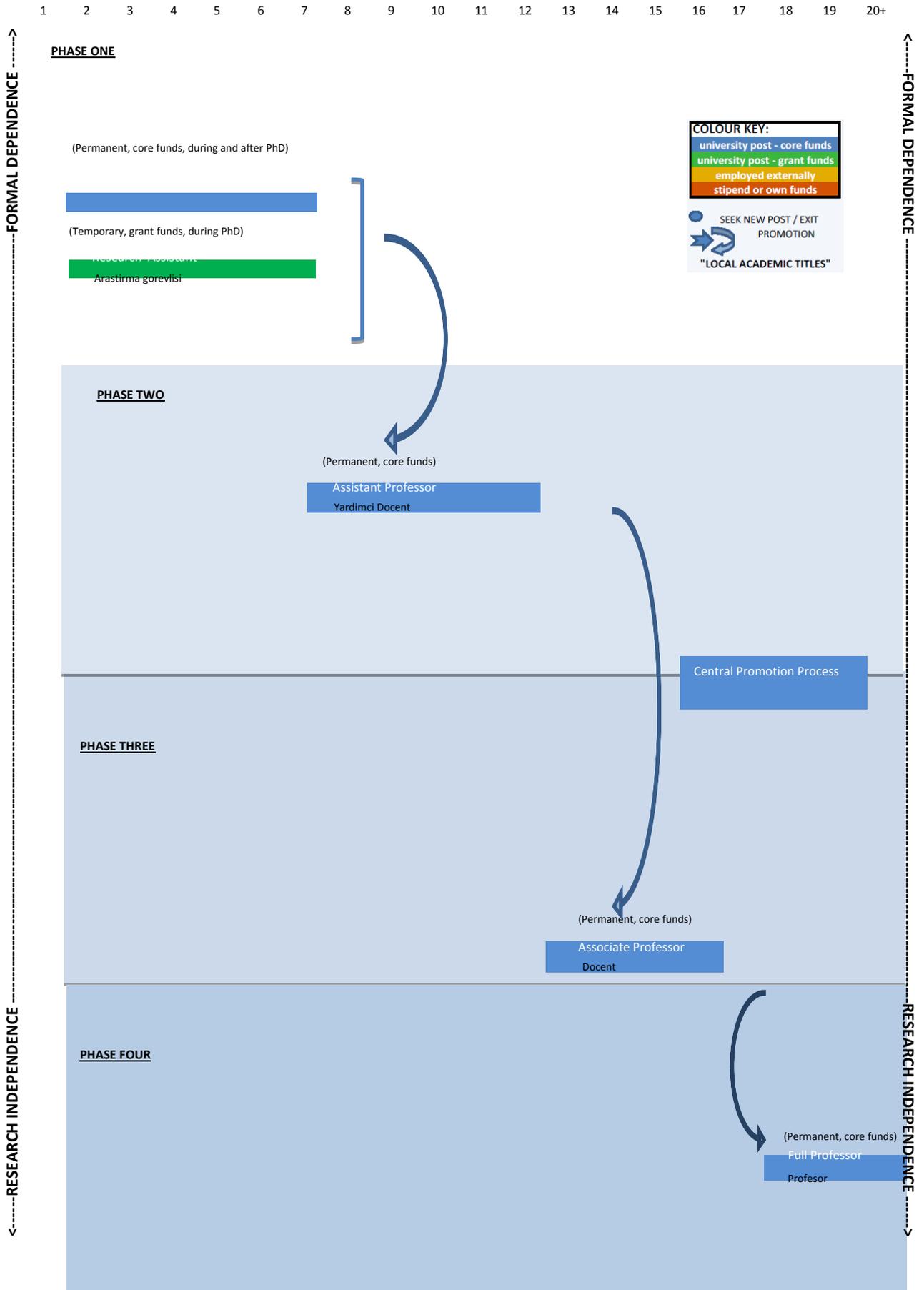
Appendix B: POSSIBLE RESEARCH CAREER PATHS IN DENMARK



Appendix C: POSSIBLE RESEARCH CAREER PATHS IN Ireland



Appendix D: POSSIBLE RESEARCH CAREER PATHS IN TURKEY



Appendix E: INTERVIEW GUIDE



Interview Guide 3.1

Thank you for agreeing to participate in this interview to share details of your career progression in academia. This structured interview is designed to develop an understanding of the positive and negative aspects of career progression. First we will talk about your current position, next we will explore your career to date, and in the last section we will look at how you envisage your career development progressing in the future. At the end of the interview, you will be asked to complete a short biographical questionnaire.

