A BRAZILIAN INTELLECTUAL PROPERTY OFFICE FOR THE 21ST CENTURY - GESI ASSESSMENT REPORT

An analysis of the key gender and social inclusion constraints within Intellectual Property worldwide and in Brazil, and recommendations for the Brazil IPO Programme to address them.

The report was prepared by Jessica Kempner and Sara Selleri
Reviewed by James Sparrow, Monnike Garcia and Juliana Carvalho
Approved by the Sara Selleri

Contents

Abbreviations and Acronyms

ABA	American Bar Association
ABC	Academia Brasileira de Ciências
ACATE	Santa Catarina Technology Association
Athena SWAN	Scientific Women's Academic Network
BBB	British Business Bank
BME	Black and Minority Ethnic
CESA	Centre for the Study of Law Firms
CNPq	Conselho Nacional de Desenvolvimento Científico e Tecnológico
D&I	Development & Innovation
FGV	Fundação Getulio Vargas
FWAs	Flexible Work Arrangements
GEA	Gender Equality Act
GESI	Gender, Equality and Social Inclusion
ILO	International Labour Organisation
INPI	National Institute of Industrial Property, Brazil
IP	Intellectual Property
IPO	International Property Owner
PCT	Patent Cooperation Treaty
R&D	Research & Development
SAGE	Science in Australia Gender Equity
Sebrae	Serviço Brasileiro de Apoio às Micro e Pequenas Empresas
SME	Small and Medium-sized Enterprises
STEM	Science, Technology, Engineering and Mathematics
TCEs	Traditional Cultural Expressions
TK	Traditional Knowledge
TTOs	Technology Transfer Offices
UKIPO	United Kingdom Intellectual Property Office
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
WEE	Women's Economic Empowerment
WIPO	World Intellectual Property Organisation
WIPR	World Intellectual Property Review
WIRC	Women Inventor Resource Centre
WISE	Women Into Science and Engineering

EXECUTIVE SUMMARY

01

Executive Summary

The *Brazilian Intellectual Property Office for the 21st Century* programme (hereafter 'the Programme') supports Brazil in improving the management of Intellectual Property Rights by implementing targeted interventions that will bring the country closer to international standards and practices in this sector. It will do so through a series of actions to modernise processes and increase office efficiency, leading to a reduction in the time taken to process applications, a reduced backlog and an improved IP management service.

But the programme also has a specific strategic objective to champion gender and inclusion requirements, strengthening accountability for GEA compliance, inclusive growth, and poverty reduction. The programme is expected to work in a way that embeds gender as a focus in every workstream, recognising and capitalising on opportunities to address gender inequality and supporting women's economic empowerment through programme design and monitoring. Impact generated by the programme should therefore accrue as much to women as to men, helping to address systemic gender discrimination and disadvantage.

A team of gender experts conducted this GESI assessment during the programme inception period, to inform and integrate into the overall programme strategy, intervention design, workplan and metrics. We will use this assessment as the basis from which to ensure the programme maximises opportunities for women and other marginalised groups. We have applied a gender and inclusion lens to the world of Intellectual Property, both internationally and in Brazil, analysing the main constraints that women and disadvantaged groups, and in particular Afro-Brazilians face, in terms of equal access to and participation in IP systems. From there, we developed recommendations to overcome the most critical barriers to women and other marginalised group's inclusion and advancement within IP in Brazil.

We found that there are several overarching issues that give rise to harmful consequences for women, and other marginalised groups. Some of these are systemic, related to entrenched gender(ed) dynamics and social norms that govern all women's – including women in IP's – access to economic opportunities. These include having an uneven share of caretaking, childcare and household chores, social pressures, gender roles and expectations, and widespread gender and racial inequality in social and economic life. It is important to note these broader barriers, as they have direct repercussions on the behaviour and options for women working in IP, or in fields that engage with IP systems (e.g. commercial science).

We also identified certain constraints that are specific to IP, including lack of access to and knowledge of IP systems and protections, inequitable patent and trademark application processes, gendered socialisation and biases against women in commercial science, and gender and race imbalances in INPI's organisation and processes.

Our targeted recommendations focus on achievable but transformative approaches to supporting women and other marginalised groups to participate equally in IP, and reap the rewards of IP protections to the same degree as men do. We have grouped our practical recommendations around five key areas, to which the Programme could contribute meaningful, positive impact. These are: removing systemic barriers, improving access to finance, improving access to knowledge and information, supporting women and minority networks through targeted interventions, and strengthening the evidence base.

OVERVIEW OF GESI WITHIN IP

02

Overview of IP environment from GESI perspective

Innovation stimulates the economy and creates jobs, improving overall quality of life for everyone. Intellectual Property (IP) rights recognise unique and innovative 'creations of the mind', giving inventors exclusive rights to commercialise and use their creations for a specifc period of time (Pietrobon-Costa et al., 2012). IP rights, particularly patents, are therefore intended to promote and protect innovation (Mili et al, 2016). This is based on the premise that individuals are more likely to develop and disseminate inventions if they can be sure that their hard work will bring a competitive commercial advantage. To achieve inclusive and equitable economic growth, a country's research and innovation capacities should be strengthened, expanded, consolidated and integrated, paying close attention to who (i.e. which groups) do not enjoy equal access to these, and the reasons behind this unequal access.

Various studies have highlighted patterns of unequal gender access to IP across the world[1]. Mili et al. (2016) analysed the differences between US female- and male-owned businesses in their use of intellectual property. The study looked at variances in their research and development activities, product innovations and the relationship between innovation-focused activity and business results. Their findings revealed that the benefits of intellectual property are not always equally shared by different groups, and specifically, are often less accessible to women and the Black and Latinx communities. These inequalities map onto Brazil's context, where women, Afro-Brazilians, and indigenous people do not have the same access to IP as white(r), male counterparts.

There were 8,986 patent applications filed in Brazil to the Patent Corporation Treaty (PCT) between 1978-2018, the most by a considerable margin in the region, accounting for 41.6% of all applications in Latin America during that period (WIPO, 2019). The office of Brazil also received the highest number of patent applications of all Middle-Income Countries in 2018, receiving 570: an increase of 2% on the previous year, and a significantly higher volume than the office with the next highest number of applications, which was Mexico with only 197 (Ibid). Yet although the share of PCT applications with women as inventors rose in Latin America between 2013 and 2018, from around 20% to 25%, women are still critically underrepresented compared to men across the region, and in Brazil specifically (Ibid). Just 26% of PCT applications in Brazil in 2019 had at least one woman named inventor – a figure that has stagnated around the same percentage since 2005 (WIPO Statistics Data Centre: Brazil, 2020). Equally, the overall share of women inventors in Brazil has remained at around 20% for the last decade (Ibid).

The benefits of gender equality among inventors are clear. The ILO estimates that reducing gender inequality by 25% by 2025 could add US$ 5.8 trillion to the world economy. In the Brazilian economy, this would be reflected in a 3.3% increase in GDP (or around R$382

[1] By 'access to IP', we refer to both to someone's *ability* to engage, and *actual engagement* with IP systems and process, measured through, for example, applications for filings, number of patents held, etc.

billion). According to the World Bank (2012), gender equity – where women operate with equal access to the same opportunities as men – would increase business productivity in Brazil by 25% and the country's agricultural product by 4%. In 2018, Sebrae (the Brazilian Micro and Small Business Support Service) conducted quantitative research on rates of SME trademark registration, and the main challenges small and medium businesses face throughout the registration process (Oliveira et al, 2019). Over 4,000 interviews were conducted across the country, of which 40% were women. The results suggest that the advantages of registering a brand are not yet clear to most Brazilian SMEs. With women and Afro-Brazilian business-owners having on average less access to professional networks and contacts, it is likely that these groups are disproportionately unaware of the advantages of using IP in business. The absence of clear and accessible information about the process, the requirements and the duration particularly contribute to this distancing of companies from the registry; women in particular face more challenges in getting this information and navigating complex systems, as outlined in the rest of this report.

National IP offices play a fundamental role in creating and implementing processes and actions to facilitate gender mainstreaming in national IP systems. Through facilitating access to data, taking steps to identify gender disparities and their causes, and adapting legislation to acknowledge societal constraints that prevent women and disadvantaged groups from accessing IP, national IP offices are able to bridge the gender gap and contribute significantly to advancements in gender equity in the field. Lessons from WIPO have shown not only the great potential of national IP offices, but also that there is great propensity for cooperation and interest in fostering gender equity in the field that is visible in action around the world. With initiatives ranging from introducing school-aged girls to innovation to providing support networks for women in STEM and business, national IP offices have invested increasingly in deconstructing systemic barriers against women and contributed heavily to the positive trend of gender equity in the field[2]. The Brazil IP programme represents an opportunity to take international best practice and learning and apply it at a national level, with great potential to expand access to IP in Brazil to women and other disadvantaged actors.

Main GESI Constraints in IP

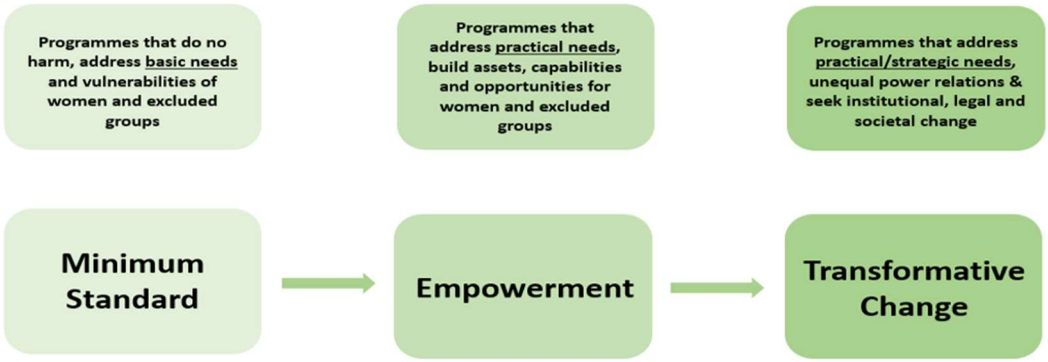
The Purpose of the GESI Assessment Report

The goal of the Gender Equality and Social Inclusion (GESI) Assessment for the FCDO Brazilian Intellectual Property Office for the 21st Century programme is to advance programmatic recommendations for interventions' design, grounded on sound analysis, to ensure the programme will contribute to reducing current inequalities – in line with the UK Gender Equality Act of 2014 and the Sustainable Development Goals – for inclusive and sustainable economic growth and poverty reduction. To ensure women, Afro-Brazilians and other disadvantaged groups are always considered and, wherever possible, specifically targeted and supported through all of the programme's interventions, it is necessary to surface, analyse and tackle the key constraints they face. This should be done firstly at the

[2] Lefeuvre, B. 2018. Women and the international patent system: encouraging trends. *WIPO Magazine* (2). [Online] Available from: https://www.wipo.int/wipo_magazine/en/2018/02/article_0008.html

societal and systems-level in Brazil, and secondly in the field of Intellectual Property, both globally and at the country-level.

All GESI Recommendations are therefore designed to ensure all of the programme's interventions are at the very least GESI Sensitive (corresponding to the "Minimum Compliance" level of the FCO G&I table), with a number of dedicated GESI Targeted measures (corresponding to the "Empowerment" and "Transformation" levels of the FCO G&I table). Most specifically, the goal of GESI Sensitive measures is to ensure that all programme interventions have a GESI angle so that they do not contribute to maintaining, or worse still, increasing current socio-economic inequalities that are embedded in their systems and cultures. Additionally, besides ensuring that ongoing discrimination is not perpetrated, GESI Targeted interventions are necessary to ensure specific actions are undertaken to actively tackle bottlenecks faced by women and disadvantaged groups to close the gap and reduce current inequalities.



Brazilian women are a primary target of the GESI Assessment. Alongside women, the key issues and constraints of various disadvantaged social groups are analysed in the Constraints sections; next to each constraint described, (W) indicates that such a constraint mostly affects women, whilst (D) for Disadvantaged indicates that it applies to various groups of disadvantaged individuals, at the intersectionality of gender, race, class, age, disability, geography, etc. The GESI Assessment also identifies that it is those individuals mostly affected by intersectionality that remain the most disadvantaged in Brazil, such as black women, poor black disabled citizens, etc.

Below is outlined a summary table of the constraints identified and described in the next section of this report:

	Identified GESI constraints in IP
1	Uneven Share of Caretaking, Childcare and Household Chores (W)
2	Social pressures, gendered roles expectations and (negative) stereotyping (W/D)
3	Widespread gender and racial inequality in social and economic life (W/D)

4	Underrepresentation in intellectual property (W/D)
5	Lack of access to and knowledge of IP protections (W/D)
6	Pay gap in IP (W/D)
7	Lack of access to finance in IP (W/D)
8	Lack of access to networks in IP (W/D)
9	Time poverty for women in STEM (W)
10	Lack of trust in leadership in IP firms around D&I initiatives (W/D)
11	Inequitable patent and trademark application process (W/D)
12	Gendered socialisation and biases against women in commercial science (W)
13	Gender and race imbalances in INPI's organisation and processes (W/D)

Methodology

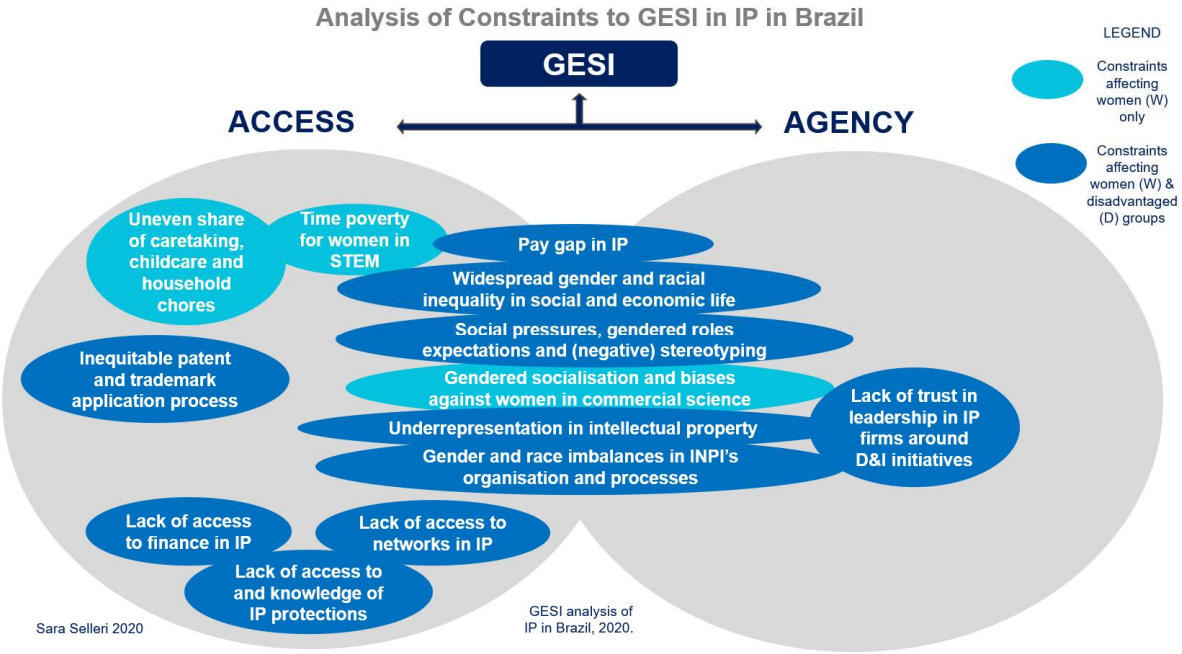
The GESI assessment was compiled through a combination of desk-based research and interviews. These were conducted by the programme's GESI advisors with a diverse group of key stakeholders covering senior positions within INPI, members of international IP bodies, and inventors themselves. Where possible qualitative data from these interviews has been triaged using available information and research into participation in IP, however, as discussed later in the report, there exists a dearth of actionable data on participation of women and underrepresented groups in IP, especially within Brazil. The annexes of this report provide both the full interviewee list, and the questions used for engagement with stakeholders.

