

EVENT REPORT



Union for the Mediterranean
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UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

2023 UfM-UNIDO

WOMEN BUSINESS FORUM

WOMEN IN INDUSTRY AND INNOVATION: Can Industry 4.0 foster women's economic inclusion in the MENA region?

11-12 OCTOBER 2023—TUNIS

With the support of:



Ministry of Foreign Affairs
and International Cooperation



The UfM Secretariat
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2023 UfM-UNIDO
**WOMEN
 BUSINESS
 FORUM**

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Social & Civil Affairs

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Foreword

UfM-UNIDO Women
Business Forum 2023 family
picture.



The 7th edition of the UfM Women Business Forum took place in Tunis on the 11th and 12th of October 2023. This yearly regional platform offers female entrepreneurs and women-led businesses a unique opportunity to take their businesses to the next level and was co-organised together with the United Nations Industrial Development Organization (UNIDO) for the third time in a row. It gathered over 150 high-level attendees, regional and national stakeholders, as well as female entrepreneurs from across the MENA region. Moreover, its livestream was followed by an additional hundred people.

In reflecting upon the success of the UfM-UNIDO Women Business Forum 2023, it is paramount to highlight the support received from the Euro-Mediterranean-Arab Association (EMA) and BUSINESSMED. EMA and BUSINESSMED played pivotal roles in enriching the event by respectively arranging a networking dinner and by facilitating on-site Business-to-Business (B2B) meetings during the Forum, through the BUSINESSMED BCD platform. These activities greatly enhanced the networking opportunities during the Forum,

allowing participants to engage in fruitful discussions and forge potential collaborations.

This year's edition of the UfM-UNIDO Women Business Forum provided an opportunity for a further exchange on Women in Industry and Innovation by specifically addressing the question of how Industry 4.0 can foster women's economic inclusion in the MENA region. The Forum acknowledged the significance of the Fourth Industrial Revolution and addressed the pivotal role of women entrepreneurs in the MENA region, amidst the emerging industrial and digital transformations. This industrial paradigm shift opens the doors to a world of opportunities, as well as unique challenges for women entrepreneurs in the MENA region, who still often find themselves concentrated in the service sector.

The issues that were addressed during this year's Women Business Forum are particularly timely and necessary, since female entrepreneurs in the MENA region continue to encounter various barriers, particularly in the sectors of industry and innovation that prevent them from unleashing their full

potential and contributing to the regional economic growth.

The entrepreneurial gender disparity in the MENA region remains extreme, as the region only counts 5% of female-led businesses compared to a global average between 23% and 26%. Moreover, women in the MENA region are less likely than men to start businesses. Almost one in three women in the region reported start-up intentions, but only 1 in 10 managed to start the activity; just 1 in 20 women had an early-stage business and 3.2% of women reported having an established business. Factors such as complicated access to finance and technology, gender bias, lack of education, and legal barriers hinder female entrepreneurship in the region.

Women entrepreneurs continue to be confined to historically feminised sectors, such as the service sector, whereas access to sectors with growing importance, such as industry 4.0 manufacturing, digital and tech sectors often continue to be hindered. Although these sectors have the capacity to create high added values and jobs, they remain highly male dom-

inated, while women often miss digital and technological skills that would allow them to excel in the field of innovation and industry and particularly in relation to Artificial Intelligence and the Circular Economy.

Considering these numbers and facts highlighting women's underrepresentation in entrepreneurship in the MENA region, particularly in the sectors of innovation and industry, this year's edition of the UfM-UNIDO Women Business Forum, represented a necessary opportunity to empower female entrepreneurs in the MENA region who are active in these sectors. Moreover, it allowed to exchange views on pressing challenges and concrete solutions to strengthen the role of female entrepreneurs, amidst the current digital and technological transformations.

Forum Agenda

The structure of the 7th edition of the UfM Women Business Forum consisted of a two-day event, including a conference, a brainstorming session and a field visit organised to witness the successful activities of Actifs Précieux, a start-up founded by Ms. Hajer Derouiche, one of the women entrepreneurs beneficiaries of **UNIDO's PWE II project** (Promoting Women's Empowerment for Inclusive and Sustainable Industrial Development in the MENA region – Phase II) in the bio-cosmetic value chain. In addition, as a side event to the Forum, a training on "Gender-Transformative Industrial Policies, Projects, and Programmes Training for industrial development actors in the MENA region" was organised by UNIDO. The overall event also fostered networking opportunities and B2B sessions with the support of the Business Country Desk Platform, developed by **BUSINESSMED** for connections and collaborations.

The UNIDO **Training on Gender and Industry** held on 10th and 11th of October, aimed to strengthen the capacity of participants from the Ministries of Industry, Ministries/Councils of Women and Women Business Associations from the 7 PWEII project target countries in the MENA region, namely Algeria, Egypt, Jordan, Lebanon, Morocco, State of Palestine and Tunisia. The UNIDO training gathered 27 representatives from the region's civil society, public and private sectors to develop and implement gender-transformative industrial policies based on good practices and concrete examples. In parallel, the morning of the 11th of October was dedicated to an **interactive brainstorming activity**

developed by UfM on the needs of women in Industry 4.0 and Tech, gathering 30 women entrepreneurs. In the afternoon, 35 of the UNIDO Training and UfM brainstorming activity's participants seized the opportunity to join a **field visit to the women-led company "Actifs Précieux"** located in Zriba's industrial zone, which represented a concrete example of implementation of Industry 4.0 solutions in the manufacturing sector.

The second day of the Forum was dedicated to a full-day conference, exploring challenges and opportunities women entrepreneurs encounter in the industry and innovation sectors.

The full-day conference kicked off with high-level welcoming remarks from UfM Secretary General H.E. Nasser Kamel and UNIDO Deputy to the Director General and Managing Director Mrs Fatou Haidara. Representing the host country, the final welcoming remarks were delivered by H.E. Ahlem Beji, Chief of staff, Ministry of Industry, Energy and Mines of Tunisia and by H.E. Kais Romdhani, Chief of staff, Ministry of Family, Women, Children and Seniors. These high-level welcoming remarks were followed by opening speeches from - by order of intervention: H.E. Ms Helena Dalli, European Commissioner for Gender Equality (who intervened with a video-message), Mr Tommaso Sansone, Deputy Head of Mission and First Counselor at the Embassy of Italy in Tunisia, Mr Arnaud Peral, UN Resident Coordinator in Tunisia, Mr Gianfranco Bochicchio, Chargé d'affaires EU Delegation in Tunisia and Mr Hichem Elloumi, Vice-Pres-



ANNA DORANGRICCHIA,
*Project Manager, Social and
Civil Affairs Division, UfM*

ident of UTICA (Tunisian Union of Industry, Trade and Handicrafts – Founding member of BUSINESSMED.)

Over the course of the Conference, two roundtable discussions, each lasting 90 minutes, were held, gathering women entrepreneurs, executives, advocates, international decision-makers, and sector experts for insightful discussions. The first roundtable focused on essential digital skills and innovative approaches for fostering inclusive and sustainable development and the second roundtable discussion addressed the challenges and opportunities faced by women entrepreneurs in the digital era.

