Enhancing the Participation of Women in Scientific Endeavours

Abstract

There are mainly two approaches as to how to increase women's participation in science: (a) to invest in education, from the earliest possible age, to change gender discriminatory culture & conceptual patterns and build more equal society; (b) to enforce remedial Affirmative Action, offering compulsory minimum standard for gender distribution.

There are flaws in both approaches: Investment in education cannot yield desired results in short – even medium – term. Affirmative Action might impede other societal values and goals (e.g., scientific standards, equality, etc.). This approach is challenged because in fact, it might endure rather than resolve gender inequalities.

There are factors that influence the level of gender distribution and inequality. Once identified, they can be tackled. They can be identified when impediments on participation are exposed. They might be unintended and unnoticed hurdles, related to researchers – their workplace, line of work, family situation, fears or reservations as to participating in projects, etc. They can be unrelated to researchers: evaluation & negotiation processes & organs, consortia structures, documentation, working methods, etc.

We set to detect these factors and validate their functionality, identifying relations between their change & tuning and expected results of such changes and tuning in terms of level of women's participation.

Qualitative research will be done into the "world" of factors, followed by quantitative examination aiming to ascertain influence & relations of each factor onto women's participation. The results will be integrated into an applicative model that will enable to actively influence the participation level. Actionable tools to improve this level will be developed, improved and further perfected, statistically supported and monitored, resulting in intervening mechanisms to affect the level of women's participation in science while assuring that no desired and important values and goals are prejudiced.

1. Introduction

Gender equality and awareness in the realm of scientific research and the promoting of the participation of women scientists are important priorities of the European Union. Accordingly, integration of the gender dimension in the research agenda, where relevant, must also take precedence.

The fact that women participation in research projects is well below the desired level calls for a thorough project – or studies – that would achieve two goals: Firstly, such studies should establish a true and complete map of women's participation in research programmes and projects in general and in EU funded projects in particular. Secondly, they should establish the foundation for solution.

To do so, causes and potential causes that affect participation of women should be identified and then examined against the desired goal, i.e., the increase of women's participation as researchers, co-ordinators and senior members of participating organisations in both scientific and management roles. But moreover, what needs to be done is to validate such causes and potential causes and then reveal the connections between them and the desired goal.

This proposed project will identify and validate causes and will show how they relate to and affect the level of women's participation. At the same time, it will also offer sensitivity analysis, which by its very nature means that changes enacted during and following the project could be tested along time. It will then devise solutions, dealing with the causes so as to better achieve the basic goal of increasing women's participation.

As already suggested, many gender studies tend to identify problems (and potential solutions) on a basically three-rung ladder:

Education- At the bottom rung lays a question of education. If education from already very early age would tackle the gender issue, gaps could narrow later on in life. So, at least, is argued by this premise.

Attitude - The second rung is that of attitude. Herein the question posed is "**whose problem**" discrimination is? Many times the "convenient" answer identifies the problem with those who are defined as "victims" or the strata that suffer from the discrimination or exclusion. Once this has been determined, the discussion ceases to explore further and thus tends to miss possible available solutions. If in theories of negotiations the optimal solution lies in expanding the scope, in gender issues it tends to narrow and focuses only on "the problem of women" rather than taking it onto the realm of society at large.

Top to Bottom - From the attitude rung, it is easy to climb and reach solutions at the upper, third rung – that of top-to-bottom imposition expressed in minimum or quota setting. Setbacks that can be identified here are numerous, including "the law of minimum as maximum"[1] and the risk of lowering the level of the discipline.[2]

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[1] See, for example, Rawls, *Theory of Justice* (1972), Ben-Asher, *Problems in Sustainable Development* (1979). Further elaboration will be offered in the section of "Premises" below and, of course, in the proposed project itself.
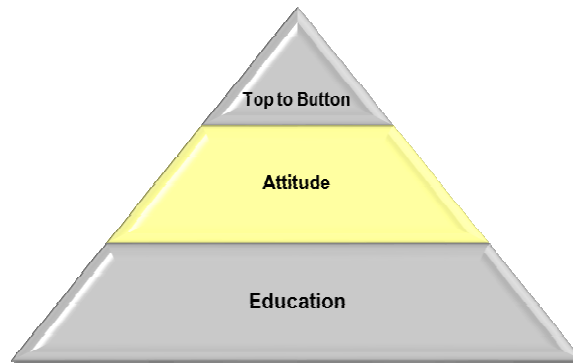
The proposed project, therefore, concentrates on the middle rung – that of **approach**, while not ignoring the other two spheres. Here, we begin with the identification of gender distribution and access as all-social issue rather than as a problem of a particular gender (in this case, women). The project recognises the problems inherent in the educational process as a solution (certainly for the short and medium term[3]). It is equally aware of the controversy around affirmative action policies.[4] Therefore, the proposed project turns to examine the actual reality-related and situational reasons for gender disparities and looks for such measures that if applied will bring about both changes in the results and changes in awareness and following that – in practice. This is a **pro-active** and **intervening** approach that focuses on parameters which when tackled and changed – can yield desired results.