WEE Framework Programming in Practice

The WFPP (WEE Framework Programming in Practice) is a tool of analysis whose aim is uncovering and systematising against set parameters the key constraints to Gender Equality and Women's Economic Empowerment faced by women and disadvantaged groups in a given context. The results of the research, based on primary and secondary data processing through mixed methods (including desk research, interviews, focus groups, etc.), are processed and captured by the WFPP according to *what they act as a constraint to* in the path to GESI and WEE – most specifically, constraints are analysed as limitations to *Access* and *Agency* which are their two key components.

Below is a summary graph of the WFPP capturing the specific constraints women (W) and disadvantaged groups (D) are facing in the Brazilian context. This sets the identified

constraints into an analytical framework, to better understand their effects on the lives of socially excluded groups.



GESI CONSTRAINTS ANALYSIS

03

03. GESI Constraints

1. Widespread gender and racial inequality in social and economic life

Existing constructs around gender and race represent a considerable barrier to labour market participation for women and minority groups. Labour market participation among men remains higher than among women, which places capital and assets in the hands of men and limits the capacity of women to engage in entrepreneurial activities, such as the pursuit of IP. Even as women's involvement in the workforce grows, their work is typically undervalued, without the same potential for progression, and is more likely to be in the informal sector. In Latin America, 54% of the informal labour force are female, which the ILO notes includes the most precarious and vulnerable forms of employment[3].

Brazil is the seventh most unequal country in the world in terms of income distribution (PNUD, 2019). 'The same inequality is manifest in the country's heterogeneous labour market, which is stratified by race and gender, amongst other categories' (Nogueira et al, 2020). Brazil's male to female unexplained gender wage gap at the top of the income distribution was a staggering 57% in 2017 (Mercer, 2017). The World Value Survey found that 33.5% of Brazilians agree with the affirmation "if a woman earns more than her husband, it is almost certain to cause problems" (Codazzi et al, 2018). These findings led one team of researchers to conclude that there is a clear, prevailing social norm related to gender identity in Brazil which states that a woman should not earn more than her husband (Ibid).

These pervasive inequalities in race and gender have resulted in significant disparity between men and women in the field of IP. Women lag behind men in representation in applying for and receiving IP for creative industries. Although gender disparities are more difficult to measure in these, because the IP that protects creative works (copyright and related rights) most often arise automatically and do not generally need to be registered with a central body, all signs indicate that gender parity is a long way off (WIPO, 2020). This is certainly true of Brazilian creative industries. A study was conducted that analysed the gender and ethnicity of every Brazilian feature film that was released commercially between 2002 and 2012, constituting 226 films. It found that white men directed 84% of the films, and white women 13%. Black men comprised just 2% of the directors, and there were no black women directors whatsoever (Toste and Candido, 2014). These stark disparities are all the more acute, noting that over 50% of Brazil's population of 200 million identifies as Black or Brown, and Black women make up Brazil's most populous demographic group, at 25.3% (Freelon, 2020).

When it comes to Afro-Brazilians and minorities, structural issues prevail, related to access to (quality) education, educational achievement, and progression. The number of black students remains low in Brazilian universities. This, despite a law enacted since 2012, which guarantees that 50% of enrolments per course at 59 federal universities and 38 federal institutes of education, science and technology are reserved for BME and indigenous students, or those from a low socio-economic background.[4] Additionally, those applying for patents, and in whose name the patents end up, are heads of laboratory – even if the lead inventor(s) are one or more students. Therefore, academic

[3] International Labour Office (2018). Women and Men in the Informal Economcy: A Statistical Picture. [Online] Available from: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_626831.pdf. Accessed 27th April 2021.
[4] See http://portal.mec.gov.br/cotas/perguntas-frequentes.html

achievement and the ability to reach the highest roles within labs have direct repercussions on patents and on the fact that historically disadvantaged groups remain underrepresented. Overall, the lack of specific data disaggregated by race and ethnicity in the field of IP is another challenge, as trends and detailed information are not being captured and reported on (Interviews, 2020).

Statutorily, women are no longer explicitly excluded from many professions and professional positions. However, 'they continue to be hampered by prejudicial attitudes and social structures even after new laws removed the explicit barriers to participation in those jobs' (Berk, 2011). This is certainly true of the patent system, where indicators of de facto exclusion are clear. Negative stereotypes and continuing workplace biases can create an unwelcoming environment that women and ethnic minorities are disinclined to enter or from which they may prematurely exit (Kahler, 2011). These attitudes contribute to subtle messages that permeate society, that pay credence to the idea that a woman's place is in the home and socialise individuals to support that view on some level. A recent study found that television adverts in Brazil depict women more strongly in the home/domestic setting than in the workplace (Matthes et al, 2015). Women in science and innovation have always been subjected to stereotypes – 'their inventions are "domestic" - mainly related to child, home and beauty care', slowing advancing to ''nurturing' kinds of invention for use outside the home' (Barwa and Rai, 2003). Women have only relatively recently entered a variety of areas not associated with traditional stereotypes (for example, in biotechnology, genetic engineering, etc.)Both women and men in the IP system can be socialised to believe that commercial science is a man's domain. For women, this can affect and influence their personal motivations and career preferences, leading to a view that a career in commercial science is not suitable for or available to her (Correll, 2004). The level of innovation required for a career in commercial science may deter some capable women from entering the field, given the link between innovation and risk-taking, and the entrenched socialised norms around women not taking risks (Hoisl and Mariani, 2017). Decisions around engagement with innovation may also be denied to the women themselves, as they are made by senior male colleagues without consultation. An interviewee, and member of INPI, reported an example of a female colleague working as an INPI examiner who was repeatedly denied the opportunity to go abroad on work trips because of perceived personal and family-related duties (Interviews, 2020).

As professionals, women often face other types of peer pressures, such as female leaders being repeatedly surrounded by men and feeling forced to play into the *boy's club*. This might include, for example, having to smile and accept uncomfortable and sexist jokes made by males in leadership positions, whether directed at them, or about other women colleagues. Another phenomenon they face is that their words and ideas are not fully taken into account, or to the same extent as male colleagues' views are. Interviewees cited instances where women had put forward proposals which were dismissed by leadership, and then subsequently taken up when they were advanced by male colleagues (Interviews, 2020).

Interviewees from Sebrae confirmed how their experience working with Brazilian entrepreneurs showcased that the two biggest constraints female entrepreneurs face are: 1) (self-)limiting beliefs related to girls "not being good at numbers" and societal pressures around "keeping quiet"; and 2) time poverty – reporting on statistics showing how female entrepreneurs spend 17% time less than their male counterparts because of domestic activities. Also, self-confidence and confidence in the product is seen as a fundamental requisite for inventors, and due to social factors women are more likely to lack confidence than men (Interviews, 2020).

2. Social pressures, gendered roles, expectations and negative stereotyping

In Brazil, the overwhelming burden of responsibility for childcare, care for the elderly and household chores falls on women. Employed Brazilian women spend on average 18 hours per week fulfilling domestic roles such as looking after family members – on top of paid work; this constitutes 73% more time than employed men spend on similar tasks (Arcao Costa et al, 2018: 15). The very fact of having a partner has in fact been shown to reduce the amount of time men spend on domestic tasks, while it increases for women (Ibid). This has in turn engendered an expectation in most Brazilian households is that the first and foremost job of any woman is to be a good mother and a good wife, and that she can eventually dedicate the time left to professional activities as long as they remain on the side. This has significant repercussions, from a personal and a professional standpoint for any women seeking to develop a career outside of the home.

In Brazil, maternity is the period in which most women's careers suffer, with a recent study revealing that in the years following maternity leave, almost half of women left or lost their jobs (Arcao Costa et al, 2018: 14). This is due to various factors, including:

- hostile behaviours in the workplace and being kept from career advancements by employers for the simple fact of being pregnant or a mother;
- household & family pressures towards complying with the socio-normative expectation of what a "good mother" would do – i.e. stay at home taking care of their family and not focus on her own career, while for the father/husband it is acceptable to do so;
- personal internal loss of confidence, or negative self-perceptions of being a "bad woman" or a "bad mother" for wanting to combine motherhood and having a career – mostly due to the abovementioned workplace hostility and family pressures.

These constraints also permeate STEM and R&D fields, and Women in such roles specifically have been shown to be less likely to be promoted, dropping out of their careers earlier than men to bear and raise children, and often taking part-time roles to allow them to care for their family (Ginther and Kahn, 2006). Having to look after children may also come into conflict with the demands of certain work roles, such that women might prefer jobs that offer predictable working hours, at the expense of higher wages (Hoisl and Mariani, 2017). The need to stay abreast and even ahead of trends in technological progress makes career breaks for women in inventive careers (for example, for maternity leave) more of a risk. Knowledge rapidly becomes obsolete in this sector, leading women 'to lower wages or selection into more routine tasks, rather than tasks dealing with activities at the technological frontier' (Ibid: 9).

Pervasive differences in social expectations and roles of men and women also feed into a considerable problem of Time Poverty, which engenders a statistically significant effect of being a woman on an individual's patentability, even after accounting for the substantial effects of productivity, networks, field, and employer attributes. Holding these variables constant, women life scientists patent at only 0.40 times the rate of equivalent male scientists (Ding, Murray and Stuart, 2006). Researchers found no evidence that women tend to do qualitatively different *types* of research, having less scientific impact and therefore less patentability. Instead, they found that women had far fewer contacts in industry, and therefore lack of exposure to the commercial sector. Their lack of networks had a knock-on effect on their ability or willingness to dedicate the extra time needed to gain a patent: '[h]ampered by their narrow networks and *concerned about the time it would take* to "shop" a patent

around, several female faculty were deterred from completing a patent filing. Thus, *differences in the composition of professional networks meant that the time cost of patenting was higher for many women faculty*' (Ibid: 5 – emphases added).

TABLE 1: AVERAGE WEEKLY WORK HOURS OF CHILDREN & ADULTS IN BRAZIL

	Boys	Girls	All	Male	Female	All
(1) **Primary Work**	18.4	18.3	18.4	43.6	36.0	40.4
(2) Secondary Work	0.0	0.0	0.0	0.98	0.92	0.95
(3) Other Work	0.0	0.0	0.0	0.05	0.05	0.05
(4) Job Market (1+2+3)	18.5	18.4	18.5	44.6	37.0	41.4
(5) Housework	4.1	11.3	6.4	4.9	20.2	11.4
(6) Total (4+5)	22.7	29.6	25.0	49.7	57.3	53.0

Source: constructed by the authors based on PNAD (2009) data

What is behind women's relative lack of 'spare' time? Care activities place much greater demands on women's time, whether or not they are working (Samman et al, 2016). Studies investigating time poverty in Brazil, which disaggregated results by gender and location, found that women in Brazil are the most time poor in both urban and rural areas alike (Ribiero and Marinho, 2012 - see also tables below). This is due to the relatively equal gender participation rates in the formal labour market, combined with the additional extensive amount of unpaid labour carried out by women. Brazilian women therefore have less time to devote to productive activities, which in turn leads to income poverty. In addition, men tend to over-report time spent on childcare compared to what other evidence suggests – a survey in 2009 reported that 39% of Brazilian men claim to participate in the daily care of a child, while only 10% of Brazilian women report that a man participates in the daily care of a child (Samman et al, 2016).

TABLE 2: PROPORTION OF TIME-POOR INDIVIDUALS BY AREA AND GENDER IN BRAZIL

Adults						
	63 hrs/week Time-Poverty Line			72 hrs/week Time-Poverty Line		
	Urban	Rural	All	Urban	Rural	All
Men	12.1	11.7	12.0	4.6	4.1	4.5
Women	30.7	25.8	30.1	12.9	10.6	12.6
All	20.2	17.1	19.7	8.3	6.6	8.0
Children						
	37 hrs/week Time-Poverty Line			51 hrs/week Time-Poverty Line		
Boys	14.2	9.4	11.7	3.1	2.0	2.5
Girls	30.7	17.3	25.5	11.8	3.4	8.5

All	20.4	11.4	16.1	6.3	2.3	4.4

Source: constructed by the authors based on PNAD (2009) data

Women who need to reconcile paid work with housework and caretaking, in many cases end up working in occupations with reduced work hours – impacting them negatively on their overall time poverty, experiencing a longer/double workday, and earning less/a lower income because they are giving up paid work for unpaid caretaking and housework. This contributes to limited career progression for many women, and a subsequent undervaluation of women's work (Koskinen Sandberg and Kohvakka, 2019). In Brazil, women make up 43.6% of the total labour force (World Bank, 2020b), but are clustered in sectors that are, and have historically been, undervalued and underpaid. Women are disproportionately represented in a few 'feminised' sectors, including teaching, hairdressing, nursing, where they make up around 80% of the workforce (Rodrigues, 2015).

The average level of education completed of women is considerably higher than that of men. At the two lowest skill levels, 47% of all male workers could be found against 37% of all females. At the highest (tertiary) level women had a clear advantage, with a 12% share against 7% for men (van Klaveren et al, 2009). Women, especially those living in urban areas, attend university at a higher rate than men, but nonetheless end up in sectors, jobs, and positions with lower renumeration (Rodrigues, 2015). Since human capital endowments (i.e., gender differences in education levels) are actually inverse to gender pay gap trends, we must conclude that differences in labour force participation, and notably, concentration of women in particular, low-value sectors, and men in particular, high-value sectors, are a main cause of the disparity (Codazzi et al, 2018). One study showed that social norms around women earning more than their husbands are so powerful that a higher probability of earning more than her husband directs a woman towards the informal labour market (where lower wages are expected) (Ibid).

