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URBAN TRAVEL BEHAVIOR IN THE MIDDLE EAST AND NORTH AFRICA

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UNDERSTANDING THE NEEDS OF MENA PUBLIC TRANSPORT CUSTOMERS:

CULTURE OF SERVICE AND GENDER-RESPONSIVE RECOMMENDATIONS

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ABSTRACT

Fast population growth, urban sprawl and the raise in households' motorization observed in all major cities of the Middle-East and North-Africa (MENA) region, are constantly challenging public transport providers who seek to handle efficiently the continuously rising travel demand. Most of the MENA cities suffer from traffic congestion that not only impacts the quality of life of MENA citizens, but also their access to job opportunities, health services, and social and political participation. Alongside the development of public transport network, it is crucial to encourage urban dwellers to reduce their dependence on personal cars, use public transport, and develop soft mobility skills. Therefore, operators and service providers need to define customer-centric strategy and build a culture of service excellence in line with their customers' expectations. In cooperation with academic partners, the UITP MENA Centre for Transport Excellence launched the User-Oriented Public Transport research project with the aim to understand the perceptions of female and male users and non-users about public transport services in five MENA cities: Algiers, Amman, Beirut, Casablanca and Muscat. The methodological framework was built around the five dimensions of the user's needs pyramid: safety, security, ease-to-use, comfort and experience. Based on the quantitative analysis of data collected from 984 respondents and the qualitative analysis of 49 women's testimonies collected during the focus groups, recommendations were made to encourage culture of service and gender mainstreaming in public transport development in the region.

KEYWORDS:

Public Transport; Urban mobility; Gender Mainstreaming; Customer service

1 INTRODUCTION

Since the 1950s, the MENA region has gone through drastic demographic and socio-economic changes. Whilst the population growth and urbanization rate in the MENA region are the fastest worldwide, unemployment is critically high, especially among youth and women who respectively represent a quarter and a half of the overall 420 million regional population (UN DESA, 2014; UN DESA, 2017; ILO, 2013). Cities are where most pressing challenges are concentrated: unsustainable resources, energy consumption, carbon emissions, pollution, and health hazards (Barresi & Pultrone, 2013). The lack of integrated urban and transport development strategies in most MENA cities has led to an uncontrolled - and often informal - urban sprawl of polycentric cities lacking sufficient connectivity. At the same time, the rapid motorization of households has exacerbated the already congested urban areas affecting dramatically the quality of life in terms of air quality, commuting time and distance, safety, space occupancy and accessibility (El-Geneidy et al., 2013).

Transport is the backbone of urban development. It is an enabler for job accessibility, health services and the social and political participation (Farrington, 2007; Rode et al., 2017). Together with the efforts made to develop sustainable transport infrastructure, it is crucial to encourage urban mobility behavioral changes, and support urban dwellers to shift from car use and ownership to public transport use and soft mobility behaviors (Gakenheimer, 1999; Banister, 2008; Rojas-Rueda et al., 2012; Furlan & Faggion, 2015). However, the poor image of public transport in MENA cities and the strong social status assigned to the private cars aggravate the situation: public transport is perceived as the mode for 'poor people', while 'car ownership and use' becomes a symbol of status for the current generation, especially among the medium and high economic sections of the society (El-Geneidy et al., 2013). For the so called 'captive public transport riders', safety, security, reliability, affordability are crucial factors affecting their daily life and access to socio-economic opportunities and services (Thynell, 2014). To counteract with this negative image of public transport, operators and service providers need to define customer-centric strategy and build a culture of service excellence (Union International des Transports Publics [UITP], 2018). The onus lies in providing attractive public transport services, which compete with the flexibility and comfort of the private car, provide current users a positive experience, and encourage new female and male customers from different age groups, socio-economic status to use public transport as the prominent mode.

This paper presents the key-findings of the research project on perceptions of users and non-users in five MENA cities – Algiers, Amman, Beirut, Casablanca and Muscat – conducted in 2017 by the UITP MENA academic network. The aims of the project are to identify the key factors which will improve public transport services, from users' perspectives, and to highlight women's expectations for a more gender-responsive public transport offers in MENA cities. The first part of the article discusses the state of the art in term of customer-centric strategies in the region, as well as the current data availability on mobility habits in the region, with a specific focus on women's mobility and personal security. The second part of the paper presents briefly the current transport governance and public transport development in each of the project's cities. The research scope, methodology and theoretical framework are developed in the third part of this paper. Finally, the key-findings and recommendations are presented.

2 BACKGROUND

2.1 UNDERSTANDING MENA PUBLIC TRANSPORT USERS' NEEDS

During the last decade, public transport has witnessed a shift in its image from a public authority managing urban infrastructure to a quality service provider to the urban dwellers. Public transport is not an industry anymore, rather it is more of a service now. Just like any other service in the market, the quality of the public transport service is what defines its market share. Public Transport sector in its new role, therefore,

needs to reinvent itself to retain and attract customers on all occasions and routes (Nelson et al., 2010; Lai & Chen, 2011; Felleson & Friman, 2008). In the MENA region, transport authorities are striving to make public transport more attractive by building a culture of service excellence. This requires the development of a customer-centric strategy and the provision of high quality services all along the customer's trip, from origin to the destination in terms of safety, reliability, information, staff support, cleanliness, safe and secure built environment, etc. To provide the right service at the right time and right location, it is crucial to understand current and potential future customers, know their needs, habits and preferences according to their socio-economic profile and life phases (UITP, 2018). The Dubai Roads and Transport Authority (RTA) is one of the leading authority in the MENA region in terms of customer-centric strategy. Since 2016, RTA has been emphasizing 'Happiness Strategy' as one of the eight strategic objectives in the RTA vision for 2030. To measure the corresponding achievement happiness indicators are regularly measured based on customers' feedback collected through satisfaction surveys and monthly Customer Council. In Tehran, satisfactions surveys are regularly being conducted by the bus and metro operator to monitor and adjust the services. In Egypt, the Cairo Governorate in 2015 introduced satisfaction surveys to improve bus operation in the areas of public transport service delivery (Environmental and Social Management Framework [ESMF], 2015). The Casa Transport SA – the transport authority for the Greater Casablanca agglomeration – planned establishing a Mobility Observatory to gather and collect data to optimize the monitoring of transport development in the urban area. These are only few of the good examples initiated by MENA authorities to meet informed decisions based on travel analysis and match customers' expectations. However, the frequency and quality of data collected is uneven due to the diverse development advancements and political stabilities. Often, surveys are partial or obsolete, and do not reflect the reality of the fast growing travel demand and mobility needs. Even if data are available, their access remains limited which prevent academia and researchers to conduct comprehensive and comparative analysis on travel preferences, habits and modal choices in the MENA region (Delatte, 2016; CoMun, 2014; El-Geneidy et al., 2013). Due to the limited data availability and accessibility, little is known about mobility patterns in the MENA region, and even less on women's travel behaviors since data are rarely gender disaggregated (World Bank, 2011a). However, it is internationally recognized that gender influences modal choice and travel habits as much as age, professional status, and other socio-economic factors, if not more. The traditional share of household responsibilities leads women and men to undertake different travel patterns. Women are more likely to make travel chains, with a larger range of purposes than men are. Additionally to the common daily work trips women undertake most of the trips related to children-care, health-care and household-care (CIVITAS, 2014; Deike, 2013; World Bank, 2011b; FIA Foundation, 2016; Duchène, 2011; ITF, 2018). Several surveys conducted in the MENA region on women's mobility confirm that women and men have different experiences in public transport, different challenges during their journeys, different modal choice (EBRD, 2016; LSE, 2015; Elias & Shiftan, 2014; Tillous & Gillot, 2014; Montagne, 2014; World, Bank 2011a). All surveys agree that security concerns are the main constraints in women's mobility. In Egyptian rail system, security concern is the reason for not using trains to commute to work by 69% of surveyed women (EBRD, 2016). It is confirmed by another survey in which 86.5% of Egyptian women respondents affirm not feeling safe or secure on public transport (UN Women, 2013). Cairo was recently ranked as the "most dangerous" megacity for women (Thomson-Reuters Foundation, 2017). In Morocco, 63% of women living in urban areas have experienced some form of violence in public spaces, including on public transport (Haut Commissariat au Plan, 2012). In Tunisia, a survey of public transport users revealed that 89% of women had suffered harassment (CREDIF, 2016). In Beirut, harassment is a daily concern for women using minivans and most of the incidents go unreported due to the lack of judicial system to report such incidents (Nasr, 2017). The secretary of the Jordanian National Commission for Women (JNCW) estimates that 80% of women face harassment (The Nation, 2014).

