

Saudization Barriers in Labor Market: An Analytical Study

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Abstract: This study identifies Saudization barriers. According to the literature review, thirteen key barriers were identified and classified as Individual, Organizational and Governmental barriers, including: Refusal to work in low-skilled positions (1), Inactive job seeking (2), Lack of interest in vocational training (3), Preference of governmental sector jobs (4), Deficit in educational requirements and qualifications (5), Insufficient skilled Saudi workers (6), Low-cost hiring process (7), Lack of Labor market-driven requirements and qualifications (8), Lack of soft-skills and work ethics (9), Low job commitment and Ghost jobs among Saudi female worker (10), Unclear policies and data collection strategies (11), Forced Saudization in specific occupations (12), and Deficit in inter-ministerial collaboration (13). The Interpretive Structural Modeling (ISM) approach was used to understand the inter-relationships between the identified factors, after collecting the opinion of human resources experts in different industries in the Saudi labor market. This study also identified the “driving barriers” (i.e, the barriers influenced by the other barriers) according to MICMAC analysis. The findings of the ISM model indicate that the top barriers are three; Lack of interest in vocational training (3), Preference of governmental sector jobs (4) and Deficit in educational requirements and qualifications (5), hence at the top of this model. This study identified and showed the inter-relationships between barriers, which is helpful for decision-makers to be able to direct future initiatives to overcome top barriers and develop inter-sectorial and inter-ministerial coordination plans to develop clear strategies and data collection methodologies to support the country Vision 2030 in reducing unemployment rates among Saudi workers.

Keywords: Saudization, Barriers, Interpretive Structural Modeling, MICMAC analysis

I. INTRODUCTION

Unemployment in Saudi Arabia can be considered as wasting of valuable human resource and directly impacting the economic development. The impact of job loss in rural and regional areas flows through the local community damaging businesses as family expenditure is reduced. Further damage to local communities may result from people leaving to search for decent work opportunities.

The Saudization program, is a developmental strategic plan to increase the employment rate among Saudi national workers versus reducing the foreigner’s employment [1]. In 1970, workforce Saudization entered formally in force, and was given priority in the mid of 1990 after the launching of the sixth five-years (1995-1999) national development plan that proposed employment generation measures. The sixth development plan (1995-2000) aimed to create close to 319,500 jobs for the Saudis by replacing foreigners. However, the expatriate workforce has increased by 58,400. The failure to combat the rising unemployment rate led the Ministry of Labor to introduce the Nitaqat program in 2011 as a strengthening policy [2].

The term “Saudization” refers to a national policy to replace expatriate workers with nationals, adopted by the Saudi government with remarkable results on the Saudi economy in 1994 [3]. In addition to the

national strategy, multiple governmental actions were taken to increase the employment of Saudi workers instead of foreigners. The ministerial decree in 1995 is one of them, that proposed to replace expatriates with locals in local enterprises with an annual rate of 5% [4].

In 2011, and under the Ninth Development Plan (2009-2014), the Saudi Government developed a Saudization standard framework [2]. The “Nitaqat” program works on the enhancement of the effectiveness of “Saudization” policy, to achieve it successfully and reach the targets [4].

This process included the evaluation of the private sector organizations based on the nationalization of employees, by calculating the percentage of Saudi citizens employed in the organization. This program introduced a differentiation between industries with different quotas for each industry [5].

After 3 years of the launching of “Nitaqat” program, in 2014 the Saudi Gazette reported that one of the targets of the Saudi Arabia in the Ninth Development Plan (2010-2015) to reduce the unemployment rate to 5.5 percent by reviving Saudization strategy had not been achieved [1].

Nowadays, Kingdom of Saudi Arabia is having an increasing interest in localization of workforce to combat the rise of unemployment rates over the last decade. Reducing unemployment rate is part of SAUDI VISION 2030 which aims to reduce unemployment rate to be 7%. In the second quarter of 2021, unemployment rate among Saudis was 11.3%. Unemployment rate was a challenge over the years for the Ministry of Labor (MoL) many of their plans failed for different reasons, population growth rate might be one of the reasons. In addition, over 65% of the population is of working age [6].

1.1 Research Problem

As observed and as per the General Authority of Statistics, the unemployment rates have been increased over the last ten years in Saudi Arabia. In the third quarter of 20, the number of Saudi job seekers is 1,025,328, and the unemployment rate is 12% of fifteen years and above Saudis. For that, the Saudi Arabia government has acted to boost nationalization of the labor market by ensuring that a certain quota is given to private businesses in a scheme called “Nitaqat”. Besides, reducing employment rates became one of the Vision2030 goals. Anyhow, the Saudi labor market is facing many obstacles while they are trying to Saudize job opportunities. Identifying the real barriers and rate them according to their effect is the aim of this research.