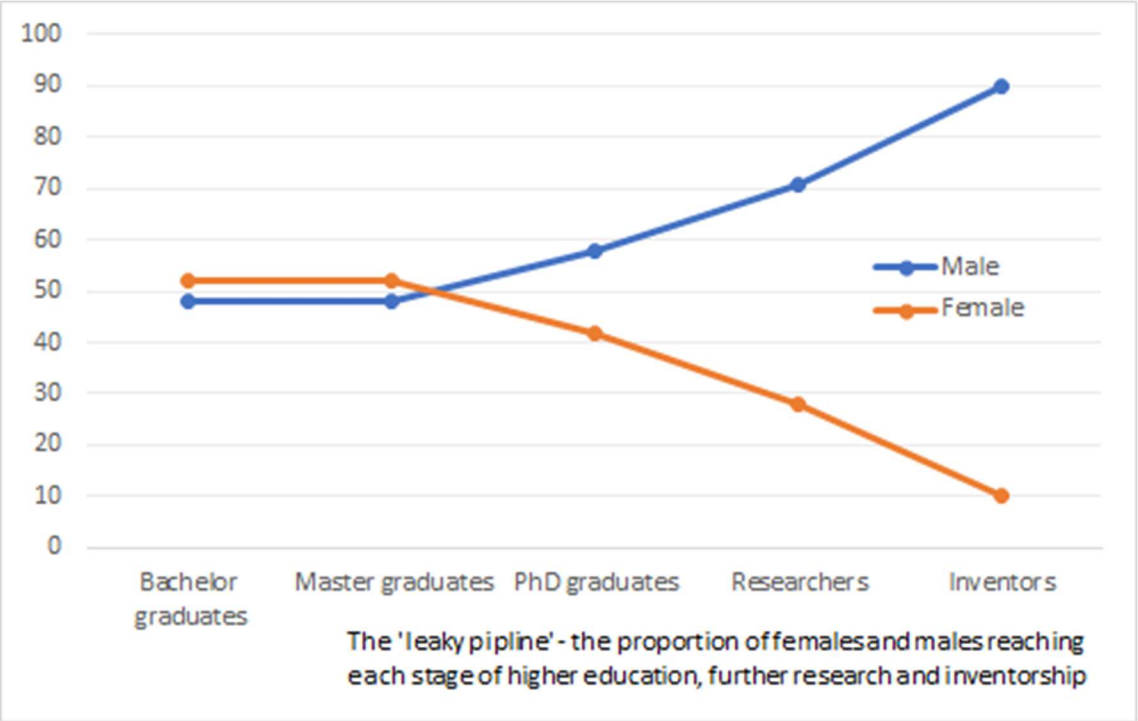
As such, by 2007, just 10% of engineers in Brazil were women, while 86% of nurses were women: in the same year, male engineers earned an average of 31 Brazilian Real an hour, whereas a female nurse earned an average of 12.76 Brazilian Real an hour (Madalozzo, 2010). The lower overall revenues of feminised sectors versus male-dominated sectors is the legacy of women's work being confined largely to the domestic sphere and seen as of little market or economic value. Societal value systems have propagated 'institutionalised undervaluation', where 'cultural gendered valuations have become part of the structures of the labour markets, collective agreements and wage determination practices' (Koskinen Sandberg and Kohvakka, 2019). This has important ramifications for gender imbalances in incomes, business growth and male dominance in high-paid positions.

3. Labour force participation of women including leadership/career progression (and intersectionality) in IP

World Intellectual Property Organization (WIPO) figures on applications filed under the Patent Cooperation Treaty (PCT), show that women have historically been and remain critically under-represented at the global level. They represented only 9.5% of the 82,000 inventors listed in PCT applications published by WIPO in 1995. By 2019, their number had risen to nearly 19% of 656,000 PCT-listed inventors, but progress has stagnated in recent years. According to the Director General of the World Intellectual Property Organisation, '[a]nything in our PCT filings that shows less than 50 percent participation by women points to potentially missed innovation opportunities' (Gurry, 2020).

The underrepresentation problem can be traced back to the low numbers of women pursuing STEM subjects at higher education. According to INEP (2017), women in Brazil represent 57% of the students enrolled in undergraduate courses, while men represent 43%. However, women are over-represented in the fields of education, social sciences and journalism, while men are over-represented in the fields of information and communication technologies (ICT) and engineering, manufacturing and construction (OECD 2019). This has an inevitable trickle-down effect on the numbers of women inventing and owning registered patents.

Trends in female inventorship differ according to technical area, with women representing approximately half of patent applications in the fields of Biotechnology, Pharmaceuticals and Organic Chemistry between 1998-2017 (UKIPO, 2019). But overall, as the level of technical expertise grows, the number of women drop, with progressively lower proportions of women reaching each step: an effect often known as the 'leaky pipeline' (Ibid). This phenomenon is aptly demonstrated by the graph below (from UKIPO, 2019: 6), which shows how the slight proportionate gain women have on men at undergraduate and master's level in STEM rapidly diminishes at Doctorate, post-Doctoral and inventor level. In short, women are dropping out of the career ladder much earlier, and in much greater numbers.



Graph taken from UKIPO, 2019: 6

When women do manage to remain in male-dominated academic careers such as Doctorates and research, they face other challenges. A female inventor who has registered more than 100 patents reported how during her doctorate and while pregnant with her first child, she was excluded from her academic colleagues' (largely young, male) group, due to the fact she was pregnant and would not "fit in". The college where she was a Fellow, for their part, did not know how to deal with a doctoral student taking maternity leave during the scholarship. She was offered no guidance whatsoever on the topic (Interviews, 2020).

As one study aptly concludes, '[w]omen are much less likely to be granted a patent than men, and are somewhat less likely to commercialise or license the patents they are granted' (Hunt et al, 2012).

Globally, women are under-represented in patent-intensive fields of study, especially electrical and mechanical engineering, and in patent-intensive job tasks, especially development and design.

But global averages such as these mask geographical variation when it comes to the gender of patent applicants. Between 2011-2015, the US – the largest user of the Patent Cooperation Treaty (PCT) System – represented 29% of all international applications with women inventors[5] (Martinez, Raffo and Santo, 2016). Brazil fared relatively well over the same period as compared to High-Income Countries such as Canada, Denmark and Finland, with around 25% of international applications having women inventors. Although Brazil compares favourably with other countries in terms of shares of PCT applications by women inventors for the academic sector, with the share being over 60%, this does not translate into PCT applications by women inventors in the business sector. Brazil has one of the largest gender disparities between academic and business PCT applications, with less than 30% having named women inventors (Ibid). The upshot of this is that women tend to focus less on the commercialisation of their inventions in comparison to men (WIPO, 2018).

Looking beyond inventorship to the wider IP world, in large UK legal firms[6], women make up 49% of total lawyers, but only 29% are partners (Morgan, 2020). BME representation at senior level is critically low, representing only 8% of partners in large UK firms. Globally, looking beyond gender to other markers of intersecting disadvantage (race, disability, LGBTQ+, socioeconomic background), inequalities are far more acute. In a recent survey by WIPR, while 96% of respondents were aware of women in senior positions in their organisations, just 50% were aware of organisation leaders from an ethnic minority, 26% knew of leaders from a lower socioeconomic background, and only 15% knew of leaders with a disability (Morgan, 2020).

An interviewee (a lawyer, and the coordinator for the Inclusion & Diversity committee) reported less than 1% of the partners in one of the largest IP law offices in Brazil being Black. She explained that Afro-Brazilians and minorities are underrepresented in C-suites due to several factors. These include systemic social barriers that prevent these groups from entering IP, such as the lack of (high quality) educational opportunities, and the requirement of being fluent in English (Interviews, 2020). Additionally, an Afro-Brazilian interviewee in a leadership position at INPI, reported that there is low mobility internally at INPI between positions. Employees will often enter the institution and carry out the same task until they leave. Not only does this act as a deterrent for creating the necessary space and environment for diversity and inclusion, but it is also a demotivating factor for young employees (Interviews, 2020).

Across the legal profession, including in IP, women and minorities are generally paid less than their white male counterparts, as well as being offered fewer opportunities to advance. Although there is a gender balance across the entire Brazilian legal profession, with approximately 52% female participation, women lawyers receive 27.4% less pay than male lawyers in Brazil (IBGE, 2018: 2).

In knowledge intensive professions such as scientific invention, human capital (i.e., skills and education) should be the sole determinant of income, rather than gender fertility traits. Yet, a study that analysed 9,692 inventors from 23 countries[7] found that women inventors earn about 14% less than their male peers (Hoisl and Mariani, 2017). The pay gap persists even when controlling for

[5] Women inventors means that there was at least one woman inventor in the team – this data does not reveal the gender ratio of the named inventor team, but based on international averages, it is reasonable to assume that there were far fewer women on the team than men (UKIPO, 2019).
[6] Large is defined by the Solicitors Regulation Authority as having 50 or more partners.
[7] This includes 20 European countries, Israel, the United States, and Japan. The study was conducted between 2009 and 2011.

sources of heterogeneity, the selection of inventors into types of jobs and tasks, and potential parenthood, and despite the fact that they contribute to the development of high-quality inventions as much as men do. In other words, when women inventors are as productive as their male counterparts, and similar to them in terms of performance, they receive less income.

Indeed, one study showed that women's relatively high drop-out rates from STEM careers is more down to dissatisfaction with pay and career opportunities, rather than working conditions and family considerations (as in some other professions) (Hunt, 2016). The result is that, beyond the selection effect where fewer women are entering STEM in the first instance (see above), those who do enter male dominated disciplines also are less likely to exploit their full potential, partly as a result of the gender pay gap (Hoisl and Mariani, 2017). One study looking at gender pay differentials among Finnish inventors found that women and men inventors receive the same immediate returns on patents (i.e., temporary increase of annual earnings), but not the same long-term returns (i.e., longer-lasting premiums in earnings after three years), and this partly explains the pay gap (Toivanen and Väänänen, 2012).

Career progression is particularly problematic for women, Afro-Brazilians, and minorities in IP. An interviewee who is now an internationally recognised leader in the field of IP and director at National Institute of Industrial Property (OMPI) reported to us that in spite of her degrees from top universities (PhD included) and relevant professional experience, she faced numerous gender barriers the closer she got to the "top". A related dynamic is that women leaders are often pressured and expected to mould into or replicate male leadership models, which tend to focus on competition, "strength", ruthlessness and power-hunger; alternative means such as empathy and sensitivity are considered "weaknesses" in such environments (Interviews, 2020).

4. Women in STEM (specific barriers for them to obtain IP)

The pervasive gender and racial inequality in Brazil's social and economic life represents a significant constraint in IP, as well as more broadly. Issues such as the underrepresentation of women, in particular Black women, in STEM are systemic and require entire systems-wide solutions. Studies have shown that women scientists suffer from an attainment gap along three key dimensions – productivity, recognition and reward (Ding, Murray and Stuart, 2006). Across the world, 'women scientists are still promoted less, win fewer grants, and are more likely to leave research than similarly qualified men' (Valentova et al, 2017). Women represent just 14% of the Brazilian Academy of Science (Academia Brasileira de Ciências—ABC). (Ibid). Although Brazil has made progress in the last decade in improving women's representation in STEM, the gender ratio among the top scientific positions is still heavily skewed against women, as shown by the unequal distribution of productivity scholarships provided by the Brazilian National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico—CNPq) (Ibid). The upshot of this is that a relatively low proportion of women work in the sort of fields that produce most technical innovation.

According to Rosa (2013), discussions about the inclusion of women in science are not a new topic in Brazilian literature. Studies have been carried out from a biological perspective, focused on identifying cognitive factors that explain gender differences in educational achievement. In terms of the effect of race on achievement in commercial science, the discussion in Brazilian science education journals is scarce or non-existent.

The Brazilian National Council for Research and Development (Conselho Nacional de Pesquisa e Desenvolvimento - CNPq) publishes a census of national scientific production biannually. Although gender is one of the categories present in the census, race and ethnicity is ignored is this analysis. This makes it hard to quantitatively analyse the presence of Black or indigenous people in Brazilian scientific production, as the total lack of data precludes an empirical basis to justify the discussion.

The labour of women, and especially women in the Global South has historically been cut off from the production and commercialisation of knowledge. This is because such production occurs in the public sphere, where women were far less present (Barwa and Rai, 2003), and because historically, developed countries have profited far more from knowledge production than developing countries. Although the situation for women has improved, it is still the case that being a woman from Brazil, and especially a non-white woman from a lower socio-economic background, reduces one's chances of getting IP protection, for the reasons outlined above.

The presence of an R&D department in a firm is an indicator of the firm's level of innovation, and accordingly, the extent to which firms use intellectual property. Male leaders of high-growth, innovative enterprises are more likely to reinvest revenues into R&D than women leaders of enterprises of a similar size. The majority of women-owned businesses in Brazil do not have formal R&D departments – just 35% do, compared to 60% of men-owned businesses (UNCTAD, 2014). The findings from SEBRAE that suggest most Brazilian SMEs are unaware of the benefits of registering their brand also indicated that SMEs and entrepreneurs have low confidence in consultants and companies specialising in supporting trademark registration (Oliveiri et al, 2019).

The same research suggested that a considerable portion of entrepreneurs perceive the costs of registering a brand to be prohibtively high, due to misinformation and lack of dialogue with SMEs, particularly those owned by women and Afro-Brazilians. Another significant obstacle related to gender, racial & ethnic background is, in fact, that the levels of poverty are particularly high among this group, which has direct repercussions in lacking the economic means to start companies or the ability to afford lengthy and expensive IP processes (Interviews, 2020).

5. Women in Business (specific barriers for them to obtain IP)

Brazil is consistently ranked by World Bank Doing Business as having one of the most challenging business enabling environments, largely because of constraints around access to capital, bureaucracy and tributes – in the latest analysis, Brazil ranks 124th of 190 (World Bank, 2020). Lack of access to finance not only impedes business growth, but innovation as well. Whereas just over 30% of women business owners in Brazil cited (lack of) access to finance as an obstacle during start-up, 63% mentioned that obtaining finance is a greater challenge today than when they first launched their businesses, posing a major obstacle to business innovation (UNCTAD, 2014).

Women business-owners' challenges in accessing finance are well documented, both in Brazil and worldwide. According to a report prepared by the British Council (2017) on social business and female entrepreneurship, 35% of women in Brazil still do not have accounts with financial institutions. Further research conducted by Sebrae (2020) found that the average loan size accessed by women entrepreneurs is around R$13,000 less than the average loan size accessed by men. Women also pay interest rates 3.5 percentage points higher than men (Ibid). The market remains restrictive to women entrepreneurs, and fewer women are accessing formal credit systems (Andrade, 2020). Instead of banks, they choose to borrow from cooperatives, family and friends.

Furthermore, the process of developing some types of IP – especially patents – can involve significant

financial commitment. With Brazil's gender pay gap at 20.5% in 2018, and the country ranked 95 out of 149 countries in terms of gender pay equality in the same year (Reuters, 2019), the high financial cost of the patent process effectively blocks or discourages many women from using it in the first place. In addition, some evidence suggests that women tend to prioritise the stability of their family income more than men. According to Olga Spasić, Senior Programme Officer at WIPO, many women "never leave a secure career in academia to undertake a venture that would put their family at risk" (WIPO, 2017). She also noted that even when women obtain a patent they are often not involved in the commercialization of their invention (Ibid).

Lack of access to support networks (both formal and informal) is an impediment to innovation for women business-owners in Brazil (Mili et al, 2016). In an UNCTAD study (2014), 30% of women-owned businesses said a lack of supportive resources was a hindrance to innovation (compared to around 15% of men-owned businesses). Low levels of targeted business support and guidance makes finding market information more challenging for women; time poverty (see point 8, below) also acts as a deterrent, as it is more challenging for working mothers to find the extra time they would need to search for information. It also means they don't find out about government policies and programmes aimed at them. At the same time, women business owners in Brazil were found to be more likely to have a role model in business, with 81.8% stating so, compared to just 50% of male business owners (UNCTAD, 2014). Other research has shown that visible representation encourages traditionally marginalised groups to pursue innovation, with women being more influenced by other women inventors than by men inventors (Bell et al, 2018). This shows the significant demand for role modelling and improving access to women's networks in Brazil, and suggests that such initiatives would be both supported by women, and useful for them.

Equally, women do not take advantage of personal networks in STEM to the same extent as men, with most turning to their organisations' technology transfer offices (TTOs) for information on how to approach the country's patent office (Mili et al, 2016). So while women depend on their organisations' TTOs for resources and education, men more often use them just to access legal support, deploying their personal connections for all other resources (Ibid). This also means that women who are not associated with an organisation have very scarce resources to explore.