The feeling of insecurity impacts women's modal choices and public transport ridership: In Jordan, some women report changing their travel patterns, especially modal choice, to reduce harassment risk while traveling by public transport (Truluck, 2015). In Egypt, women prefer using informal minibuses in which all passengers are seating rather than the public standard buses in which harassment is more likely to occur (LSE, 2015). Security concerns, complex time management due to their diverse responsibilities and the lack of gender-responsive transport infrastructure do not only affect women's daily activities (Duchène, 2011) but also their opportunity to access higher revenue, career growth and professional development. Safe transport is essential for women's economic inclusion (World Bank, 2011a; EBRD, 2016). It is especially true for women living in suburban areas. In Morocco 80% of surveyed women affirmed that the lack of transport provision limits their autonomy in 2010 (CoMun, 2014). In Jordan, 40% of women reported having to turn down employment opportunities because of a lack of access to a viable means of transport (Jordan Times, 2017). Women unemployment in the MENA region is the highest rate worldwide with 18% unemployed women compared to an average of 8% in OECD countries (Organisation for Economic Cooperation and Development [OECD], 2014). During the last years, MENA governments are given more attention to women's unemployment. In line with the agenda of international organizations which see gender-equity as a social objective as well as an economic growth opportunity (World Economic Forum [WEF], 2018; McKinsey & Company, 2015). Alongside infrastructure development, understand the needs of women and provide gender-responsive services in the MENA region – taking into account the local cultural and social norms (Duchène, 2011) – are urgent needs. Few and isolated measures have been already undertaken by authorities, public transport operators and NGOs in MENA cities. However, most of the measures are punctual, isolated and do not belong to an integrated comprehensive strategy, which directly reduce their efficiency (Delatte & Smith, 2018).

2.2 PUBLIC TRANSPORT DEVELOPMENT IN THE FIVE CITIES OF THE PROJECT

To contribute to fill the knowledge gap on mobility preferences in the MENA region, the research project seeks to conduct a comparative analysis of public transport perceptions in five MENA cities: Algiers, Amman, Beirut, Casablanca and Muscat. Each of the five cities is at a different stage in terms of governance structure and public transport development. The following chapters provide a short city-specific contextualization. Main urban and transport characteristics are summarized in Fig. 1.

Algiers Wilaya

With 3.47 million inhabitants in 2016, the urban agglomeration of Algiers is developed around a hypercentre, surrounded by the pericentral zone, the peripheral crown and the industrial poles. Algiers city centre hosts 35% of the 800,000 jobs of the wilaya on only 2% of the agglomeration (Baouni, 2015). However, the ongoing urban sprawl in Algiers leads to an extension of the urban transport perimeter well beyond the administrative metropolitan area which challenges the organization of urban transport in the city of Algiers. Several modes of public transport are available in Algiers: private and public buses, cable-cars, suburban train, metro and tram. While most of these modes are operating for several decades already, the transport authorities AOTU-A became officially operational in 2016. The AOTU-A is playing the role of the main and unique decision-maker for the transport development of the agglomeration. However, legitimacy of this relatively new entity still need to be established, with stakeholders' commitment to cooperate. In Algiers, 6.5 million trips are made daily, mostly for work and education purposes. The forecasts of the preparatory studies for the transport plan of the Master Plan for Urban Planning and Development (PDAU) foresee 7.5 million daily trips in 2020 (Parque expo, 2015). Reports from previous household surveys and research show

that walking remains the dominant mode in the practice of travel in Algiers: it represents more than 50% of total displacements in 2010. In terms of motorised trips, public transport is the mostly used mode for daily trips with a share of 65% of the modal split (Bureau d'Etudes des Transports Urbains d'Alger [BETUR], 2004, Baouni et al., 2013).

Greater Amman

In Amman, the rapid growth of the city – with an estimated population of over 4.18 million inhabitants (Department of Statistics [DOS], 2016) – and unplanned urban sprawl have resulted in reduced accessibility, increased traffic jams, and weakened the insufficient public transport system. It is worth mentioning also the undesirable negative environmental (both noise and pollution) and safety impacts associated with increased vehicular traffic. This is reflected in the high percentage of licensed vehicles in Amman; making up 79% of the total vehicles of Jordan, with a total of 963,211 vehicles in 2012 (Salameh & Imam, 2014). Since 2009, the Transportation and Traffic Management Department within the Greater Amman Municipality (GAM) is responsible for all aspects of transport and traffic management within Greater Amman.

Public buses are operated under its authority. Additionally, coasters (minibuses) owned by private operators and shared-taxis are operating in Greater Amman. The current system is fragmented, unplanned, unreliable, and not appropriate to users' mobility needs: lack of information about routes, frequency and schedule of services. Minibus and shared-taxi services operate without designated stops; they are simply hailed at any point along their routes. However, political efforts have led to undertaking the construction of the Amman Bus Rapid Transit (BRT) project which is expected to be operational in 2020. In 2016, GAM estimated public transport share to be 14% of all daily trips in the urban agglomeration (UITP MENA Centre for Transport Excellence [UITP MENA CTE], 2017). Currently, the system is largely used by captive riders. A 2009 estimate indicated that around 65% of public transport users in Amman do not own a car and have no other alternative besides public transport (GAM, 2009).

Greater Beirut

While the Greater Beirut Area (GBA) – with 2.23 million residents – is the area to be considered in terms of urban transport, there is currently no single entity responsible for the transport and urban development of the metropolitan area. The lack of integrated and efficient governance and the political instabilities faced for the last several decades are real barriers for the transport and urban development of the metropolitan area. This lead to an almost inexistent formal public transport in Greater Beirut. Informal minivans and shared-taxi are the most widely used mass transit in the agglomeration, and considered as the current public transport for the context of this paper. Traffic congestion is one of the most serious urban development problems in Beirut (Rishani, 2011; Ayoub, 2014; Massena, 2016).

The Ministry of Environment estimated the cost of urban congestion to eight percent of Lebanon's GDP. Additionally, the current average fleet age is older than 10 years. This leads to critical air pollution issues in Greater Beirut. Transportation expenses represent a significant 15% of households' expenditures (World Bank, 2017). According to the Council for Development and Reconstruction [CDR] (2013), modal shares of motorized trips in 2009 for Greater Beirut are divided as follow: 80% private cars, 18% taxis (shared taxi rides) and 2% public transport. In an attempt to tackle transport issues, the Comprehensive Public Transport Program for Greater Beirut Area was endorsed by the Government of Lebanon (GOL), and recognized as one of the country's economic priority projects. The Program consists of the development of a BRT and feeder bus network, expected to be developed in three phases (North, South and East components) (CDR, 2017).

Greater Casablanca

Greater Casablanca, with a population of 5.12 million inhabitants (2015 census) is the largest urban area in Morocco, the strongest economic pole in Morocco. In the Greater Casablanca Development Plan (2015-2020) it is envisioned to raise the metropole to the level of a connected and inclusive international Financial Hub. Optimizing the current urban mobility is one of the axis of the plan, with the construction of 80 km of dedicated lanes public transport, Casablanca Transport SA represents the public authority for transport development in Greater Casablanca. It is one of the leading governance in the MENA region. Two main public transport stakeholders are operating in Casablanca: Casatramway (RATP DEV) since 2012 and M'dina bus (a private companies cluster) operating the bus network since 2004. While the recently implemented tram system comply with the current norms in terms of accessibility for all, the bus fleet in Casablanca is old and in poor condition. Shared-taxis are also a widely used mode of transport in the urban agglomeration, and remains the only alternative for non-motorized households living in the suburbans area, where public transport is not available (CoMun, 2014). During the last decade, economic growth leads to household motorization raise. At the same public transport rideship dropped (UITP MENA CTE, 2016a). However, motorization rate is still relatively low in Casablanca (244 cars per thousand inhabitants in 2015). In 2012, walking was the most dominant mode of transport in Casablanca with more than half of daily trips made by walking, public transport share was estimated to 13% of all daily trips (UITP, 2015). The opening of the tram system in 2012 has probably impacted positively the overall share of public transport.