In addition to the two roundtable discussions, the takeaway session "Connecting the dots" reported on recommendations to boost women's inclusion in manufacturing and the tech industry, drawn from the participants in UNIDO's training on Gender and Industry and the participants in UfM's Brainstorming Session.

Furthermore, in continuation, a UNIDO PWE II project closing session was held. It highlighted the project's history, objectives, achievements, challenges, lessons learned, and way forward, through the interventions and first-hand testimonials of project donors, enablers, implementers, partners, and beneficiaries. The closing session provided an opportunity to unveil the project's White Paper – an in-depth report on the PWE project's vision, milestones, and good practices, developed as a blueprint for future endeavours. Moreover, two award

ceremonies were held for the 12 finalists of the project's flagship capacity-building initiatives INDUSTRY'ELLE (a pre-incubation programme) and IDEA (an incubation programme), acknowledging and celebrating promising young women entrepreneurs in the fields of industry and innovation, who were selected following pitching competitions.

Finally, the two-day event also offered the possibility for women entrepreneurs participating in the WBF to hold B2B meetings with the support of the Business Country Desk Platform, developed by BUSINESSMED for connections and collaborations.

Tunis, 12th October – Highlights of the Forum's Conference

“ Women have always been at the heart of our mission at the Union for the Mediterranean. The active partnership between the UfM and UNIDO - launched several years ago with the UfM Label granted to PWE I in 2015 and followed by the trilateral cooperation for the pilot project PWE II in Tunisia in 2020 - has become a successful binomial: we have implemented concrete actions, learned from them and also sought to up-scale them at regional level.

H.E. Nasser Kamel, Secretary General, UfM

Welcoming Remarks

H.E. Nasser Kamel, Secretary General, UfM stressed the excellent cooperation between UfM and UNIDO and saluted the progress made by Tunisia in promoting gender equality, particularly in education and the participation of women in various levels of society. He highlighted the importance of the Women Business Forum in Tunis as a testament to the progress made in the region and pointed out the important role of the participating women entrepreneurs in the success of the forum.

He addressed the significant challenges faced by women entrepreneurs in developing their businesses, particularly in the MENA region, due to legal frameworks, cultural norms, and social standards and highlighted the underrepresentation of women entrepreneurs in the MENA region. He further stressed that women in the region need to be empowered economically and specific actions are required to support women entrepreneurs, such as improving access to funding and networks, enhancing digital skills, and changing attitudes in STEM fields.

Moreover, he referred to several UfM initiatives aimed at empowering women, economically, in the region, such as the MENA Women Business Club, the FLOWER project and the Med Women in Tech Network.

“ Through strategic partnerships, we disrupt “business as usual” and bolder our actions to accelerate women’s economic empowerment. We are therefore proud of our steadfast collaboration with the Union for the Mediterranean and praise its stewardship in advancing the regional policy dialogue on gender and women’s economic empowerment.

Fatou Haidara, Deputy to the Director General and Managing Director, Office of the Managing Director, UNIDO

Fatou Haidara, Deputy to the Director General and Managing Director, Office of the Managing Director, UNIDO emphasised that the Fourth Industrial Revolution presents significant economic opportunities, but noted that women entrepreneurs in the MENA region lack awareness of these prospects. She pointed out the lack of familiarity with digital techno-

“ Indeed, women can play an important role in the Industry 4.0 era in the digital transition and the development of a circular economy as they have proven their skills in various fields such as digitalization, science and engineering. Valuing women’s skills in areas considered to be male dominated, particularly industry and manufacturing, will help to empower women’s entrepreneurship and leadership.

H.E. Ahlem Beji, Chief of staff, Ministry of Industry, Energy and Mines, Tunisia



FATOU HAIDARA, Deputy to the Director General and Managing Director, Office of the Managing Director, UNIDO

logies and Industry 4.0 among female entrepreneurs and stressed current concerns due to the existing gender disparity in entrepreneurship and low female labour force participation rates.

She stressed that globally, women are underrepresented in fields like AI and renewable energy. However, in the MENA region, women represent a substantial portion of STEM graduates, presenting an opportunity for the digital sector’s feminization. Furthermore, she emphasized that women’s economic empowerment is essential for achieving the Sustainable Development Goals (SDGs) and called for addressing barriers and providing digital access and skills.

Moreover, she presented UNIDO’s PWE project, a multi-stakeholder partnership, that supports women’s economic participation through access to finance, markets, advocacy, and networking and stressed UNIDO’s commitment to women’s economic inclusion.



H.E. AHLEM BEJI, Chief of staff, Ministry of Industry, Energy and Mines, Tunisia

H.E. Ahlem Beji, Chief of staff, Ministry of Industry, Energy and Mines, Tunisia, highlighted the Women Business Forum’s role as a vital platform for sharing best practices and mobilising efforts to empower women

in value addition, technology, and the shift towards a circular and green economy. She stressed that embracing innovation and new technologies is now a necessity rather than a choice to address socio-economic challenges.

The Ministry of Industry’s 2035 Industrial Strategy prioritizes innovation and technological transition, recognising their significance in boosting growth and competitiveness for SMEs. Gender considerations are a central part of this strategy, acknowledging the substantial contributions women can make in the era of Industry 4.0, digital transformation, and circular economy development. Women’s proven expertise in areas like digitization, sciences and engineering, highlights the potential for female empowerment, entrepreneurship and leadership, especially in traditionally male-dominated sectors like industry and manufacturing.

Furthermore, she pointed out that the event coincides with the conclusion of the UNIDO-led regional project PWE II, funded by the Italian government. This project aimed to economically empower women, focusing on enhancing value chains related to natural cosmetics based on aromatic and medicinal plants (PAM) and pharmaceutical products

“ The available statistics indicate that Tunisia ranks second in the world in terms of the percentage of women holding advanced degrees in science, technology, engineering, and mathematics (STEM) fields. (...) Despite all efforts, we still witness an increase in unemployment rates among female graduates from higher education institutions. This requires an economic approach based on support, assistance, and providing the necessary and appropriate financing options for women and girls.

H.E. Kais Romdhani, Chief of staff, Ministry of Family, Women, Children and Seniors, Tunisia

“ Indeed, women can play an important role in the Industry 4.0 era in the digital transition and the development of a circular economy as they have proven their skills in various fields such as digitalisation, science and engineering. Valuing women’s skills in areas considered to be male dominated, particularly industry and manufacturing, will help to empower women’s entrepreneurship and leadership.

H.E. Ahlem Beji, Chief of staff, Ministry of Industry, Energy and Mines, Tunisia

in Tunisia, with support from the Principality of Monaco.

H.E. Kais Romdhani, Chief of staff, Ministry of Family, Women, Children and Seniors, Tunisia, in his speech on behalf of H.E. the Minister Ms Amel Belhaj Moussa, highlighted how the Fourth Industrial Revolution is impacting women’s economic inclusion in the Middle East and North Africa. He emphasized the need to empower women for the upcoming Fifth Industrial Revolution and highlighted the transformative role of modern technology in entrepreneurship.

Tunisia’s commitment to education and efforts to close the digital gap were underscored. Despite success in STEM fields, challenges like rising unemployment among female graduates persist. In this sense, he proposed economic solutions such as mentorship, information and tailored financing. The government’s dedication to women’s economic empowerment and a national strategy for women’s entrepreneurship by 2030, were highlighted.