Recent research has looked at innovation in the US, investigating the factors that determine an inventor and the models of innovation they adopt (Bell et al, 2018). It was shown that childhood exposure to innovation is a critical factor, which may explain why talented children in low-income families, ethnic minorities and women are significantly less likely to become inventors. The authors suggested that if women, minorities and people from low-income backgrounds invented at the same rate as white men from high-income families, there would be four times as many inventors in the United States as there are today. Public policies on improving access to science, technology and innovation for these groups have the potential to significnatly increase their inclusion.

6. Constraints in IP firms, including in Diversity and Inclusion

Significant research has shown that law is traditionally a field of work dominated by a white, male demographic (English et al, 2020), and the same is true in Brazil. Research has also found that many large law firms have disappointing diversity records, and that 'women and minorities […] are outsiders in law firms' (McGinley, 2013). In Brazil, which has more law schools than the rest of the world combined (around 1,240) women and people of colour are less likely to work as IP legal professionals (Garcia-Navarro, 2014). Research conducted by the Centre for Studies of Labour Relations and Inequalities – conducted alongside the Legal Alliance for Racial Equity and São Paulo-based global

law school FGV Direito SP – 'found that 19% of law firm employees are black, with 10% identifying as women and 9% as men. Looking at the senior levels, 11% of white employees within firms are partners, while the number of black partners stands at under 1%' (English et al, 2020).[8]

According to a study by WIPR, the proportion of IP firms surveyed internationally in 2019 with a stated D&I policy is only 65%, and this figure has not improved since the preceding year. Worse still, only 75% of those surveyed believed their senior management was committed to D&I – this, despite the fact that 97% believed D&I to be important to improving the organisation's success (Morgan, 2020). There is a lack of accountability for addressing the root causes of inequalities in IP firms, rather than simply window dressing. Training in unconscious biases or introducing affinity networks could help in this respect, but senior management should remain open and responsive to feedback, to ensure D&I issues continue to be prioritised over the long-term. In addition, the billable hours structure that legal firms use affects their ability to invest time in training and education, so it is important for IP firms to think of alternatives (flexible working, mentoring schemes etc).

A study in 2009 showed that women executives in the information technology sector were acutely aware of the wide gender gap in patenting, while their male counterparts either did not believe such a gender gap exists, or did not believe it existed within their own institutions (Rosser, 2009). The lack of awareness among male leaders has important repercussions for IP's ability to enact meaningful gender reform.

Many legal scholars have critiqued the IP system from a feminist perspective (see Burk, 2011; Rosser, 2009; Brauneis and Oliar, 2016; Ding, Murray and Stuart, 2006). They argue that although it is ostensibly neutral, certain elements of the law may embed certain structural biases against women, binding objectivity with masculinity. Feminist critiques of law have therefore looked at legal systems and institutions (for example, the patent system) and asked to what extent these 'may promote and reinforce the expected roles of masculinity and femininity—and, consequently, the degree to which [these] may promote or perpetuate social patterns of dominance and submission' (Burk, 2011). Burk argues that the concept of 'PHOSITA' (a common abbreviation in patent law for person having ordinary skill in the art, used to serve as a reference for determining whether an invention is non-obvious or not, and therefore whether it is patentable), is bound in gendered assumptions, despite purportedly providing an objective standard for patentability. He argues for a new epistemology of obviousness in patent law, 'to generate a patent system that is less hierarchical, less patriarchal, but more socially transparent' (Ibid).

It can also be difficult to achieve an equitable system from a customer-facing perspective, and IP offices are sometimes tasked with making a moral judgement on individual trademark applications – for example, use of controversial language included in the trademark. 'IP offices must now adapt to the reality that oppressed communities are inverting the abusive language that has traditionally been weaponised against them' (O'Neill, 2020). Applicants are sometimes forced to justify the choice of language in their trademarks, with the burden falling on them to prove the moral justification for using a term, which in many cases is rightfully theirs to use. Trademark examiners should be trained to contextualise language, images, and symbols, and come to an overall decision based on a holistic appraisal, rather than a rigid, pre-determined definition. In reality, this does not always happen. A case in point is a recent applicant who wanted to register the trademark 'Queers & Co' for an LGBTQ+ website in the UK. After being initially rejected on the basis that the language was offensive, the applicant had to gather 16,000 signatures as evidence to successfully register her brand. Since the system for registering trademarks relies to some extent on an individual's interpretation and

[8] These percentages were calculated using data collected from nine of Brazil's leading law firms, which are all members of the Legal Alliance for Racial Equity.

discretion[9], without an official policy towards reclaimed words, consistency is difficult to achieve.

7. INPI's current system

An UNCTAD study (2014) revealed the 96% cent of women business owners surveyed in Brazil have taken one or more actions to protect their intellectual property (e.g., registering or trademarking their brand nationally or internationally, or attending a class or training seminar on the principles of Intellectual Property protection). Yet, far fewer women business owners – just 26% in Brazil - had actually obtained patents. The study revealed that women business owners in Brazil are more likely to use innovation to make organisational or marketing improvements to their business operations, rather than investing in products or processes. This indicates the presence of barriers within INPI's internal system and customer management, which this Programme aims to examine.

It is also important to note the differential impact of the uniform patent legislation on less developed countries, with some arguing that it has increased the inequalities between North and South (Barwa and Dai, 2003). WIPO reported that in the 1990s, citizens of developed countries held 95% of African patents, 85% of Latin America and 70% of Asia (GRAIn, 1998). According to WIPO's Global Innovation Index (2019b), from a list of 129 countries, the first twenty are from the North. Brazil occupies the 66th position.

INPI's functioning more generally also represents a challenging environment for women inventors as it exacerbates some of the previously discussed situations. INPI is among the most back-catalogued IP offices in the world, and since 2017 has been operating with high levels of prioritisation, seeking to fast-track pharmaceutical and medical patents at the expense of other areas. The general trend is towards improvement of processing times, however the delay in years of processing will still have been felt by many inventors. When combined with the comparative time pressure, lack of access to networks and finance, and reduced ability to take financial risks arising from family and community obligations, this all contributes to a delay in patent processing taking a more significant toll on women inventors[10].

INPI has also elected not to join WIPO, the international body supporting national patent offices. This prevents INPI from taking part in international programmes relating to IP, sharing in learning on best practice for facing key challenges, such as backlog reduction, and exploring effective use of data and technology in their processes. As such, the Global IP report 2020 named INPI's limited participation in international IP efforts as one of its key weaknesses[11]. This affects the participation of women and minorities in IP, as INPI is also unable to join in international conferences and initiatives supporting female inventors and inventors from underrepresented groups.

8. INP's HR policy and practice

[9] Though examiners have guidelines and case law that they have to follow, as well as statute where applicable, there is inevitably a degree of subjective interpretation in any legal assessment.

[10] Gallois, K and Nunes, R. 2018. Patent Backlog in Brazil: Slow, but welcome progress. Life Sciences Intellectual property Review. [Online] Available from: https://www.lifesciencesipreview.com/contributed-article/patent-backlog-in-brazil-slow-but-welcome-progress. Accessed 28.04.2021.

[11] Global Innovation Policy Centre. 2020. Brazil. [Online] Available from: https://www.theglobalipcenter.com/wp-content/uploads/2020/01/Brazil.pdf

Although management positions are well distributed in INPI, with an equal gender balance of 50% men and 50% women, the board linked to the presidency is mostly male. The presidency has in fact never had a woman represented, and the position is appointed by the government. An INPI female director reported that she is often the only woman attending high level meetings, leading to her perception of a certain level of “exclusion” (Interviews, 2020).

The trend captured in the graph depicting the ‘leaky pipeline’ above, also has repercussions when it comes to career progressions internally at INPI. Given that positions are tendered through an institutional process where scoring is given based on degrees and salaries (academic titles can contribute to salary increases), employees who have a doctorate are more likely to be awarded higher roles and receive higher salaries (Interviews, 2020). Men overtake women in numbers at PhD level, as this often corresponds to the time in life when women marry and become pregnant. Without the proper family and societal support needed to reconcile their roles as mothers and researchers or professionals, women are often forced to drop their studies and give up their careers.

Representation of Afro-Brazilians and minorities among staff - especially in decision-making roles - is also low. More than one source anecdotally reported that they had observed this trend, but they did not have the data to prove it, because staff data disaggregated by race/ethnicity is apparently not collected at the INPI level (Interviews, 2020).

When it comes to processes, there are structural issues that have heavier repercussions on women than they do on men. Applying for a patent in Brazil involves several time-consuming or expensive steps (e.g., gathering information to understand the process, learning how to prepare a patent application, or spending a large sum to pay a patent agent). Women entrepreneurs face enormous time constraints because house chores, caretaking and childcare in Brazil are still largely considered a *woman’s job*. Consequently, the time spent by women taking care of their households and families is time female entrepreneurs do not have to navigate complex administrative processes.

This explains why long and complex processes *de facto* largely contribute to the sustained gender gap: women simply do not have the same time men have to navigate complex bureaucratic machines. Additionally, because of structural gender inequalities in relation to earnings, incomes and business growth, women are more likely to be small entrepreneurs, and for those hiring a patent agent to take care of the process on their behalf is simply not viable. Finally, it is more likely for women inventors

to be discouraged by men to register their marks because female's inventions are often downplayed

GESI RECOMMENDATIONS

04

GESI Recommendations

This part of the report aims to identify feasible recommendations for both the Programme and wider programming in the long term. The report introduces five key areas for interventions, breaking each of these down into activity areas, and identifying approaches, level of feasibility, priority, and which of the aforementioned constraints for women and minorities in IP are addressed.

A. REMOVE SYSTEMIC BARRIERS

Remove or reduce socially structured obstacles to equal participation and progression in IP, and tackle (unconscious) gender and racial/ethnic bias in IP laws and systems

Background – socially structured obstacles to equal participation and progression in IP

Entry and retention of women and people of diverse ethnic backgrounds in scientific technical fields is famously poor, despite initiatives in Brazil to make opportunities available (see Unbehaum and Gava, 2019). For example, the availability and transparency of scholarship awards, particularly at graduate level and in STEM subjects, have supported women's substantial participation. As a result of conscious efforts to increase women's presence in STEM, the country compares relatively well against other countries in terms of gender benchmarking, especially when looking at women's participation in the knowledge economy and science, technology and innovation. Nevertheless, while women constitute over half of the student body in Brazilian tertiary education overall, their representation in science, technology and engineering subjects remains lower (Huyer and Halfkin, 2013). Beyond education, the real issues lie in gender parity through career progression: women's representation in the Brazilian STEM *workforce* drops dramatically (although female enrolments have increased 17% in engineering since 2000), with women making up less than 40% of the STEM workforce (Ibid). Research group leadership also tends to be dominated by men.

Advancing in a STEM field is important from an IP perspective, because these are the fields from which patentable inventions are most likely to arise. Yet it is not simply a 'numbers game'; guiding more women towards STEM in the first instance, and then into senior research positions is insufficient in achieving gender equality in patenting rates, as numerous studies have shown. Women who are already in STEM engage with the patent system far less than men. Comparing other metrics for research significance, such as research grant awards, does not indicate a gender gap. And when women researchers do obtain patents, they appear to be as significant as those obtained by their male counterparts, so 'the gap in patenting does not appear to be attributable to the merit or significance of research results' (Burk, 2018). Some research has shown that women in STEM fields have developed social responses that deter their participation in patenting and commercialising their research (Ibid). They internalise certain responses, such as feeling less comfortable marketing themselves and their work to others. This is further exacerbated by the fact that women in commercial science have fewer connections.

Addressingsystemic barriers to women's involvement in IP should begin with the development of a **Socially Inclusive HR Policy,** which considers constraints to women's participation in the labour market. There are numerous existing models to work from, one example is the UN Women Empowerment Principles; a list of seven principles that organisations should adhere to in addressing social constraints for women and promoting equity in business. The Principles are:

- Principle 1: Establish high-level corporate leadership for gender equality
- Principle 2: Treat all women and men fairly at work – respect and support human rights and non-discrimination
- Principle 3: Ensure the health, safety and well-being of all women and men workers
- Principle 4: Promote education, training and professional development for women
- Principle 5: Implement enterprise development, supply chain and marketing practices that empower women
- Principle 6: Promote equality through community initiatives and advocacy
- Principle 7: Measure and publicly report on progress to achieve gender equality

This is a relatively straightforward step that INPI can take to become a more inclusive employer, and is based on a wealth of best-practice and lessons learned. Below are discussed some further indicative interventions that INPI can implement in support of women entrpreneurs.

Indicative interventions

1. Create support systems to encourage women, Afro-Brazilians and other minorities in STEM subjects to pursue commercial science and innovation at the highest levels

- At the earlier stages of education (pre-tertiary), it is important to continue to encourage young women to take up STEM subjects, particularly engineering where the gender gap remains the largest. This can be done through **STEM female ambassador initiatives, outreach and WISE campaigns within schools and universities.** The same applies to Afro-Brazilians and other minorities that remain underrepresented in STEM, higher education and academic careers and who can be targeted by ambassador initiatives, outreach and campaigns where positive role models and champions from the same ethnic background are featured. Similar programmes have been trialled by WIPO internationally, and could be adopted by INPI in collaboration with Brazilian schools, universities, and educational insitutions.

- At post-doctoral level, **mentorship schemes** between women at the top of their careers (for example, having already secured patents for their work), and women starting out in research and innovation within STEM could help the latter navigate the complex terrain of the IP system. The same applies to Afro-Brazilians and other minorities, who could benefit from being mentored by people from diverse ethnic background with a higher level of seniority. **Increase the participation and visibility of female inventors in INPI's initiatives** – such as the list of Great Inventors Released in 2017-2018 (that only featured one female inventor from 30 years ago). **Ensure Afro-Brazilian inventors and other minorities are featured as well**. Public-facing initiatives, such as the Great Inventors List, should be routinely reviewed for GESI-sensitivity by INPI. Where possible, collaboration with targeted women's and Afro-Brazilian entrepreneurs networks can enable this.

Best practices from around the world – attracting and retaining women into STEM

The **Athena SWAN Charter** is a UK accreditation and improvement program for higher education and research organisations that focus on gender and other forms of inequality. Established in 2005, the programme is proving successful in improving gender equality in promoting and retaining women in science. It supports women in STEM academic and professional roles, especially in terms of their representation, progression of students into academia, journey through career milestones, and ensuring a positive working environment for all staff. Athena SWAN's good practice initiative and database aims to celebrate the breadth of gender and race equality initiatives taking place across the higher education sector and to provide Advance HE members with practical ideas and encourage them to trial new initiatives adapted to their contexts.

Similarly, in Australia, the **Science in Australia Gender Equity** (SAGE) was created in 2015 to address problems related to gender equality in higher education and research sectors. While women comprise more than half of science PhD graduates and early career researchers in Australia, they represent just 17% of senior academics in Australian universities and research institutes. SAGE is an initiative of the Australian Academy of Science in partnership with the Australian Academy of Technological Sciences and Engineering. It has put together a Women in STEM Decadal Plan, whose purpose is to provide a 10-year roadmap for achieving sustained increases in women's STEM participation and retention from school through to careers.

2. INPI to facilitate or enable flexible working and provide childcare support

- **Flexible working arrangements (FWAs)** provide greater possibilities for entering the labour market, retaining full-time jobs or striking a better work—life balance because they better match working hours to private life needs. They have a particularly positive impact on working women, due to their double workday, and increased domestic and childcare responsibilities. Agile working and flexible leave can contribute to gender balance in the IP profession, according to a global survey by World Intellectual Property Review (Sandys, 2019).