This project can thus be identified as **applicable**, in as much as its recommendations can be put to practice as **Action Plans**. It will format **tools that can be actually put into practice** and construct a model, instrument, which can be used for further, on-going monitoring that in turn can be performed by the relevant institutions. Each recommendation will be supported by ample validation. Being truly multi-disciplinary in both methods and approaches, the project will also offer quantitative validation of qualitative assessments made in the course of the project.

It will therefore set out to define, first and foremost, such theoretical tools and methodologies required to construct the collection of data and data analyses. It will culminate in practical recommendations that could be translated directly into Action Plans.

Equipped with such theoretical basis and ample, dedicated methodologies and based on previous works and on data accumulated from both past and ongoing programmes, the proposed project shall analyse findings with specially designated tools constructed within a framework of gender sensitive methodology.[5] This will result in a much better understanding of hitherto augmented experience in this subject. It will also enable real improvement in formulation of policies and in practice, applicable to forthcoming programmes and calls and to scientific work in general.

In so doing, the proposed project shall furnish interested parties, programme and endeavours (indeed, the European Union in general), with an **optimal pro-active Action Programme and Action Plans** that comply with the basic premises concerning gender awareness and equality, as held by the European Union and its various institutions.

Moreover, interested parties will be given practicable tool that can be used to accommodate the strife for increased women's participation in scientific activities while maintaining at all times the highest level of science coupled with perennial gender awareness by all.

This project itself will have innate gender sensitivity. The experts on gender, statistics and data analysis, technological and industry assessment, as well as legal, behavioural, scientific and linguist experts are all committed to gender balance as an inherent need of society at large.

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2   It has known to have happened that efforts to meet the minimum criteria for inclusion pre-defined segments of the population ended up in lowering the standards of admission to a profession, for instance.

3   But also for the long term, since educators - who are entrusted with the leading of changes in conceptual patterns - are themselves products and captives of these patterns and are product of the very culture they opt and attempt to alter.

4   E.g., that in practice, it really sets a maximum limit and that it "admits" that the concept of equality is unattainable and attempts to materialise are likely to guarantee deterioration of standards. Also, as has been shown in the deliberations of the European Court of Justice, affirmative action represents and is based on discrimination in that it create unequal treatment of otherwise (supposedly) equal entities and conditions.

5   While there have been previous attempts to create "sensitivity guides", they seem to have been difficult to measure and to validate.

2. Approach

The rationale of this project stems from the EU target of 40% women's participation and the difficulties to reach this bar. En route to reach this standard - at least to advance its application - within science-related activities, there is a true need to monitor progress towards gender relevance awareness and better gender distribution. Also necessary is the identification and understanding of impediments that might be inherent to the programmes and processes associated with scientific endeavours. Hence the call for the production of impact analysis and recommendations for potential correcting measures, that will be highly practical and translatable into Action Plans.

It can safely be assumed that call-issuing organs strive to fulfil the EU requirements as to gender participation and awareness. However, these requirements do not necessarily downstream to potential participants and to researchers. Moreover, there is the issue of **hidden agenda** and **subtexts**. These may appear in either behaviour or texts, such as those of calls and contracts. They may convey implications and impediments, the influence of which could at times be stronger than that of explicit policies. They might thus contain barriers to better gender distribution in research endeavours. Such hidden subtexts within calls and indeed, the entire array of activities associated with them must (and can) be discovered in order to be adequately treated. To this end, the project must not stop at merely bringing to the fore bare statistics of gender participation, or at summarising theoretical premises as found in related literature. Statistics and data must also be analysed qualitatively and theoretical premises have to be examined in the light of real-world practice. They must be expanded so as to be relevant to the European experience. Only then can recommendations turn into real, applicable Action Plans.

Herein the main approach of this project can be found. It evolves from the process of straining collected statistical data and other related materials and practices through the filter of qualitative application-oriented analysis. This enables the pinpointing of findings and overt actions taken by all the players that take part in the process. A real map of gender relevance will emerge from this endeavour and from it - a corrective road map will ensue to be put into action, in form of real Action Plans.

Previous gender studies mainly revealed anomalies in institutional and personal behaviours. Various works present and, at times, analyse gender distribution in different IT occupations or participation in IT markets activities. Other works deal with gender distribution in the sphere of educational and vocational training. However, much less of the literature has dealt with cultural aspects[6] (in their widest sense) and even less, has it attempted to analyse the issues of awareness, accessibility and role-function in the real world of science and technology. This needs to be explored and possibly to be supplemented by new theoretical premises, particularly in view of the already known anomalies.