His speech concluded with a commitment to a project in Tunisia aimed at social well-being, cognitive and economic advancement and to address modern challenges. This project focuses on technology, equitable wealth distribution, and a decent life for all. The speaker wished success to the forum and officially opened its proceedings.



H.E. KAIS ROMDHANI,
Chief of staff, Ministry of
Family, Women, Children and
Seniors, Tunisia

FATOU HAIDARA, Deputy
to the Director General
and Managing Director,
Office of the Managing
Director, UNIDO / **H.E. KAIS
ROMDHANI**, Chief of staff,
Ministry of Family, Women,
Children and Seniors,
Tunisia



Opening Session

“ There is a large consensus on the policies to pursue for women’s economic empowerment, highlighted also in the UfM Ministerial Declaration on Strengthening the Role of Women in Society, that was adopted last October.

Helena Dalli, European Commissioner for Equality



“ In conclusion, Italy’s willingness in recent years to invest in micro-enterprises, start-ups and the social economy has highlighted the country’s role as a promoter of the socio-economic inclusion of young people and women, often from the most disadvantaged areas of Tunisia.

Tommaso Sansone, First Counsellor, Deputy Head of Mission of the Embassy of Italy in Tunisia



“ Gender equality is the main accelerator for achieving all our objectives: the sustainable development objectives, our economic objectives, and our social objectives. It is an accelerator for well-being, quality of education, and quality of health services. In absolutely all sectors, it is an accelerator for change, which is positive for all of us: for our families, for our societies, and for our economies.

Arnaud Peral, UN Resident Coordinator in Tunisia



“ It is important to highlight, as the Forum is doing today, the impressive career paths and successes of women entrepreneurs who are pioneers in the world of business and innovation. Their experiences will enable us to identify good practices and strengthen exchanges to improve support for women entrepreneurs in Industry 4.0 in order to achieve a fair, green, and inclusive economic transition.

Gianfranco Bochicchio, Chargé d'affaires, EU Delegation to Tunisia



“ Industry 4.0, with its cutting-edge technologies, represents both a challenge and a real opportunity for economies, which is why it is necessary to adopt a strategy of radical change and anticipate the digital and technological developments applicable to the industrial sector, and to bring themselves up to speed in order to move up the value chain without losing their competitive edge and conquer new markets. However, this structural change is far from inclusive, as it has created a gender-based digital divide that risks intensifying the exclusion of certain women from the promises of the 4th industrial revolution. Indeed, women in the MENA region are 12% less likely than men to use the internet, which prevents them from joining and contributing to the digital economy.

Hichem Elloumi, Vice President of UTICA (Tunisian Union of Industry, Trade and Handicrafts – Founding member of BUSINESSMED)



Round Table 1: Digitalization skills, AI and innovative solutions for inclusive sustainable growth

In the past years, several emerging trends and needs in entrepreneurship could be observed. On the one hand, the transformations emerging in the context of new digital technologies and a heightened use of Artificial Intelligence require adaptation on behalf of women entrepreneurs in the entire MENA region. On the other hand, there is an increasingly evident need to master the green transition successfully and to promote inclusive sustainable growth.

In linking these two developments, women entrepreneurs can play a decisive role. However, they seem to be little aware of the opportunities for greener productive models offered by the Industry 4.0 revolution and continue to have limited knowledge about these emerging technologies. According to a UNIDO survey, while 65% of surveyed women entrepreneurs were willing and prepared to receive training on ICT devices and software, only 25% of them managed to receive it.

There is a particular need to accelerate women's adaptation to Artificial Intelligence technologies, given that these technologies are rising in importance and AI is becoming ubiquitous in everyday life and businesses. However, according to the World Economic Forum, women are underrepresented among AI workers, making up only an estimated 26% of workers worldwide. This underrepresentation is, on the one hand, a fundamental eth-

ical issue of social and economic justice and inclusion and on the other hand a matter of efficient AI systems, as it contributes to gender biases.

Keynote

In confirming that no career path follows a straight line and by way of empowering women entrepreneurs present at the Forum, **Zohra Slim, Co-Founder and CWO, InstaDeep Ltd, Tunisia**, shared her personal journey and experiences, with a focus on her transition from a conventional educational path to a self-directed one in the field of coding and technology.

Despite starting with an English degree, she discovered her passion for coding. Self-taught, she became a lead for HTML and CSS in India. She stressed the need for more women to embrace STEM, encouraging risk-taking, bravery and expanding out of comfort zones for growth.

In the MENA region, there exist a significant number of female STEM graduates. In this regard, Zohra advocated for continuous mentorship and support, aiming for a future where girls are encouraged to be brave and to reach for the stars in STEM fields.

Discussion on key issues

The panel's main objectives were to delve into the critical role of digitalization, AI, and inno-



ZOHRA SLIM, Co-Founder and CWO, InstaDeep Ltd, Tunisia

vative solutions, in shaping a more inclusive and sustainable future. Overall, it aimed to explore how these technologies can empower women entrepreneurs, bridge the gender gap, and foster economic growth in the MENA region. The panel gathered women entrepreneurs as well as high-level representatives from the private and public sector, each of whom shared good practices and innovative solutions.

With reference to how digitalization and AI are transforming the landscape for women-led SMEs in the MENA region and in identifying what potential strategies can be employed to ensure their meaningful participation in this digital era, **Lilia Hachem Naas, Chief, Office for Arab States, ITC** highlighted the accelerated digital transformation during COVID-19 and its potential for women-led SMEs in the MENA region. While technology offers flexibility and opportunities, women face challenges like limited connectivity and safety concerns. She recommended improving access to internet and ICT equipment, aligning education with women's needs, and promoting successful female role models. She also shared ITC's Go Digital Project, empowering young women with essential skills to enter international markets as freelancers, particularly in Gaza, Palestine.

Offering insights on the specific digitalization challenges faced by women-led SMEs and providing recommendations on overcoming

these barriers, **Amel Saidane, Digital Transformation for SMEs** noted the ongoing digital transformation trend, with a growing focus on AI. Generative AI is gaining importance as it is expected to account for 90% of global content by 2030. Tech businesses stand to benefit from AI adoption, enhancing productivity and efficiency. Encouraging women in AI and tech from the early stages can increase their involvement and attract venture capital funding. She highlighted challenges faced when approaching Development Finance Institutions (DFIs) as a first-time fund manager, emphasizing the need to bridge gaps between supporting women in tech and practical investment barriers.

As an example of a successful female entrepreneur, actively using Artificial Intelligence technologies, **Guadaluna Chaer, Cofounder of LUXEED Robotics**, provided insights on how innovative solutions like those developed by her start-up LUXEED Robotics, can contribute to environmental sustainability and also to economic empowerment for women in the MENA region. She highlighted how companies can empower women by providing clear career paths and ongoing training, while start-ups offer flexibility and opportunities for diverse roles. She emphasized the importance of objective hiring, focusing on technical skills, especially in AI. She also discussed the significance of investing in women-led and hardware start-ups to address



The UfM-UNIDO Women Business Forum 2023 took place in Tunis.

environmental challenges, such as climate change. Furthermore, she acknowledged the risk-averse nature of regional investors, particularly towards hardware start-ups, and called for impact investors to recognize their role in tackling these issues.

