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# Guiding Urban Inclusivity: opening the public space in cities for women

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**Abstract**—This position paper identifies challenges that can be addressed through data-driven analytics to design inclusive urban spaces that meet women’s security and well-being expectations. To this end, it proposes a decision-making support platform that enables urban planners to identify quantitative and qualitative variables that influence quality of life (QoL) and understand how much each variable contributes to perceptions of well-being.

**Index Terms**—Data science, data exploration, inclusive urban spaces design, diversity, equity, inclusion.

## I. INTRODUCTION

The interaction between sustainability and equitable spatial development from a gender perspective, especially in mobility issues, has largely been overlooked and underestimated in research and policy formulation at various levels. This highlights the urgency of focusing more on these areas to foster inclusive and sustainable urban environments. The gender gap brings about the assignment of traditional roles and the normalization of specific behaviours, routines, and patterns for each gender, accompanied by differing preferences among people of different gender identities, in particular those with “feminine” attributes. Urban planning is challenged to merge infrastructure implementation with sustainability and inclusive mobility.

The gender perspective can impact numerous social aspects and shape how people relate to their environment. Issues such as personal safety and sexual harassment are deeply rooted in gender and disproportionately affect the daily mobility of people with “feminine” attributes. These issues can significantly influence women’s daily lives and mobility, underscoring the importance of addressing them more seriously. Ideally, urban planning would consider how people use and move through public and private spaces, including academic and work environments. Transportation, as a link between these spaces, should also respond to the needs and expectations of users. Strategies such as “pink” transport services, campaigns to “report harassment in public spaces,” or the “design of safe spaces with lighting and cameras for women” are attempts to address the issue of harassment but do not offer definitive solutions. The central question is how and to what extent technological solutions can consider women’s needs to promote more inclusive access to transportation.

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This position paper identifies challenges that can be addressed through data-driven analytics to design inclusive urban spaces that meet women’s security and well-being expectations. To this end, it proposes a decision-making support platform that enables urban planners to identify both quantitative and qualitative variables that influence the quality of life (QoL) <sup>1</sup> and to understand the extent to which each variable contributes to perceptions of well-being.

The platform is based on a multiperspective QoL index [1], calculated by combining sensory (perceptual) data with quantitative metrics weighted according to user-defined preferences. This approach allows the platform to adjust the significance of various factors, capturing different QoL dimensions:

- Economic: QoL is driven by income levels and investment opportunities.
- Psychological: QoL influenced by perceived safety, environmental health, noise levels, etc.
- Inclusiveness: QoL is based on lighting, security, urban service quality, accessibility, green spaces, and leisure opportunities.

To facilitate an interactive decision-making process, the platform incorporates the concept of QoL elasticity, allowing policymakers to simulate the impact of adjusting the weight of different QoL variables. This functionality enables decision-makers to dynamically model public policies, assessing specific variables’ influence on QoL outcomes. Thresholds can be established to map particular QoL values to well-being perceptions across diverse demographic groups, offering targeted insights for policy interventions and ensuring more inclusive urban planning.

Accordingly, the remainder of the paper is organised as follows. Section II describes studies and analysis about QoL evaluation metrics and gender-based approaches for designing urban spaces. Section III enumerates and discusses the main challenges in metering well-being in urban spaces for providing and calibrating public policies thanks to data-driven strategies. Section IV introduces the general lines of a data

<sup>1</sup>The World Health Organization defines QoL as “an individual’s perception of their position in life within the cultural and value context in which they live, and concerning their goals, expectations, standards, and concerns.” Quantitatively, it is assessed through subjective aspects such as physical health, psychological well-being, and social contact, as well as objective aspects like access to employment, cost per square meter, and air quality.

analytics-driven solution for decision-makers to calibrate actions and measure how they contribute to well-being. Section V describes the first experiment results through a use case related to exploring urban spaces occupation. Finally, section VI concludes the paper and discusses future work.

## II. RELATED WORK

The following sections discuss existing work regarding different models of QoL identifying variables used for defining indexes [2], [3]. They also introduce approaches and projects regarding feminist and inclusive urbanism.

### A. Quality of life models

International forums have focused on measuring quality of life (QoL) in urban and rural areas. For example, the "How's Life?" study [4] proposes 11 quantitative and qualitative indicators, while the Human Development Index (HDI) [5] includes health, education, and living standards.

