# Retaining and Promoting a Gender-Diverse Workforce in Engineering Organizations

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## Abstract

Female graduates from Engineering courses in Kenyan universities are at about 30% yet there are less than 10% female professional engineers. This demonstrates that women face significant hurdles as they transition through different stages of their career progression and upward movement to leadership and managerial roles in organizations.

Organizations benefit from gender-diverse teams by improved output, company culture, and profits. It also enables organizations to match the projected more gender-diverse client teams and reflect the stakeholders in the communities they serve. This paper explores best practices organizations can adopt to retain and promote women engineers. Benchmarking local and international organizations which have made strides in gender mainstreaming offers valuable insights on effective strategies which can be applied to our local context with significant impact. The creation of win-win initiatives by organizations that build capacity, address internal and external barriers, and enhance the visibility of women engineers supports diversity and inclusion in organizations and achieves gender parity for women in engineering organizations.

**Keywords:** Diversity, career progression, women engineers, gender diversity, mentorship

## Introduction

Female graduates from Engineering courses in Kenyan universities are 30% but there are less than 10% female professional engineers and there are only four number female-led consulting firms in Kenya. This demonstrates that there are significant hurdles in career progression at every level. Large strides have been made in growing the numbers of women in engineering education. This has increased the number of entry-level female engineering graduates. For industry-wide impact of these increased numbers, strategies are required for the retention of women in engineering careers and further progression into leadership and management roles.

We held focus group discussions with women actively pursuing engineering careers between one- and fifteen-years' postgraduation experience. It emerged that there were common challenges experienced at various career levels and in different sizes and types of engineering organizations. Internal and external barriers were identified which were cross cutting. Imposter syndrome emerged as a major internal barrier which kept women from aspiring to higher organizational positions or taking on challenging projects. Cultural and societal norms have engineering roles expected to be held by males poses external barriers at every level. Most women reported being the only female in projects or even in entire organizations. These work environments created an implicit pressure on women to 'prove' their capabilities are at par with male counterparts with the same level of experience. Most women did not have a female-engineer role model at a close range in contrast to men who have many role models in organizations and society. This meant that most organizations did not have gender considerations in policies and day to day operations. Some women were negatively affected by taking absence from work to attend to family responsibilities for example maternity leave. Site-based assignments which require long periods away from family ranked highly in causing women to quit jobs, take positions with more flexibility even if it means lower pay or seek alternative careers which foster work-life harmony.

## Importance of Gender Parity

Organizations benefit from having a gender-diverse workforce. A scientific study dubbed "*What Women Want*" conducted by the Centre for Creative Leadership, a global leadership development institute. The study profiled a total of seven hundred and forty-five male and female respondents globally and having a higher percentage of women in an organization was related to a positive and meaningful organizational culture. This resulted in more enjoyable work, more job satisfaction, more organizational dedication and overall, a job that fits well with other

areas of their life. Fortune 500 companies with more women on boards financially outperform companies with fewer women on boards (Joy et al, 2007).

Career impediments for women deprive the organizations, engineering fraternity, and the nation of an important source of talented and accomplished engineers who could contribute to positive impacts in society. The challenges are substantial and system and require transformation of institutional structures and procedures to eliminate gender bias. This will require strong leadership and continuous attention, evaluation, and accountability.

Many initiatives have been undertaken by researchers, professional bodies, and organizations with much success in increasing the meaningful engagement of women and their appointment to leadership positions in engineering organizations. The benefits of a gender diverse work force to organizations are undisputed and women would like to build long-term successful careers. This paper explores ways that organizations can create win-win initiatives to build capacity, address internal and external barriers, and enhance the visibility of women engineers. This will support diversity and inclusion in organizations and achieves gender parity for women in engineering organizations.

## Organizational Strategies for Retaining and Promoting Gender Diversity

### Training and Development

ATKINS, a member of SNC Lavalin group is a British multi-national engineering consultancy firm with over 18,000 employees globally offering services in engineering, design, planning, architectural design, project management consulting. Atkins was feted as the TIMES Top 50 Employer for women in the UK as a result of attracting, retaining and promoting more women in the organization.

Atkins developed a three-month Women Development Program designed to equip women with skills to navigate the work environment. The course curriculum entails flexible communication styles, gender-smart communication, unconscious bias and its impact on career progression; improved confidence and self-belief, increasing organizational visibility focusing on professional brand, effective networks, and presentation skills; career analysis, goal setting, and action planning. 95% of those who take the course report a proactive approach to career progression, 90% improved communication skills, 50% take on more responsibility leading to greater visibility and promotions. Atkins has benefited by unlocking the potential of their human resource.

Similar effective training programs can be developed by organizations or the service outsourced to training consultants by smaller and mid-sized organizations. The training should be tailored to the unique needs of the women internal barriers rather than generic topics. The training programs can be expanded to offer exposure to a wide range of engineering specializations through site visits, seminars on various topics to help women align their career and personal objectives. With proper career alignment, career satisfaction is achieved which ensures continued motivation and progress.

### Work – life harmony initiatives

Safaricom is a leading Telecommunication company in Kenya with over 4,500 permanent employees which has achieved enviable gender parity with 50% male and 50% women. In senior management, there are 66% male and 34% female employees. This is a major achievement and valuable lessons can be drawn on organization best practices applicable in our local context.

A game-changing initiative has been the returner's program for working mothers. This starts with the provision of a four-month maternity leave which is longer than the statutory requirement of three months. Additionally, a flexible working schedule is provided for six months for the mother after returning to work. Responsibilities of child-care are predominantly shouldered by the mother and this is mostly at an early or mid-career stage. With the organizations' support to achieve work-life harmony, the company retains female staff at these critical career stages instead of losing staff after resources have been spent to train them.