With respect to governments and professional organisations and how they can collaborate to create an ecosystem that supports women in gaining digital skills and participating in technological advancements, **Olfa Yahyaoui, CIO of Tunisie Autoroute and Secretary General of the Tunisian Engineers Council**, advocated for greater female representation in IT, particularly in decision-making roles, emphasizing IT's vital role in the country's economic growth. Their efforts include introducing computer tools to empower rural women, aiding their skills and connecting them with entrepreneurial resources. She stressed that to foster tech entrepreneurship, women should focus on mastering skills in digital marketing, Industry 4.0, IoT, and AI, as well as the ability to craft effective funding proposals to secure financial support for their ventures.

Sharing insights from the company "Bridge for Billions" on how women entrepreneurs can be equipped with the skills and resources needed to thrive in the digital age, **Elena Dia, Senior Innovation & Entrepreneurship Manager at Bridge for Billions**, stressed that COVID-19 has highlighted the ability to remain productive in a remote work environment. Right now, it is essential not to miss the opportunity for AI and digitalization, especially in supporting women entrepreneurs. Moreover, on which support systems and mentorship opportunities should be in place to encourage more women to venture into innovation and entrepreneurship, Elena Dia related that in partnership with UNIDO, Bridge for Billions conducted

incubation programs in challenging environments, like Guinea Bissau, where entrepreneurs lacked internet access. She stressed that support and resources need to be provided inclusively, and digitalisation can be a great tool to not exacerbate existing inequalities. Moreover, she underlined the need for funding organisations to align their support with the innovative approaches of entrepreneurs, suggesting a need for a more flexible and creative funding approach.

On achievements and challenges specific to female entrepreneurship in Tunisia, **Mohamed Dhaoui, Director of Women's Affairs at Minister of Family, Women, Children and Seniors, Tunisia**, provided examples and highlighted programmes aimed at achieving economic and financial inclusion of women, focusing on their empowerment. Such initiatives provide credit without self-financing requirements, with the government covering a significant portion of project costs at competitive interest rates. However, Tunisia faces barriers to women's entrepreneurship, with only 10% of businesses being created or managed by women, falling short of the international average of about 22%.

Furthermore, to promote female entrepreneurship in Tunisia by 2035, a strategic study in collaboration with GIZ and the Ministry of Employment and Training has been launched. The strategy involves creating a women-centric business environment, introducing entrepreneurial education early on, and providing specialized financing for women-led projects. While there have been successful projects, further efforts are needed to increase women-owned businesses to around 15-16% by 2035.

Overall recommendations from the panelists include: improving access to internet and ICT equipment, aligning education with women's needs, and promoting successful female role models. They also emphasized bridging the gap between women in tech and practical investment barriers, enhancing the role of impact investors, mastering skills in digital marketing, Industry 4.0, IoT, and AI, crafting effective funding proposals and adopting flexible and creative funding approaches for women entrepreneurs.

Round Table 2: Breaking the glass ceiling 4.0: women entrepreneurs in the digital age



Speakers in Round Table 2.

The era of Industry 4.0 and digitalization is transforming the industrial sector, bringing significant challenges and opportunities for women as employers and entrepreneurs, to participate and excel in this field and to contribute to the economic growth of their countries.

The **UNIDO reports entitled: “The Impact of New Digital Technologies on Gender Equality in Developing Countries”**, published in 2019 and the **“Industry 4.0 for inclusive development”**, published in 2022, highlight that the adoption of digital technologies can both help and hinder efforts to promote gender equality in developing countries. On the one hand, **digital technologies have the potential to provide new opportunities for women to participate in the economy and society**, such as through online education, entrepreneur-

ship, and e-commerce especially for women in rural or remote areas. On the other hand, **women and girls are often excluded from the benefits of digital technologies** due to factors such as lack of access to technology and digital skills, cultural and social norms, and gender-based violence including harassment online. **Women are also underrepresented in the technology sector and in leadership positions in tech companies**, which can limit their ability to shape the development and implementation of digital technologies in ways that are inclusive and beneficial for all. Such understanding can help in being able to address how industry 4.0 could be used to narrow the gender gap.

In the MENA Region where, according to the latest data collected by UNESCO (2023), **57% of graduates in STEM and related fields are**

women, there is a tremendous opportunity to boost the participation of women in the 4IR, in the event that barriers were removed or alleviated.

Keynote

In order to provide evidence on ICT capacities, shortfalls and needs of female entrepreneurs in manufacturing and related activities in seven MENA countries, (Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine and Tunisia), **UNIDO** carried out a **study in 2019-2020** including a survey based on a **sample of 1418 interviewed women entrepreneurs** which revealed that **60% of respondents reported little or no familiarity with the Industry 4.0 concept**, while 54% reported no familiarity at all; only one quarter confirmed to have utilized digital technologies at some stage in the product design, manufacturing and selling processes of their businesses. Inspired by the survey results, **Neila Amara, UNIDO International Project Management Expert**, addressed the challenges and opportunities related to digitalization, Industry 4.0, and the use of digital tools in the context of female entrepreneurship in the MENA region. She highlighted the appetite for digitalization among women entrepreneurs, the limited transition to more professional use of digital tools, and the lack of familiarity with concepts like Industry 4.0 and blockchain. This underscores the need for education, training and awareness, to fully leverage the potential of these technologies in women-led businesses.

Key issues discussed

The panel objectives were to showcase innovative solutions and success stories of women entrepreneurs transitioning to industry 4.0 to inspire and motivate other women entrepreneurs while highlighting challenges and solutions in doing so, including in terms of access to finance. High level representatives from the public and private sectors contributed to the discussion by presenting successful strategies adopted by governments to support women in industry 4.0.

In answering the question as to how public strategies can facilitate and strengthen the participation and access of women entrepreneurs in technologies and the digital transition, **Nada Lachaal, General Director, Industrial and Technological Infrastructure, Ministry of Industry, Energy and Mines (Tunisia)**, presented Tunisia's 2035 strategy for industrialization and innovation. She highlighted that its main objective is to support the digital, ecological and energetic transition of the Tunisian industry towards a new model, based on innovation, competitiveness and an inclusive

and sustainable growth. Women entrepreneurs are actively involved in the mentoring, coaching and start-up promotion programs to support the digital transition. She emphasized collaborative efforts with the **Tunisian Agency for the Promotion of Industry and Innovation (APII)** to guide businesses into Industry 4.0 and support start-ups, particularly in eco-friendly sectors, resulting in the establishment of Industry 4.0 competence centres. While not being specifically gender-responsive, **Nada Lachaal** stated that the initiative is largely benefiting women, revealing that 54% of training participants were women and that in awareness and engagement activities, women constituted around 65% of the participants out of a total of 5,000. **Omar Bouzouada, Director General, APII (Agency for the Promotion of Industry and Innovation) (Tunisia)** - the institution implementing the Ministry's strategy - confirmed that women are highly involved in training and coaching programmes delivered by the extensive network of APII's 28 incubators across the country. APII's annual training program is aiding around 800 to 900 young entrepreneurs, half of whom are women, and supporting 400 projects, of which 30% are led by women. APII's recent focus on innovative and tech-driven projects aligns with Tunisia's broader innovation strategy. He argued that Tunisia's entrepreneurship ecosystem has already significantly empowered women, making separate strategies for women entrepreneurs redundant. However, it was noted that both institutions are still working to address data and analysis gaps at the institutional level in this area.

