



A better world with Quality!

Quality in the digital transformation

**5th International
Conference on
Quality Engineering
and Management**

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July 14-15, 2022

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FOREWORD

A warm welcome to everyone to the 5th International Conference on Quality Engineering and Management (ICQEM22)!

We are back again to an in person event! It is so great to see you all here at the University of Minho! I would like to deliver a special thanks to all of those that travelled from their home countries to Braga, in Portugal. I hope those that will attend online will have the chance to join us in person in the next edition in 2024.

This conference is an international forum to present and discuss the progress and recent evolutions in the fields of Quality Management, Quality Engineering and Organizational Excellence, thus providing a unique opportunity to share the latest insights of academic and industrial research and applications on these fields.

The International Conference on Quality Engineering and Management covers different topics related to Quality. In this 5th edition more than 100 proposals have been submitted and almost 90 were accepted for presentation, after revision by the Conference Scientific Committee. Papers accepted correspond to authors from all around the world, with 20 countries represented at this level. Therefore, a warm acknowledgment to all speakers, authors and Scientific Committee Members is well deserved – Thank You!

I would like to thank to all the four keynote speakers – Nicole Radziwill, Carlos Ribas, Josef Oehmen, Mareike Mohlmann – and to the master class trainers that were with us yesterday – Jorge Roman, Abdallah Obeikan, Saber Atiyeh and Khaled Hassan, these last three trainers coming from the Obeikan Group located in the Kingdom of Saudi Arabia. We have here the chance to listen to their contributions and new development insights, and to network with some of the most current influent Quality Academicians and Professionals.

Finally, I must acknowledge the institutional support received from the School of Engineering of the University of Minho, Research Group on Quality and Organizational Excellence, ASQ University of Minho Student Branch, TecMinho, ALGORTIMI Research Centre, University of Coimbra, University of Girona, International University of Catalunya, European Organization for Quality, Portuguese Association for Quality, Brazilian Association of Production Engineering, Quality for Excellence Consultancy, International Journal of Conformity Assessment and Brazilian Society for Quality and Excellence in Management.

Last but not the least, a special thanks to all the members of the Organizing Committee and Co-Founders of the conference that make this conference possible for the 5th time.

Let's take advantage of this great opportunity and make with your contributions an event with High Level of Quality, shared and built by such a top level group of attendees, thus contributing to "A better world with Quality!".

Enjoy the conference and the beautiful city of Braga! Thank you!

University of Minho, July 13, 2022.



Conference Chair
Paulo Sampaio, University of Minho

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Implementation and development of IPVC's equality plan in association with its management system

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STRUCTURED ABSTRACT

Purpose (Mandatory) - In the scope of the Instituto Politécnico de Viana do Castelo (IPVC) Strategic Plan 2020-2024 and its Social Responsibility strategy, was developed a project, IPVCConcilia Project, aiming to invest in conditions that promote equality, inclusion, well-being, and conciliation of professional life with family and personal life its staff. The project gained a competitive funding to work on promotion of the involvement, commitment, and motivation for an active participation in the co-creation of value for an IPVC. The institution defined as a goal, to develop an increasingly sustainable and inclusive organization where people wanted and liked to work.

Design/methodology/approach (Mandatory) - IPVC developed specific training in the topic and a team to organize and implement a strategic management tool, a gender equality plan. This plan was aligned with the IPVC Code of Ethical Conduct, the Values and Management Policies and it considers the guidelines issued by the national and international bodies, the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030, in particular SDG 5-Gender Equality, SDG 8-Decent Work and Economic Growth and SDG 10-Reducing Inequalities; the National Strategy for Equality and Non-Discrimination 2018-2030 Portugal + Equal (ENIND) established by the Resolution of the Council of Ministers No. 61/2018, of May 21, the Project Gender Equality in Higher Education Institutions, the GEAR program - Gender for Equality in Academia and Research of the European Institute for Gender Quality and the guidelines of the Directorate General for Research and Innovation of the European Commission and its strategic plan 2020-2024 which sets goals with a view to international competitiveness for higher education institutions, particularly at the level of equality and non-discrimination; the Guide for the Elaboration of Plans for Equality, of the ISCED (2019).