Another important effort that should be extended here is the examination of texts, in the search of hidden sub-texts. It has long since been discovered that many times, texts may earnestly declare non-discriminatory policies and intentions. However, when put into practice and examined closely on application, it turns out that they actually yield discouraging results. This has been referred to, in socio-political and economic literature, as "hidden agenda" and was identified as a serious impediment to gender equality. The project shall unveil such anomalies and present corrective measures to avoid such practice.

It is therefore not enough to create awareness policies. Practical guidelines that set actual behavioural patterns at the level of real sub-cultures, translated into both language and action-plans, must be devised. It is the purpose of this project to do so.

The rationale stems from this premise. It can be succinctly stated that while monitoring actual realities, not only must we unveil hidden subtexts – from texts and from activities - but we also have to do it while having in mind the action plans that must result from this project.

As mentioned above, this project does not discard the lower (education) and upper (affirmative action) rungs of the approach ladder. But in order to produce a real map of gender distribution and to correct its bearings, the concentration on the middle rung – that of attitude – must take precedence. To achieve this, the approach of this project is marked by the following characteristics:

Combining Qualitative and Quantitative methodologies - Qualitative and wide overview, combined with EU up-to-date experience are used to build a quantitative analysis that will validate recommendations on statistical basis.

Attacking mainly middle-rung level factors – Hidden from the eye at first sight, this is the level of actual reality, thus also, it is where the real effective influence operates. This is where work on the attainment of goals can be done while not ignoring inputs from the other rungs.

Validation – Each step of the project ensures quantitative validation of qualitative assumptions, assessments and premises.

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6 Which goes beyond the educational process to include also economic, political, societal, civic and other such facets.

Applicability – The project is Action oriented, thus, it aims at the production of applicable recommendations. Also all premises and research questions are strongly inspired by their applicable manifestations.

Creating easy-to-use tools – As an essential part of the applicability of the project and the recommendations, Action tools will also evolve from the project process. These will also be highly applicable, thus also easy-to-use.

Tools enhancing ongoing improvement in the monitoring process – The project will avail all relevant interested parties with a multi-layer dynamic database on which further monitoring can be performed while adding perennially new data in real-time.

Multi disciplinarily approach – Both by its methodology and by the very composition of the participants, the project will enjoy the benefit of multi-disciplinary contributions.

3. Premises Pertaining to the Issue of Gender Distribution and Women Participation

It has long since held that unequal distribution of gender in a profession is, in the main, culturally generated. The question of inclusion of such members of society who have been less involved in society's mainstream activities has been arisen by economic demands that required the widening of the scope of participation. Along with these demands, ethical questions were also posed. However, such economic needs and ethical demands were developed against culture and value systems embedded in a long standing social control concepts and mechanisms that dominated human societies for centuries. Attempts to change them were opposed fiercely, not only because those in control feared losing their privileged position, but also because of genuine concern that such changes might result in social chaos. Also, deeply rooted perceptions of role function of different members of society presented further difficulties to any true attempt to increase inclusion on more equal basis. Another accompanying facet of the equation (and debate) has been the argument that differences between distinct groups of people do not stop at their physical appearance but extend to internal faculties, possibly also to their genetic make or mind processes. The issue of gender was, in this sense, subject to the same type of processes.

In the course of the attempt to resolve the question of inclusion, either on economic grounds or on ethical and moral grounds, the main focus was on such sections of society whose exclusion became apparent. It was thus an easy turn to regard and treat the problem of exclusion as a problem which is not societal but rather - "of" the non participating sector.

Two trends in the attempt to resolve the exclusion/inclusion problem developed. One argued that only change in education will eventually reform the inadequacies as education is the only means to change conceptual patterns within the wider society. The second demanded to enforce changes through corrective means of Affirmative Action policies, encouragement of equal opportunities and other such coercive measures aimed at the correction of what was recognised as unacceptable unequal distribution of access to a profession or to any other type of social placement. The rationale here was that however "mechanical" such measures might be, they do change actual rate of participation and thus they would also bring about, eventually, desired conceptual changes.

However, examination of the literature shows that neither trend seems to be satisfying. Furthermore, neither seems to have effectuated the desired changes. If initially it was thought that this might be a matter of time until such changes mature and materialise, increasing number of experts now inclined to think that this is not the case. That lack of success is rooted in the very approach and the premises behind it. Such questions arose that point at the following problems: What might - or should - be the threshold for equality of opportunity? How to measure unequal demands and/or compensations so that they become equal? What is the meaning of equal access to social amenities and how can such amenities be equated? What might be the dispositions that make equal footing? These are, of course, but a few of the numerous questions associated with the quest for corrective measures and more equal society.