Current Position

- 1) What is your current position within the University? (Clarify: permanent or not?)
- 2) How long have you been in that position?
- 3) Could you describe your role? (focus on your responsibilities)
- 4) Can you describe your work group – the people with whom you interact on a daily/weekly basis?
- 5) What is the gender composition of your work group?
- 6) What factors or people were most supportive in helping you achieve this post?
- 7) Is this your preferred career/career path? If no: what would be your preferred one?

Career Path to date

- 8) When you look back over your career what do you see as the critical points?
- 9) Was there a point when your career began to accelerate? - If yes: Why do you think it happened at that stage?
- 10) Have factors or people been supportive in your overall career progression? Specify
- 11) Have you met any barriers / obstacles to your career progression? Specify
- 12) Has gender affected your career progression in a positive or negative way? Specify
- 13) Have personal or domestic issues influenced your career decisions?
- 14) How does your progression compare to people of the same age?
- 15) - If there is a difference, why do you think that might be?
- 16) How does your progression compare to people of the same gender?
- 17) - If there is a difference, why do you think that might be?
- 18) How does your career progression compare to people of the opposite gender?
- 19) - If there is a difference, why do you think that might be?
- 20) Have work related mentors played any part in your career progression? Specify
- 21) – If yes: Have you had male & female mentors? Specify
- 22) Have work related networks played any part in your career progression? Specify
- 23) How is research excellence defined in this department /institute?
- 24) How is research excellence defined in this university?

- 25) Are there any conditions laid down regarding your supervision of Ph.D students?
- 26) Do you think activities which give you professional visibility outside your department and/or outside the University contribute positively to career progression?
- 27) Do you engage in any of these activities which provide professional visibility?
 e.g. Reviewer for International Journals Member of Editorial Board
 Editor of journal or book Professional Consultancy Activity
 Forging Links with Industry Partners Participate in Research Consortia
 Making grant applications External Examiner
 Assessor for grant awarding bodies Media related profiling activities
 Keynote / Plenary Speaker at Conferences
 Other- SPECIFY
- 28) Are there any barriers to your participation in activities which would give you professional visibility outside the department / university? What are they?
- 29) Have you participated in any committees which have helped your career?
- 30) Have you participated in any committees which have hindered your career?
- 31) Does your university provide any additional resources to women to help them develop their research career?

Career Path: Future

- 31) What is the highest level that you would aspire to reaching in the university?
- 32) Are there any formal procedures for moving upwards in your organisation?
- 33) If yes: Have you applied for promotion? Why/Why not? If yes, What was the outcome?
- 34) Do you think the progression process in this University favours male or female applicants? Why? Why Not?
- 35) If you were to give advice to someone at a more junior level who wanted to advance their career, what would you say to them?
- 36) Are you thinking of someone of the same gender as you? What about someone of the opposite gender?
- 37) What factors do you think will affect your future success in this University/ Institute?
- 38) What personal competencies / characteristics do you think are necessary for a successful career in this University/Institute?
- 39) Do you engage in any activities designed to develop these competencies? Specify
- 40) What would help you to move your career forward at this point in time?
- 41) In five years' time what position do you think you will be in?
 -What about in ten years' time?
- 42) How similar/different are you to the people who are in management in your area? - In what way? (similar? different?)
- 43) Is there anything else that you want to say about careers?