As an example of a women entrepreneur succeeding in industry 4.0 transition, **Hajer Derouiche, CEO of Actifs Précieux (Tunisia)**, highlighted ways new technologies are changing and improving business functions, as well as difficulties and solutions in migrating to Production 4.0. Her biotechnology start-up, which is specialized in creating natural active ingredients using supercritical fluid extraction technology, has a unique value proposition centred on naturalness, innovation and traceability, addressing concerns about product authenticity and social and environmental responsibility. Sharing her own experience, she highlighted that overcoming regulatory hurdles required a shift from a scientific focus to mastering communication, traceability as well as company management tools and technologies. Her company is currently exploring how to implement the blockchain technology to enhance traceability, while ERP systems, like Sage X3, have improved real-time information management. She stressed the importance of finding technological solu-



Overall, panellists recommended:

- the need for education training, and awareness-raising on Industry 4.0-related technologies to foster women's economic inclusion
- the need for additional and more coherent data on women entrepreneurship
- the importance of finding technological solutions for specific challenges
- the importance of education in building women's self-confidence
- the need to tackle specific challenges, such as familiarity with Industry 4.0 technologies
- the importance of sector-specific strategies
- the need for adequate and collaborative financing mechanisms to promote Industry 4.0-related opportunities for women entrepreneurs

tions for specific challenges and the significance of change management and external assistance when implementing new technologies within an organization. She noted that despite new technologies being easily accessible, people are often confronted with an initial resistance to them that could be raised with awareness-raising and appropriate support. She also underlined the importance of education in building women's self-confidence and therefore overcoming challenges.

The relevance of the blockchain technology in improving business operations and access to market was further raised by **Imen Ayari, Head of Innovation Factory, Talan (Tunisia)**. She explained blockchain technology further, describing it as a secure, unmodifiable ledger where information is permanently recorded. It ensures trust and authenticity by using cryptography and decentralized validation. She emphasized that blockchain can lead to trust and efficiency in collaborations and business relationships and notes its potential to preserve authenticity and certification. She also highlighted the importance of time saved and trust established, ultimately allowing entrepreneurs, particularly women, to focus on value-adding tasks and personal growth. She pointed out however that pro-

moting disruptive technologies requires to integrate different competencies and skills.

Skilling, upskilling and re-skilling are hence at the core of a successful industry 4.0 transition. In that regard, **Zied Kilani, National Business & Investment Specialist (project in Tunisia)**, introduced the objective of **UNIDO's Industry 4.0** to foster youth employment project, which is to facilitate the adoption of Industry 4.0 technologies by Tunisian businesses, addressing their reluctance and skill gaps, including AI, IT, blockchain, and cloud computing. Education and awareness are core strategies, with training programs and e-learning courses being offered. In cooperation with educational institutions, the project has also recently launched two specialized Masters' programs on Industry 4.0: The first focused on pharmaceuticals and agro-food sectors, while the second on the textile industry. The call for applications for the programmes led to a substantial influx of applications, equally distributed between genders. Beyond education, the initiative encourages businesses to hire more women and young professionals, offering incentives for compliance and supporting female entrepreneurs due to their unique challenges.

NEILA AMARA, UNIDO
International Project
Management Expert.

While awareness-raising, skills development and appropriate support are key to facilitate transitioning to Industry 4.0, access to finance is also critical. In that regard, **Tarak Triki, Director of Investments, Smart Capital (Tunisia)**, stressed the need for substantial investments and acknowledged gender disparities in the field. While his company is committed to supporting businesses led by both men and women, including in addressing the challenges and opportunities presented by Industry 4.0., he also recognized that most Tunisian companies are managed by men despite women being well represented among the country's researchers and scientists. While only a small percentage of the enterprises currently supported by Smart Capital are women-led, the overall representation of women within all supported companies is significant, including within managerial positions. **Tarak Triki** highlighted that there is a need to promote wider access to women's entrepreneurs to the funds of the company and that providing grants to improve companies' financing readiness is being considered.

Representing the main women business association in Tunisia, **Leila Belkhiria Jaber, President of the National Chamber of Women Business Owners (CNFCE)** and the Women

in Business Network, emphasized the need to tackle specific challenges, such as limited female representation in decision-making roles, business scale, and familiarity with Industry 4.0 technologies to promote innovative female entrepreneurs in Tunisia's Industry 4.0 sector. She stressed that supporting female entrepreneurs must be tailored to different profiles, as some possess high education and digital literacy, while others operate small businesses with limited digital and research capabilities. She also highlighted the importance of sector-specific strategies, particularly for transitioning traditional industries like textiles into Industry 4.0., while at the same time pointing out the significance of information dissemination, networking, and digital skill development. Moreover, she called for adequate and collaborative financing mechanisms to ensure women entrepreneurs can seize the opportunities presented by Industry 4.0.

Connecting the dots: takeaway session from UNIDO training and UfM Brainstorming workshop

The **Connecting the dots session** represented an opportunity for some participants of the UNIDO training on Gender and Industry and of the UfM workshop's session, to present the main recommendations drawn from both activities.

Chaibia Belbzioui, Regional president of the Association of Businesswomen of Morocco (AFEM) for Northern Morocco - as selected rapporteur - presented the consolidated regional recommendations of the participants of the **UNIDO Training on Gender & Industry**, held in the margins of the Forum on the 10th and 11th of October.

Following which, **Hiba Ghiati, Founder of H KIDS (Morocco), Ines Blagui, Founder of Green Code (Tunisia), and Hadil Nour Elhouda Mahcene, Engineer Student and Industry'ELLE Finalist, (Algeria)** - selected rapporteurs - presented the recommendations of the participants of the UfM Brainstorming activity, held in the margins of the Forum on the 11th of October 2023. The interactive activity gathered 30 women entrepreneurs and focused on the needs of women in Industry 4.0 and Tech.

The recommendations highlighted included the following:

Main Recommendations from UNIDO Training and UfM Brainstorming Workshop

Recommendation #1: Policy Strategy and Development

Ensure public and private policies incorporate a gender-lens approach in Industry 4.0 support programs, specifically for women entrepreneurship. Encourage public-private partnerships and raise awareness on digital transformation and artificial intelligence.

Recommendation #2: Market Promotion and Infrastructure

Foster international and local digital markets to stimulate innovation and establish suitable digital structures and local digital markets, as well as establish supporting infrastructure for women entrepreneurs.

Recommendation #3: Education and Skill Enhancement

Improve the education sector by focusing on new technologies, science, and engineering and promote skill development among women in technology and Industry 4.0 through tech literacy programs and soft skills promotion

Recommendation #4: Financial Support and Independence

Ensure sufficient funding for initiatives related to women's empowerment and innovation and establish a specialized funding platform ("WeFund") to support women entrepreneurs in the MENA Region

Recommendation #5: Support Programs and Mentoring

Provide tailored support by establishing mentoring programs and physical incubators for women entrepreneurs.

Recommendation #6: Networking opportunities

Benchmarking and networking: Learn from successful experiences through an adapted local model and expand networking opportunities among women entrepreneurs in industry 4.0 and Tech.

Recommendation #7: Data collection and information sharing

Establish comprehensive data hubs for sharing vital information and resources.