1.2 Research Objective

This study aims to achieve the following objective:

- Support the country Vision 2030 in achieving their goal of reducing unemployment rates, by Identifying the barriers of Saudization in labor market and rank them according to their effect.
- To enable decision-makers to describe the relationships among barriers by applying Interpretive Structure Modeling (ISM).

1.3 Importance of the Research

This research will support Saudi Arabia's 2030 Vision. One of the goals of the vision is to decrease the unemployment rate from 11 per cent to 7 per cent. This objective was established because the government understands that high unemployment rates are linked to social and security problems. The benefits of Saudization are extremely clear [7]. It will merely bring back the money which would have been given to abroad foreigners' families (14 billion dollars in 1999 alone) would then be spent

nationally [7]. This research will help to identify the barriers of Saudization in labor market, and assist the planning and policy development to achieve nationalization goals.

II. LITERATURE REVIEW

a. Labor Market in Saudi Arabia

After the 1974 oil boom that expedite the development of Saudi Arabia, the country invested in the infrastructure with the oil revenue, in absence of labor force, the organizations recruited foreigners to cover the labor shortage in construction, retail, accommodation and technicalities [8]. The non-Saudis workers' percentage went from 20 percent in 1970 to 60 percent by the end of 1990 [9]. The recruitment of non-Saudis continued to achieve a rate of 80 percent in 2016 for non-civil servant jobs, in which 45 percent of economy labor were low-skilled foreigners [8].

In the time of non-Saudis recruitment, the government of Saudi Arabia redistributed oil revenue to citizens as lucrative public-sector jobs [8]. Saudization efforts started in 1970, after recognizing the importance of including Saudi workforce in the national economy. Yet, some attempts appeared in 2004 to convert some sectors into national labor only, such as wholesale produce market, jewelry markets, and taxi markets [9]. However, these attempts disappeared shortly with price increases over 200-300 percent, leading to reversal actions, and the Saudi government focused on nationalizing jobs in the government and the kingdom enterprises [8]. Further, the Saudization efforts have also reduced expatriates in middle and semi-skilled jobs [10].

i. Employment Rate by Nationality

According to the general authority for statistics (GaStat) in three quarters of 2021, the total number of employees decreased from 13,483,813 employees in the first quarter to 12,705,645 employees in the third quarter. 26.3 percent of the total number of employees in the third quarter of 2021 are Saudi employed persons (n=3,342,838), versus 73.7 percent of non-Saudi employed persons (n=9,362,807) [6].

Table 2.1: Main indicators of the labor market from Administrative Records [6]

Indicators (Administrative records)*	2021 Q3		
	Male	Female	Total
Total Employed Persons	10,372,117	2,333,528	12,705,645
Saudi Employed Persons	2,127,551	1,215,287	3,342,838
Non-Saudi Employed Persons	8,244,566	1,118,241	9,362,807

* Data do not include employees in the security and military sectors and non-registered in the records of GOSI, MHRSD

ii. Employment Rate by Sector

The 2021 annual report of Saudi Arabian Monetary Agency (SAMA) indicated that the latest statistics issued by the Ministry of Human Resources and Social Development (MHRSD) showed a total number of Saudi and non-Saudi employees in the government sector of 1.3 million at the end of 2020, with 96.1 percent of Saudis in the government sector [11].

According to GaStat in 2021, the total Saudi workers in the third quarter of 2021 was 1516048, in comparison with 152124 Non-Saudi employees, leading to approximately 91 percent of Saudis in the governmental sector with a decrease of 5.1 as per the numbers of the previous year [6].

The number of Saudi and non-Saudi employees in the private sector, as per the latest statistics of the MHRSD was 8.0 million at the end of 2020, with a decline of 2.5 percent from 2019. The ratio of Saudi employees in the private sector to the total number of employees stood for 21.8 percent. [11].