- Explore **childcare public-private partnerships** with ministries, government agencies, key private sector players and MSMEs
- Promote **maternity, paternity and parental leave** that have proven to be effective incentives for sharing childcare responsibilities between both parents
- Support the design of **childcare & motherhood facilities** (i.e. lactating rooms) in loco
- Support the design of **incentives schemes for childcare support to employees who pay for childcare**, i.e. money, bonuses, vouchers, etc.
- Support **incentives for working mothers (both employees and self-employed), single mothers, single-parent households who are using public and private childcare** facilities
- Support **designing and creating nurseries and childcare facilities accessible to employees** in loco

3. Offer discounts, free courses and incentives for training and courses for women, Afro-Brazilians, and minority groups

- **Discounts and free courses to support and increase participation** of historically underrepresented groups can help making up for the systemic disadvantages and barriers such groups have faced throughout their educational and professional careers; these systemic barriers are directly connected to the lower capability of these groups in entering, investing in and participating to courses and trainings, especially when these have higher fees.
- Incentives are often a successful tool to foster higher participation in sectors and fields where systemically discriminated social groups show lower representation.

Best practice from Brazil - Projeto Incluir Direito

A programme called Projeto Incluir Direito was created by seven of the biggest law firms in São Paulo in 2016. Together, they decided to hire law students from disadvantaged backgrounds and provide them with a range of classes, from English to law firm protocol and etiquette classes, so that they would not feel intimidated when faced with a new environment. After that, the students were sent for interviews for internship positions at the same firms. The programme has had a high success rate, with most students getting an internship successfully. The programme is expected to be rolled out across other Brazilian cities as a result.

According to IBGE (2014), 53.6% of the Brazilian population is black. As per CESA (Center for the Study of Law Firms), less than 1% of all professional staff is composed of black people. The low presence of black lawyers is a reflection of the unequal access to quality formal education for this portion of the population and the history of structuring racial discrimination in Brazilian society, which makes the black population, especially women, have living conditions lower than those of the white population in relation to almost all social rights: education, health, work and housing, among others.

Affirmative action public policies have been implemented over the last decade, in order to overcome structural inequalities, value the ethnic plurality of Brazilian society. With these, as well as to align the practice and discourse regarding the incorporation of diversity in law firms, the group committed to promoting greater participation of Afro-Brazilians in the legal universe. Incluir Direito aims to contribute to the academic and soft skills training of young Black people interested in careers as lawyers, so that they participate on an equal basis in the selection processes of the law firms associated with CESA. The project also targets high school students, with initiatives aimed at self-identifying Black students who are interested in a legal career, to guide and mentor them in their professional choices. It is intended, therefore, to provide a more diverse and egalitarian professional environment.

Background – (unconscious) gender and racial/ethnic bias in IP laws and systems

Scholarship has determined that there is no such thing as neutral law. The idea of laws being gender neutral and objective has been shown to actually put women and other marginalised groups at an active and distinct disadvantage. Latent assumptions that drive decisions related to copyright, patents and trademarks are enmeshed in hegemonic norms related to masculinity, benefitting men. Law in face replicates 'existing social hierarchies, and we need to look at all bodies of law carefully, to see what power hierarchies they create and what subordination they promote, if we want to promote equality instead' (Swanson, 2015).

Indicative interventions

4. Reduce unconscious biases in the patenting process

- **Train trademark examiners to contextualise language, images, and symbols** to a greater extent than they might currently do, and come to an overall decision based on a holistic appraisal and more nuanced understanding of difference.

- **Reduce as much as possible the subjectivity of assessment measures** to lessen the impact of bias. This could for example involve adopting a formal policy around reclaimed words to make the trademark application process more equitable.
- **Conduct gender and diversity & inclusion awareness trainings to all staff,** including workforce, leadership and decision-makers.
- Develop and adopt a gender-responsive **socially inclusive policy in decision making** and **encourage mixed (gender, ethnicity, age, etc.) panels** in decision making groups
- Provide **training to patent decision making boards in unconscious biases** - raising awareness of unconscious bias, on the basis that increased awareness of a decision-maker's own biases, allows them to consider whether these are having a negative effect on their decision-making processes.

International best practices – WIPO in Latin America

WIPO understands the key role national IP offices have to play in creating the conditions for gender equality in IP systems. In recent years, it has organised several sub-regional meetings in partnership with governments in order to improve the evidence base. The first one was held in Bogotá, Colombia, in 2017. On that occasion, a set of guidelines and recommendations on the subject of gender were established:

- The need to strengthen the development and implementation of gender equality policies, and insert in them the IP subject;
- Strengthen collaboration between IP Offices and national institutions responsible for gender issues;
- Promote the use of the IP system by women and favor the development of their capacities;
- Favor the exchange of experiences at the regional level; and
- The need to incorporate the issue of gender equity in the context of the policy, management and functions of IP offices

Two other meetings were organized, one in Uruguay (2018) and Peru (2019), following a structure of debates separated by themes, like "gender and development", "policy initiatives to encourage an approach integrated for gender equality" and "intelectual property, education and gender", to point just a few. The main objectives of these meetings are to analyze the need for public policies on gender specific themes, that will allow women to participate in the innovation process, developing their entrepreneurial spirit, and how to build capacities when using the IP system. Another objective is to reflect on possible lines of action to incorporate the issue of gender equity in the context of policy, management and functions of the IP offices.

Summary Table

A. REMOVE SYSTEMIC BARRIERS **Remove or reduce socially structured obstacles to equal participation and progression in IP and tackle (unconscious) gender and racial/ethnic bias in IP laws and systems**	**Which Constraints does this recommendation address?**	**Scope for Implementation?**	**Priority?**
Create support systems to encourage women, Afro-Brazilians and other minorities in STEM subjects to pursue commercial science and innovation at the highest levels	Women in STEM (barriers to obtaining IP).	Within the scope of the Programme.	High
INPI to facilitate / enable flexible working and provide childcare support	Labour force participation of women in IP.	Beyond the scope of this Programme, yet possible with future support.	Medium
Offer discounts, free courses and incentives for training and courses for women, Afro-Brazilians and minority groups	Women in Business (Lack of access to finance).	Within the scope of the Programme.	High
Reduce unconscious biases in the patenting process	INPI's internal policy and practice.	Within the scope of the Programme	High

B. IMPROVE ACCESS TO FINANCE

Improve access to finance and parity of financial rewards

Background

Women receive less funding to pursue R&D than men. In addition, the pay gap for law firms in Brazil is 27.4%. Women are participating in the legal profession as much as men, but not rising to the ranks of partner at the same rate. This is also true in commercial IP litigation, where specific actions can be taken.

Indicative interventions

1. Establish dedicated women- and Afro-Brazilian-focused investment or loan funds to spur innovation

- Larger companies are generally more likely to protect their IP through formal registration as they have greater resources. At the same time, larger companies are also more likely to easily secure mainstream finance as they often have a critical mass of tangible assets. Smaller IP-rich firms inevitably lose out, and in Brazil, SMEs are more likely to be owned by women. They represent 55% of SME business-owners in industry, 52% in services and 51% in commerce (Teixeira 2018). This means women-owned businesses have greater difficulty securing any form of finance to invest in growth.
- Dedicated funds could enable women and Black-owned businesses to access finance to fund new technology and products. Given the current market gap, smaller, women- or black-owned IP-rich firms that a potential IP-backed loan product could have the greatest economic impact.

Best practice from the UK – Partnership between British Business Bank and the UK Intellectual Property Office

The purpose of the British Business Bank ('BBB') is to make SME finance markets work better. Issues around IP and its potential relevance for accessing finance are therefore of long-term interest to the BBB.

The British Business Bank has been pursuing IP-based growth funding through the recently launched British Patient Capital, a fund of £2.5 billion to deliver a new investment programme to invest in high-growth innovative firms that have traditionally struggled to access capital, and crowd in private investment. The aim is to increase the provision of capital in the form of equity investment, especially for IP-rich firms. BBB proposes that lenders could lower the cost of lending to IP-rich firms, stimulating demand for debt within the SME segment. The bank also sees opportunities to stimulate the supply of finance to underserved SME markets by supporting the use of intangible assets as collateral.

BBB, in coordination with the UK IPO, also managed the Aspire Fund, whose objective was to increase the number of successful women-led businesses within the UK, ensuring that those with real potential to succeed are not held back through a lack of growth

- Develop GESI-sensitive pricing models to ensure that affordability does not remain a barrier to inclusion of women and Afro-Brazilians in obtaining intellectual property. This step can be developed internally to INPI and requires less engagement with investors,

funding mechanisms and stakeholders that can delay the process. Such models have been developed internationally and, with cooperation from WIPO or sister IP offices, can be implemented based on international lessons and best practice with a short turnaround.

2. Provide training to investors on unconscious biases

- There is evidence to suggest that essential funding partners in the patenting process, such as venture capitalists and other financiers, are less likely to take seriously proposals from female innovators than from their male counterparts (Burk, 2018); the same applies for Afro-Brazilians and other minorities (Interviews, 2020).

3. Valuing contributions to work in IP firms beyond billable hours

- Billing figures don't necessarily reflect productivity or quality in themselves. If we don't look at the wider picture, other equally measurable and beneficial contributions such as support and development, business development, team building and knowledge management, can be overlooked or undervalued, and women tend to be the ones to lose out financially, since very often they are the ones who invest the most in mentoring and team building activities.

Best practices from Mexico

Countries like Mexico have taken active steps to improve support for women innovators and entrepreneurs through various initiatives. Mexico's SMEs Women's Program created by the National Entrepreneur Institute (INADEM) in collaboration with the National Institute for Women (INMUJERES) and the Victoria 147 platform established by Academy Victoria 147 in Mexico. The SMEs Women's Program provides micro, small and medium-sized enterprises led by women with access to preferential financing and business development, while the Victoria 147 platform offers training, incubation, acceleration, and networking features for women entrepreneurs and executives

4. Ensuring women have fair access to opportunities and career advancements within IP firms, including to lucrative work

5. Encourage transparency with regards to pay gap within Brazilian law firms

Summary Table

B. IMPROVE ACCESS TO FINANCE **Improve access to finance and the parity of financial rewards.**	**Which Constraints does this recommendation address?**	**Scope for Implementation?**	**Prioritisation?**
Establish dedicated women- and Afro-Brazilian-focused investment or loan funds to spur innovation.	Women in Business (Lack of access to finance).	Within the scope of the Programme.	Medium
Provide training to investors on unconscious biases.	Constraints in IP firms (D&I initiatives)	Within the scope of the Programme.	High
Valuing contributions to work in IP firms beyond billable hours.	Social pressures (gendered roles) & Women in Business	Long-term objective for programming.	Medium
Ensuring women have fair access to opportunities and career advancements within IP firms, including to lucrative work.	Labour force participation (career progression)	Beyond the scope of this Programme, yet possible with future support.	High
Encourage transparency with regards to pay gap within Brazilian law firms.	Constraints in IP firms & Women in Business	Beyond the scope of this Programme, yet possible with future support.	Medium

C. IMPROVE ACCESS TO KNOWLEDGE AND INFORMATION

Improve women's access to knowledge and information about the IP system

Background

The IP system plays a key role in cultivating the growth of innovators and innovation-driven SMEs, helping innovators to protect and commercialise their innovations. It is critical to support women innovators in Brazil to broaden their awareness and knowledge of the IP system, which can feel complicated and impenetrable, especially when an individual doesn't have access to the required connections to help them navigate it. In particular, more targeted programmes and services are needed to help women inventors receive assistance and support with respect to protecting and managing their IP, especially patent rights.

Indicative interventions

1. Establish or expand a legal support programme for women inventors to assist them with protecting their IP

- **Initiate a dedicated legal support programme**, matching women and Black inventors as well as those from minority or underprivileged backgrounds to patent agents or staff at the IP office. This would help to demystify the patent system, and help innovators understand the process of obtaining a patent.
- **Launch an online platform to provide resources for inventors and practitioners to encourage greater participation in the patent system**. It could be modelled on the **Expanding Innovation Hub** ("the Hub"), an online platform available on the USPTO website. It is part of the USPTO's effort to inspire more women, minorities, and geographically and socioeconomically diverse applicants to join the innovation economy.
- **Create online and accessible fora and guidelines** to assist those who are new to Brazil's IP system and processes in an easily comprehensible, step-by-step, digestible way. This should also incorporate accessible guidelines for disadvantaged groups who are not IT literate and do not have experience with digital processes.

2. Creating Women Inventor Resource Centres (WIRCs) for Brazil

- WIRCs are places where women can receive training and assistance with patent and other IP-related search, as well as information on IP procedures, local government initiatives for innovation, and other support in an all-women environment.
- WIRCs should be established across Brazil, and especially in under-represented regions such as the North and the Northeast. Establishment of WIRCs may be outside of INPI's power, however, the organisation has strong influence to enable and facilitate this type of activity. In conjunction with community organisations and business networks, this is a feasible intervention for INPI to support at little cost.

3. Provide targeted IP training & INPI initiatives for women, Afro-Brazilians, minorities

- **Provide training focusing at tackling the specific constraints** and issues targeted social groups are facing
- **Develop targeted modules on dissemination, information, trainings, workshops, etc. on IP, on INPI's role** and processes to targeted social groups; ensure **hard-to-reach areas** and communities largely left behind are specifically targeted – this includes **northern states**.
- Training modules could also be **sector-specific,** both targeting a) **feminised sectors** where there is higher presence of female inventors and b) **male-dominated sectors** with custom-made gender inclusive activities aimed at incentivising female presence.
- Develop targeted **incentives, discounts, fast-tracks, a limited number of free applications**, etc. to support disadvantaged inventors and increase uptake from targeted social groups.

4. Provide specialist training in technology and innovation topics to women-owned businesses in Brazil

- Research has shown that women value business education and technical assistance programmes more than men (UNCTAD, 2014). More targeted programmes and services for women-owned businesses in Brazil would enable women entrepreneurs to realise both the benefits of using the IP system, and practical ways to enable them to do so.

5. Provide pro-bono IP services to diversity-related organisations, including those supporting the LGBT community and persons with disabilities

- Strong intellectual property protections benefit the marketplace in general. Providing these services on a pro-bono basis would allow organisations and individuals to save their resources for supporting their members, instead of spending their limited funds on legal services.

Best practices from Brazil – ACATE's movement to improve women's representation in tech

The Santa Catarina Technology Association (ACATE) is one of the main representatives of innovative entrepreneurship in the state of Santa Catarina. To increase female participation in the area, the group ACATE Women was launched in early 2018. The collaborative movement is an initiative to enhance the women's presence in technology companies, which also aims to reduce inequalities, develop leadership, and empower and support new generations to choose careers in the technology sector.

The group promotes monthly meetings to entrepreneurs, market professionals and students who foster female development in innovation and technology, either by opening new companies or working in schools, so that future leaders and professionals find their way to the IT sector. Through building an environment of trust, the group promotes interaction between entrepreneurs, who exchange experiences, knowledge, ideas and establish partnerships for new businesses. Participants benefit from access to information and investment fund services.

- In enabling provision of these services, INPI should also support the establishment and maintenance of professional networks among LGBT+ people and disabled entrepreneurs. This can begin with effective surveying and data capture of existing inventors and entrepreneurs, which can be extrapolated into developing networking and mentorship schemes with the consent of participants.