TRAINING MODULE FOR ACADEMIC NETWORKING & VISIBILITY

Training module content:

Training Outline

Training Materials – Contents

Master Plan

Facilitator Toolkit

FESTA Findings and Quotations

Exercises

1. Existing Network
2. Expanding Network
3. Digging for Gold
4. Self Reflection
5. Spiral / Round

PowerPoint FESTA template

Course Title		
Academic Networking & Visibility		
	Lecturer/s	
Type	Duration	Course Code
Workshop for 10-20 participants	3 hours	

Target group
Early and mid-level women academics and researchers, PhD students
Course Objectives
At the end of the training participants will be able to: <ul style="list-style-type: none"> - gain a sound understanding of research career dynamics - understand the concepts of professional visibility and research excellence and their interrelationship - critically assess the role of different factors which have significant impact on career progression - be able to implement helpful tools and structures for professional networking - apply approaches and instruments for professional improvement - deal with complex issues regarding career planning and scientific advancement
Course content
<ul style="list-style-type: none"> - Why network? - What is a good networker? - Your existing networks - Expanding your networks - Being visible – how? - Drawing out one’s strengths - Working with networking and visibility
Course prerequisites
Participants need to be employed in a higher education institution as a researcher or academic
Teaching/learning materials
Presentations, exercises, templates
Teaching methods
Action based learning; presentations, exercises, templates and ppt
Assessment methods
Summative evaluation at the end of the workshop
Recommended readings and/or other information resources
Training materials and exercises provided during training

Training module for Academic Networking & Visibility

Master plan

Below you find the outline of a workshop on Academic Networking & Visibility. Read it carefully and then read the Facilitator Toolkit, exercises and other supplementary material. Finally fit or adjust it into your context if necessary. Read the introduction as well.

Time	Activity	Comments	Who
10.00	Opening and introduction to FESTA training course “Academic Networking & Visibility “ <ul style="list-style-type: none"> • Why network? • Where do I start? • Face-to-face networking • Electronic networking • Using your contacts • Networking with the “wrong ones” • FESTA findings 	Facilitator introduces how the module was developed from the FESTA project (see introduction) and introduces the specifics of the training module Power Point A1 (you may add an introduction, quotes from Facilitator Toolkit, and/or information about your context)	Facilitator
10.05	Plenum discussion: what is a good networker?	Spiral/round Participants reflect on: what is a good networker?	
10.20	Exercise 1: Your existing networks Identify persons you rely on in reaching your goals: <ul style="list-style-type: none"> • Professional and strategic support network • Your inner circle • Strong and weak relations • Active and passive contacts 	One-on-one Handout + pen. Each participant reflects and draw own network.	
10.40	Exercise 2: Expanding your networks <ul style="list-style-type: none"> • How can you develop your network? • Which relationships do you need to develop in order to reach your goals? • Do you consider networking as a work-related task? • How do you network? • How can you network more strategically? <ul style="list-style-type: none"> - People who are good to know - Build your relations 	In groups of 3-4 participants Handouts with questions - discuss in groups based on the questions.	
11.10	Plenum discussion: Reflections concerning networking	Spiral/round	
11.25	Break		
11.40	Introduction to visibility <ul style="list-style-type: none"> • How do you promote your own work? • Who presents the work of your group? • How visible are you at meetings? • Do other people notice you? 	Introduction by facilitator. Networking does not take place automatically – you need to make	Facilitator

	<ul style="list-style-type: none"> How do you present yourself? 	yourself visible	
11.50	<p>Exercise 3: Digging for gold</p> <ul style="list-style-type: none"> Drawing out one's strengths 	<p>3:3</p> <p>You need pens and post-its</p> <p>Handout</p> <p>Form groups of three. 5 min. each.</p> <p>This exercise serves as inspiration for identifying biggest strengths.</p> <p>Each participant: talk for 5 min. about the 3 tasks that give you the greatest satisfaction. You are digging for gold. Be careful to unfold them and be specific and concrete on why and what gives you satisfaction.</p> <p>Two observers listen for strengths, skills, values and positive characteristics. When identifying one of these, they write it down on a post-it and place it on the arm of the person as feedback.</p>	
12.05	<p>Exercise 4: Self-reflection</p> <ul style="list-style-type: none"> Based on post-it inputs from the two observers in the previous exercise, write a short 3-5 minutes presentation of yourself. 	<p>One-on-one</p> <p>You need pen and paper</p> <p>Handout</p>	
12.20	<p>Plenum discussion: How will you work with networking and visibility?</p> <ul style="list-style-type: none"> Next steps: postcard to self: <ul style="list-style-type: none"> Write three things down, which you will do in the next six months to increase your visibility and/or expand your network What did you get out of today's work? 	Spiral/round	
12.55	Wrap-up	Spiral/round	

Facilitator Toolkit

Here you find supplementary material to arrange a successful workshop.