Muscat

Muscat – capital and largest city of the Sultanate of Oman with 1.47 million inhabitants – is following a horizontal low density urban development which leads to a continuous urban sprawl of the metropole (Belqacem, 2010). However, Muscat has the highest population density of 400 inhabitants per square km in comparison to other governorates of Oman (National Center for Statistical Information [NCSI], 2017). Witnessing a remarkable growth in the last four decades in almost all areas, the Sultanate of Oman has shown a deep concern towards the development of public transport to ease out the traffic congestion and to address the safety concerns (Belwal, 2013).

Public transport services in Oman are currently in an expansion phase. The very first public transport services started operating as intercity service in 1972 with the establishment of Oman National Transport Company (ONTC), which was rebranded in 2016 as Mwasalat (Belwal, 2017). The currently expanding network is planned to provide bus stop at maximum distance of 800 m to 70% of the population by 2025 (Bus Transport Master Plan, 2016).

	Algiers (Wilaya)	Greater Amman	Greater Beirut	Greater Casablanca	Muscat
Population (mn)	3,47 (2016)	4,18 (2016)	2,23 (2015)	5,12 (2015)	1,47 (2015)
Density (inh./km ²)	4580	2458	9680	2644	400
Motorization (cars/1000 inh.)	287 (2014)	263 (2016)	269 (2015)	244 (2015)	551 (2015)*
Mass transit	Suburban train: 121 km Metro: 13.5 km Tram: 23.2 km Cable-Car: 5 lines Bus fleet: 250 public buses; 4000 private buses	Bus fleet: 471 public buses; 11,151 private buses; 202 coasters (private minibuses)	Bus fleet: 5000 legal mini-buses; 15,000 illegal minibuses (all private)	Suburban train: 32 km Tram: 31 km Bus fleet: 866 public buses	Bus fleet: 39 public buses

source: UITP MENA CTE 2017, *2016

Fig.1 Main urban and transport characteristics of the five MENA cities, (Delatte, 2012)

The Ministry of Transport and Communications aims to achieve 25% public transport modal split by the year 2040, as stated in the Public Transport Master Plan 2015-2040. However, motorization rate in Muscat is one of the highest worldwide with 551 cars per thousand inhabitants. The high car dependency and the traditionally embedded social status of the car in Oman imposes the most formidable challenges to behavioral changes. Additionally, the extreme hot weather during almost nine months in a year imply the implementation of attractive infrastructure (AC shelters, corridors, vehicles) which represents financial burden for public transport developers (Belwal & Belwal, 2010; Belwal, 2017).

3 METHODOLOGY AND RESEARCH SCOPE

In cooperation with the regional academic partners, the MENA Centre for Transport Excellence launched the User-Oriented Public Transport research project with the aim at understanding the perceptions of female and male users and non-users on public transport services in the MENA region. Common methodology for data collection and analysis were developed to highlight comparative results in five MENA cities: Algiers, Amman, Beirut, Casablanca and Muscat.

Based on an investigation of empirical researches done by MENA academic and research centers on public transport (Chalak et al., 2015; Center for the Study of the Built Environment [CBSE], 2015; Baouni et al., 2014; Imam, 2014; Shaaban & Khalil, 2013; Belwal & Belwal, 2010; Koushki et al., 2003), the main active scholars sharing common research interests on social science and urban mobility empirical research were identified and contacted. Time and resource availability to implement the research project were the main criteria for the establishment of the consortium. This cooperative project with six academic partners launched the activities of the UITP MENA academic network.

3.1 OBJECTIVES AND THEORETICAL FRAMEWORK

The first objective of this research was to assess users and non-users' perceptions on public transport services along the five public transport dimensions – safety, security, ease-to-use, comfort and experience – through the quantitative analysis of data collected using questionnaires in the five cities. The second objective was to identify the barriers encountered by women to access public transport and to understand their expectations for safer and more secure public transport services by qualitatively analyzing the data collecting through focus groups organized in the five cities. The analytical framework used in this study was based on the concept of the hierarchical pyramid of human needs model, developed in the 50s by psychologist Maslow (as cited in Van Hagen, 2015, p. 8). The Maslow's hierarchy of needs became a reference in the behavioural research and has been recently adapted to travel behavioural studies, such as by Van Hagen (2015) in his research work on rail interchanges optimization. In line with the current mobility challenges in the MENA region, security (surveillance camera, security staff to protect users from robbery, harassment, etc.) and safety (crossing facilities, sidewalks, etc.) have been identified as the two primordial basic needs to ensure users' satisfaction. Additionally, the journey by public transport should be easy, i.e., convenient and with little hassle (integrated ticketing system, real-time information delivery, journey planners, etc.). Also the traveller expects a comfort at the station and on-board (shelters, seats, air quality, etc.) while travelling. Finally, the need of a pleasant experience must be fulfilled (friendly staff, additional services such as Wi-Fi, shopping facilities, etc.) (See Fig. 2) The questionnaire and focus groups script were developed around the five dimensions of the UOPT pyramid.

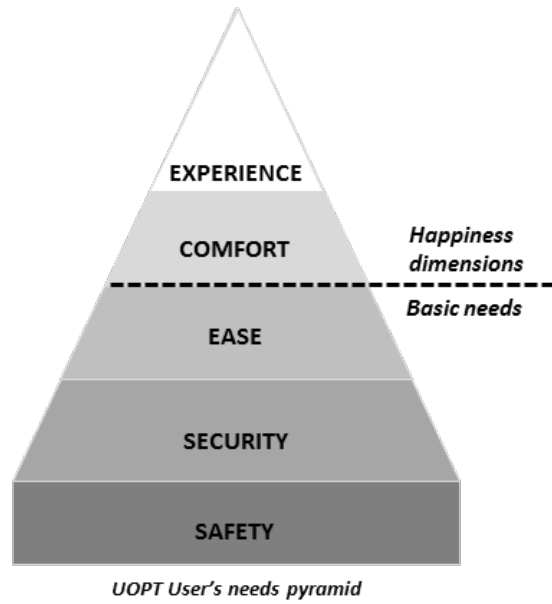


Fig. 2 UOPT user's needs pyramid, (Delatte, 2016)

3.2 DATA COLLECTION AND METHODOLOGY

The nature of this research was partly exploratory and partly descriptive. The research followed a mixed-method approach of analysis where the comparison-based description was given a due emphasis in the methodology to ensure the production of comparative results and highlight regional differences and similarities taking into account local cultures and values. The same methodology was therefore applied in each of the five cities. Questionnaires were administered to the respondents in March 2017 six cities using stratified sampling approach with the objective to reach equal number of females and males having diverse mobility habits. More than 50 students were involved for collecting data and conducting focus group interviews at locations such as public transport hubs, on-board public transport vehicles, malls, parking, and taxi stations. The questionnaire contained 50 multiple choice questions and was structured along four main categories: (1) Socio-economic characteristics of the respondents, (2) mobility habits, (3) mobility tools and (4) perceptions on public transport services following the five dimensions of the user's need pyramid. The dataset is composed of 984 valid responses (from 511 women and 473 men). After cleaning and preparation of the data, the respondents were categorized according to their mobility habits in four segments: (1) female and (2) male users - using mass transit at least once a week; and the (3) female and (4) male non-users – using mass transit less than once a week.