UNIDO PWE Project Closing Session

“ In the MENA region, the lack of sex-specific data and the challenge of defining entrepreneurship have made gathering information on female entrepreneurship exceptionally complex. The data collected by the PWE project has been transformative: It has allowed us to identify women entrepreneurs, develop much-needed public policies and evaluate those that were already in place.

Gaëlle Ferrant, OECD

Since 2015 and throughout its two phases, the UfM-labelled PWE project, funded by the Government of Italy, has significantly advanced women-led businesses in strategic sectors across the seven MENA countries of Algeria, Egypt, Jordan, Lebanon, Morocco, State of Palestine, and Tunisia. It reinforced women entrepreneurship through knowledge and capacity-building, networking opportunities, awareness-raising and direct technical assistance to companies.

The project has been at the forefront of bridging the knowledge gap in women's economic inclusion data. This was accomplished, for instance, by conducting a 2016 study on women's entrepreneurship development in the target countries, where standardised national data on the subject were lacking, a 2019 large-scale study to identify gender-sensitive value chains and a 2020 survey on women entrepreneurs' access to and use of ICTs in the manufacturing sector. Following partnership with the UfM, these studies gained regional significance and played a pivotal role in nurturing the policy dialogue. Furthermore, the PWE project worked closely with Women Business Associations, which became key enablers of women's entrepreneurship development, gained recognition and increased funding from donors, leading to them expanding their membership base. Ultimately, 4,000 women gained awareness

and knowledge from the project activities, 300 women were assisted in formulating business proposals, and 4,000 B2B networking sessions were organized.

Moreover, since January 2021, in the framework of the PWE project's second phase, a pilot approach is being implemented in Tunisia with the support of the Government of the Principality of Monaco. It is aimed at strengthening the market access for women-led enterprises in natural-based cosmetics and para-pharmaceuticals. Its main activities include individualized support towards certification and improved marketing strategy, as well as entrepreneurship capacity-building.

The closing session related to the UNIDO PWE project brought together representatives from project donors of the Ministry of Foreign Affairs and International Cooperation of the Republic of Italy and the Cooperation of the Principality of Monaco, the UNIDO project team, key project partners UfM, OECD, BUSINESSMED, Bridge for Billions, Ministry of Industry, Energy and Mines (Tunisia), Chemical Technical Center (CTC) Tunisia, Femmes & Leadership (Tunisia) and Tunisian Center for Social Entrepreneurship (TCSE), as well as selected beneficiaries from the MENA Women Business Club and flagship capacity-building initiatives INDUSTRY'ELLE and IDEA.

“ I strongly believe in the project, as the rise of female entrepreneurship is a driver for economic development, with the creation and growth of businesses owned by women. Through PWE, we have successfully implemented numerous initiatives offering support, technical assistance, and increased visibility for female entrepreneurs.

Malika Karrit, Ministry of Industry, Energy and Mines, Tunisia

Panellists shared their insights on the project's holistic vision, including its UfM labelling, the donor's perspective on the evolution of its regional component and Tunisian pilot focused on the cosmetics and para-pharmaceuticals value-chain, with its approach of putting Women Business Associations at its core. For instance, Sana Ghenima, President, Femmes & Leadership (F&L) (Tunisia), highlighted the project's importance in fostering women's leadership in Tunisia through economic empowerment. She acknowledged the project's studies, such as the 2017 survey on women entrepreneurs' access to and use of ICTs in the manufacturing sector, serving as

approach and capacity of bringing together the wide array of actors active in the women's economic empowerment eco-system. She also highlighted the importance of the PWE project in closing the data gap on women's economic inclusion in the MENA region and leading the OECD to leverage the collected data, including from its 2016 study on women's entrepreneurship development and the 2020 Access to and use of ICT survey, for its own research.

Subsequently, the regional pre-incubation programme INDUSTRY'ELLE, covering Algeria, Morocco, and Tunisia, and incubation programme IDEA in Tunisia, for promising young women entrepreneurs in the field of women in industry and innovation, were presented and their 12 finalists awarded with trophies. The distinguished finalists also had the opportunity to pitch their projects to the audience.

The session was concluded by closing appeals delivered by Nesrine Abid, Director, Ministry of Industry, Energy, and Mines (Tunisia), Lassaad Ben Hassine, Representative in Tunisia, UNIDO, and Ambassador John Paul Grech, Deputy Secretary

General, Social and Civil Affairs Division, UfM, in which they universally acknowledged the importance of the Forum's thematic and praised the high-level discussions leading to valuable knowledge and good practices shared amongst regional stakeholders on women's economic inclusion in Industry 4.0.

“ I have witnessed every stage of PWE, and I've reflected upon what makes this project stand out. The region has consistently been a priority for Italian cooperation, and PWE has excelled in combining both regional and national dimensions, effectively bringing together WBAs, the private sector, and ministries from different countries, thereby creating a robust network.

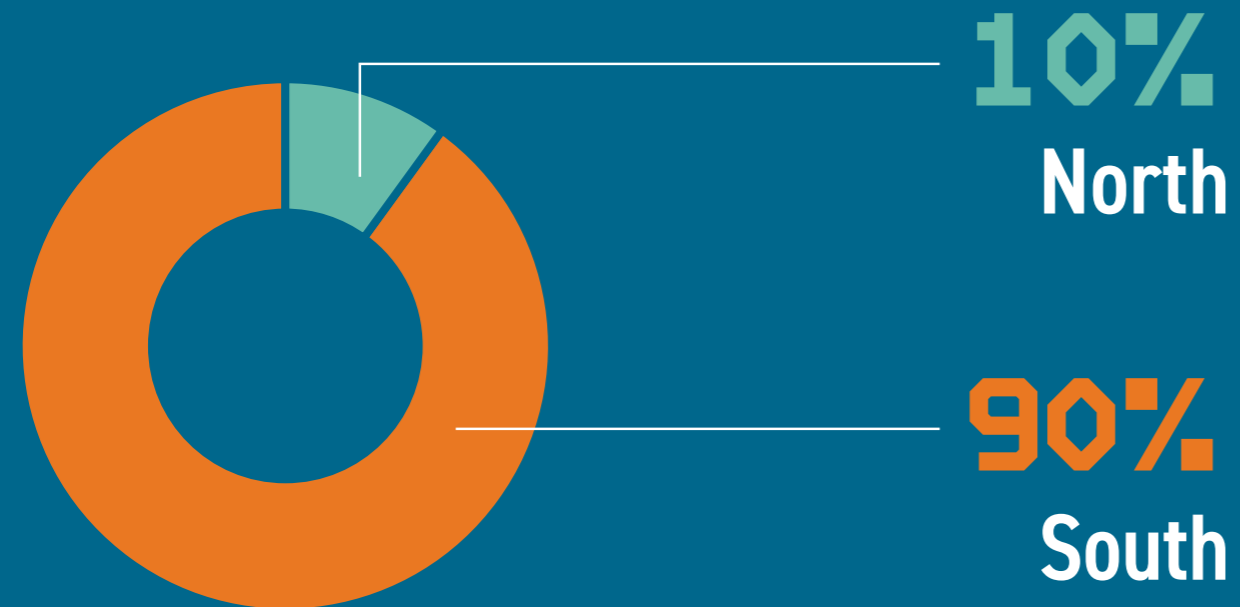
Maurizio Bonavia, Former MFA Italy

basis for shaping her association's strategies on advancing women's entrepreneurship initiatives. Anna Dorangricchia, Project Manager, Social and Civil Affairs Division, UfM, praised the PWE project's multiplier effect, citing in so doing the launch of the joint UfM-UNIDO MENA Women Business Club initiative, which led to increased mobilization of actors of the entrepreneurial eco-system, networking, mentoring and support opportunities for its members. Gaëlle Ferrant, Economist and gender specialist, Global Relations and Cooperation, Middle East and Africa, OECD, stressed the project's holistic