Institutions like the European Parliament, OECD, and WWF aim to develop indices that accurately model daily life, poverty, and inequality in specific regions. France's 2008 Commission on the Measurement of Economic Development and Social Progress introduced new methods to evaluate social progress, leading to the Stiglitz-Sen-Fitoussi report [6], which informs various QoL indices worldwide. ISTAT, Italy's National Institute of Statistics, defined 12 QoL variables covering economic, social, and environmental aspects. Spain's National Statistics Institute used the Stiglitz-Sen-Fitoussi report [6] to create a QoL index based on studies like Eurostat, including qualitative measures. This 2016 report incorporates a multidimensional analysis, covering nine dimensions from individual surveys, the Living Conditions Survey, and the Economically Active Population Survey.

The Quality of Life Research Center (NPQV) at Mackenzie Presbyterian University in Brazil proposed a QoL index considering transport, pollution, and noise, with data from the Brazilian Institute of Geography and Statistics and national housing surveys. Argentina's "Quality of Life" project<sup>2</sup> ranks well-being by department, measuring poverty as a deprivation level and QoL as an optimal economic state. It uses socioeconomic and environmental data from census information, statistical sources, satellite images, and field surveys. In Mexico, the University of Monterrey's National Index of Quality of Life (INCAVI, 2011) includes seven categories of variables, while INEGI's BIARE index measures subjective well-being, aligning with OECD guidelines.

Hong Kong's QoL index includes social, economic, and environmental indicators, with unique variables like press freedom and stress. Michalos' "Paradise of Michalos" [7] framework acknowledges differing perceptions of life conditions among residents of the same area and highlights survey design factors affecting responses.

<sup>2</sup><https://teleport.org/cities/buenos-aires/>

a) *Rationale.*: Effective QoL measurement requires quantitative and qualitative data, focusing on data quality, source, and demographic representation. This ensures reliable, up-to-date insights into urban residents' needs and well-being.

### B. Feminist and inclusive urbanism

Research on feminist urbanism and integrating gender-sensitive perspectives into smart city design has garnered increasing attention, particularly for megacities, where diverse and complex socio-spatial dynamics require innovative and inclusive approaches. Studies in feminist urbanism [8], [9] emphasize the need to consider how urban spaces impact different genders differently, particularly regarding safety, accessibility, and inclusivity. Key highlighted dimensions include spatial justice, mobility, and the social infrastructure enabling women and other marginalized groups to thrive in urban settings.

Many scholars argue that traditional urban planning often overlooks women's specific needs and experiences, leading to exclusionary or even hazardous environments. Feminist perspectives in urbanism advocate for public spaces that accommodate diverse experiences, focusing on safety through well-lit, visible spaces, accessible transit options [10]–[13] that serve areas where women work and live, and community-centric design that considers caregiving roles. For instance, studies on "the right to the city" emphasize the importance of open and shared spaces encouraging participation, safety, and freedom from harassment.

In the realm of smart cities, feminist scholars [14], [15], critique the often technology-driven approach that may not address the lived realities of women and marginalized communities. Researchers in this domain underscore that smart city data collection and analysis systems can inadvertently perpetuate gender biases if the design is not inclusive. A feminist approach to smart city design would emphasize participatory planning processes, incorporate diverse data sources, and include metrics that capture safety, access to services, and quality of life for all genders. Tools like gender-sensitive urban audits, which assess the usability and safety of public spaces, have proven effective in some smart cities aiming for more inclusive environments.

Studies on gender-inclusive design in megacities also stress the importance of urban infrastructure that supports daily activities, such as childcare facilities, health services, and safe transit routes [16], [17]. This aligns with calls for smart city projects to move beyond technology for efficiency and instead focus on resilience, equity, and well-being [18], [19]. For example, urban mobility projects that integrate safer transit stops, flexible transit schedules, and routes designed with women's travel patterns in mind have shown potential in large cities worldwide.

a) *Rationale.*: Feminist urbanism and smart city research increasingly converge on the need to incorporate gender-sensitive metrics into megacity planning and design frameworks. This includes prioritizing safety, accessibility, and inclusivity in spatial design while leveraging technology to enhance rather than obscure these goals. Such approaches

underscore the vital role of gendered perspectives in fostering truly inclusive, resilient, and equitable urban environments in the face of rapid urbanization.