Summary Table

C. IMPROVE ACCESS TO KNOWLEDGE AND INFORMATION **Improve women's access to knowledge and information about the IP system.**	**Which Constraints does this recommendation address?**	**Scope for Implementation?**	**Prioritisation?**
Establish or expand a legal support programme for women inventors in order to assist them with protecting their IP.	Women in Business & Women in STEM (Access to Networks)	Beyond the scope of this Programme, yet possible with future support.	High
Creating Women Inventor Resource Centres (WIRCs) for Brazil.	Women in Business & Women in STEM (Access to Networks, Access to knowledge)	Beyond the scope of this Programme, yet possible with future support.	Medium
Provide targeted IP training and INPI initiatives to women, Afro-Brazilians, and other minorities.	Women in Business & Women in STEM (Access to Knowledge)	Within the scope of the Programme.	High
Provide specialist training in technology and innovation topics to women-owned businesses in Brazil.	Women in Business & Women in STEM (Access to Knowledge)	Within the scope of the Programme.	High
Provide pro-bono IP services to diversity-related organisations, including those supporting the LGBT+ community and persons with disabilities.	INPI internal policy and Practice & Women in Business & Women in STEM (Access to Knowledge)	Network establishment – Within the Scope of the Programme, Pro-Bono services - Beyond the scope of this Programme, yet possible with future support.	Medium

D. SUPPORT WOMEN AND MINORITY NETWORKS & TARGETED ACTIVITIES

Actively champion women, Afro-Brazilians, and women of colour, in IP

Background

Research by the American Bar Association (ABA) identified that minorities in the USA find adequate access to mentors and fighting off preconceived biases based on race most challenging (English et al, 2020). Law firms in Brazil too have found that these challenges are applicable in their country and have been actively getting involved in law schools to champion diversity from application stage (Ibid).

According to De Nigri (2019), women scientists represent only 14% in the Brazilian Science Academy. Women in commercial science are less likely to be part of social networks that would help them gain support for commercialising their work. They are also less likely to sit on commercial science boards or advisory panels, where one might meet innovation partners.

To overcome gender differences in motivation and risk-aversion, companies should make mentoring others in the process of patenting part of performance plans and develop R&D training programs to teach women about the process of patenting. This would create a friendly climate that welcomes and encourages women to patent.

Indicative interventions

1. Liaise with WIPO, and use WIPO Initiatives as a reference to develop gender-targeted activities, including IP capacity-building programmes

- **INPI to strike a partnership with WIPO to collaborate on IP-related gender-targeted initiatives**. WIPO has developed a specific work strand that focuses on working with selected IP offices globally – so far in Latin America partnerships have been set up with the national IP offices in Chile, Colombia, Costa Rica, Uruguay and Mexico. The initiative includes capturing gender disaggregated data in relation to patents and trademarks and also by sector; supporting female leadership; in the US, Canada and Mexico they are looking into activities to get more female investors to use IP systems; in Korea they have developed an initiative to create an association for women inventors and the national IP office is designing gender-targeted trainings and international events; looking at gender-targeted incentives, awards and prizes to increase women's uptake of patenting; the possibility of developing a network on IP & Gender for Latin America
- **WIPO Academy** – look into supporting Brazilian women from indigenous populations to apply for WIPO Training and Mentoring Program for Indigenous Women Entrepreneurs – builds capacity of women from indigenous communities to make strategic and effective use of intellectual property (IP) rights, in support of projects based on traditional knowledge (TK) and traditional cultural expressions (TCEs).
- Other **reference gender-targeted activities INPI could undertake that WIPO has developed** include: WIPO's gender and diversity policy; developing gender focal points; develop a network of *Gender Champions*; apply gender lenses in events organization; a targeted initiative & mentorship programme to support women all the way into leadership

roles; purposefully insert gender-related considerations into organizational workplans; develop a pillar focusing on female users/inventors; uptake of WIPO's developed dictionary with data and statistics on women inventors;

- **INPI should also implement the IPO's Toolkit -** IPO recently established its own Gender Diversity in Innovation Toolkit, to encourage more women inventors to participate in innovation programmes. IPO Members can access special tools related to the Toolkit including: accessing WIPO data for a company on number of PCT applications with at least one female inventor named; quarterly calls with the authors of the toolkit to ask questions and share best practices, and; a discussion forum.
- Some of the benefits of the toolkit include 'helping to stem the flow of the leaky pipeline (or fill the pipeline with new inventors); helping to create an inclusive culture within the organization where the innovative ideas and contributions of female and diverse employees sought after and valued; and helping to bring greater value to organizations. (IPO, 2019)
- All the above-mentioned **initiatives should be applied to Afro-Brazilians and other minorities**, including targeted hiring, mentoring, training, career support, etc.
- **Build relationships** with sister IP offices internationally. Through this programme, and through initiatives championed by WIPO, national IP offices have demonstrated a clear support for progressing both institutional development and GESI-sensitive inclusive development. Discussions with officials in the UK's IP office have indicated that bilateral relationships and mutual support initiatives are common and welcomed, should INPI seek them out. Crucially, this is also an opportunity to share INPI's successes and contribute to the visibility of Brazilian inventors globally, including female and Afro-Brazilian entrpreneurs.

2. Create or expand women & Afro-Brazilians inventor support programmes and other networking opportunities and events

- INPI to **design targeted outreach into women/Afro-Brazilian/other minorities networks and organizations** to ensure they learn about IP, INPI's activities, the benefits of patents and copyrights, etc. Target inventors in disadvantaged communities, rural settings, remote areas. Develop specific tracks and initiatives to support their participation, including facilitated tracks, additional support, discounts, fee waivers and incentives, targeted communication plans etc. To best develop this initiative a specific budget, strategy and accountability lines should be in place.

- **Support and look for collaboration opportunities with International Trademark Association's 'Women's LeadershIP Initiative'.** The initiative fosters the development of strong leadership skills for women in the IP field and empower them to advance their careers to the next level. It involve a variety of elements, including workshops promoting the exchange of views among women on issues such as gender parity, career development, and work-life integration; and the formation of networking and educational events and targeted content to foster women's talent and professional growth.

Best practices from UK – the Women in IP Leadership Forum

Women in IP Leadership Forum is an interactive one-day forum gathers leading lawyers and IP experts to discuss IP developments across industries and jurisdictions, providing an opportunity for women in IP to network and learn from industry thought leaders.

The MIP International Women's Leadership Forum is an inclusive event, welcoming newly admitted lawyers, associates, partners, legal counsel through senior in-house counsel, women as well as men. The forum aims to support the advancement of women counsel through a one-day professional development opportunity. The day will facilitate sharing of knowledge, expertise and experience of women in leadership and senior IP roles with those seeking to progress further in their careers

- **Analyse INPI's existing systems and processes to uncover whether they are user-friendly** for women, Afro-Brazilians, minorities and socially disadvantaged groups – if not, then develop targeted strategies and action plans to develop inclusive systems and processes that are non-exclusionary by nature and that can be navigated by all users.
- **Develop specific incentives and discounts for inventions, products and patents' applications** by individuals and brands that support gender, social inclusion, increase the wellbeing of disadvantaged groups, etc.
- **Create networks of women in IP for Brazil** – modelled on UK's IP Inclusive, a network of IP professionals working to make IP more diverse and inclusive. These are critical to the development and advancement of diverse lawyers within IP. Professional networks for women in commercial science could also be created.
- Promote **events focused on increased dissemination and networking** for target groups.

3. Promote female & Afro-Brazilian role models

- **Surface and promote, through mixed comms strategies, positive & reference role models (female, Afro-Brazilians and other minorities)** who have developed successful careers as entrepreneurs, businesspeople, researchers, inventors, in STEM, etc. that can inspire young and aspiring women and Afro-Brazilians into entering such fields
- Surface and **promote alternative leadership models, such as those practiced by female leaders and other groups**, that might be focused for example on "empathy" and sensitivity" vs competitiveness and ruthlessness (most typical of male-dominated leadership models). Explore the benefits of such alternative models and promote a culture of using each one's strength to develop custom-made leadership approaches, without being pressured into adopting the traditional western- and male-dominated ones.

- **Present and promote successful practices women leaders have developed** to reconcile personal and professional lives, their ability of being *wives and mothers* while developing their careers all the way to the top, how their families and households have being brought into being supportive, etc.

4. Connect to existing networks of women and Afro-Brazilian entrepreneurs, CSOs and INGOs focusing on women and minorities

- Liaise with relevant local women organizations, CSOs and INGOs focusing on minorities and disadvantaged groups, to tap into their networks, do stakeholders' engagement to learn more about these groups and hear their perspectives, strike partnerships and agreements for initiatives around providing support to enable access to qualifications for disadvantaged inventors, etc.
- Making connections, striking partnerships and develop common activities with relevant existing networks of women and Afro-Brazilian entrepreneurs enables to develop targeted initiatives for these social groups and maximizing results in terms of outreach and ad-hoc design
- Existing networks of female entrepreneurs include Mulheres No Comex – with a focus on women in trade, Rede de Mulheres Empreendedoras, Mulheres Investidoras Anjo, etc., and existing network of Afro-Brazilians entrepreneurs include PretaHub, PretaLab – with a focus on innovation and technology, Indique uma Preta – a consultancy that links Afro-Brazilian women to the labour market, etc.
- Liaise with institutions like SEBRAE that already have in place gender-targeted and other socially inclusive initiatives targeting entrepreneurs for collaborations and shared learnings; also, explore jointly and test ready-to-deliver models to ensure they are effective for specific segments, such as women and black entrepreneurs,

Summary Table

D. SUPPORT WOMEN AND MINORITY NETWORKS AND TARGETED ACTIVITES **Actively champion women, Afro-Brazilians, people with disabilities and women of colour in IP and support their networks.**	**Which Constraints does this recommendation address?**	**Scope for Implementation?**	**Prioritisation?**
Liaise with WIPO and IPO, and use their initiative as a reference to develop gender-targeted activities, including IP capacity-building programmes.	INPI's Current System & Constraints in IP Firms (D&I Initiatives)	Within the Scope of the Programme	High
Create or expand women and Afro-Brazilians inventor support programmes and other networking opportunities and events.	Women in Business (Access to networks) & INPI's internal policy and practice (HR)	Beyond the scope of this Programme, yet possible with future support.	High
Promote female and Afro-Brazilian role models.	Labour force participation of women & Societal Pressures (gendered roles)	Within the scope of the Programme.	High
Connect to existing networks of women and Afro-Brazilian entrepreneurs CSOs and INGOs focusing on women and minorities.	Women in Business & Women in STEM (Access to Networks)	Within the scope of the Programme.	Medium

E. IMPROVE THE EVIDENCE BASE

Improve evidence base to inform more strategic gender & race equality interventions in IP

Background

There is clear evidence pointing to the gender gap in patenting, but much less is known about other areas of IP, for example, copyright, as most research efforts have focused on the patent system. Yet 'informal or anecdotal observations regarding the participation of women in the creative industries that thrive on copyright protection – publishing, movie making, music recording – suggest that females in those industries may be no better off than those in technical industries that rely on patent protection.' (Burk, 2018). Since copyright arises automatically in most cases, it does not generate a readily available body of data in the same way as patenting does (which involves a lengthy administrative application and review process). Yet, as one researcher puts it, investigating gender within IP has 'yielded results in three areas: identifying gender disparity in participation in IP systems and its causes, identifying disparity in the application of IP doctrines to subject matter that involves gender and sexuality, and revealing the gendered nature of facially gender-neutral IP doctrines' (Swanson, 2015).

Based on Swanson's helpful categorisation, research can be divided into 3 broad categories:

- Continuing to analyse gender and other disparities in IP practice, at various stages of the process, by capturing for example the gender disaggregation in applications submitted for patents and copyright and then comparing it to those being granted – disaggregated by gender.
- Analysing the application of IP doctrines to gendered and sexualized subject matter; in other words, how intellectual property laws are applied in unusual ways when the subject matter involves sex, sexuality, and/or gender.
- Analysing IP system as gendered – perpetuating gender normativity through doctrine – 'intellectual property laws themselves might inadvertently deter the creative activity of certain creators, such as women or racial minorities, and may skew new innovation away from disadvantaged communities that most desperately need its benefits.' (Burk, 2015).

Indicative interventions

1) Enrich evidence base to understand the nexus of intersectionality and barriers to participation in IP

- **Strengthen the evidence base on who patents**, looking beyond gender at other markers of identity that act as barriers, **starting with race/ethnicity at a minimum**. For example, Bell et al (2018) find that there are many "lost Einsteins" – individuals who would have had highly impactful inventions had they been exposed to innovation in childhood – especially

among women, minorities, and children from low-income families. --> further disaggregated by gender, race and ethnicity, age, economic background etc.

- **Compile comparable and disaggregated international and local Brazilian data** on the gender, ethnicity, socio-economic background of IP rights owners and creators.

2) Conduct a study to uncover the best channels to engage disadvantaged groups

- Women, Afro-Brazilians and other minorities often have specific networks, channels and selected media they use to access information and connect. **A specific study should be conducted to uncover what are the best channels**, whether on the ground or online, including social media to ensure youth engagement, that each segment uses and has access to.
- **Develop a longlist of communication channels that are effective for the outreach**, engagement, dissemination and involvement of each target group and selected segments.

3) Commission a study on gender and racial inequalities in other areas of IP beyond patenting

- **Commission in-depth research covering specific areas of expertise (e.g., copyright), in order to understand all the factors that perpetuate gender inequality in IP** and hinder the growth of women. It is necessary to strengthen the evidence base on these topics, by undertaking specific research to create a scientific basis and data to assist in the development of more effective public policies to combat inequality.
- **Recognize patents, inventions of women and minorities through awards or publications** on the website of the IP office in Brazil.

4) Improve availability and transparency of D&I data within IP firms

- **Develop technological tools to measure D&I development** (for example the inclusion of women, people of colour, LGBTQ+ employees and age differences) **within IP firms**. Tools could also be developed to help monitor the areas that best achieve D&I objectives, and attach this to a pay incentive
- **Develop software to help IP firms measure and monitor academic and mentoring programmes** that they initiate to encourage Diversity and Inclusion in the workplace. This would ensure that programmes are not simply tokenistic, but track them carefully to ensure they are supporting meaningful change.

Summary table

E. IMPROVE THE EVIDENCE BASE **Improve evidence base to inform more strategic gender and race equality interventions in IP.**	**Which Constraints does this recommendation address?**	**Scope for Implementation?**	**Prioritisation?**
Enrich evidence base to understand the nexus of intersectionality and barriers to participation in IP.	Labour force participation of women & Societal Pressures (gendered roles)	Within the Scope of this Programme	High
Conduct a study to uncover the best channels to engage disadvantaged groups.	Labour force participation of women & Women in Business & Women in STEM (Access to Networks)	Beyond the scope of this Programme, yet possible with future support.	Medium
Commission a study on gender and racial inequalities in other areas of IP beyond patenting.	Constraints in IP Firms & Women in Business & Women in STEM (Access to Networks)	Within the scope of the Programme.	High
Improve availability and transparency of D&I data within IP firms.	Constraints in IP Firms & Women in Business & Women in STEM (Access to Knowledge)	Within the scope of the Programme.	High

Operationalising GESI

05

Operationalising the GESI Assessment for the Programme

This document has discussed the constraints faced by women, Afro-Brazilians and minorities in obtaining IP, as well as identifying recommended steps to facilitate acquisition of IP by underrepresented groups. The following section outlines how the Programme will apply GESI principles in its activities in order to ensure effective and equitable programming, and mainstream gender equality and inclusion into implementation. These principles are integrated into the programme strategy, intervention design, workplan and metrics at each step, from research and benchmarking through to implementation.

Structurally the programme holds five workstreams (Quality, Process, Pricing, Information and Communications Technology, and Human Resources), besides a Benchmarking and a MREL (Monitoring, Reporting, Evaluation and Learning) element. Below is a description of how GESI will be mainstreamed across each of the programme's key components.