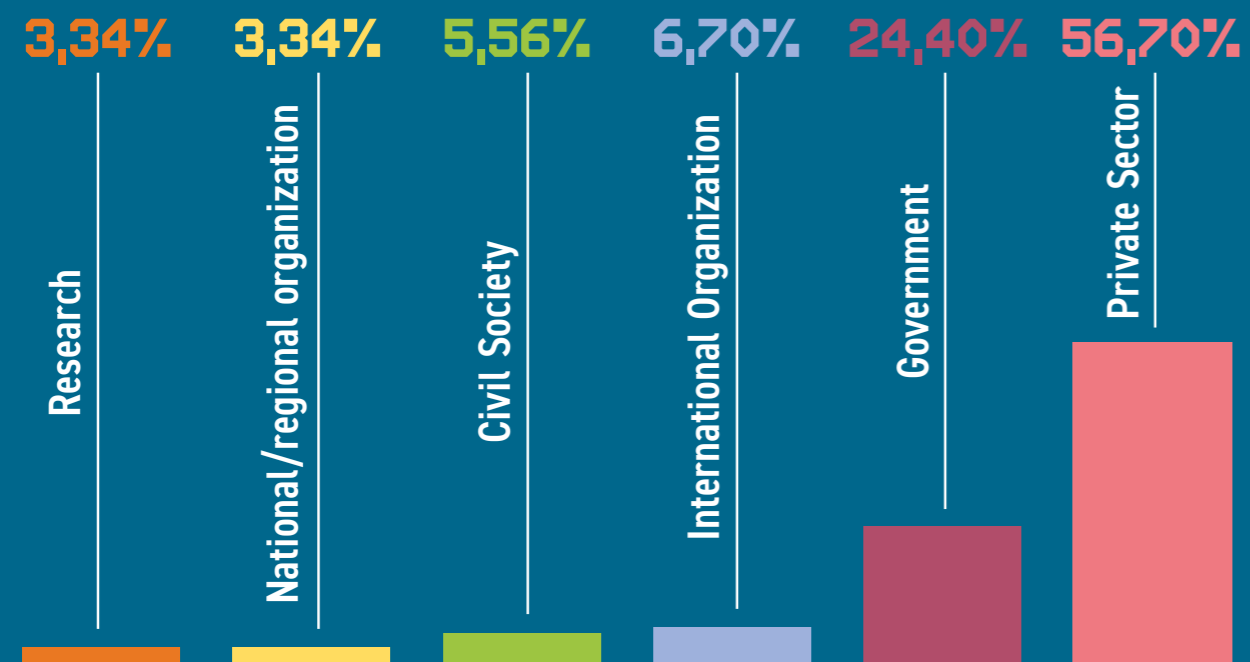
The Conference in Numbers

DATA IN-PERSON PARTICIPANTS

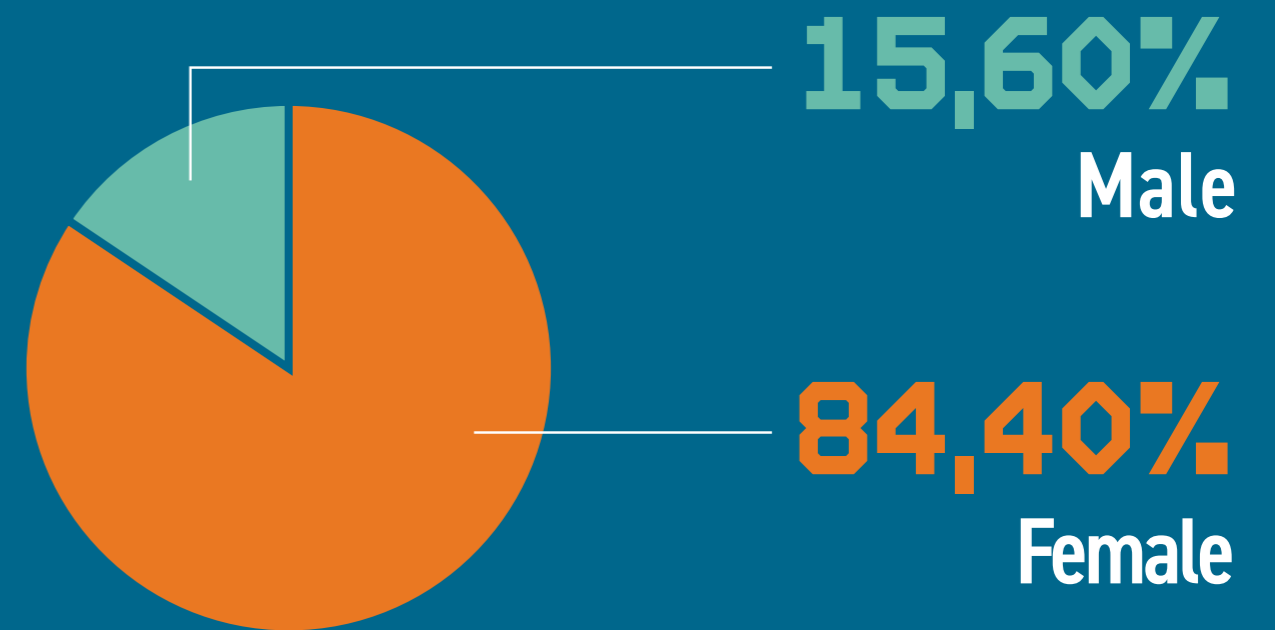
REGION – 150 in-person participants



TYPE OF INSTITUTION – In-person participants



GENDER – In-person participants



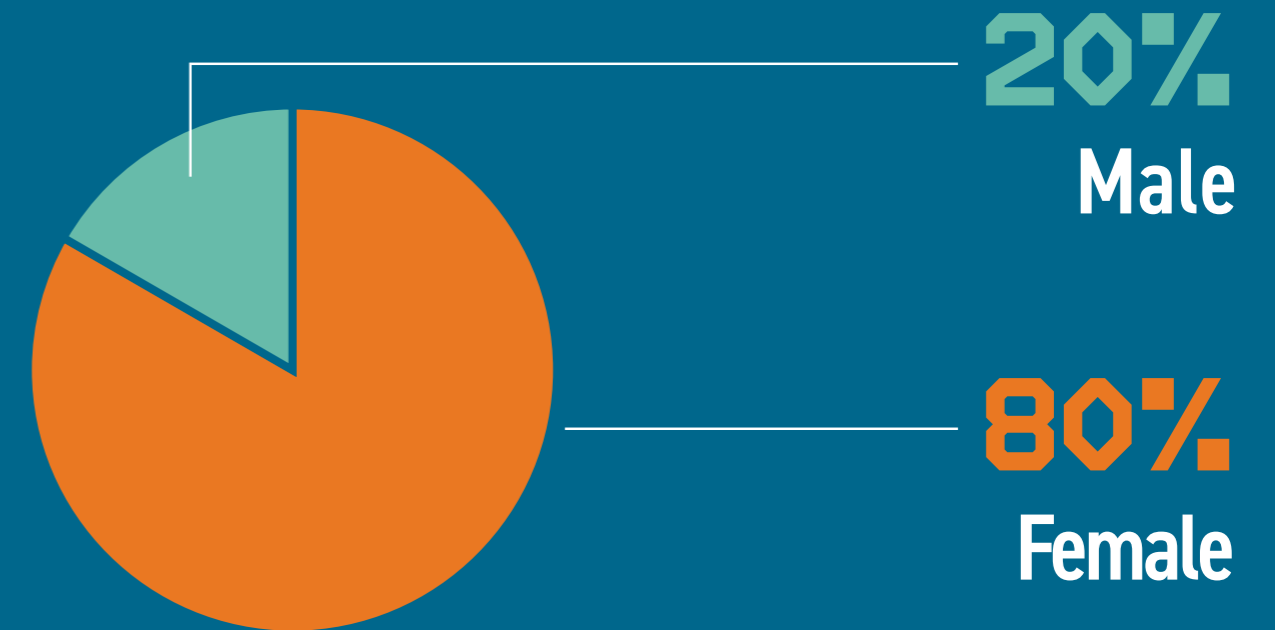
The Conference in Numbers

DATA ON-LINE PARTICIPANTS

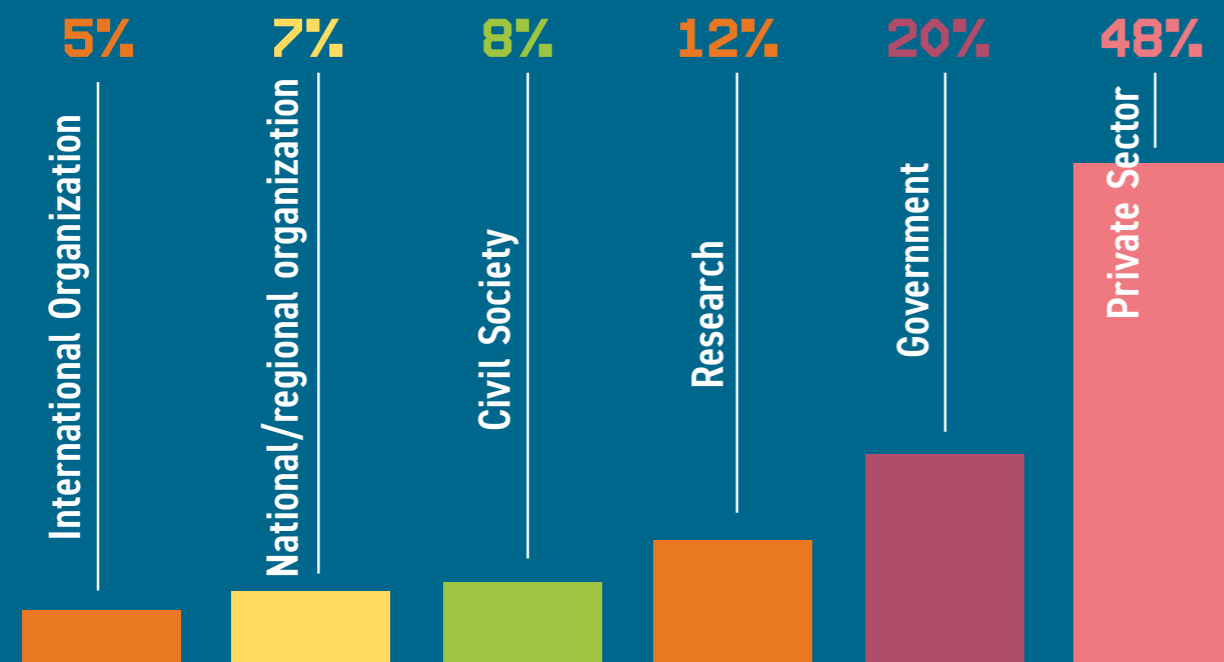