### III. TOWARDS A DATA-DRIVEN GENDER AWARE DESIGN OF URBAN SPACES: ASPECTS TO CONSIDER

Inclusive urban design that considers women's particular requirements and expectations is a multiperspective, complex challenge. Addressing the complex needs of gender-sensitive urban design requires a comprehensive approach to data analytics that captures the diversity and depth of experiences within megacities. Inclusive urban spaces must be defined and quantified through balanced qualitative and quantitative data integration.

**Key challenges** include identifying and measuring inclusivity and gender sensitivity within urban spaces while ensuring the data collected represents diverse demographic experiences. Privacy considerations are essential, as data must reflect subjective experiences—such as perceptions of safety—and objective spatial data to understand patterns across different groups. Analytics methods like sentiment analysis, spatial analytics, and clustering can help urban planners gain insight into areas where improvements would benefit certain groups, ensuring that urban designs are inclusive at every level.

Additionally, evaluating the impact of citizen services through a gender-sensitive lens is essential to monitor and improve service inclusivity. This requires defining gender-specific impact metrics and measuring services' direct and indirect effects. Collecting data on economic, social, and psychological metrics while balancing quantitative data with qualitative assessments allows for a holistic approach. Multi-criteria decision analysis and time-series tracking reveal the long-term effects of policies on gender equality, providing actionable insights for inclusive urban planning.

*a) Economic and Social Perspective.:* In smart cities, data-driven citizen services with a gender perspective play a vital role. However, *integrating various data sources*—from transportation patterns and service usage to public feedback—is essential to understand and meet the unique needs of women and non-binary individuals. To address the challenges of real-time analysis and adaptive responses, planners must address data privacy and representativeness concerns. Methods like real-time analytics, predictive modelling, multivariate analysis, and GIS mapping can identify service gaps and usage trends, ensuring that services are optimized for the diverse needs of city residents.

*b) Mobility Security and Accessibility through Urban Spaces.:* Smart technologies also face the critical challenge of addressing the unique *security and mobility* needs of women and non-binary individuals, who often experience cities differently. Data that quantify perceptions of safety and examine environmental factors can provide crucial insights into how these groups navigate urban spaces. Collecting real-time mobility data while respecting privacy can help develop targeted safety measures, and spatial-temporal analysis combined with route optimization can address these needs. Incident reports

can provide further insights through sentiment analysis and pattern detection, revealing specific areas where improvements are most urgently needed.

Caregivers who are predominantly women and often travel with dependents face unique urban service challenges. Designing inclusive urban services requires a detailed understanding of their mobility and service usage patterns, which can differ significantly from the general population. Data from caregivers on mobility needs and travel chains should be balanced to capture diverse caregiving experiences. Sequential pattern mining and predictive modelling can help identify travel chains and patterns specific to caregiving groups. At the same time, clustering methods allow planners to address these users' unique needs more precisely.

For urban mobility, gendered travel patterns, such as trip chaining—where women combine multiple stops due to multifaceted roles—present unique challenges. Intelligent transportation systems must account for these patterns and the socioeconomic factors influencing travel behaviour. Sequence analysis, route prediction models, and socioeconomic impact analysis enable transportation planners to design services accommodating diverse routines. By recognizing the role of socioeconomic status in transportation behaviour, planners can ensure that services are accessible to all.

Safety and accessibility are central to inclusive urban design, with specific measures required to prevent harassment and address disproportionate impacts on women and gender minorities. Designing safe urban spaces requires identifying patterns of harassment and understanding spatial factors contributing to perceived risk. Analyzing these patterns through hotspot analysis, predictive models, and spatial regression helps to mitigate safety risks and design more inclusive environments.

*c) Bias and human-in-the-loop urban design.:* Data bias poses a significant risk in developing gender-sensitive urban designs, as algorithms that inadvertently favour majority groups or overlook the needs of marginalized communities can perpetuate existing inequalities. Identifying and minimizing data biases is essential to ensure that algorithms make equitable decisions. Ensuring balanced, representative data from diverse demographic groups and conducting fairness analyses on models can mitigate potential biases. This approach helps achieve more equitable urban planning by ensuring that all groups benefit from data-driven insights.

Finally, improving public participation processes is crucial for inclusive urban planning, as policies must reflect diverse perspectives. Ensuring that women's voices and those of underrepresented groups are adequately included in planning requires overcoming digital divides and creating accessible feedback mechanisms. Sentiment and discourse analysis of public forums, network analysis to gauge representativeness, and stakeholder sentiment analysis allow policymakers to integrate community feedback, leading to a more inclusive, equitable urban design. This combination of targeted data collection, advanced analytics, and ethical data practices ensures that urban spaces and services are designed to foster inclusivity

for all residents.