Description of the samples		Gender in %		PT use in %		Age in %					HH status in % (multichoice possible)			Occupation in % (multichoice possible)		
		Women	Men	Users	Non-users	16-	16-25	26-45	46-59	60+	Single	Married	with children	working	not working	students
n=																
Algiers	220	49	51	94	6	6	44	24	15	10	61	38	15	39	19	46
Amman	166	61	39	52	48	1	77	13	9	0	83	17	7	35	11	61
Beirut	67	60	40	18	82	1	60	34	4	0	79	21	6	64	6	48
Casablanca	318	52	48	77	23	0	53	29	13	4	64	35	16	50	13	41
Muscat	213	46	54	37	63	0	51	40	8	1	62	38	19	48	20	38

Fig. 3 Profiles of sample respondents, (Delatte, 2016)

Two-thirds of the respondents are regular public transport users. For Casablanca and Algiers, these four segments were divided in two: respondents giving their perception on bus services or on rail services. A descriptive analysis was conducted to identified similarities and differences on perceptions among the diverse segments and between each city. The profiles of the sample respondents are presented in Fig.3, and the size of the segments in the five cities are given in Fig.4.

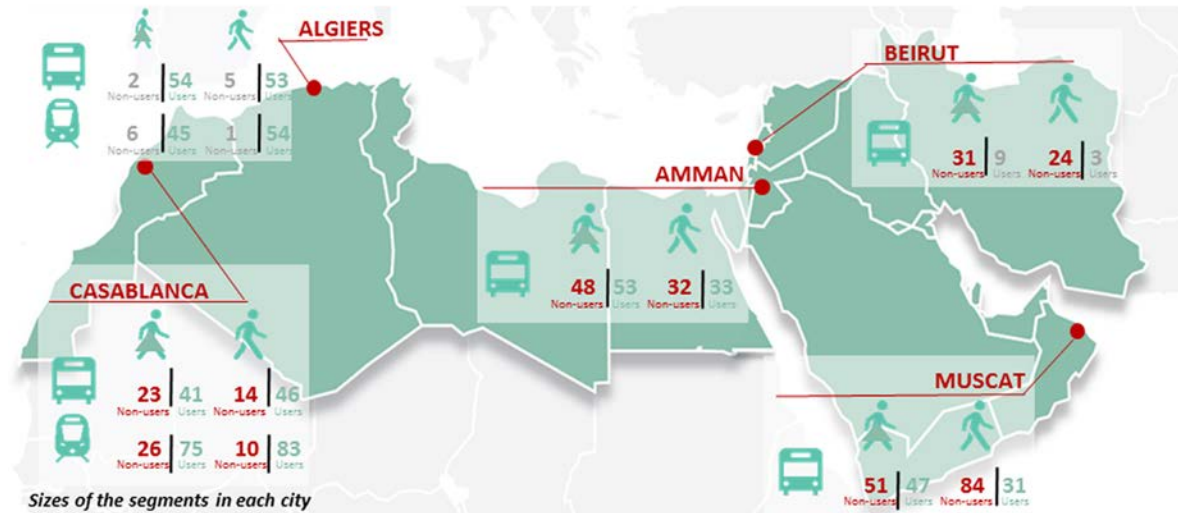


Fig. 4 Sizes of the segments for the data analysis by city, (Delatte, 2016)

The focus groups were conducted in November 2017 with a targeted group size of 8 to 12 women in each of the five cities. The groups included a mix of regular public transport users as well as non-users, with diverse socio-economic characteristic (age, marital status, employment, mobility habits). The two main objectives of the discussion were to identify the barriers and triggers to use public transport and to find solutions to improve public transport services from women's perspectives. 49 women participated in the focus groups across the five cities.



Fig. 5 Focus groups with women in Algiers (left) and in Beirut (right), November 2017.

The results of the discussion were qualitatively analyzed (descriptive narrative), barriers encountered by women in using public transport were sorted using the five dimensions of the user's need pyramid and suggested measures for improvements were categorized under urban design/environmental, innovation and operational, community involvement, capacity building and policy.

4 KEY-FINDINGS AND DISCUSSIONS

Through the quantitative and qualitative analysis of the data collected, the key findings were summarized and clustered in three main action areas: (1) establishing a culture of public transport services, (2)

encouraging sustainable mobility behavior, especially by youth, (3) developing safe and secure environment for women and gender-responsive services.

4.1 ESTABLISHING A CULTURE OF PUBLIC TRANSPORT SERVICES

Infrastructure, design and marketing

Prior focusing on the culture of services, it is primordial to provide the basic infrastructures such as well-maintained shelters with sufficient seats at stations with heating and AC system – especially in cities with extreme weather –, well-maintained vehicles with operational door-system, stop-request buttons. Additionally, an integrated and electronic ticketing system is part of the overall ease-to-use dimension of the public transport provision. The most significant finding is that none of all system assessed is providing enough shelters and seats in waiting areas, according to respondents' perceptions.

Among all system analyzed, the bus system in Muscat and the tram system in Casablanca have the best ranking related to image/design of the services and delivery of information: more than two-third of the respondents likes the image and design of the tram in Casablanca; similar results for the bus in Muscat; three-quarter and two-third of the respondents respectively for Casablanca tram system and Muscat bus system know where to find information. For the public transport systems of in other cities, design and information availability are negatively perceived (see Fig.6).

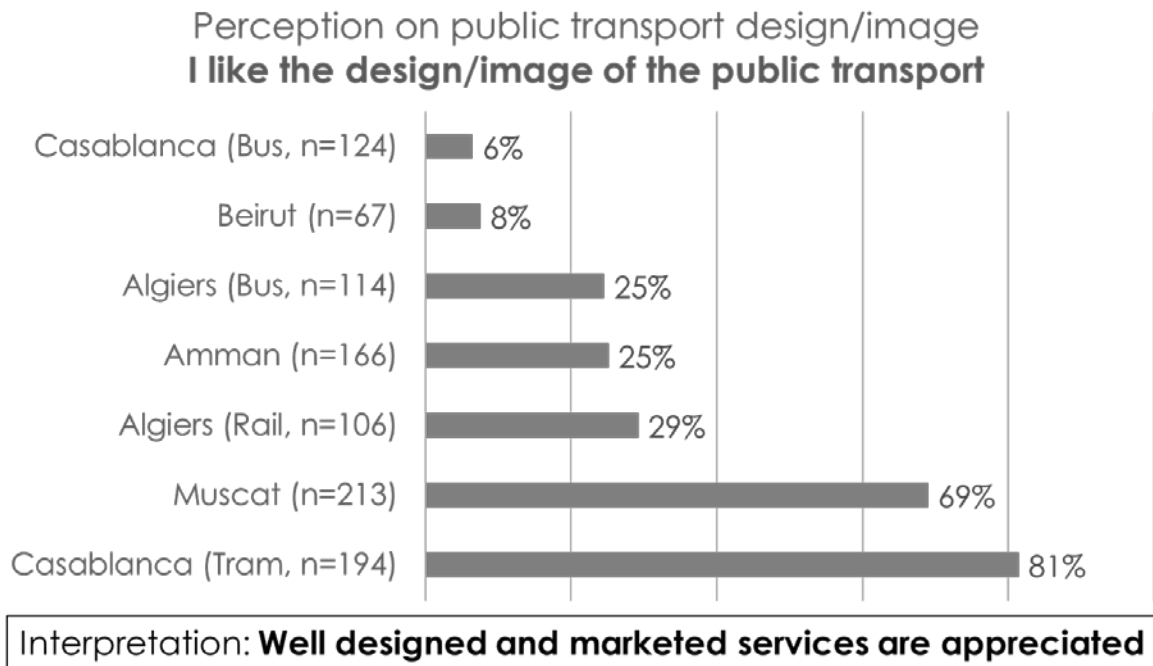


Fig. 6 Share of the all respondents having a positive perception on public transport design, by cities, (Delatte, 2016)

The positive perceptions in for the Casablanca Tram and Muscat bus system can be attributed to the successful rebranding strategy launched by Mwasalat in 2016 with the overall aim at improving its image and attract customers on the bus network in Muscat (Belwal, 2016). Additionally, to customers' recognition, Casa Tramway received in 2017 the quality management system certification ISO 9001 (version 2015) which is an international recognition of the successful customer-centric strategy implemented by the operator. Adding key-indicators performance complying with international quality service standard in tender specifications contributes to encourage operators to excel in customers' service, and ensure a transparent results evaluation and monitoring.