Other questions pertain to the issue of the long-term educational process. Can educators truly instil new conceptual patterns within their clientele (their students)? After all, they are themselves "infected" by the same value system inherited from society that accepted inequality as its basic premise. Moreover, even if the education system could have made real progress in this regard, would other affecting agents (immediate environments, e.g., home, age groups, residential arenas, etc.) not annul it, or at least weaken such positive influence?

In view of the difficulties inherent in the theoretical premises and the solutions stemming from them, new theoretical approach has been called for. **The core of this new approach lies in the understanding that any change should indeed be structural and not just mechanical**. It should also adopt intervening measures so as to effectuate change in reality. Since change in the very culture and cultural heritage prove so difficult, to say the least, the primary aim of the new attitude should **concentrate in the structural change of reality sub-cultures**. These will identify culturally embedded behavioural elements and change them rather than attempt to change a complete culture and its value system superstructure. This is a pro-active attitude whose starting point is the current state of affairs and the level of social consciousness and circumstances. **The basic premise here is the need to devise means to equalise unequal needs and personal compositions, so as to actually create equality in the <u>access</u> and <u>contribution</u> to the overall social amenities**. Corrective measures taken will thus avoid

the trap of being mechanical. Simultaneously, changes in conceptual patterns, such as desired in the educational process, will not create confrontation with culturally embedded value systems that hitherto prevented such changes.

The advantages and difficulties of tackling the issues of gender awareness and even more so – women's participation in a profession can be schematically presented in the following table:

Level	Advantages	Difficulties
Top-to-bottom	- Setting immediate improved rate of participation.	- Risking resistance of the gender less favoured; - Risking the lowering in quality level of the profession; - Lack of consciousness, understanding and acceptance; - Turning the focus of the problem from society at large to the gender itself (women, in this case).
Attitude	- Tackles actual behaviours; - Working both at the conscious and on practical levels, thus changing both conceptual and behavioural patterns; - Enables understanding and acceptance; - Enables perennial monitoring and correcting of anomalies; - Recognition of the problem as societal and not as merely "gender specific problem."	- Requires understanding of needs and intentions at the leadership levels.
Education	- Attempts to tackle the problem at the "starting point" (i.e., young age) and taking it through the entire educational process.	- Takes very long time to instil changes and affect conscious and behaviour; - Educators themselves might be tinted with cultural heritage that would prevent effective work on the desire change; - Might create dissonance as home of the pupil and social environment that are still inflicted with old and undesired concepts and behaviours; - Total or highly concentrated dependence on one change agents (educators) and particular environment (schools).

While innovative as well as pro-active and overall societal – rather than sectarian – it is a theoretical framework that can also allow application of corrective measures at the behavioural level. Moreover, it is a theoretical attitude that enables the validation of its social impact by quantitatively measuring & assessing and the creation of corrective Action Plans. It also enables the validation of each inclusion-oriented Action Recommendation it yields against the identified causes of exclusion of the examined sector – gender in the case at point.

A Note Pertaining to Gender-Related Research

Gender related research has evolved from the identification of inequalities and attempts to remedy them. More often than not, it is anthropologic and descriptive in nature and it tends to tackle the issue from the point of view of the recipients of discriminative policies and practice. There is ample volume of research that reveals and analyses inequalities in specific fields (e.g., work, education, military, etc.). The pre-supposition here is that the main source of causes to inequality is the innate cultural traits that have shaped society into culturally and traditionally male-dominated society. Causes are then analysed against this pre-supposition. Problems, in turn, are treated as gender-related situational or even structural ones, stemming from social relations, rather than overall socially related functional and problems. Questions of value are accentuated too, with much stress laid on mechanical or technical situational propositions. The result is that much of the gender-related research does not attempt to formulate all embracing social, or socio political or socio-economic theoretical corpus. At most, it produces theoretical approaches that seem to address gender – not societal – problems or issues.

Thus, West and Zimmerman, consider gender as "activity" and advocate what they call "doing gender".[7] To them, gender evolves out of normative concepts, attitudes and activities appropriate for one's sex category. Gender activities emerge from and foster the need of belonging as a member of sex category and manifest themselves in terms of differences that go beyond the natural or the biological ones.[8] It is not entirely dissimilar to the view expressed by Garfinkel.[9] He maintains that the concept of "gender" in as much as viewing women and men as naturally and unequivocally defined categories of being (or definition), is cultural.

Felluga[10] attacks the commonly held maxim that one's sex is determined by anatomy and argues that gender "traits" – which constitute masculinity and femininity - are largely, if not entirely, cultural constructs, affected by the "omnipresent patriarchal biases of civilisation". In this context masculinity is identified as active, dominating, adventurous, rational and creative and femininity - as passive, acquiescent, timid, emotional, and conventional.