IPVC's equality plan was developed and its processes associated with goals for organizational excellence and organizational improvement will be presented in this paper. The plan integrates strategic aims and operational objectives, actions, indicators, targets and timetable.

Findings (Mandatory) - At this moment the equality plan is being integrated in IPVC's management system and this work will also be presented in this paper. We will present results from diagnosis and process implementation as well as future reflections on the future of Quality and Organizational Excellence based in equality and its inputs for quality management.

Social implications- The case study has clear social implications on IPVC community.

Originality/value (Mandatory)- This case study is very relevant, presenting an example of one of the first gender equality plans to be developed in higher education institutions, responding directly to the recommendations of the European Commission and Portuguese National Governmental Entities.

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Keywords: Equality, Management, Diversity, Quality Management

Paper type : Case study

INTRODUCTION

In the scope of the IPVC Social Responsibility strategy, concept defined by the European Commission in its Green Paper as "... the voluntary integration of social and environmental concerns by companies in their operations and in their interaction with other stakeholders." (Europeias, 2001, p. 7), the conciliation and equality in the IPVC community, was considered a priority and need to be achieved by measures of conciliation between personal and professional life and with gains in more equal opportunities. IPVC wants to ensure to all who work there the ability to maximize their potential, seeking to attract and retain talent in the institution through measures that reflect its organizational values, without leaving aside the organizational competitiveness and productivity (IPVC, 2021).

In this framework, the IPVC Presidency considered, under the IPVConcilia Project, based on the Institute's Code of Ethical Conduct (IPVC, 2020), a set of reference documents guiding the development of the Plan for Equality, of which we highlight: the Sustainable Development Goals (SDG) of the United Nations Agenda 2030, in particular SDG 5-Gender Equality, SDG 8-Decent Work and Economic Growth and SDG 10-Reducing Inequalities (United Nations, 2015, p. 14); the National Strategy for Equality and Non-Discrimination 2018-2030 Portugal + Equal (ENIND) (Presidency of the Council of Ministers, 2018), the Project Gender Equality in Higher Education Institutions (cf. <https://gehei.dges.gov.pt/pt>), the GEAR programme - Gender for Equality in Academia and Research of the European Institute for Gender Quality (cf. <https://eige.europa.eu/gender-mainstreaming/toolkits/gear>) and the guidelines of the European Commission's Directorate General for Research and Innovation (European Commission, 2021).

Gender equality is one of the main challenges facing society today, and in higher education it is complex and not easy to implement, it is an area with strong gender imbalances in all areas and at all latitudes (Robertson, et al., 2018), present also in our institution given its organisational characteristics. Although in recent years women have increased their participation at the level of the decision-making bodies of the institution and despite the high levels of training that they have reflected, there is no direct relationship between their academic qualifications and the positions they occupy in the organisational structure, similarly to the national trend seen in professions associated with economic and political decision-making (Coelho & Ferreira, 2018). It makes sense to continue to raise awareness about the need to have a equal and more balanced percentage between men and women in leadership and decision-making positions, through the implementation of transformations at the level of identities as well as in management policies (recruitment and promotion) of the institution.

In the same sense IPVC promotes the right to self-determination of gender identity and expression, recognizing that we are all equal in difference. In an attitude of doing more than saying, it seeks to guarantee the right to personal identity as an element of treatment and respect and non-discrimination of the community, in the sense identified by Guimarães in which "... we are all different and difference is an integral part of the totality." (2018, p. 1320).

The behaviors that are taught and transmitted to us from birth have undergone cultural and historical mutations, and the expectations of these behaviors are now more dissected in terms of their legal framework and consequent practice in daily relationships, with increasingly demanding consequences of non-discrimination. IPVC, due to its social responsibility towards community and also in its capacity of multinational attraction of collaborators and students, has defined a zero tolerance policy against violence in all its community, including gender violence, dating violence, domestic violence, violence in the workplace, sexual harassment, moral harassment, violence based on ethnic origin, color, nationality, ancestry and territory of origin. The objectives are not to promote leniency and condescension on the part of the community, but rather to reinforce the initiatives in the field of prevention and dissuasion that allow the eradication of stereotypes, hate speech, racial discrimination, xenophobia, and other demonstrations of intolerance that may still exist. Let us not forget that today, in contemporary society, the fight against discrimination and the promotion of equality face, new challenges that are strongly influenced by the digital age (Commission for Equality and Against Racial Discrimination (CICDR), 2020).