FESTA findings/quotes

Quotes from the 106 FESTA interviews to be used in the introduction and during the workshop if relevant:

‘I cannot imagine simply a person who would be visible only locally that could progress anywhere. Not in my area. That is simply impossible. We would not even consider any promotion for a person who is not visible internationally. Not just outside the university but would have to be visible internationally to be considered for any promotion in the system here. So it would be out of the question’ (male academic, FESTA research, 2014).

‘Networking is very important. This is one aspect of academic career: that you need strong network and these days large, international network of people. Without this it is simply impossible. So to develop such a network is very important. You have to be proactive, to know approaching people and build new contacts, also maintaining contacts. And people do it in various ways. Of course there is academic aspect there is also social aspect involved. But this is very important. We live in an age where you cannot simply sit by yourself in a dark room. Of course there are some people who could do this but the most natural career development involves developing network; It is a very important aspect’ (male academic, FESTA research, 2014).

‘It is important as a young scientist to go abroad and at an early stage in your career focus on international network and contacts; It makes a difference on your CV’ (female academic, FESTA research, 2014).

‘For me, networking is much easier for men. I generally observe that men can easily get together. They gather frequently to play football for instance. I do not why women are not talented at networking! Social networks are crucial for better relations in academia and getting socialized is easier for men compared to women’ (female academic, FESTA research, 2014).

‘I definitely can assert that the experience which I obtain in collaborating with colleagues outside the university has very strong impact on my achievements as well as on the research work of my department’ (male academic, FESTA research, 2014).

‘It is prerogative for career progression that you are invited for scientific meetings and present your own research’ (female researcher FESTA project, 2014).

‘Professional visibility is critical and important. For example, if you become an editor of a journal, then you decide which article is going to be published. So, this is a very significant position. If you are invited to give a speech, then, this means you are the best of your study area. But at the end I should say that becoming a journal editor is the most important one among all academic activities, such a position is really important’ (male academic, FESTA research, 2014).

‘Professional visibility is highly critical. For instance, getting invited as a speaker and giving a presentation, becoming a member of any juries, attending scientific meetings, participating in TUBITAK (The Scientific and Technological Research Council of Turkey) Project Meetings... Such activities are all important in terms of a researcher’s relation with other colleagues. It’s really significant to spend time with other researchers. By being part of such activities, you feel yourself like an “academician”. Especially if you are an invited speaker, then, this really makes difference to your visibility’ (female researcher FESTA project, 2014).

'Networking dominates 50% of your career progression and one should be qualified enough to be a part of a particular network. Of course, people who will accept you to their network should not be prejudiced. They should be open to include new people to their network. But if you are trying to ask if gender makes difference while trying to be included in a network, I do not know, maybe gender affects' (male academic, FESTA research, 2014).

'My network has contributed a lot to my career advancement; in fact, my success is due mostly to this network of professional contacts, almost entirely to it!' (male academic, FESTA research, 2014).

'I think that relationships at work is very important in terms of the advantages they provide at private sector and academia. For that reason, student clubs are very important beginning from undergraduate studies. The reason why I have more networks other than mechanical engineering is because I was a member of different student clubs. By my club membership, I had the chance to know many people in the field of business administration, economics and natural sciences. Many of my contacts provided me with opportunities in later years. Since my income as an academic is not enough for me to live in Istanbul, these industry-based projects provided me with the necessary financial support. You can only support yourself financially if you have an income from your family or industry. Therefore we need to conduct projects for industry and earn money. And we need to keep the pipeline of the projects full. The process of sustaining continuity in projects necessitates a tiring effort' (female academic, FESTA research, 2014).

'Surely, for example I was able to go to Germany to do research as I have had a contact with an academic in that university for several years' (female academic, FESTA research, 2014).