Trained and professional staff

Three adjectives were used in the questions related to public transport staff: driving behavior (safety), helpfulness in case of incidents (security), and friendliness (experience). In all five cities, driving behavior have been massively negatively assessed and considered as unsafe by users and non-users. Concerning friendliness and helpfulness in case of incidents, it seems that these two qualities go hand in hand from a user’s perception: most of respondents who perceived public transport staff as helpful do also qualified them as friendly. It can be concluded that friendliness of staff could easily contributes to raise the security feeling of customers (see Fig.7).



Fig. 7 Share of the all respondents having a positive perception on public transport staff, by cities, (Delatte, 2016)

In Casablanca, tram staff is having a more positive image than bus users. It is worth noting that 200 police staff are present on the tram network. In Algiers, the discussion with women shows the metro and tram system is perceived as safe and secure, and police and security staff are present and drivers seem to be trustful in case of incidents. It is not the perception shared in the bus system, in any of the five cities. Women do not count on bus drivers to help in case of incidents and believe that drivers do not have legal power to intervene and protect their passengers. Some women do even feel uncomfortable or harassed by bus and taxi drivers. *“Bus drivers are really unbearable”* (participant in Beirut). Two main recommendations emerge from the assessment of public transport drivers and staff behavior: (1) enforce safety driving rules and (2) raise selection and training level for public transport employees. Road fatalities rates in MENA countries belong to the highest one worldwide (WHO, 2015). Authorities and operators have to strengthen safe driving behavior trainings for bus and taxi drivers: stopping at designated areas, giving priority to pedestrians at crossing facilities, careful and prudent driving behaviors. Additionally, rules and enforcement should be established to educate other private cars to respect pedestrians and bus priorities on the road, and at the stations. The “Drive between the lines” campaign conducted in 2016 in Tehran, is an example

among others on the way to raise drivers' awareness on safety issues. Developing more strict process to select and train public transport drivers were suggested during the focus groups. With the aim at professionalizing the service and raising drivers' awareness on their responsibilities to ensure safety, security and comfort of the customers. Additionally, the low presence of female public transport staff were raised during the focus groups. Encourage female drivers will contribute to women's confidence to use public transport: *"If there will be more women drivers, I will use public transport daily."* (Participant in Muscat) However, these recommendations should be embedded in an overall customer service strategy giving staff a key role and responsibilities, along with professional recognition: *"Only a satisfied employee can make a satisfied customer"* (UITP, 2018).



Fig. 8 Maintenance center Casa Transport ©sife.elamine.hd-147

4.2 ENCOURAGING SUSTAINABLE MOBILITY BEHAVIOR

Mobility education

In Amman and in Muscat, the three main reasons for using public transport are related to the non-ability to use private car: no car, no license and public transport is the less expensive mode of transport. Two-third of the respondents in Amman and half of the respondents in Muscat are under 25 years old. It can be assumed that they are captive public transport users, with financial constraints and would probably purchase a car as soon as they will afford. Especially since social status of the car seems to be high among non-users in Amman and Muscat respondents, regardless of their gender, with respectively a third and a quarter of the non-users affirming that "they like their car" (see Fig.9). The results of the focus groups confirmed the current dependency to the private car mainly due the low frequency and low coverage of public transport which makes car use more flexible (even if traffic and parking issues have been mentioned as barriers for car use).

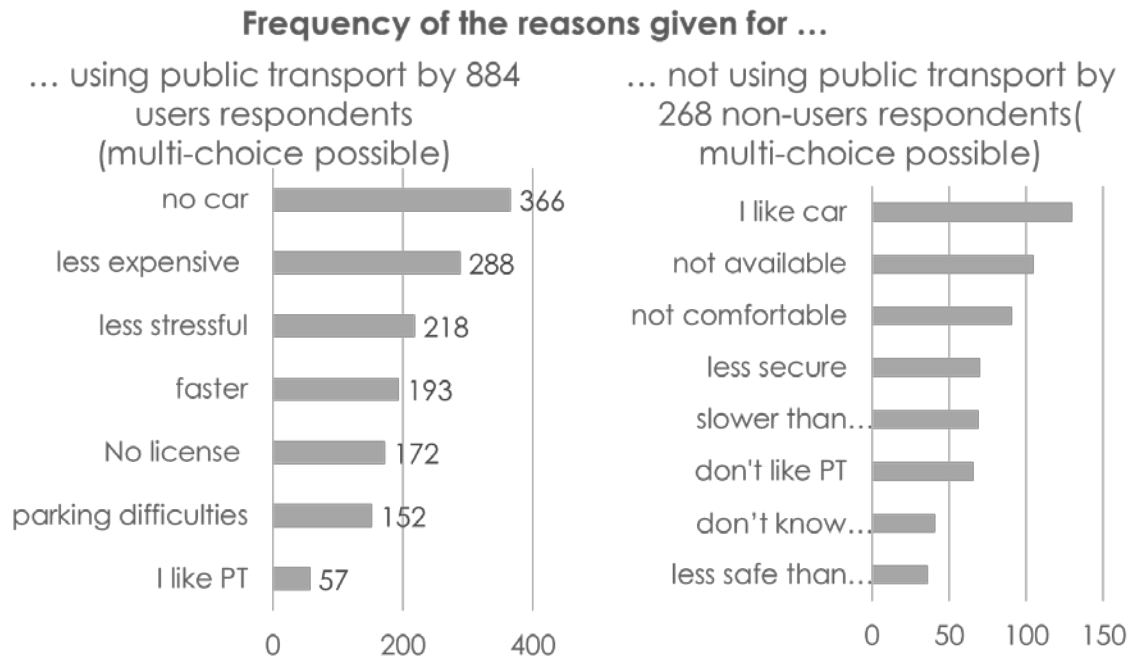


Fig. 9 Frequency of the reasons given for using or not using public transport, (Delatte, 2016)

Women feel more secure in the private car. Freedom and flexibility are related to car use, indeed women in Algiers mentioned that they can stay outside longer at the evening when they are travelling by car. *“Since I have my own car, I feel free, independent and comfortable in my commuting. I don’t have time limit anymore”* (Participant in Algiers).