Benchmarking

The programme's International Benchmarking report examined the work of IP offices internationally, aiming to learn from their experience and understand how INPI might transform itself during the lifetime of the programme and beyond. This report was an important part of understanding the 'current state' of INPI, serving as a baseline against which the Programme could measure success. As part of our ongoing GESI mainstreaming activities, the GESI team reviewed the Benchmarking report, to ensure questions around gender and social inclusion had been adequately addressed and identify areas for further progress.

In putting together both the Benchmarking report and the GESI Assessment, the programme team interviewed a heterogeneous group of stakeholders within the field of IP. This direct engagement was key to validating the constraints identified in the first part of this report, as well as identifying new ones, not detected in the literature, but based on first-hand experience of the Brazilian IP system.

GESI analysis of the benchmarking also surfaced examples of policy and initiatives in international IP offices that target gender, equality, and diversity and inclusion, such as:

- the work carried out by WIPO to develop a workstream focussed on advancing gender equality in the field of IP, which has been adopted by five Latin American countries so far; the initiative includes capturing gender disaggregated data in relation to patents and trademarks and also by sector, and supporting female leadership;
- IP offices in the US, Canada and Mexico are looking into activities to get more female investors to use IP systems;
- in South Korea they have developed an initiative to create an association for women inventors and the national IP office is designing gender-targeted trainings and international events;
- WIPO has also launched WIPO Academy that features a dedicated Training and Mentoring Program for Indigenous Women Entrepreneurs, building the capacity of

women from indigenous communities to make strategic and effective use of intellectual property (IP) rights, in support of projects based on traditional knowledge (TK) and traditional cultural expressions (TCEs).

Building on these approaches identified through the International Benchmarking and the GESI Assessment, the GESI advisors on the Programme have worked with workstreams to integrate best-practice approaches to GESI issues into activities, and to identify opportunities and areas for improvement at INPI (as discussed below under workstream activities).

Monitoring, Reporting, Evaluation, and Learning

GESI is being integrated into the programme's MREL framework in order to provide the Brazil IP Programme with a coherent and consistent framework for results measurement and capturing lessons learned, which is inclusive and considerate of women and disadvantaged actors. Each workstream has developed their own Theory of Change in consultation with the programme's GESI advisors to ensure inclusive and considerate approaches to working with disadvantaged or underrepresented stakeholders are in place at all stages.

This begins with disaggregation of key data of INPI customers and internal staff, including gender identity, race and, where possible, further details including disability, income level, level of education, or location. The programme's GESI advisors will also work with workstreams and INPI stakeholders to improve availability and accessibility of data, which will likely lead to greater tailoring of MREL approaches and use of data. The benchmarking report identified that a lack of data at sub-ministerial level, including within INPI, hinders efforts at addressing many GESI concerns for INPI both as a service and as an employer; GESI Assessment interviews confirmed lack of data around race disaggregation at the leadership level as INPI internal data currently splits employees into "white" and "non-white" only, for example. Disaggregated data collection therefore represents an important opportunity for the programme to facilitate GESI-positive transformation within INPI. As such the workstreams, in collaboration with the GESI advisors, will also seek to identify new opportunities for data collection, that may support identification and address of issues such as time poverty or constraints in career progressions for certain social groups, which can also elevate the programme's G&I level of ambition beyond mainstreaming.

In integrating GESI into the MREL framework, most of the recommendations for workstreams are centred at Output level; recognising activities taken by the programme team in engaging with INPI. In most cases, the number of GESI related activities recommended to INPI has been included as the indicator. Elsewhere, indicators have been tailored to reflect the GESI-sensitisation of the activity, for example in the Processes workstream, the output focussed on user-journey mapping foregrounds inclusion of a diverse user base in development of processes. At outcome and intermediate outcome level, the logframe emphasises disaggregation in order to precisely capture the outcomes of the recommendations that INPI adopts on beneficiaries, and how this intersects with individual level characteristics. Particular attention has been paid to the beneficiaries of each outcome, and where this does not refer to an individual (as in patent acquisition), but rather an organisation (as in trademarking), alternative indicators have been developed to capture relevant data. An example is Outcome A of the overall programme Theory of Change, in which individual level data such as gender, race, age, and income quintile is replaced with organisational data; gender make up of leadership, racial make up of leadership, age of business, and turnover (indicating SME status). Overall programme indicators on equity

have also been set in the programme Value for Money Strategy. Under the Equity indicators, we will measure the number of recommendations put forward, adopted, and mainstreamed, in order to ensure compliance with FCDO regulations and highlight the value of GESI-sensitisation from a client-standpoint.

GESI has also been embedded in the development of the programme's risk register, with particular consideration given to a Minimum Standard "Do-no-harm" approach, mitigating for unintended effects of programme activities. In recognition of the differing consequences of programme risks for diverse stakeholders, all Palladium and project staff complete relevant diversity and inclusion sensitisation training in order to mitigate risks to the extent possible. Additionally, GESI "refreshers" sensitization sessions to programme teams are administered regularly during the life of the project. Risks will be monitored and updated monthly to coincide with client reporting deliverables in order to keep abreast of their tendency to grow or reduce – whilst preparing adequate responses, should things become more serious.

Workstream Activities

The programme includes five workstreams implemented through Palladium and three partner organisations:

- The *Quality, Pricing services, and Human Resources* workstreams are managed in partnership with the Fundação Getulio Vargas.
- The *Information Technology* workstream is led by Palladium and the Universidade de São Paulo.
- The *Processes* Workstream, is implemented in partnership with Procomex.

In partnership with the programme GESI Advisors, each of the workstreams has developed a three-phase approach to mainstreaming GESI issues, namely:

1) immediate steps to be taken in the first stage of implementation, moving into
2) long-term activities within the life of the programme, and
3) actions to ensure sustainability and build a legacy for the programme's GESI mainstreaming within INPI.

By developing the GESI activities with the workstreams themselves, the Programme seeks to ensure ownership and understanding of the GESI approach from the entire team, allowing GESI advisors to support in the most effectual and resource-efficient way. The idea is to offer ongoing capacity building on GESI mainstreaming and on how to operationalise it to all workstream members by carrying out tasks and developing key deliverables under the constant guidance of the GESI team, so that in time they can increase their ownership of those and establish a new *business as usual* where GESI is regularly embedded in all aspects of the programme, with decreased need of *ad hoc* GESI support.

The first step of implementation for each of the workstreams is Stakeholder Mapping, to establish who within INPI and externally has the influence, power, and willingness to affect change in relation to GESI. A goal of this exercise is to identify 'GESI Champions' within INPI, who will champion the implementation of GESI-targeted and mainstreaming measures over the project lifespan and beyond (also contributing to long-term sustainability). Furthermore, the programme is planning to conduct a baseline study of the make-up of staff at INPI in order to determine the most high-priority areas for intervention and which initiatives are most likely to gain traction internally. The programme's GESI advisors will then work with

each of the workstream teams to identify key stakeholders and map them onto a matrix that can serve as a starting point for engagement with stakeholders within INPI and externally. As the programme moves into implementation, this will be maintained and expanded upon through engagement with INPI stakeholders, so that we can establish who within the organisation has the “make or break” power over key GESI interventions, and develop targeted plans of engagement considering their motivations and influence, thus diversified and tailored for each actor and workstream. This approach will inform all activities with INPI moving forward and will serve as a foundation of many of the individual workstream activities.

The section that follows examines the outlined next steps for each workstreams in terms of GESI mainstreaming and related activities.

Quality

In the development of the action plan for the Quality workstream, the team collaborated with the Programme’s GESI advisors as well as stakeholders within INPI in order to develop a coordinated approach to mainstreaming GESI considerations.

The workstream’s GESI approach includes three main streams, which will inform future interventions and feed into GESI mainstreaming within the programme activities. These are:

1) observe and ensure diversity when indicating potential members or quality teams,
2) inclusion of GESI-related considerations for performance evaluation, and
3) integration of GESI themes in courses on Quality, training and improving teams.

The crosscutting nature of these goals necessitates collaboration with other workstreams, most crucially Human Resources.

In collaboration with the programme’s GESI advisors, the workstream will also seek to disaggregate data to the extent possible, especially around customer satisfaction, which can be stratified along lines of gender, ethnicity, and other key individual-level characteristics.

Pricing

The long-term plan of the pricing workstream is to work with INPI to develop a pricing model that is equitable and mainstreams GESI considerations.

The principal activities are to develop pricing strategies to incentivise engagement of five key target groups:

1) female entrepreneurs,
2) Afro-Brazilian- and Indigenous-owned businesses,
3) producers with geographical designation for their products within Brazil, including use of Brazilian raw materials
4) environmentally conscious businesses, and
5) businesses meeting standards set by government policy, such as investment in COVID response.

The team is working with the programme GESI advisors to develop an approach to valorising pricing plans specific to women and disadvantaged groups to INPI, alongside stakeholder mapping to identify the actors who can support such initiatives.

The pricing plan also necessitates mainstreaming GESI considerations across this technical area, as general services will need to generate a margin in order to cover the reduced cost

of pricing models for underrepresented groups. As such, the workstream also intends to promote sensitisation training among INPI staff who are responsible for pricing models and to work with INPI management to highlight the importance of a GESI-responsive pricing plan. The workstream is also scoping engagement methods for external stakeholders within the Ministry of Economy, as much of INPI's pricing policy is decided at ministerial level. This adds an additional challenge to engagement and emphasises both the importance of gaining support from within INPI itself, and of building a robust engagement strategy for GESI sensitisation within the workstream. Without doubt, gaining buy-in from INPI and external stakeholders to fund GESI-targeted pricing strategies will involve extensive trust-building over the coming months, as well as emphasising the potential long-term commercial return of inclusive pricing. In order to achieve this, the GESI advisors will work with the workstream to organise meetings with key stakeholders in INPI's pricing department during the initial implementation phase.

The programme GESI advisors have also recommended creation of including an indicator in the workstream Theory of Change on development of preferential pricing plans, in order to measure outcomes of this initiative.

Human Resources

Human Resources is the main workstream which works with INPI as an employer rather than necessarily as an institution, or customer service. As such, questions surrounding provisions to INPI staff are answered in this workstream.

The principle GESI-related activities in this workstream are focussed on:

- ✓ identifying and deconstructing barriers to achieving equal participation,
- ✓ facilitating career progression of women and disadvantaged people within INPI,
- ✓ development of initiatives and policies to combat prejudice and inequality of discriminated groups within the scope of INPI,
- ✓ sensitisation training for senior staff and decision-makers within INPI,
- ✓ analysis of retention and turnover in relation to women and underrepresented groups,
- ✓ facilitating measures to allow women to participate in spite of gendered social roles, for example support for childcare initiatives.

In the initial phase, the workstream team will look into the international benchmarking report, as well as the scope of the programme to determine where the programme can have greatest effect and which measures may address the issues most adequately.

Already outlined, are five policy approaches that are being defined in collaboration with the GESI advisors:

1) setting quotas within individual sectors of INPI in order to guarantee participation of disadvantaged groups (complemented by GESI sensitization for mindset change, so that quotas are not only seen as a *tick-box* exercise nor met with rejection - as detailed below),
2) required diversity and inclusion modules in training for staff in managerial positions,
3) inclusion of mandatory GESI sensitisation training in the development of the team and managerial team structures in order to combat subconscious biases,
4) review of levelling processes for managerial staff to review for structural racism,
5) redefinition of location requirements in order to develop more widespread and diverse internal teams.

Human Resources is a workstream that touches all areas of INPI's activities and as such, achievements in this workstream may impact success across other programme activities. In development of policy approaches, the programme GESI advisors will support in analysis and identification of international best practice and application tailored to Brazil's case.

Information Technology

The Information Technology workstream deals directly with the systems in place within INPI and integrating GESI principles depends heavily on availability and access to data. This is a key area that the workstream, in collaboration with the programme GESI advisors, seeks to address.

The first activity is to develop the programme implementation plan, which will be based around the ITIL international best-practice for Information Technology management. In the first phase, the programme GESI advisors will review the planned activities in conjunction with the workstream team and elaborate proposed GESI interventions based on the planned activities. This activity plan will be cross referenced against the Human Resources activity plan, to ensure that any areas covered by ITIL that concern HR are fully integrated into the workstream plan. Moving into the next phase, the workstream leadership will raise the plan with INPI's IT department in order to gauge their support and feasibility for implementation. The GESI advisors envisage working with both the workstream and INPI's team to identify entry points for GESI-focused interventions, as well as working to gain support and buy-in from key stakeholders.

The workstream will also analyse international best practice and build on the learnings from the International Benchmarking Report in order to develop its own approach. The Benchmarking survey asked respondents from international IP offices whether their IT department had its own policies, activities, or other initiatives relating to gender equality and social inclusion. Using the positive responses from IP offices in Canada, Denmark, South Korea, the USA, the UK, and Singapore, the workstream will seek to identify potential policy approaches to integrate GESI into the use of Information Technology within INPI. With the support of the programme GESI advisors, this can then be developed into an intervention plan, which can mainstream GESI considerations in the application of ITIL best practice across the Information Technology workstream.

Processes

The Processes workstream is working to a separate calendar as the other workstreams, meaning integration of GESI into programme activities is at an earlier stage. In April, the workstream conducted a meeting with the programme GESI advisors in order to identify areas of potential collaboration and key activities moving forward. Currently, the workstream team is undertaking analysis of the processes relating to (i) Trademark registration, (ii) Concession, (iii) Logistics, and (iv) Infrastructure management. This analysis will look at the *user experience* of INPI processes, with an added focus on identifying subconscious and overt biases against women and underrepresented groups.

In discussion with the programme's GESI advisors, the workstream team identified 3 areas for GESI-sensitive interventions which will be developed into action plans in the next phase, beginning in July 2021:

1) Adaptation of the Intellectual Property Magazine, with more simplified language and through development of more diverse user profiles in targeting the publication.

2) developing a GESI-sensitive customer journey map indicating key barriers and points of difficulty for women and disadvantaged groups,
3) review of the patent granting process through a GESI lens.

Alongside this, the workstream will work with the GESI advisors to develop a gender sensitive stakeholder map of key supporters, opponents, and influencers in affecting change within INPI's internal structure and policies.

BIBLIOGRAPHY

06

Bibliography

Andrade, A. (2020). *Mercado ainda é restritivo a mulheres que empreendem*. [Online]. Available at: https://abracem.com.br/mercado-ainda-e-restritivo-para-as-mulheres-que-empreendem/ Accessed 30th September.

Rodrigues, M. B. (2015). *Women at work in Brazil*. Education Sciences and Society, 6: 151 - 164.

Bell, A., Chetty, R., Jaravel, X., Petkova, N., Van Reened, J. (2018). *Who Becomes an Inventor in America? The Importance of Exposure to Innovation*. Academic Journal. The Quarterly Journal of Economics. Massachusstes.

Brauneis, R., and Oliar, D., (2016) *Copyright's Race, Gender and Age: A First Quantitative Look at Registrations.* GWU Law School Public Law Research Paper No. 2016-48; GWU Legal Studies Research Paper No. 2016-48.

British Council (2017). *O papel dos negócios sociais no apoio ao empoderamento feminino no Brasil*. [Online]. Available at: https://www.britishcouncil.org.br/sites/default/files/negocios-sociais-empoderamento-feminino-brasil.pdf Accessed 30th September 2020.