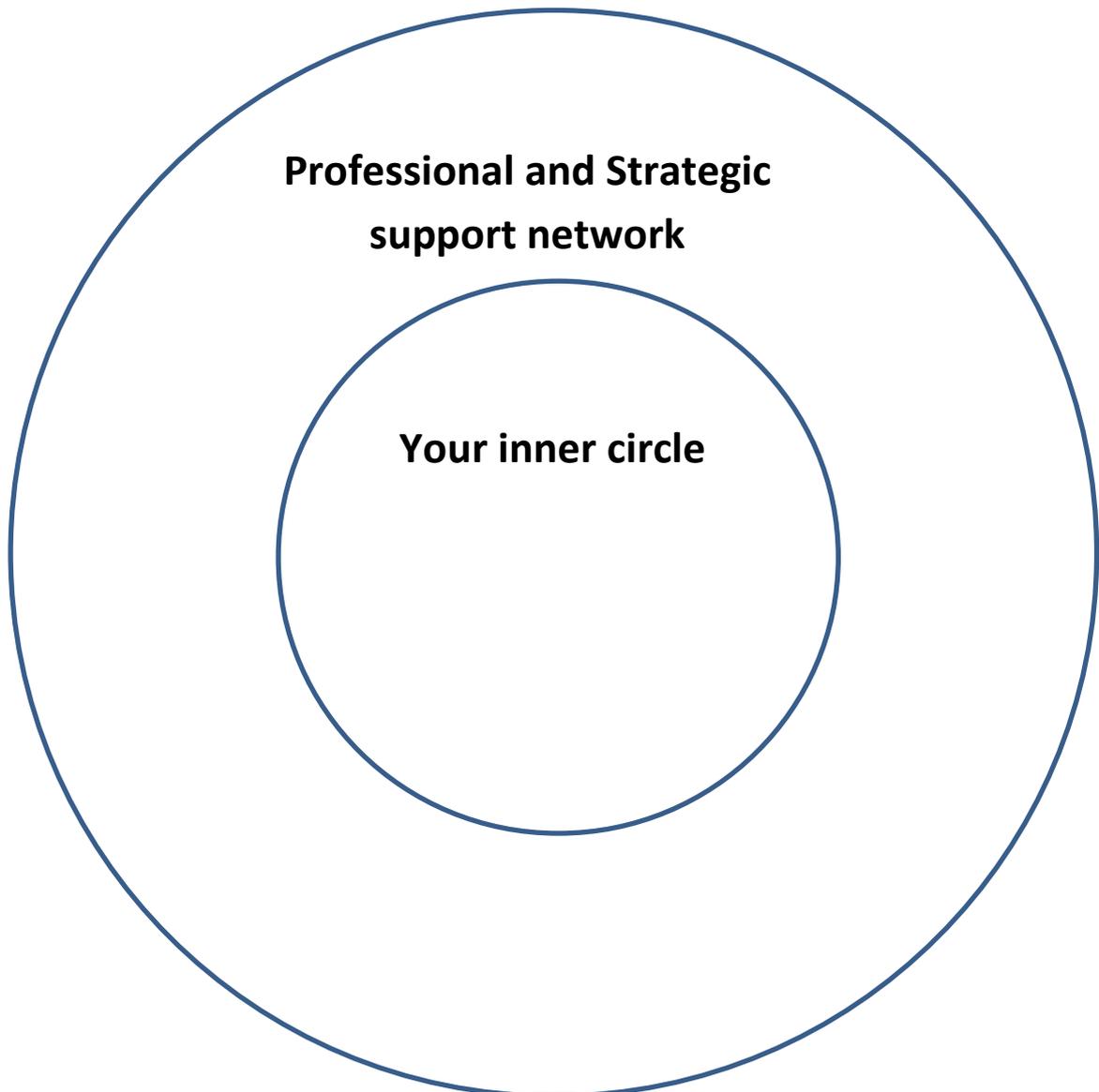
'I suppose I'm doing research and teaching in the same way that my head of department would be doing it. Some of them [colleagues] would possibly have better networking contacts external to the university, which allows them [colleagues] to get into European projects, perhaps, which is not that easy to do and that would really be from early stage career where they worked in other countries or universities or whatever. I suppose I'd be fairly similar really, I think it's the ability to network internationally that I was probably slow to do at the start of my career and networking is something I'm slow to do as well but it just takes time you know' (male academic, FESTA research, 2014).