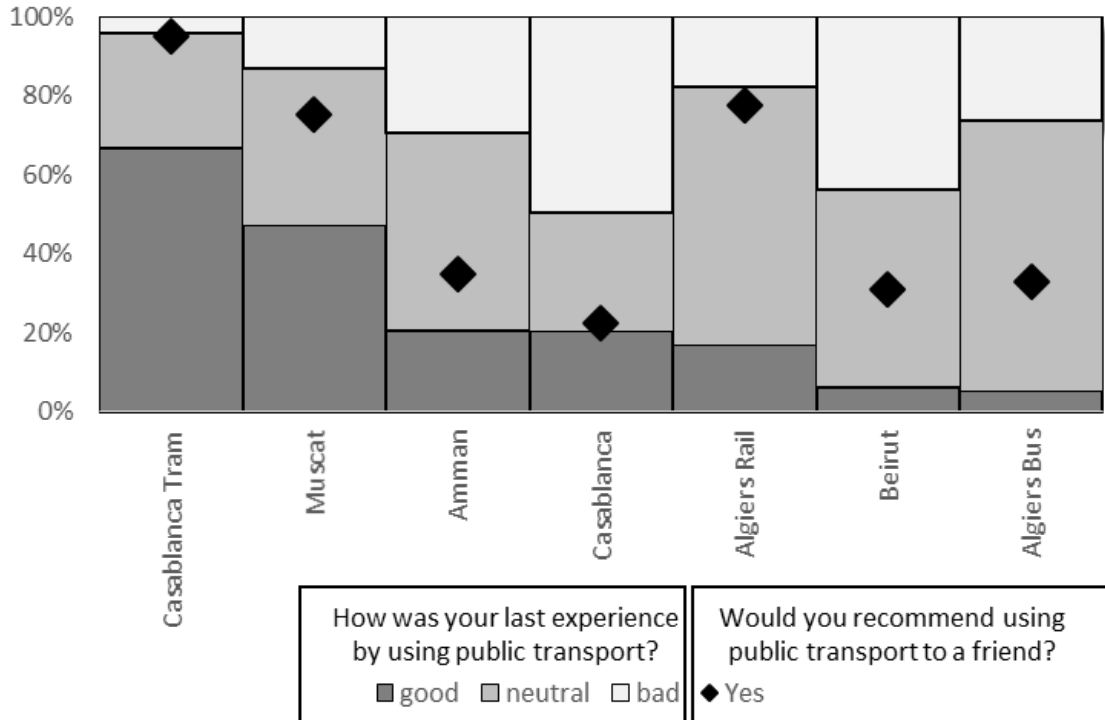
However, in Muscat, the preference to use the car is not only related to mobility habits, it is also related to cultural and social norms. A participant in Muscat do not use public transport because of her family and social surrounding, *“it is a shame for women to use taxi or bus.”* (Participant in Muscat). Another participant expresses the lack of privacy in public buses as the main reason to avoid it: *“I will never use the bus, especially the urban buses in Muscat because the windows are not tinted: everyone could see me.”* (Participant in Muscat). Similar statements were heard in Amman: *“Public transport makes me feel uncomfortable as I would feel that I am losing my personal space; so I prefer using my own car.”* (Participant in Amman). Disrespectful behaviors are a critical factor in women’s modal choice *“Some men do not respect women in public transport [...] I wish I would have my own car, so I never use public transport anymore.”* (Participant in Amman).

Preventing harassments against women are developed later in this paper. Knowing that a quarter of the total MENA population is under 25 in 2017 (UN DESA, 2017), it appears crucial to raise youth awareness and encourage them to adopt sustainable mobility behaviors, and develop common understanding on individual contribution to reduce own urban footprint for the benefits of the whole urban population.

Happy customers are the best ambassadors

Despite the overall negative image of public transport in the five cities, especially the bus system, the share of users with positive assessments of the services is higher than the share of among non-users. This highlights the predefined negative image public transport that respondents have, without even having experimented it, for some of them.

As Fig. 7 shows, there is a direct correlation between the positive and neutral experience of using public transport and the readiness to recommend it to a friend. Happy public transport users are the best ambassadors of the system.



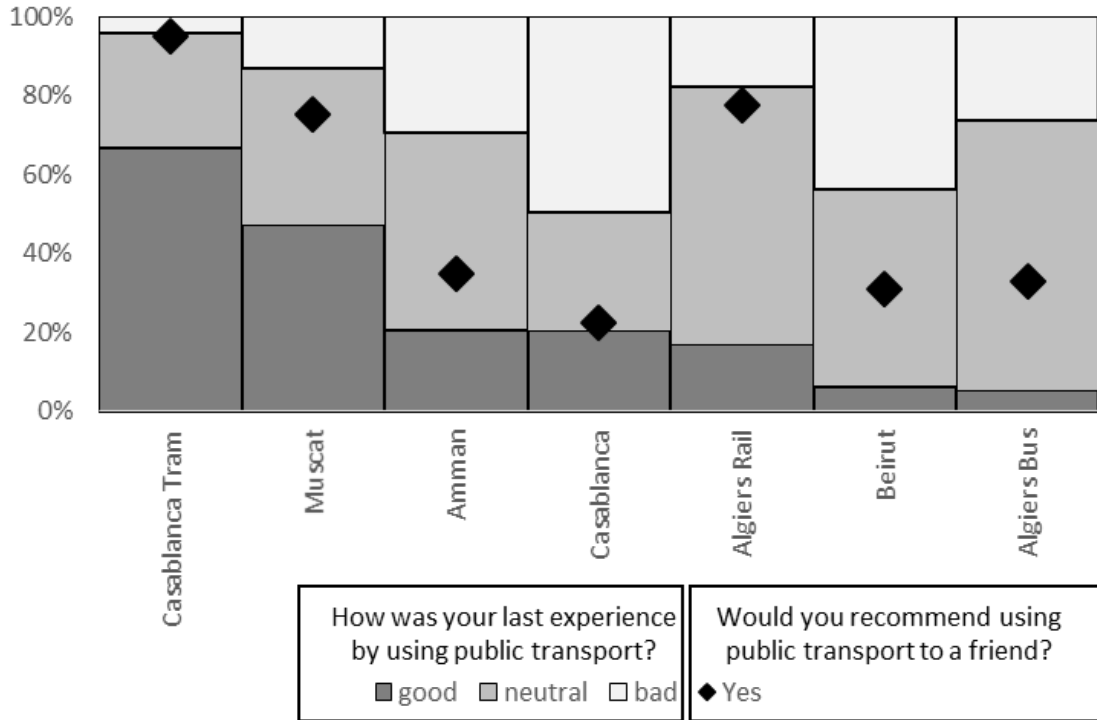
Interpretation: Happy customers are the best ambassador

Fig. 10 Correlation between positive experience and readiness to recommend public transport use to a friend, (Delatte, 2016)

In Casablanca, the most selected reasons for using public transport are the advantages public it is giving compared to the private car: less expensive, faster and less stressful than the car. This finding is really positive, since it is showing that public transport users are not captives but do a real modal choice by travelling with PT rather than private car. Additionally, almost all respondents in the five cities affirmed being annoyed by other passengers' behaviors. It is therefore crucial to build a culture of travelling collectively in respect of other passengers is a key factor to improve the overall customer experience. In Casablanca, M'Dina Bus cooperated with the non-governmental organization AFAK promoting civic behavior in Morocco, to develop an audio guide to learn how to behave on board: "civisme au bord du bus" (<http://mdinabus.ma/AFAK/>).

4.3 DEVELOPING GENDER-RESPONSIVE SERVICES

One of the most significant gender-specific results of the analysis is the difference in perception on personal security by using public transport: Women are more concerned by security issues than men are. Among all 131 female non-users respondents of the questionnaire, 41% cited "Public Transport is less secure than car or taxis" as the reason for not using public transport. It is the second most often selected reasons among women after "I like to use my own car" (47%). On the other hand, security concerns were mentioned by only 12% of the 137 male non-users (see Fig. 8). These findings clearly illustrate the gender gap in perceptions to security in public transport. Personal security was at the core of the discussion in Amman, Beirut and Casablanca: verbal harassment, physical harassment, or robbery. "I'm afraid of using PT because I feel it is a dangerous way to move around because there is a lot of robbery and physical harassment going on." (Participant in Amman).