The returner's program can be adopted in Engineering organizations to retain women after child birth which is a critical stage where attrition of female engineers is experienced.

### Implementation of Gender Diversity Policy and Practices

Safaricom has a vision to achieve 50:50 gender parity at management level by the year 2021. This clear vision energizes the company management and staff towards its attainment, enables annual goal setting with

measurable milestones and accountability structures. Policies and practices introduced include continuous gender tracking at all career levels, targeted recruitment of female managers and development of leadership programs for women at different levels.
Organizations should have a clearly stated vision for gender parity and set measurable goals towards attainment. Most organizations have policy and strategy documents and these must be translated to actionable steps and goals for their attainment. Implementation of gender diversity policies allows systematic and continuous improvement of organization culture which has an impact on attracting, retaining and promoting women in engineering organizations which overall benefits the organization.

**Intentional Mentorship**

Mentoring is a relationship between two people with the goal of professional and personal development. The dictionary definition of "mentor" is an experienced individual who imparts knowledge, experience, and advice to a less experienced person, or "mentee." Other aspects of mentoring include peer mentoring and group mentorship. Mentorship programs are required at all career levels from graduate to professional and beyond incorporating several aspects as discussed below;

- A mentorship culture should be promoted in public and private engineering organizations. To promote creativity and innovation in mentorship initiatives, recognition and awards should be given to organizations that have well-structured mentorship programs with measurable impact. Key performance indicators for this include number of engineers who transition from graduate to professional, CE, fellows, and even entrepreneurship. It is important to build a strong mentorship culture within Engineering, this will help support individuals at different levels in the profession to navigate better from one stage to the next. This culture will also spill over to the University level and High school level, therefore promoting the profession among the younger generation. Mentorship allows for better engagement of professionals, reduces training time for new hires increasing productivity.
- Mentorship should be encouraged across genders since in most spaces, adequate numbers of female mentors are not available. Since the number of male Engineers is significantly higher than female Engineers, likely, young female Engineers may not have the opportunity to work under a female Engineer in their area of specialization. To meet this gap mentorship should be encouraged through formal programs, this will provide an opportunity to pass on knowledge and push for growth.
- The approach to mentorship should empower professionals to roles and jobs they are best suited for and encourage career alignment. It should discourage the forceful influence of the mentor's preferences on a mentee. This will help young professionals to settle in disciplines they are best suited for therefore making the greatest contribution.

## Conclusion

The case studies of local and global engineering organizations which have achieved enviable levels of gender parity provide a realistic roadmap on best practices within organizations to retain and promote a gender diverse workforce. These best practices can be adapted to suit our local context and the different sizes of organizations or call for combined efforts across organizations e.g. Government parastatals.

Intensifying efforts in intentional mentorship, training, creation of win-win work-life harmony initiatives and implementation of gender-diverse policies and practices will result in benefits for the organization and women engineers.

## References


1. Isobel Houghton, “Retaining and Promoting a More Gender-Diverse Workforce in an Engineering Consultancy Through Specific Development Training”, International Journal of Gender, Science and Technology, Vol. 11, No.1
2. Lois Joy, PhD, Harvey M. Wagner, PhDSriram Narayanan, PhD, The bottom line: Corporate performance and women’s representation on boards. https://www.catalyst.org/research/the-bottom-line-corporate-performance-and-womens-representation-on-boards last accessed 2021/10/04
3. SNC Lavalin website, https://careers.snclavalin.com/blogs/2021-4/atkins-named-as-a-times-top-50-employer-for-women, last accessed 2021/09/26
4. N. Naismith, S. Robertson, J Tookey, “Identifying Barriers to Retaining Female Professionals in Engineering and Construction Organizations”, AUBEA 2017
5. Ayre, T. (2011). ‘Barriers to Women Remaining and Advancing in the Engineering Profession’. Report to the IPENZ Women in Engineering Oversight Body. Retrieved from https://ipenzproduction.blob.core.windows.net/cms-library/docs/default-source/newspublication/Diversity/2011barriers-remaining-advancing.pdf?sfvrsn=4
6. Ayre, T. (2014). ‘Why Women Shun Engineering as a Career’ (2014). Retrieved March 25, 2016 from https://www.westpac.co.nz/rednews/women/why-women-shun-engineering-as-a-career-newresearch/
7. Barriball, L. K., White, A. (1994). Collecting Data using a semi-structured interview: a discussion paper. Journal of Advanced Nursing, Vol. 19 (2), pp. 328-335.
8. Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering *Committee on Maximizing the Potential of Women in Academic Science and Engineering*, *National Academy of Sciences*, *National Academy of Engineering*, *Institute of Medicine*
9. OUR EMPLOYEES – Safaricom
10. Centre for Creative Leadership (2017) What women want Report, p2-6.
11. Sewalk, S., Nietfeld, K. (2015). Barriers Preventing Women from Enrolling in Construction Management Programs. International Journal of Construction Education and Research, Vol. 9 (4), pp. 239-255, DOI: 10.1080/15578771.2013.76436
12. A. Peixoto et al., "Diversity and inclusion in engineering education: Looking through the gender question," 2018 IEEE Global Engineering Education Conference (EDUCON), 2018, pp. 2071-2075, doi: 10.1109/EDUCON.2018.8363494.
13. C. S. González-González, A. García-Holgado and F. J. Garcia-Peñalvo, "Strategies to introduce gender perspective in Engineering studies: a proposal based on self-diagnosis," 2020 IEEE Global Engineering Education Conference (EDUCON), 2020, pp. 1884-1890, doi: 10.1109/EDUCON45650.2020.9125289.