#### IV. URBAN SPACES DESIGN GUIDED BY CITIZENS WELLBEING

We propose a digital platform that allows the selection of variables and customization of their mathematical structure, enabling data analysts and decision-makers to evaluate elasticity effects when implementing specific government programs and urban changes. The platform (see Figure 1) allows us to identify the variables that define Quality of Life (QoL). We design the elasticity of quality of life (E-QoL) and mathematically observe how individuals adjust their behaviour and perception of well-being to pursue maximum happiness. Analyzing and understanding the principles of this adaptive behaviour can support the creation of more effective government programs.

The platform is based on a data science method to study the quality of life (QoL), which has been tested in the case of the La Condesa neighbourhood. The proposal demonstrates how digital data can be leveraged to define and apply a mathematical model to gain insights into intangible values, such as citizen well-being and a multifaceted QoL index. Our approach offers a comprehensive view of QoL, recognizing it as a dynamic state that reflects residents' perceptions of their experiences in an evolving urban area through E-QoL. The research addresses the following questions: To what extent have urban and economic planning strategies in the neighborhood affected living standards and the QoL index? Have these strategies improved the QoL index and residents' well-being? Are segregation, exclusion, land-use changes, water scarcity, overpopulation, and desertification truly beneficial for the economy and sustainable in the long term?

To answer these questions, we adopted a data science methodology to experiment with and support our QoL measurement approach in La Condesa. This method includes data collection on various indicators related to well-being, subjective perceptions of quality of life, and economic empowerment in the neighbourhood, as described in previous studies. Our model uses data from Mexico's National Institute of Statistics and Geography to calculate E-QoL. Due to the extensive data volume, computational methods adapted to E-QoL calculations were applied, employing data analysis techniques based on statistics and knowledge discovery to identify patterns illustrating QoL and E-QoL behaviour as social indicators.

##### A. A Multivariable Optimization Problem: Balancing Needs and Constraints

Designing gender-inclusive public policies using this platform is a multivariable optimization problem. Policymakers need to consider a complex interplay of variables and objectives, including:

- **Diverse Group Expectations:** Different population groups, such as women, caregivers, and economically disadvantaged individuals, have distinct QoL expectations. For example, women may prioritize safety, accessibility, and work-life balance, while financially disadvantaged groups

might prioritize income stability and access to affordable housing.

- **Economic Viability:** Public resources are limited, so policies must be economically feasible. The platform allows policymakers to experiment with different weight configurations and elasticity adjustments to find policy options that maximize well-being improvements while staying within budget constraints.
- **Well-Being for All:** The ultimate objective is to improve QoL inclusively across all demographic groups. This requires balancing individual group needs without compromising the population's overall well-being. The platform can identify trade-offs and synergies among policy options through multi-criteria analysis to achieve an optimal balance.

*a) Discussion.:* The platform's multivariable optimization capabilities allow it to dynamically evaluate and adjust variables, accounting for group-specific preferences and overall societal welfare. For example, policymakers can use the platform to simulate the effects of increasing investments in public transportation and adjusting routes or safety measures to better serve women and low-income groups. By iterating through different scenarios, policymakers can find the optimal configuration of services and resources that maximize well-being across the board.

##### B. Quantitative Model for Quality of Life: Methodology

Integrating various variables can represent Quality of life as a mathematical index. Prevailing economic and political trends influence the criteria for selecting and combining these variables. We adopted the mathematical model proposed by Stasys Puskorius [20], based on the studies in [6]. This model was chosen as the basis for our concept of urban elasticity, as it incorporates economic factors and indicators that reflect human quality of life. Therefore, the quality of life index is expressed using the following formula:

$$I = \sum_{i=1}^{10} a_i b_i \quad (1)$$

The index results of the summation of 10 pondered indicators. Weights used to ponder  $a_i$  terms represent indicators.