Interpretation: Happy customers are the best ambassador

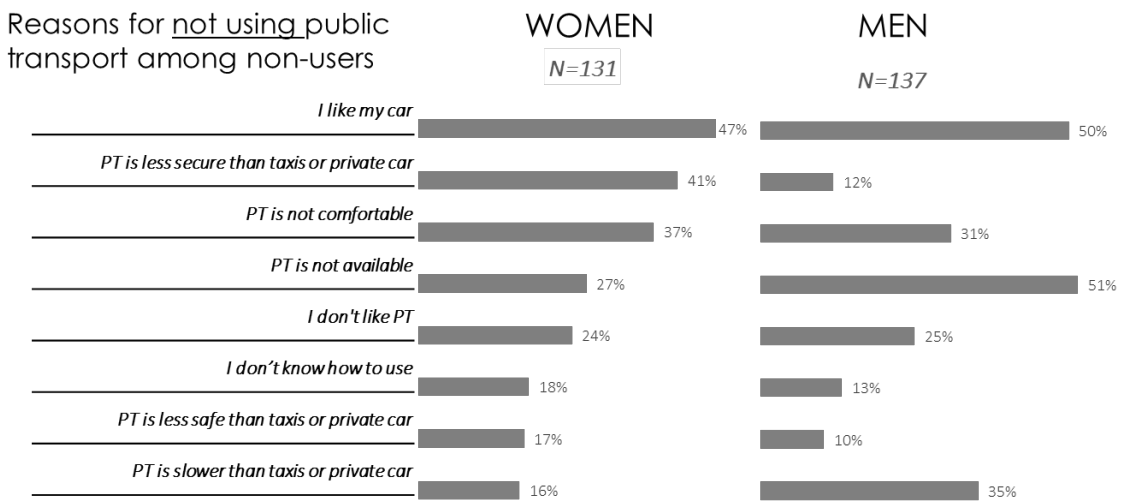


Fig. 11 Reasons for not using public transport among non-users, by gender, (Delatte, 2016)

While personal security is the main difficulty women faced in public transport, several other barriers have been identified during the discussion such as the low coverage, no fixed schedule, lack of bus stops, information, and short operating hours that do not match women's need in terms of daily mobility. These barriers generate constraints in women's daily activities and affect their overall quality of life and ability to contribute to economic and social development. The negative impact on women's health have been also discussed in all cities: lack of shelters to protect them from extreme weather, bad conditions of buses which expose them to rain and wind, lack of toilets is especially problematic for long commute. Several factors lead to a permanent stress: risk of accidents on the way to/from the station women and on-board due to unsafe

drivers' behaviors, harassments on the street and on-board. The lack of security is the most impacting factor on distress of women which lead to fear of travelling at night, psychological distress of women who were victims of harassment or heart about other women's experiences. Women use to dress differently by travelling with public transport. Finally, physical tiredness by having to walk long due to the low coverage and lack of bus stops (see Fig.11).

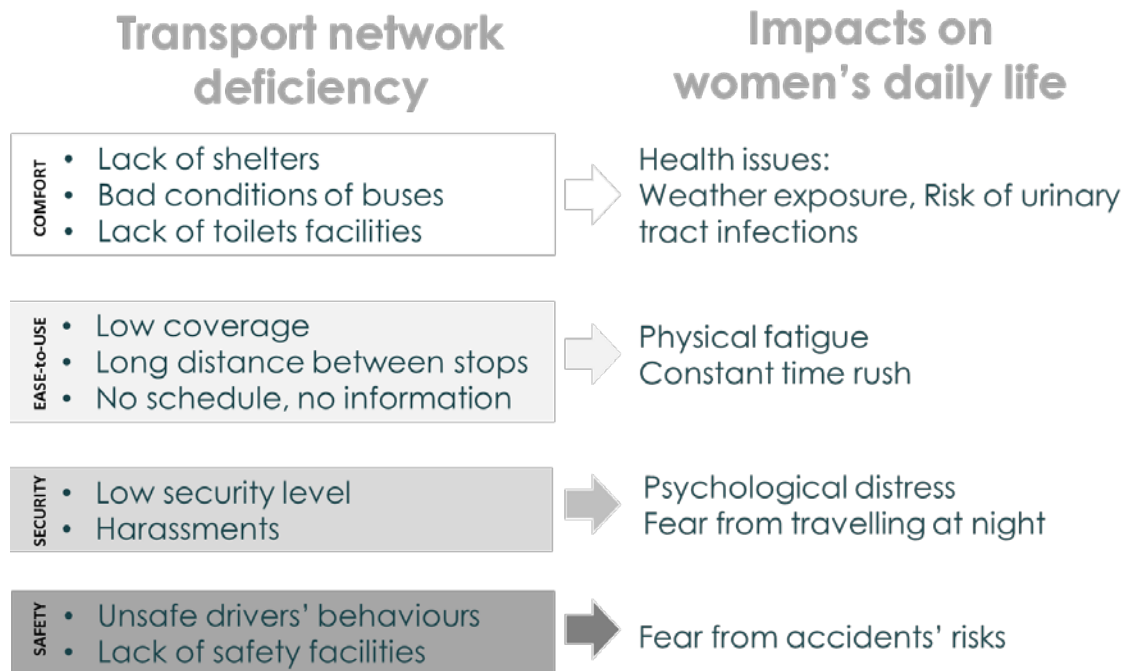


Fig. 12 Impacts of transport services deficiency on women's daily life, results of the focus groups, (Delatte, 2016)

Safe and secure walking environment

Walking environment have been widely discussed during the focus groups. Due to the long distances between two stations, women are either depending on other relatives to pick them up, or have to take a taxi (which may be hardly affordable) to reach their final destination. When women do walk they are exposed to safety risk: inexistent sidewalk, or poor conditions (broken, narrow). It is a real hassle for mother with trolley, or women with packages. Additionally to the conditions of the paths, lighting is often missing on the last miles of their trip which makes the walk unsecure, due to some dark areas and streets to be crossed at early morning or late evening hours. *"Regarding the lack of light on the street, yes, sometimes I'm scared when I walk to the bus stop early morning"* (Participant in Algiers). Developing a safe walking environment to and from the stations is a necessity to make public transport attractive: short distance between bus stops, with urban furniture, safe crossing facilities, large sidewalks, and light street. It will contribute to provide a safer and more secure environment for captives' public transport users and walkers, and encourage other women to practice walking and adopt and healthier life style.

Longer operation hours

Among all respondents, more than 80% have to wait for the next departure for at least five minutes. In some cases, it can extend to one hour, since drivers wait until the vehicles capacity is reached before departing, which is regularly the case in Algiers, Amman and Beirut, according to participants. The short operational hours of public transport limit the time public transport captives have to complete their daily duties. They have to plan the activities according to public transport schedules which are often unreliable.

"My daily commute is a nightmare. I live only 4 km away from my work, but I spent more than 3 hours in buses" (Participant in Algiers).

In Casablanca, Algiers and Amman, women express the stress generated by the complex travel organization and the long time they spent outside the house to achieve their daily duties. Current public transport operation hours are not appropriate: starting too late on the morning and stopping too early at the evening. Women express the will to participate to cultural and social events (such as theater, concerts, etc.) and have thought to renounce to it due to the lack of services at the evening. Additionally, one participant had to renounce to promising job opportunities due to the lack of accessibilities. Extending public transport operation hours at early morning and late evening for women will help women to complete their diverse activities, avoid daily stress and rush to reach the first or the last bus. Women will have also more opportunities to access social life and as one participant emphasizes it will contribute to the virtuous circle of presence of women in public space: *"By having more women participating to social life in public place at the evening, social norms will change and gender diversity in public space (and public transport) will be better accepted"* (Participant in Algiers). Additionally, longer operational hours will also enable women to travel longer distances and accept better job opportunities, with higher potential of professional development.

Women – only carriages: a city – specific decision

As it was mentioned earlier in the article, the lack of privacy is a barrier for women to use public transport. Disrespectful behaviour of other passengers, and more dramatically harassment against women leads to the development of solutions in which women's physical integrity are preserved, such as women-only carriage. Women participating to the focus groups expressed divergent positions regarding women-only areas. For example, in Muscat women request more privacy when using public transport and suggest the use of separate areas in buses, tinted glass or curtains. However, in Casablanca and Algiers, women warn against the negative long-term impact that deploying women-only sections could have on social inclusiveness. In Amman, there is a generational debate: young women expressed opposition to women-only sections, while older women liked the reassurance that their daughters and granddaughters are travelling in a safe and secure area. In Beirut, women-only taxis and buses are perceived as appropriate solution at late evening and night. Urban mobility is experiencing a paradigm shift and requires innovation that addresses challenges specific to the region, conscious of our local cultures and values (Zureiqat, 2014; LSE, 2015). It is important to develop services in line with the local specificities and social norms. Involving women at each stage of process of gender-responsive development will contribute to reach the most appropriate solutions locally and ensure customers' acceptance.

Reporting system and legal understanding

The lack of reliable reporting process and legislation to prevent harassment and protect the victims add to the difficult to eradicate fear of using public transport. It is a worldwide issue (FIA Foundation, 2016). However, it has mentioned only in two of the focus groups, in Casablanca and Amman.