Butler[11] states that gender, as an objective natural thing, does not exist: "Gender reality is performative [sic] … it is real only to the extent that it is performed".[12] By no means can it be tied to material bodily facts. Indeed, as social construction, it is but a fiction and therefore can be contested: "… acts of gender create the idea of gender, and without those acts, there would be no gender at all. Gender is, thus, a construction that regularly conceals its genesis".[13]

Gender research is more often than not, identified with feminist theoretical approaches. In the main, several such theorising endeavours can be identified.

The "Classical Liberal Feminism" is associated, to a considerable extent, with people like Friedman[14] and Taylor.[15] They identified origins of past discrimination and desire for women to gain equal access to opportunities with men, in Platonic rationality. It develops from the concept of autonomy of the individual into competitiveness within a hierarchal model.[16]

The "Psychoanalytical Feminism" goes to Freud's distinction between male's and female's psycho-sexual development. This concept, it is argued, is the source of discrimination. Thus, this feminist school (for example, Chodorow) criticises Freud's argument that the pre-oedipal stage in a girl's development is the most important in terms of her femininity shaping.[17]

"Radical Feminism" rejects any construction of knowledge that does not put women at the centre. Jaggar[18] and Rothenberg represent this school of thought when they argue that oppression of women results from male control of their sexuality and procreative capacities. Radical Feminism identifies women as the first and most widespread oppressed group. Theirs is the deepest and most difficult to eradicate. Therefore, women's oppression is the conceptual model for understanding all other forms of oppression. This is so because various groups are feminised in order to be brought under control.

"Marxist Feminism" attributes the common disadvantage of women to the creation of a capitalist class structure which, coupled with patriarchy, systematically oppresses them. Therefore, in contrast to liberal feminism, Marxist feminism rejects individualism in favour of socially constructed knowledge through human involvement in production. This school points at the division between spheres of production which keeps women in low-paid labour.

"Socialist Feminism" is closely associated with what is known as "Marxist Feminism," differing only in stress on the notion of socially determined patriarchal structure of reproduction as the source for discrimination.

In addition, other labelled schools of feminism include one which accentuates the Multicultural nature of women's discrimination and the Post-modern / Post structural school, represented by Judith Butler, who advocates that gender is neither what we are, nor sets of traits that we might have, but what we are produced by what we do.[19]

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7   West, Candace & Don Zimmerman (1987),"Doing Gender", in *Gender and Society*, Vol. 1 No. 2 (June), pp. 125-151

8   *Ibid.*, p. 137

9   Garfinkel, Harold (1967), *Studies in Ethnomethodology*, NJ: Prentice Hall

10 Felluga, Dino. "Terms Used by Theorists of Gender & Sex." *Introductory Guide to Critical Theory*

11 Butler, Judith (1990), "Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory." *Performing Feminisms: Feminist Critical Theory and Theatre* in Case Sue-Ellen, ed., Baltimore: Johns Hopkins UP

12   *Ibid.*, p. 278

13 *Ibid.*, p. 273

14 Friedan, Betty (1974), *The Feminine Mystique*, New York, Dell

15 Taylor Mill, "Essays on sex equality" in Rossi Alice S., ed., Chicago, University of Chicago Press

16 http://ntpaul.sprog.auc.dk/paul/research/cv/Pubs/mille-mcilvenny.pdf

17 http://www.webster.edu/~woolflm/chodorow2.html

18 Jaggar, Alison M. (1983), *Feminist Politics and Human Nature*, NJ, Rowman & Allanheld

19 Butler, Judith (1990), *Gender Trouble: Feminism and the subversion of identity*, London, Routledge

4. Scope

Examination of Sources

In order to lay the foundation for the understanding of current practice, some basic materials pertaining to policies and guidelines need to be scrutinised and analysed in tools that would reveal gender awareness or lack thereto and hidden subtexts that may hinder the development of such sought after awareness. Here, measurable criteria and scales must be developed as the hitherto "gender sensitivity guides" cannot (or at least might not be) suffice. Such materials to be examined could include decisions-related documents, different versions of work programmes, guidelines for proposers and evaluators, selection procedures, evaluators' and experts' reports, contract negotiation notes and model contracts, monitoring reports, etc.

The analysis of such materials can reveal variety of undetected hindrances to gender awareness and participation that have been embedded as deterring subtext or maybe even text. Also, practices taken by the various players that may have transmitted unintentional but nevertheless forbidding elements behaviourally, can surface under such scrutiny.

Additional sources that need to be examined are minutes of various advisory groups and committees, possibly with follow-up interviews with actual participants. The persons actually handling potential proposers might also need to be interviewed. Generally, their work pertaining to the promotion of women's participation and the gender dimension of research can be assessed through specially designed dedicated questionnaires distributed among them. At least a sample of these persons will have to be interviewed in person, following of the first analysis of returned questionnaires.