- $b_1$  - health
- $b_2$  - employment and occupation
- $b_3$  - quality of time at work
- $b_4$  - income status
- $b_5$  - consumption
- $b_6$  - environment and accommodation
- $b_7$  - population's education
- $b_8$  - law, security, order and corruption levels of the population
- $b_9$  - ethics-morality, spirituality, value of culture and leisure of the population
- $b_{10}$  - population's gender equality indicator

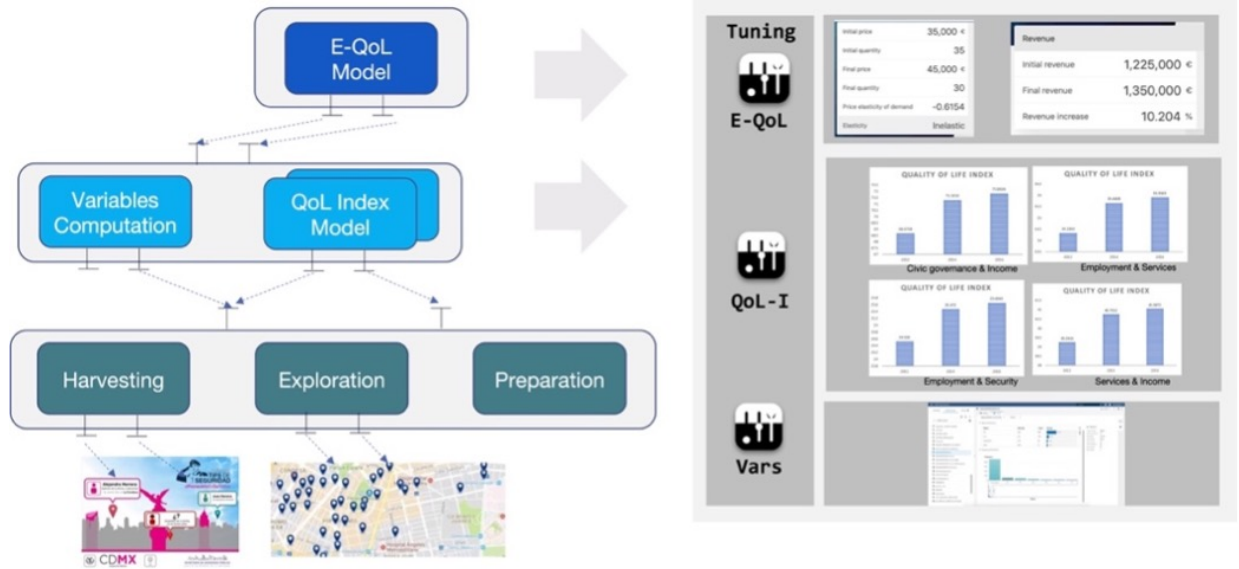


Fig. 1. General principle of a decision-making platform based on e-QoL

The index's result is the sum of 10 weighted indicators. The weights used to adjust the indicators are represented by the terms  $a_i$ . The key in this formula is how to distribute the weights among the indicators to calibrate the index.

*a) Discussion.:* The parametric QoL index integrates a range of variables that impact quality of life, such as access to services, safety, income, civic engagement, and work-life balance. These variables can be adjusted in terms of their weight and importance, allowing policymakers to emphasize or deprioritize specific aspects of QoL depending on the needs of different population groups. For example, for women, factors such as safety, accessibility of public transport, and availability of childcare services might be weighted more heavily, reflecting their particular concerns and expectations.

By setting weights for each variable, policymakers can create tailored QoL assessments that reflect the experiences of various social groups. This makes it possible to identify which policy areas require more attention to improve the quality of life for marginalized or underrepresented groups, including women and caregivers.

### C. Elasticity of Quality of Life (E-QoL)

We believe that integrating qualitative and quantitative variables collected under diverse conditions and protocols enables a more comprehensive and inclusive assessment of Quality of Life (QoL) by adjusting the weight of each variable accordingly. Moreover, current mathematical models for calculating the QoL index often neglect the concept of a "point of no return." As a result, they fail to evaluate the feasibility of attaining a satisfactory QoL index in areas where specific public policies are implemented.

$$E_p = \frac{\Delta \text{Quantity}}{\Delta \text{Price}} = \frac{\left(\frac{P_1 + P_2}{2}\right)}{\left(\frac{Q_1 + Q_2}{I_{12}}\right)} \quad (2)$$

We redefine the concept of elasticity within the urbanism framework to illustrate the relationship between residents' Quality of Life (QoL) in a given area and the variables that affect well-being. Initially, a microeconomic concept introduced by Alfred R. Marshall, elasticity quantitatively captures how changes in one variable influence a dependent variable. It measures the responsiveness of one variable to shifts in another and is numerically expressed as the rate of change in a dependent variable  $Y$  (e.g., Quantity) divided by the rate of change in an independent variable  $X$  (e.g., Price). The elasticity of Quantity for Price is calculated as the ratio of the change in Quantity to the change in Price.