The issue of reconciling work and family life, a characteristic of contemporary work (Andrade, 2011, Greenhaus & Beutell, 1985), also plays a key role in the implementation of the Social Responsibility strategy, as a challenge taken on by the institution to contribute to the achievement of equality between women and men, in a shared model of care provision responsibilities, seeking to reduce income and pay gaps. The need for reconciliation is a quality issue linked to the most recent management models of large organizations, which value human capital. It is unavoidable the presence of work occupation in the family, whose management of several obligations is at the origin of conciliation conflicts, so implementing actions to promote conciliation of professional, family, and personal life, seeking to contribute to the success in these three dimensions of their lives, in a logic of mutual benefit, is one of the goals that the IPVConcilia project intends to achieve in the short term.

METODOLOGY

The working methodology in the implementation of this purpose comprised the following phases

a phase 1 in which the team developed a diagnosis, using documentary and secondary data analysis but also a collection and analysis of primary data from the IPVC. Interviews were developed with key informants. The team also applied, with adaptations, the Matrix developed by CITE to support the diagnosis CITE (2019).

In phase two we entered in the preparation of the action plan, defining the monitoring strategy and its dissemination among organizational system and among IPVC's community. The IPV Concilia project was able to support capacity-building in gender equality, which was very helpful in all the design and awareness-raising activities of the initial start-up of the project.

Finally we aligned our Equality plan with Horizon Europe Guidance on Gender Equality Plans (GEPs) and defined our main thematic areas of intervention.

RESULTS

IPVC equality plan is now public and can be consulted here https://www.ipvc.pt/wp-content/uploads/2022/02/Plano_Igualdade_IPVC_2021_2024.pdf



Figure nº 1 – IPVC Equality plan

The main thematic areas of intervention defined were (IPVC, 2021):

1. Work-life balance and organizational culture;
2. Gender balance in leadership and decision-making;

3. Gender equality in recruitment and career progression
4. Gender mainstreaming in research and teaching content and teaching
5. Elimination of violence
6. Student Community

Also IPVC (2021) defined as Macro intervention areas the:

- Promotion and construction of gender equality and the right to self self-determination of gender identity and gender expression;
- Non-discrimination on the grounds of ethnic origin, colour, nationality ancestry, territory of origin, among others;
- Zero tolerance culture towards violence (gender violence, dating violence, domestic violence, violence in the workplace, sexual harassment, moral harassment, violence based on racial and ethnic origin, colour nationality, descent and territory of origin);
- Recognition of maternity and paternity as eminent social values eminent social values shared equally between parents - social protection in parenthood for the student/mother or the pregnant students and students who have recently given birth or are breastfeeding;
- Conciliation of professional and private life;
- Identification of needs and creation of conditions for students with special educational needs (ENEE) and employee with disabilities.

(IPVC, 2021)

The document also integrates several studies developed such as the number of teaching staff by professional category and gender; a balance of global pay gap for non-teaching staff and teaching staff; the number of staff by professional category and gender; the number of teaching staff by region and gender; number of teaching staff by age and gender; number of non-teaching staff by age and sex; number of non-teaching staff in the various modalities of working time arrangements, by gender. In the diagnosis of the Student Community in the IPVC we analysed Graduated Students in the IPVC, by gender and school; % of students enrolled in IPVC's courses.

The case also presents a diagnosis on infrastructure diagnosis and removal of architectural barriers in the institution.

The plan also presents a matrix indicators and an action plan for three years.

Figure nº2 – IPVC Matrix of actions, indicators, target and timetable

PLANO PARA A IGUALDADE IPVC 2021-2024

A. Gestão Estratégica e Institucional

Objetivo Estratégico: Promover a mudança organizacional e uma Cultura para a Igualdade.