Burk, D., (2011). *Do Patents Have Gender?* American University Journal of Gender Social Policy and Law 19, no. 3: 881-919.

Burk, L., (2015). *Diversity Levers*. 23 *Duke Journal of Gender Law & Policy* 25-43. Available at: https://scholarship.law.duke.edu/djglp/vol23/iss1/2

Burk, D., (2018). *Bridging the gender gap in intellectual property.* WIPO Magazine, April 2018. [Online]. Available at: https://www.wipo.int/wipo_magazine/en/2018/02/article_0001.html

Codazzi, K., Pero, V., Albuquerque Sant'Anna, A., (2018). *Social norms and female labor participation in Brazil.* Review of Development Economics 22:1513–1535.

Correll, S.J. (2004). *Constraints into preferences: Gender, status, and emerging career aspirations.* Amer. Sociol. Rev. 69(1), 93–113.

De Nigri, F. (2019). *Mulheres na Ciência do Brasil: ainda invisíveis?* [Online]. Available at: https://www.ipea.gov.br/cts/pt/central-de-conteudo/artigos/artigos/177-mulheres-na-ciencia-no-brasil-ainda-invisiveis Accessed 30th September 2020. Accessed 30th September 2020.

Ding, W., W. and Murray, F., E. and Stuart, T., E., (2006). *Gender Differences in Patenting in the Academic Life Sciences.* Available at SSRN: https://ssrn.com/abstract=1260388 or http://dx.doi.org/10.2139/ssrn.1260388

Freelon, K., (2020). *Ava DuVernay's ARRAY Now Is Uplifting a New Generation of Black Brazilian Filmmakers.* Remezcla. [Online]. Available at: https://remezcla.com/features/film/array-now-afro-brazilian-filmmakers/. Accessed 7th September 2020.

Hoisl, K., & Mariani, M. (2017). *It's a Man's Job: Income and the Gender Gap in Industrial Research*. *Management Science*, *63*(3), 766-790. https://doi.org/10.1287/mnsc.2015.2357

Hunt J. (2016). *Why do Women Leave Science and Engineering?* ILR Review 69(1):199-226. doi:10.1177/0019793915594597

Hunt, J., Garant, J-P., Herman, H., and Munroe, J. (2012). *Why are women underrepresented amongst patentees?.* Research Policy. Volume 42, Issue 4: 831-843.

Ginther D. K., and Kahn S. (2006). *Does science promote women? Evidence from academia 1973-2001*. NBER Working Paper No. 12691.

Gurry, F., (2020). *The pressing need for equality*. WIPR Influential Women in IP 2020.

International Labour Office (2017). *World Employment Social Outlook – Trends for Women 2017*. Report. International Labour Office. Geneva

Kahler, A., I. (2011) *Examining Exclusion in Woman-Inventor Patenting: A Comparison of Educational Trends and Patent Data in the Era of Computer Engineer Barbie*. American University Journal of Gender Social Policy and Law 19, no. 3: 773-798.

Koskinen Sandberg, P., and Kohvakka, R., (2019). *The institutionalised undervaluation of women's work: what can we do about it?.* LSE Business Review. [Online]. Available at: https://blogs.lse.ac.uk/businessreview/2019/01/16/the-institutionalised-undervaluation-of-womens-work-what-can-we-do-about-it/. Accessed 2nd October 2020.

Lefeuvre, B. (2018) *Women and the international patent system: encouraging trends*. WIPO Magazine (2). [Online] Available from: https://www.wipo.int/wipo_magazine/en/2018/02/article_0008.html. Accessed 27th April 2021.

Madalozzo, R., (2010). *Occupational segregation and the gender wage gap in Brazil: an empirical analysis.* Economia Aplicada. vol.14 no.2. [Online]. Available at: https://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-80502010000200002

Martinez, G., Raffo, J., and Saito, K., (2016). *Identifying the gender of PCT inventors.* WIPO, Economic Research Working Paper No. 33.

Matthes, J., Prieler, M., & Adam, K. (2016). *Gender-Role Portrayals in Television Advertising Across the Globe. Sex roles*, *75*(7), 314–327. https://doi.org/10.1007/s11199-016-0617-y

Mili, J., Williams-Baron, E., Berlan, M., Xia, J., Gault, B. (2016). *Equity in Innovation: Women Inventors and Patents*. Report. Institute for Women's Policy Research. Washington, DC

Morgan, S., (2020). *Positive strides.* WIPR Influential Women in IP 2020.

OECD (2019). *Education at a Glance: Brazil*. [Online]. Available at: https://www.oecd-ilibrary.org/docserver/246ea76d-en.pdf?expires=1601501636&id=id&accname=guest&checksum=CA0CA3788803EE13AD182DF040C6FCD5 Accessed 29th September 2020.

Oliveira, J., Jesus, V., Aragão, E., Oliveira, A. (2019). *A Importância da Propriedade Intelectual para a Redução da Desigualdade de Gênero*. Academic Journal. V Encontro Nacional de Propriedade Intelectual. Forianópolis

O'Neill, R., (2020). *Reclaiming language: are IP offices behind the times?* WIPR Influential Women in IP 2020.

Pietrobon-Costa, F., Carlino, C., Fornari Junior, M., Santos, T.M.R. (2012). *Inovação e Propriedade Intelectual: Panorama dos Agentes Motores de Desenvolvimento e Inovação*. Academic Journal. Gestão e Produção. São Carlos

Reuters (2019). *Women in Brazil earn 20.5 percent less than men: statistics agency.* [Online]. Available at: https://www.reuters.com/article/us-brazil-economy-women/women-in-

brazil-earn-20-5-percent-less-than-men-statistics-agency-idUSKCN1QP1P6. Accessed 7th September 2020.

Rosa, K. (2013). *Gender, Ethnicity, and Physics Education: Understanding How Black Women Build Their Identities as Scientists*. Columbia University. New York.

Rosser, S., (2009). *The Gender Gap in Patenting: Is Technology Transfer a Feminist Issue?* NWSA Journal Vol. 21, No. 2 (Summer, 2009), pp. 65-84.

Samman, E., Presler-Marshall, E., Jones, N., Bhatkal, T., Melamed, C., Stavropoulou, M., and Wallace, J., (2016). *Women's work: Mothers, children and the global childcare crisis.* ODI Publication, March 2016. [Online]. Available at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10333.pdf. Accessed 7th September 2020.

SEBRAE. (2020). *Por que é fundamental estimular o empreendedorismo feminino?* [Online]. Available at: https://m.sebrae.com.br/sites/PortalSebrae/valorizeopequenonegocio/conteudos/por-que-e-fundamental-estimular-o-empreendedorismo-feminino,ca96df3476959610VgnVCM1000004c00210aRCRD. Accessed 30th September 2020.

Swanson, K., (2015). *Intellectual Property and Gender: Reflections on Accomplishments and Methodology.* Journal of Gender, Social Policy & the Law: Vol. 24: 1, Article 4. Available at: http://digitalcommons.wcl.american.edu/jgspl/vol24/iss1/4

Teixeira, M. (2018). *A crise econômica e as políticas de austeridade: efeitos sobre as mulheres*. In: *Economia para poucos: Impactos sociais da austeridade e alternativas para o Brasil*. São Paulo.

Toivanen, O., and Väänänen, L. (2012). *Returns to inventors*. Review of Economics and Statistics, 94(4), 1173-1190.

Toste, V., and Candido, M. R., (2014). *O Brasil das telas de cinema é um país branco.* Gemaa publication. [Online]. Available at: http://gemaa.iesp.uerj.br/infografico/infografico1/. Accessed 7th September 2020.

UKIPO (2019). *Gender profiles in worldwide patenting: An analysis of female inventorship.* 2019/09.

Unbehaum, S., and Gava, T., (2019). *Stem Education And Gender: A Contribution To Discussions In Brazil.* Cad. Pesqui. vol.49:171, São Paulo: Brazil.

UNCTAD (2014). *A Survey on Women's Entrepreneurship and Innovation*. [Online]. Available at: https://empretec.unctad.org/wp-content/uploads/2015/01/UNCTAD_DIAE_ED_2013_1.pdf. Accessed 1st September 2020.

Valentova, J. V., Otta, E., Silva, M. L., & McElligott, A. G. (2017). *Underrepresentation of women in the senior levels of Brazilian science. PeerJ*, *5*, e4000. https://doi.org/10.7717/peerj.4000

Van Klaveren, M., Tijdens, K., Hughie-Williams, M., Ramos Martin, N., (2009). *An Overview of Women's Work and Employment in Brazil.* Decisions for Life MDG3 Project Country Report No. 12.

WIPO (2017). *Boosting Women In Innovation***.** [Online]. Available at: https://www.wipo.int/women-and-ip/en/news/2017/news_0003.html. Accessed 7th September 2020.

WIPO (2018). *Project Proposal from the Delegations of Canada, Mexico and the United States of America on Increasing the Role of Women in Innovation and Entrepreneurship, Encouraging Women in Developing Countries to Use the Intellectual Property System*. CDIP/21/12. March 19, 2018.

WIPO (2019a). *Patent Cooperation Treaty: Yearly Review 2019.* World Intellectual Property Organization. Geneva: Switzerland.

WIPO (2019b). *Global Innovation Index.* [Online]. Available at: https://www.wipo.int/export/sites/www/pressroom/pt/documents/pr_2019_834.pdf Accessed 29th September 2020.

WIPO (2020). *Innovation, Creativity and the Gender Gap.* [Online]. Available at: https://www.wipo.int/ip-outreach/en/ipday/2018/innovation_creativity_gender_gap.html. Accessed 7th September 2020.

WIPO Statistics Data Centre: Brazil, (2020). *Share of applications with at least one women inventor (yearly statistics, Brazil).* [Online]. Available at: https://www3.wipo.int/ipstats/searchForm

World Bank (2012). *Relatório sobre Desenvolvimento Mundial de Igualdade de Gênero e Desenvolvimento.* Report. World Vision. Washington, DC

World Bank (2020). *Doing Business 2020 - Economy Profile: Brazil.* [Online]. Available at: https://www.doingbusiness.org/content/dam/doingBusiness/country/b/brazil/BRA.pdf. Accessed 4th September 2020.

World Bank (2020b). *Labor force, female (% of total labor force).* [Online]. Available at: https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS. Accessed 5th October 2020.

ANNEXES

06

Summary of stakeholders engaged

Date interview	Interviewee Name	Entity	Position
29/07/2020 14:00	Liane Elizabeth Caldeira Lage	INPI	Brand Director
31/07/2020 11:30 – 12:30	Wanilda R. Netto Filha	INPI	Project Management Division - DIGEP / CGPE
31/07 - 16:30 17:00	Julio Cesar C B R Moreira	INPI	Director of Administration / HR, Finance, Logistics • DIRAD
03/08/2020 - 14:30 - 15:30	Alana Menk	Pivot company	Inventor and Woman entrepreneur
03/08/2020 10:00	Elza Durham	Edurham Consultant in IP (Brands and Patents)	Woman Entreprenuer in IP, researcher, and member of ABPI (Brazilian Intellectual Property Association)
03/08/2020 16:00 - 17:00	Maria Claudia Nunes (ex-CNI) consultoria indicação geografica	Geographical Indication Consultant (Ex CNI)	Geographical Indication Consultant
04/08/2020 09:20 - 10:30	Neide Bueno	Member of Paulista Intellectual Property Association and consultant	Intellectual Property Consultant

04/08/2020 14:00 - 15:00	Gabriel Leonardos	Kasznar Leonardos Intellectual Property office and ABPI (ABPI (Brazilian Intellectual Property Association)	1st ABPI Vice-President and partner at one of the largest IP offices in Brazil, lawyer
05/08/2020 14:00 - 15:00	Luciana Miranda	Kasznar Leonardos Intellectual Property office	Coordinator of the Inclusion & Diversity Committee of one of the largest IP offices in Brazil and lawyer
05/08/2020 16:00 – 17:00	Davison Rego Menezes	INPI	Executive Manager of the PI Digital Plan Ombudsman and Monitoring Authority Implementation of the Access to Information Law - INPI
07/08/2020 - 14:00 15:00	Kennyston Lago e Renata Malheiros	Sebrae	Responsáveis pela UGE - Unidade de Gestão Estratégica e Cultura empreendedora (Programa Delas)
07/08/2020 16:00 - 17:00	Maria Eugênia Ramos Gallotti	INPI	Madrid Protocol Project Manager Chief DITEC VII Directorate of Brands, Industrial Designs and Geographical Indications – INPI
21/08/2020 09:00-10:00	Maria Beatriz	WIPO	Director / Directora Regional Bureau for Latin America and the Caribbean World Intellectual Property Organization (WIPO)

Research questions for Stakeholders' Engagement

Questões em português	English questions	Who
O INPI possue políticas exclusivas para mulheres (horas flexiveis por exemplo)? Se sim, quais são?	Does the INPI have exclusive policies for women (flexible hours for example)? If so, what are they?	INPI staff
As mulheres e pessoas negras possuem progressão de carreira dentro da entidade?	Do black women and people have career progression within the organization?	RH, Black People, INPI Women, president
Qual o percentual de patentes e outros processos de Propriedade Intelectual que são registradas por mulheres, homens, mistas (homens e mulheres) e porquê?	What percentage of patents and other Intellectual Property processes are registered by women, men, mixed (men and women) and why?	INPI staff
Qual o % de homens, mulheres e negros que ocupam cargos no INPI?	What % of men, women and blacks occupy positions at INPI?	RH, president
Como o INPI pode promover maior participação das mulheres na Propriedade Intelectual?	How can the INPI promote more participation of women in Intellectual Property?	INPI staff, external interviews
Quais são as principais barreiras ou problemas que impedem que as pessoas realizam mais pedidos relacionadas à Propriedade Intectual (registro de marcas, patentes, software, etc..	What are the main barriers or problems that prevent people from making more requests related to Intellectual Property (registration of trademarks, patents, software, etc ...	INPI staff, external interviews
Quais são as principais barreiras ou problemas que impedem que mais mulheres participem dos processos de Prorpiedade Intelectual?	What are the main barriers or problems that prevent more women from participating in Intellectual Property processes?	INPI staff, external interviews
Quais foram os fatores que o/a levaram para uma posição de liderança? Quais os principais desafios?	What were the factors that led you to a leadership position? What are the main challenges?	INPI leaders
Tem alguma história da sucesso que gostaria de compartilhar?	Do you have any success stories you would like to share?	external interviews
tem alguma história de fracasso que gostaria de compartilhar?	Do you have a history of failure that you would like to share?	external interviews

Qual tipo de registro de Propriedade Intelectual (marca, patente, software, etc..) vou realizou ?	What type of Intellectual Property registration (trademark, patent, software, etc.) will I perform?	external interviews
Quais as principais dificuldades que teve no registro ?	What were the main difficulties you had in registering?	external interviews
Qual posição ocupa na empresa (CEO/Presidente, diretoria/gestão, administrativo)	What is your position in company (CEO/Presidente, manager, administration)	all
Qual segmento sua empresa atua?	What segment does your company operate in?	external interviews
Qual o tamanho da sua emoresa (Micro, pequena, média ou grande)?	what is the size of the your company (Micro, small, medium or large)?	external interviews
Qual atuação sua empresa exerce no pedido de registro de Propriedade Intelectual (Proprietário da empresa, escritório de advocacia, faculdade)	What role does your company do in the application for registration of Intellectual Property (Business owner, law firm, college)	external interviews
Qual cor você se autodeclara (Pardo, negro, branco, amarelo, outros)	What color do you declare yourself (Black, white, brown, other)	all