This approach combines traditional and advanced analytics methods to address the unique needs of diverse urban populations in a gender-sensitive, inclusive manner. Data collection and processing must prioritize ethical, representative, and privacy-conscious practices, while analytics can reveal actionable insights to foster equitable and inclusive urban spaces.

*a) Discussion.:* The concept of elasticity in this platform measures how responsive the QoL index is to changes in each variable, helping policymakers understand the impact of adjusting specific factors. For example, if safety is highly elastic, a slight improvement in safety measures might significantly increase perceived QoL for women and other vulnerable groups. Elasticity analysis allows the platform to simulate various policy scenarios, providing insights into how changes in infrastructure, service availability, and other urban features can influence QoL.

This elasticity concept helps design inclusive policies by indicating how much change is necessary in each variable to achieve desired improvements in QoL. For instance, by calibrating variables related to work-life balance and civic engagement, the platform can assess the impact of policies to

create a more inclusive urban environment for working mothers or caregivers. Understanding elasticity helps ensure that public policies are effectively targeted, producing meaningful improvements in well-being.

## V. PRELIMINARY DEVELOPMENT AND RESULTS

This study focuses on the historic neighbourhood of La Condesa, located 4 km from the Historic Center of Mexico City. Established in the early 20th century, it covers an area of 450,320.02 square meters across 62 blocks. This area has been the target of government programs (such as Bando 2) aimed at promoting social housing construction to attract residents, leisure activities, and commercial life to central urban spaces. However, the resulting economic growth and population increase do not appear to align with residents' perceptions of quality of life and well-being, nor have they contributed to improving the neighbourhood's quality of life index.

*a) Data Collection::* Data gathering and analysis are essential for obtaining reliable and representative results. In Mexico, INEGI provides census statistics from various years. We used twelve datasets to calculate the Quality of Life (QoL) index, each containing aggregated data commonly used by international organizations to measure indicators. These datasets were filtered to focus specifically on Mexico City and further narrowed down to the La Condesa area. The well-being indicator database consists of 35 indicators defined by the OECD, which are used to calculate the Better Life Index based on concepts of well-being and progress. These indicators are grouped into 12 dimensions: access to services, community (social relationships), education, work-life balance, income, environment, civic engagement and governance, health, satisfaction, safety, employment, and housing. The collected data covers the years 2010 to 2015. For our analysis, we did not use aggregated indicator data but rather the detailed data required to calculate the QoL index presented in the previous section.

### A. Calculation of Quantitative and Qualitative Measures

The QoL indicator datasets provided by INEGI are derived from biennial censuses conducted since 2010. We observed that not all indicators were present in every dataset. Our experiment focused on calculating Mexico's QoL index for 2012, 2014, and 2016. When analyzing the distribution of indicator values, we noted that some were presented as population percentages, while others appeared as interval values or ad hoc measures (e.g., air quality). Due to the lack of raw data for some indicators, we excluded these from our calculations and used the most consistent measures to ensure accuracy.

Our experiment included six dimensions: access to services, work-life balance, income, civic engagement and governance, safety, and employment. For each dimension, we selected subdimensions expressed as percentages of the total census participants. Since these censuses are government-promoted and considered a civic duty, a significant portion of the population participates. The data provides insight into citizens' perceptions of the indicators following the implementation of the

Bando 2 program, observed 5 to 10 years post-implementation. This allows us to assess the long-term side effects of the program as it becomes integrated into the citizens' daily urban lives.

Following the adopted QoL formula, we weighted the indicators based on insights from our colleagues with expertise in urban planning. We prioritized qualitative perceptions, such as safety, over purely economic measures. This approach aligns with the goal of our study, which aims to capture the population's perception of their quality of life in the La Condesa neighbourhood.

We incorporated  $N=12$  selected measures from the adopted indicator groups. Accessibility to services and income ( $a_1 \dots a_5$ ) were weighted at 0.08; work-life balance ( $a_3$ ) and employment ( $a_9 \dots a_{12}$ ) were weighted at 0.04; and civic engagement, governance, and safety ( $a_6 \dots a_8$ ) were weighted at 0.16. These weights were calibrated with input from urban planning experts. The calibration process, conducted through computational programs, produced multiple outcomes. The results presented here reflect a representative calculation aligned with empirical (non-mathematical) observations and evaluations of the impacts on La Condesa following the implementation of the Bando 2 program.