Objetivos Operacionais: Desenvolver políticas e práticas internas de promoção da igualdade e diversidade; assumir publicamente o compromisso com a promoção da igualdade; assegurar a implementação do Plano para a Igualdade, a sua monitorização, acompanhamento e sustentabilidade; desenvolver práticas internas de gestão e estudos aplicados que organizem informação desagregada por perfis e que contribuam para uma organização inclusiva, segura e saudável.

AÇÃO	INDICADOR	META	CALENDARIZAÇÃO		
			2022	2023	2024
Constituir a Comissão para a Igualdade	Despacho emitido (2021)	-	-	-	-
	Criação de regulamento interno de funcionamento	Regulamento publicado	X		
Divulgar e dinamizar Plano para a Igualdade IPVC	Número de ações de divulgação	2 por ano	X	X	X
Realizar de ações de Capacitação nas áreas de Cidadania, Igualdade, Equidade e Diversidade	Número de ações de capacitação	1 por ano	X	X	X

This matrix integrates strategic goals, such as: to promote organizational change and a Culture for Equality and operational objectives such as: to develop internal policies and practices to promote equality and diversity; publicly commitment to the promotion of equality; ensure the implementation of the Equality Plan, its monitoring and sustainability; develop internal management practices and applied studies that organise information profiles and that contribute to an inclusive, safe and healthy organisation.

The matrix is organized in 1. Strategic and Institutional Management; 2.Science Management; 3. Culture of Elimination of Violence (Zero Tolerance); 4. Student Community; 5. Human Resource Management; 6.Occupational Health and Safety; 7.Communication and Image.

CONCLUSIONS

This case study presents an example of one of the first gender equality plans to be developed in higher education institutions, responding directly to the recommendations of the European Commission and Portuguese National Governmental Entities.

REFERENCES

Andrade, M. C. P., 2011. Work-Life balance: condições de trabalho facilitadoras da integração do papel profissional e familiar. *Exedra - Número especial*, pp. 41-53.

Coelho, L. & Ferreira, V., 2018. Segregação sexual do emprego em Portugal no último quarto de século – Agravamento ou abrandamento?. *e-cadernos CES*, Volume 29, pp. 77-98.

Comissão para a Igualdade e Contra a Discriminação Racial (CICDR), 2020. *Relatório anual 2020 - Igualdade e Não Discriminação em razão da origem Racial e Étnica, Cor, Nacionalidade, Ascendência e Território de Origem*. Lisboa: Alto Comissariado para as Migrações I.P..

European Commission, D.-G. f. R. a. I., 2021. *Horizon Europe guidance on gender equality plans*. [Online] Available at: <https://data.europa.eu/doi/10.2777/876509> [Acedido em 10 junho 2022].

Europeias, C. d. C., 2001. *Livro Verde - Promover um quadro europeu para a responsabilidade social das empresas*. Bruxelas: Comissão das Comunidades Europeias.

Greenhaus, J. & Beutell, N., 1985. Sources of conflict between work and family roles. *Academy of Management Review*, pp. 76-88.

Guimarães, A. P., 2018. Discriminação em Função da Identidade de Género. Um Ultrage à Dignidade da Pessoa. *Repositório da Universidade Portucalese*, pp. 1308-1322.

IPVC, 2020. Despacho n.º 4690/2020 - Código de Conduta Ética do Instituto Politécnico de Viana do Castelo. *Diário da República*, 17 Abril, pp. 153-162.

IPVC, 2021. *Plano para a Igualdade IPVC 2021-2024*. 1ª ed. Viana do Castelo: IPVC.

Presidência do Conselho de Ministros, 2018. Resolução do Conselho de Ministros n.º 61/2018. *Diário da República*, 21 maio, pp. 2220-2245.

Robertson, J. et al., 2018. *EqualBITE: Gender equality in higher education*. Rotterdam: Sense Publishers.

United Nations, 2015. *Resolution adopted by the General Assembly on 25 September 2015 - Transforming our world: the 2030 Agenda for Sustainable Development*. [Online] Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E [Acedido em 10 junho 2022].