Literature

Apart from EU and other scientifically-related materials, the project will examine gender related theoretical works and such materials that deal with various attempts to effectuate changes in gender awareness and women's participation, notably in science and technologies areas of activities, with special interest in management issues and science education for young females. Also, literature pertaining to the social impact of gender-related issues needs to be studied and analysed. Other materials to be scrutinised in the same fashion are such that deal with use and abuse of texts and with subtexts, gender-related legal construing of documents and behavioural facets and gender-related negotiations.[20]

Collection and Examination of Data

There is also an important statistical facet to this project. Data will be collected and analysed as related to gender participation in all relevant aspects & activities. Here the project will examine closely statistics pertaining to actual participants, with breakdowns to gender, type of research, etc. – both for successful and unsuccessful scientific endeavours. Statistics with the same breakdowns shall be studied with regard to decision-making and advisory processes. Specific analysis will aim at the discovery of gender-related scientific endeavours and mainstreaming activities, both pro-active and counter-active, according to pre-determined test-criteria. Finally, proposals and reports of research projects, revealing actual procedures of such projects, will be examined and analysed.
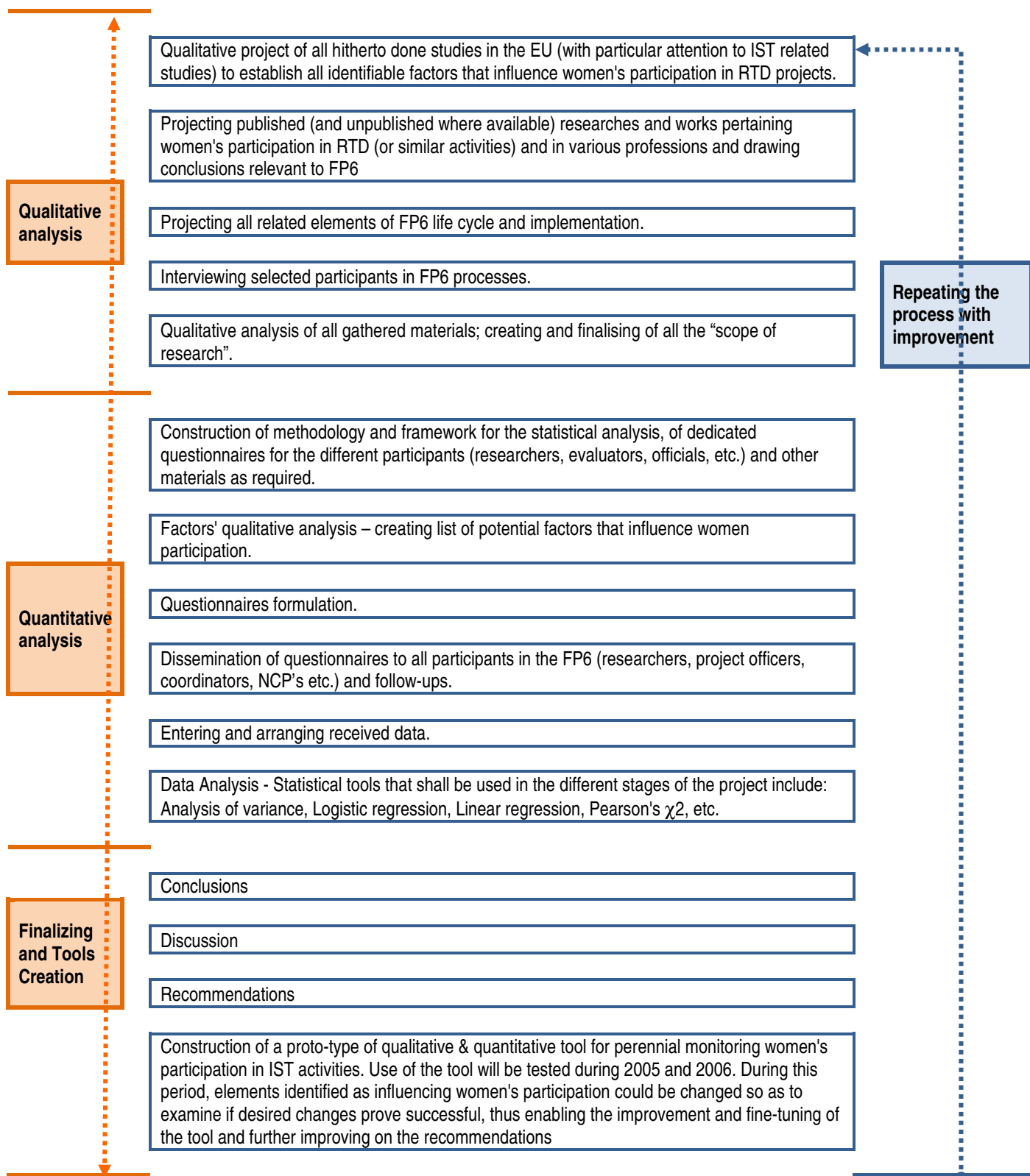
Workshops

In view of the pro-active nature of the proposed project and the desire to produce, as part of the recommendation phase, particular applicable Action Plans, several workshops will be conducted during the lifetime of the project. These will include participants from the various activities, including officials, evaluators and researches.