'But I think, you know, as a PhD student, making your network is so important but you also need a supervisor there to help you, I think that's important, a colleague or, even if it's just two PhD students, you need to have somebody with you' [at a conference] (female academic, FESTA research, 2014).

Exercise 1: Your existing Network

It is a good idea to have a network with which you can discuss career challenges. A network is a resource because we can use the persons in the network to discuss our considerations, receive good advice, make them recommend us etc. A network can consist of: family, friends, colleagues, former fellow students, your leader and your partner/spouse.

Identify persons you rely on in reaching your goals



Exercise 2: Expanding your Network

Reflect in groups on the following questions:

How can you develop your network?

Which relationships do you need to develop in order to reach your goals?

Do you consider networking as a work-related task?

How do you network?

How can you network more strategically?

People who are good to know

Build your relations

Exercise 3: Digging for gold

Each participant in the group of 3 persons talks for 5 minutes. This serves as inspiration for your biggest strengths, which you are going to use in Exercise 4.

Talk about the 3 tasks that give you the greatest satisfaction – dig for gold. When you talk, be careful to unfold them and be specific and concrete on: what and why it gives you satisfaction.

The 2 other persons in the group are observers. They sit and listen for skills, strengths, values and positive characteristics that you describe when telling about your three tasks. When identifying one of these, they write it down on a post-it and place it on the arm of the person, who is digging for gold as a feedback.

Exercise 4 : Self-reflection

Use the post-it notes from the previous exercise and feel free to be inspired by inputs from previous exercises.

Based on post-it inputs from the 2 observers, write a short 3-5 minutes presentation of yourself.

Then:

Link these skills to three of your biggest strengths

How does the feedback (the post-its) give you input on how to increase your visibility and expand your network and how to overcome obstacles and resistance?

Prepare a self-presentation as if you were someone else recommending you (be proud and use positive words)

How do you present yourself when networking?

- How do you stand out?

How will you be remembered?

Practice presenting yourself with confidence

Exercise 5: Spiral/round

This appendix describes what a spiral/round is and how to go through it. It is relevant for all modules.

The method “Spiral/round” is adapted from a Hawaiian tradition called Ho’oponopono which means to set things right or disentangle. It is traditionally used mainly for conflict resolution and mediation. Traditionally it is part of a wider spiritual and community practice and has elaborate steps and ritualized sequences.

This form has more recently been found to be useful as a way to survey the grounds for making democratic, inclusive and sustainable decisions (and finally also as an inquiry into more philosophical questions. In this use, it is similar to the Socratic Conversation).

It is remarkably effective, is known as the self-healing circle. It can be used in any size group. It is used mainly to *investigate* a situation or question or conflict, with a genuinely open possibility for outcome – not directly to make decisions or find solutions. This comes after the Spiral. However, decisions and solutions more often than not emerge gracefully and with surprisingly potent, creative and rich precision as well as a very clear mandate of the stakeholders to the topic.

Participants are people who have a stake in the topic if it is announced (such as a conflict or a democratic decision to be made). If there is no defined topic, the people present define what is important to them to talk about.

The rules are simple and usually after the first round the conversation is self-organizing – though having a mild facilitator present is useful. It is useful (but not necessary) to have a defined topic.