The Quality of Life (QoL) index indicates that citizens' perception of their quality of life is not very high (see Figure 2), suggesting that, while life is considered acceptable, improvements are still needed in services, safety, and income through public policies. QoL improved between 2012 and 2016, but the change from 2014 to 2016 was marginal. Our initial analysis of the QoL index supports our hypothesis that additional strategies are needed for its measurement. Integrating quantitative and qualitative indicators is a preliminary step toward a more comprehensive view of QoL.

### B. Simulation and Scenario Analysis for Inclusive Decision-Making

The platform's capacity to simulate different policy scenarios based on varying weights and elasticity values enables decision-makers to explore the outcomes of other approaches. This is especially valuable for gender-inclusive policy design, as it allows policymakers to visualize and quantify the effects of targeted interventions, such as increasing lighting and security in public spaces, enhancing access to childcare facilities, or expanding public transit options.

For example, by applying different weights to safety and accessibility for women and analyzing the resulting changes in QoL, policymakers can identify which combination of improvements will have the most significant positive impact. Similarly, they can use elasticity analysis to determine the most cost-effective changes, ensuring that policy adjustments yield the maximum improvement in QoL without overspending.

### C. Scope and Lessons Learned

The calibration of variable weights resulted in various assessments of the QoL index, fostering a holistic understanding of the index. However, these calculations do not directly



Fig. 2. QoL Indices 2012 - 2016 in La Condesa

correlate with specific actions under the public policy program Bando 2. Current efforts focus on studying this correlation by collecting data from social networks, dedicated surveys involving long-term and temporary residents, newly installed cameras in the neighbourhood, and alternative transport startups. These sources will contribute subjective data commonly used in the literature to measure well-being and QoL.

We also plan to use data from an INEGI project that measures the mood of Twitter users in Mexico City. In collaboration with Twitter, INEGI is innovating data-driven solutions for urban challenges. Considering the mood of active social media users —primarily those from middle and upper economic classes in La Condesa— can provide a relevant measure for our study. Our perspective on the QoL index in this work is multifaceted and dynamic, acknowledging that the variables used in its calculation may change with urban and economic transformations.

To better understand the relationship between changes in variables and fluctuations in the QoL index, we propose analyzing potential linear dependencies through a mathematical approach, introducing the concept of E-QoL. Understanding the theoretical scope of quality of life (QoL) and well-being, along with the variables influencing them in a specific urban area, is crucial, as each urban space may be characterized by its unique variables and definitions of QoL.

## VI. DISCUSSION AND CHALLENGES

This paper proposes a platform for studying and calibrating citizen well-being based on a methodology that calculates the QoL index using quantitative and qualitative indicators and an E-QoL calibration model. The aim is to support the design of government programs that revitalize urban areas while promoting economic growth without compromising citizens' well-being. This research measured the index in the La Condesa neighbourhood in Mexico City. Our findings addressed initial

research questions, such as the impact of government programs on QoL standards. Between 2012 and 2016, data indicated an increase in QoL perception. However, this included transient populations who may experience temporary well-being due to leisure and commercial activities. In contrast, permanent residents, affected by noise, lack of parking, and crime, have a different perception.

The integration of a parametric QoL index with an elasticity-based model creates a robust, data-driven framework for designing public policies that are both inclusive and economically sustainable. By allowing policymakers to calibrate and prioritize variables, this platform supports informed decision-making that reflects different groups' diverse expectations and needs, including women, caregivers, and economically disadvantaged individuals.

As a multivariable optimization tool, the platform enables policymakers to balance competing objectives, making it possible to design policies that improve the quality of life for all residents while remaining financially feasible. This approach provides a replicable model for creating gender-sensitive and inclusive urban environments, ultimately fostering social equity and well-being across diverse urban populations.

We are currently designing a user experience experiment to interview women of diverse socio-economic backgrounds, ages, and occupations living or working in La Condesa. The aim is to gather their expectations and perspectives regarding their occupation and use of urban spaces. These insights will be used to inform and test the calibration of public policies guided by their viewpoints. The objective is to understand the key elements of a feminist urban design that addresses women's needs, evaluates its economic feasibility, and assesses the potential return on investment for creating inclusive and equitable urban spaces.



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