5. Methodology

The practical goal of the methodology employed in this project is to avail the EU and other relevant organisations with a simple, highly efficient tool for perennial real-time monitoring of gender awareness and women's participation in scientific projects. Equally important aim is to enable the direction and tuning of as many factors as possible, that influence directly and indirectly such desired gender awareness and women's participation. To accommodate for the construction of such an instrument we must identify these factors.

The process of identification will be assisted by both statistical tools and qualitative analyses of the gathered and studied information and materials. Schematically, this process can be described by the flowchart below:

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20 E.g., Ben-Asher, Z (with Gulcimen Yurtsever, & Berrin Ozyurt, Yaşar) (2013) "Gender Differences in Buyer-Seller Negotiations: Emotion-Regulation Strategies" in *Social Behavior and Personality, An international journal*; Vol. 41, No. 4, pp. 569-576; Ben-Asher, Z (with Gulcimen Yurtsever) (2013), "Gender differences in buyer-seller negotiations: Misrepresentation of information" in *African Journal of Business Management*; Vol. 7(12), pp. 976-979

Qualitative analysis	Qualitative project of all hitherto done studies in the EU (with particular attention to IST related studies) to establish all identifiable factors that influence women's participation in RTD projects.
	Projecting published (and unpublished where available) researches and works pertaining women's participation in RTD (or similar activities) and in various professions and drawing conclusions relevant to FP6
	Projecting all related elements of FP6 life cycle and implementation.
	Interviewing selected participants in FP6 processes.
	Qualitative analysis of all gathered materials; creating and finalising of all the "scope of research".
Quantitative analysis	Construction of methodology and framework for the statistical analysis, of dedicated questionnaires for the different participants (researchers, evaluators, officials, etc.) and other materials as required.
	Factors' qualitative analysis – creating list of potential factors that influence women participation.
	Questionnaires formulation.
	Dissemination of questionnaires to all participants in the FP6 (researchers, project officers, coordinators, NCP's etc.) and follow-ups.
	Entering and arranging received data.
	Data Analysis - Statistical tools that shall be used in the different stages of the project include: Analysis of variance, Logistic regression, Linear regression, Pearson's χ^2, etc.
Finalizing and Tools Creation	Conclusions
	Discussion
	Recommendations
	Construction of a proto-type of qualitative & quantitative tool for perennial monitoring women's participation in IST activities. Use of the tool will be tested during 2005 and 2006. During this period, elements identified as influencing women's participation could be changed so as to examine if desired changes prove successful, thus enabling the improvement and fine-tuning of the tool and further improving on the recommendations

Repeating the process with improvement

6. Work Plan

6.1. General:

The tasks in this project are divided into several clusters. These have both temporal and methodological facets. On the one hand, the first premise of monitoring warrants the collection of data pertaining to various relevant scientific endeavours. As a result, there should be a complete multi-layered and up-datable database. It will identify the number and ratios of women participants in various scientific activities, according to role-function, organisational nexus and national affiliation. Possible connections between characteristics of these women will also become apparent here, requiring analysis. Other relevant data particles may reveal possible connections between women's participation and type of research, call procedures and other

related variables. This multi-layered database which will be created in the process will also be dynamic in as much as it tracks changes in ratio and participation along time line.

On the other hand, there shall be a most challenging element of analysis of the data collected. Some of the data are rather readily available (albeit far from being complete[21]), thus not too complicated to both collect and analyse initially, e.g., plain figures of participation or role-functions. Other parts are more elusive and harder to decode and analyse - and at times also to collect. This is so, because they pertain to subtexts that might be embedded within variety of documents and activities at all levels touched by this project. Indeed, some of the planned questionnaires to be distributed at various levels might also prove highly challenging both in their preparation and analysis.

A critical question arises here: Does gender awareness and participation (and encouragement of these) – at the various levels of scientific endeavours – constitute part and parcel of their core and mainstream? Another question is how to ensure that these goals are not only embedded in and integral to scientific work in its entirety, but are they also managed with an adequate methodology that ensures conclusive results. From these, recommendations shall be drawn and Action Plans devised.

More specifically, the questions to be examined are: what is being done (and has been done); what can be done; and how can it be done in the realm of pro-active promotion of participation of women as participant at all levels of research and innovation activities, including roles that they might play in the entire range of preparatory and supportive activities.

Quantitatively, gender composition is to be established as to per activities. However, there is also an important qualitative element to be considered here, pertaining to roles played by women, degree of responsibility in their participation and level of decision making accorded to them. These parameters will be considered in the assessment of women's participation.