The Spiral goes like this:

- There are several rounds clockwise – as many as is possible in the time allotted OR until everyone says ‘Pass’.
- Everyone speaks in turns. I say what is on my mind about the topic. I address the present community. I speak on behalf of myself alone – that includes decisions: if I make decisions, I only commit myself. It is possible to ask questions but a direct response is not necessarily to be expected – it may or may not be given as the spiral moves along. And may take on unexpected nuances and forms. The only commitment everyone has is to say what is on one’s mind – no more, no less. There is no outer compulsion or expectation for anyone to pick up on what has been said already. If, however, there is an inner need, there is no such thing as redundant repetitions – if the same things are said more than once, this is amplification and can be seen as the relative weight or importance of the spoken to the people present.
- There is no ping-pong to break the sequence. I have to wait my turn.
- If when it is my turn I have nothing to say, I say ‘pass’. I can speak again when it is my turn next.
-

Timing, beginning and ending the Spiral: The same person begins and ends the spiral. It may be good to take two rounds and then evaluate the need to go on. Otherwise the Spiral can be timed either by allotting a set amount of time, which the facilitator keeps track of, or by letting the Spiral go until there is a complete round of 'pass'es' – then the topic is exhausted and it is time to move onto decision-making and action... (Sometimes this stage comes all by itself and the Spiral disintegrates before the 'pass'-round. Then somebody needs to close it and state the change)

The Socratic conversation (excellent for more philosophical inquiries) has two additional practices: the order of speakers goes from the youngest person present to the oldest. Before the next person speaks, there is a pause for at least as long a period of time as the previous person has spoken.

A few links about the conflict resolution practice of ho'oponopono:

<http://www2.hawaii.edu/~barkai/HO/Hooponopono.pdf>;

<http://www.ecr.gov/Resources/NativeNetwork/NetworkGlossary.aspx?cat=nn>

PowerPoint FESTA introduction



FESTA
Female Empowerment in Science
and Technology Academia

These activities and FESTA have received funding from the European Union,
Seventh Framework Programme (FP7 2007-2013) under grant agreement n° 247528

The slide features a blue and orange background with a molecular structure graphic. A vertical strip of images on the right shows various scientific and technological scenes. A footer bar contains the text and the European Union flag.



www.FESTA-EUR-OPA.eu

The FESTA project

- EU FP7 Project: February 2012-2017. €4.3m
- Participants: Bulgaria, Denmark, Germany, Ireland, Italy, Sweden and Turkey
- Coordinator: Minna Salminen-Karlsson, Sweden
- Implementation Project
- Project content/subjects:
Awareness Raising, Decision Making and Communication, Excellence, Interactional patterns and Resistance.

2

These activities and FESTA have received funding from the European Union,
Seventh Framework Programme (FP7 2007-2013) under grant agreement n° 247528



FESTA: Aims and objectives

- To analyse **gender gap phenomena** in science and technology academia (quantitative and qualitative indicators)
- To identify **specific mechanisms which create and sustain disadvantages** for women
- To introduce **permanent changes** in science and technology academia to address these mechanisms and to create environments where women's careers can flourish.

3

These activities and FESTA have received funding from the European Union, Seventh Framework Programme (FP7 2007-2013) under grant agreement n° 247524



THANK YOU!

FESTA has received funding from the European Union, FP7, Capacities



4

These activities and FESTA have received funding from the European Union, Seventh Framework Programme (FP7 2007-2013) under grant agreement n° 247524



Academic Networking and Visibility Evaluation Form

Thank you for attending the Professional Networking and Visibility workshop, we would appreciate if you could take the time to complete this form.

Date:

Location:

Please mark your response with an 'X'.

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Workshop Quality					
<i>The overall quality of the workshop was high.</i>					
<i>The information that was covered on the workshop will be beneficial to me in my workplace/business.</i>					
<i>I will consider making changes to my attitude/behaviour/way of working, following the workshop</i>					
Workshop Presentation					
<i>The content and the delivery of information were appropriate for this workshop</i>					
<i>The workshop structure was easy to understand</i>					
Workshop Objectives					
<i>The workshop covered the material I expected.</i>					
Materials					
<i>The way the workshop was delivered and the materials used were appropriate</i>					
Facilitator					
<i>The presenter facilitated the workshop in a professional manner.</i>					
<i>The facilitator demonstrated knowledge of and encouraged debate about the material.</i>					
Pre / Post Course					
<i>The facilities / arrangements were acceptable.</i>					
<i>I would recommend this workshop to others.</i>					

Question	Response
<i>The greatest strengths of this workshop are:</i>	
<i>The workshop could be improved by:</i>	
Any other comments:	
Name: (Optional)	

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