"Once clear harassment reporting procedure and sanctions will be applied, there are clear complaint procedures and sanctions applied, harassers will have fear and not the women. And we will feel safe" (participant in Casablanca). *"There is no way to report a harassment case while preserving the dignity and confidentiality of the complaint."* (22 year old, PT user in Amman).

In all five countries, reporting harassment is an unclear and very complex process. Harassment remains a taboo subject. In Lebanon, there is no national legislation against harassment, the Lebanese penal code does not state any explicit criminalization of sexual harassment (Nasr 2017). The legislative gap is comparable in Jordan, according to the, Jordanian law does not protect women efficiently against harassment (Jordanian National Commission for Women). However, in Algeria a law criminalizing violence against women, including harassment in public space, has been adopted recently, in March 2015, and a

national strategy against sexual harassment has been deployed in 2016. Non-governmental organizations are very active in MENA cities to raise awareness on harassment issues. In Beirut, Harasstracker provides a social space for victims and bystanders to report incidents, with the application mapping the location and details of harassment cases posted by victims. Similarly, in Algeria, the 'J'Existe' campaign on Facebook offers women a channel to denounce harassment. Public authorities and operators are also key actors by developing strategies to reduce harassment in public transport. For example, in Morocco, the 'Marrakesh: Safe and Friendly City for All' program was implemented in order to foster a no-tolerance attitude to harassment. As part of this initiative, the local bus operator ALSA trained its drivers to counter the problem and it broadcasted videos raising awareness of sexual harassment on board buses. Similar visual campaigns have emerged on buses in Tunis under a partnership between urban operator TRANSTU and CREDIF, a public organization under the Tunisian Ministry for Women, Family and Children (CODATU, 2017). Entitled '#Mayerkebech' (meaning: 'the harasser does not ride with us'), this initiative encourages women to speak out against harassment in an effort to tackle the problem in local transport. Authorities, operators and NGOs need to develop reporting process and raise public transport customers' awareness on the forms of harassment, the impacts on women and to provide an efficient system for women to report incidents. Several measures were mentioned during the focus groups as suggestions to be implemented in the five cities. These diverse measures need to be implemented in a comprehensive matter, covering the five following dimensions: operational aspects, urban environment, community awareness, policy and legal aspects and capacity building (see Fig. 12)

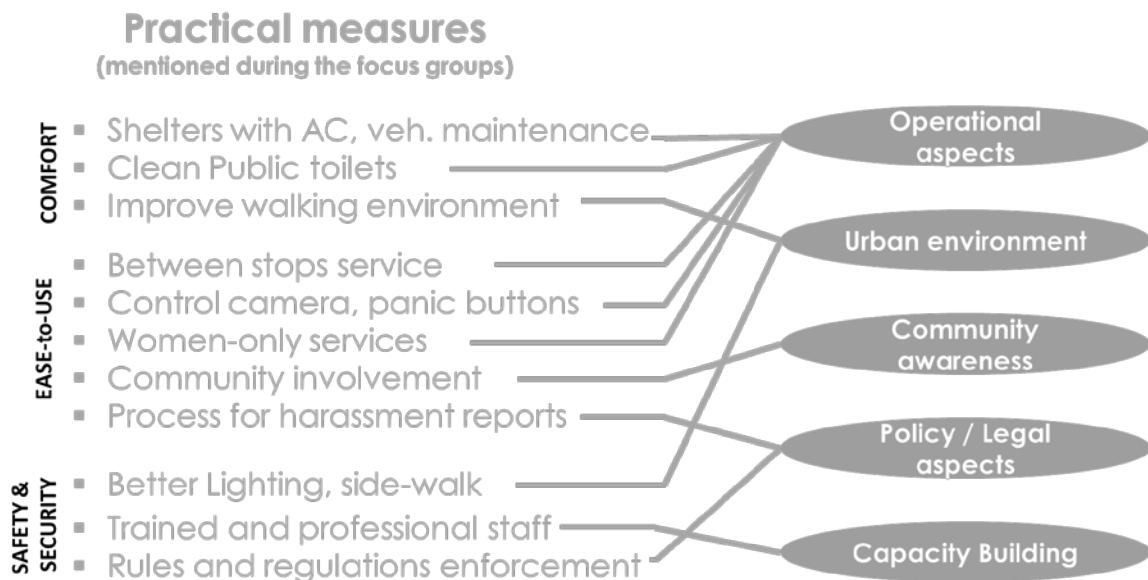


Fig. 13 Gender-responsive measures mentioned during the focus groups, sorting along five dimensions, (Delatte, 2016)

5. CONCLUSIONS

Demographic and socio-economic changes are and will continue challenging urban and transport development in MENA cities. Nowadays, the MENA region counts 28 cities with over one million inhabitants; more than three-quarters of the overall population is living in cities; and urbanization is predicted to continue growing in the coming decades, with a doubling of the urban population in MENA region between 2015 and 2050 to reach an estimated mark of 440 million (UN DESA, 2014). There is an urgent need to address the major congestion issues and achieve the transition towards sustainable transport development. Investments in infrastructure are a necessity to keep pace with growing mobility demand. At the same time, encouraging

travel behavioral changes towards green modes of transport, including public transport is one of the most challenging and essential mission of authorities and mobility providers.

The outcomes of the User-Oriented Public Transport project contribute to fill the knowledge gap on public transport perceptions in MENA cities through primary data analysis among female and male regular customers and car users, in two Maghreb cities (Algiers and Casablanca), two Mashreq cities (Amman and Beirut) and one GGC city (Muscat).

Recommendations have been formulated to address policy-makers, decision-makers, planners and operators along three main action areas:

- Developing a culture of public transport use by giving priority to the human interaction between the customers and the public transport employees. Public transport customers are first of all pedestrians. It is crucial to give them priority, to ensure a safe environment to reach the public transport network through safe and secure urban surrounding. Drivers, controllers and public transport staff at the stations, are the human face of public transport services. Respectful and friendly interactions contribute to improve the overall image of public transport;
- Encouraging youth to adopt sustainable mobility behaviors. Youth are the future public transport customers, as well the future decision-makers and planners. Mobility education at school and at university level will contribute to raise awareness. Making urban dwellers accountable for the quality of their urban environment in terms of air quality, space availability will lead to a rational shift from the private car to public transport use;
- Ensuring safe and secure public transport environment is a societal concern as well as a prerequisite to fill the current worldwide gender gap. Several dimensions have to be taken into account to develop a safe and secure environment for women: from urban design elements to regulations and legal enforcements through capacity building and women's employment in the public transport sector. Indeed, women need to feel safe and secure all along their journey with an appropriate street lighting along the way to the next stations, lively waiting areas in which they feel comfortable, friendly drivers and public transport staff they trust. Therefore, it is crucial to involve women at all levels of public transport development from planning to decision-making through implementation to better match women's needs. Transport is not gender neutral (World Bank, 2011b). It is now widely recognized and several international commitments have been taken to strengthen gender equity and diverse initiatives are promoting women's employment in transport field, as well as encouraging gender-responsive urban transport solutions (International Transport Workers' Federation, World Bank Transport, FIA Foundation, UITP, UN Women).

Additionally, research efforts should be pursued in the MENA region to understand travel behaviors and influential factors of modal choice with gender consideration. The lack of disaggregated gender data is not only a MENA issue, it is a worldwide concern (FIA Foundation, 2016; Duchène, 2011). It is crucial to generate evidence on gender concerns to support decision-makers to meet informed decisions for the benefits of all. Finally, cooperative research projects on MENA region level are crucial to stimulate knowledge transfer, to share best regional experiences, and learn from regional similarities and differences. Furthermore, strengthening cooperation between public authorities, civil society, private sectors and researchers will contribute to an optimization of resources through better synergy and complementarity, and ensure the implementation of informed decisions.

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IMAGE SOURCES

Cover: Tram in Algiers, source: Prof. Baouni

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