Yet, another question that needs to be examined is more complicated. It concerns the promotion - and measures taken to implement such promotion - of women's participation in EU funded research and innovation and scientific endeavours in general. Here investigative efforts should be directed at a more general point: the extent to which EU funded research and innovation activities are so designed as to meet needs of both female and male participants (and possibly also users of the results of such efforts). Moreover, the question of how to eliminate various barriers for women participation needs also be explored and means to achieve this end designed.

The approach suggested by the proposed project is multi-disciplinary, multi-skilled and highly practical. It will be carried out by a strong multi-disciplinary team of experts,[22] headed by senior scientists representing the scope of complementary skills necessary to successfully meet the objectives warranted by the tasks of this project. This is of particular importance as it is expected that the results of this project will be disseminated among a large number of scientists and policy-makers, who might not necessarily be aware of the complex issues associated with gender-related questions, along with the implications that can be drawn from them.

The entire project is planned on a time span of three years. The following is the suggested organisation of the project into Work Packages and selected main tasks.

6.2. Work Packages

WP 1:   Project Management
WP 2:   Definitions & Identification of Sources
      2.1   Definition of Scope
      2.2   Definition, Mapping & Typology of Target Groups & Contacts
WP 3:   Review of Available Gender-related Action Plans
WP 4:   Literature Review and Analysis
      4.1   Identification & Mapping of Sources
      4.2   Literature Review
      4.3   Literature Analysis
WP 5:   Data Collection & Analysis (including previous recommendations for action plans)
      5.1   Construction of Data Collection Methodology
      5.2   Data Analysis

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[21] It is assumed that at least partly, the failure of *Gender Impact Assessment of the Specific Programmes of Framework Programme 5* (ftp://ftp.cordis.europa.eu/pub/science-society/docs/genfp5_env.pdf) in obtaining information resulted from lack in methodology and definitions. The same difficulties can be found in the work pertaining to the Sixth Framework Programme (*Monitoring progress towards Gender Equality in the Sixth Framework Programme*; http://www.amit-cat.org/doc/KIND23341ENC_002.pdf). This project will offer remedy for such ailments through the dedicated methodology it will employ.

[22] Consisting of a prominent social theorists and strategists with proven expertise in research management and organisation, gender scientists with a strong background in social sciences and political studies, operational research experts with practical experience in planning and management, statisticians specialised in data analysis and quantitative methods and leading technologists experienced in leading R&D work and project management, scientists, legal experts, linguists and a behavioural science experts.

WP 6:   International Debates & Considerations
        6.1   International Conferences
WP 7:   Developing Intervention Tools
        7.1   Experimentation & Improvements
WP 8:   Recommendations
WP 9:   Dissemination
WP 10: Analysis of Socio-Economic Impact & Implications

6.3. Deliverables

Beyond periodical reports, Deliverables shall include, *inter alia*, thematic workshops & conferences, meetings of expert groups and of the consortium, actionable recommendations and, notably, practical policies, devices & instruments aimed at overcoming hindrances for better gender balanced distribution that can also generate change in awareness building.

7. Innovation

The proposed project offers highly innovative approach, methodology and also product.

The approach taken by this project is multi-faceted and multi-disciplinary and is marked also by its pro-active characteristics. It recognises and looks at problems and solutions that belong in the social infrastructure realm – education, value-systems and culture. It also examines "Top-to-Bottom" attitudes that attempt to offer mechanical remedies to situational realities that stem from conceptual and behavioural patterns and from social organisational blueprints. However, the main approach taken here is to tackle the very set-up of causes of the problem at hand – gender awareness and women's participation that fall short of the desired level. Thus, the approach here is that of "Attitude" – which concentrate on the behavioural, organisational and conceptual patterns.

Methodologically, not only does the proposed project combine both qualitatively and quantitatively examination and analysis. It also offers quantitative validation to qualitative assessments and findings. Herein lays yet another innovation.

The multi-disciplinary nature of the project has been already pointed out. But there is more to it. Contributions from the different participating disciplines do not stand apart, next to one-another. Rather, in this project they amalgamate to create a highly synthetic analytical work, thus also higher level of validity and visibility.

Yet another facet of the innovation inherent in the proposed project lies in its dynamic and interactive dimensions that are embedded within its very process. At all stages of the project, the exchanges of inputs and critical reviews are catered towards the enrichment of the analytical process while enabling wide angel observation and better accuracy in analyses and assessments.

Workshops that will be held throughout the duration of the project will examine various issues as they arise. They will also enable the perennial updating of the project and render more accurate examination of interim and final results.

Finally, the project is pro-active and noticeable by its Action Planning orientation. Each phase in it will culminate in a specially built dedicated tools that could be put to practice so as to allow the beginning of a process of improvement in gender awareness and women's participation. It will be further improved as the project progresses.