REGION – 100 on-line participants



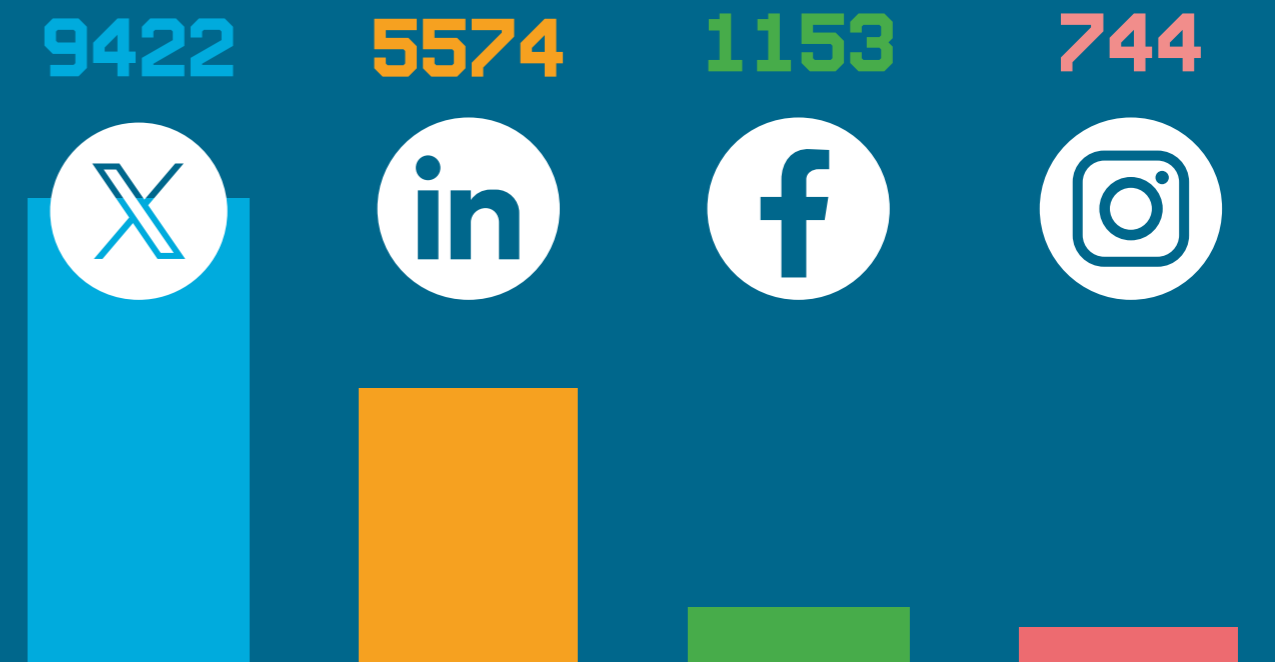
GENDER – On-line participants



TYPE OF INSTITUTION – On-line participants



SOCIAL MEDIA'S STATISTICS – Social Media's Impressions





Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

2023 UfM-UNIDO

WOMEN BUSINESS FORUM

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