Table 2.2: Total Employed persons by Sex , Nationality and Sector [6]

Sector	Saudi			Non Saudi			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Governmental	939,042	577,006	1,516,048	93,553	58,571	152,124	1,032,595	635,577	1,668,172
Private	1,188,509	638,281	1,826,790	5,693,322	224,551	5,917,873	6,881,831	862,832	7,744,663
Total	2,127,551	1,215,287	3,342,838	5,786,875	283,122	6,069,997	7,914,426	1,498,409	9,412,835
Domestic worker	0	0	0	2,457,691	835,119	3,292,810	2,457,691	835,119	3,292,810
Total	2,127,551	1,215,287	3,342,838	8,244,566	1,118,241	9,362,807	10,372,117	2,333,528	12,705,645

iii. Employment Rate by Gender

As for the female participation in workforce, Saudi Arabia is ranked 141 of 144 countries and it is considered as the lowest rate amongst neighbors. The reason behind the low participation in the labour market, is a combination of social and social challenges [12].

Socially, in Saudi Arabia, females are asked to prioritize their families over the career, especially long working hours. Moreover, they are banned from driving, without adequate public transportation infrastructure, and a high cost of private transportation costing up to 50-70 percent of basic monthly income. For this purpose, in line with the Saudi Arabian vision 2030, on September 26th 2017, a royal decree was issued lifting the ban on women driving, and takes effect on 2018. This allowance to drive had a considerable economic impact, with an estimated growth increases of 0.4 percent to 0.9 percent in the next 20 years [12].

Otherwise, the government showed interest in feminizing some jobs since 2011. A royal decree was announced in 2011 providing specific jobs for women only, in retail industry, manufacturing and pharmaceutical industries. Which forced the replacement of foreigner workers by national Saudi females [12].

By the end of 2020, the number of Saudi male workers amounted to 1.1 million, with an increase of 0.5 percent from the preceding year. Yet, the number of Saudi female workers increased by 7.7 percent over the year of 2019 to achieve a total of 599.2 thousand. As for the non-Saudi male workers this rate declined 3.9 percent from the previous year to stood at 6.1 million. And for the non-Saudi female workers, it decreased by 4.2 percent from 2019, and reached 222.8 thousand by the end of 2020 [11].

In the third quarter of 2021, marked differences were observed in the labor market indicators between male and female workers. Female participation rate increase 2.1 Process performance in comparison to the second quarter of the year to achieve a percentage of 35.9 percent. Although the augmentation of females entering the labor force, the female employment-to-population ratio increased to 29.7 percent, while the female unemployment rate remained unchanged at 17.1 percent [6].

The participation rate among males was 78.3 percent in third quarter of 2021, decreasing slightly by 0.9 Process performance from the previous quarter and the unemployment rate was 3.3 percent, and also decreased slightly by 0.2 Process performance from the precedent quarter [6].

The representation of females among Saudis is roughly the half of the male representation (34.1 percent versus 65.0 percent), likewise the employment-to-population ratios. The labor force rate among Saudi females, comparing to the previous quarter, arose to 34.1 percent, with 1.7 of increase. yet, this rate among Saudi males, decreased up to 0.7 to stood at 65 percent [6].

iv. Employment Rate by Age Group

The main working age group (25 to 54 years) is the most important of the three other groups. Nearly 70 percent of people aged 15 and over belong to this group and account for 85 percent of the workforce. Due to its relative size, this age group is dominant in the pattern of labor force indicators. In the third quarter of 2021, both Saudi youth female and core working-age Saudi females had an unemployment rate of 22.8 percent, whereas unemployment rate among youth Saudi male (14 percent) is higher than the rate of the core working-age Saudi males (4.8 percent) [6].

The participation of core-working-age group among both males and females is double than the participation of the youth aged above 15 years' old (34.1 percent versus 85.7 percent for Saudi males, and 14.6 percent versus 48.1 percent for Saudi females). Although, all person above 55 years old active in the workforce are employed, with very few unemployed cases or job seekers. The employment-to-population ratios are considerably lower for people above 55 years' old in comparison to the core working-age groups (11.2 percent versus 37.1 percent for females and 37.0 percent versus 81.6 percent for males) [6].

Table 2.3: Total Employed persons by Sex, Nationality and Age group [6]

Age group	Saudi			Non Saudi			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-19	39,102	13,833	52,935	505	101	606	39,607	13,934	53,541
20-24	216,458	88,668	305,126	169,281	8,197	177,478	385,739	96,865	482,604
25-29	351,236	186,681	537,917	717,864	38,411	756,275	1,069,100	225,092	1,294,192
30-34	382,171	203,896	586,067	1,092,426	62,112	1,154,538	1,474,597	266,008	1,740,605
35-39	365,909	208,532	574,441	1,133,168	61,385	1,194,553	1,499,077	269,917	1,768,994
40-44	293,396	214,389	507,785	924,904	44,826	969,730	1,218,300	259,215	1,477,515
45-49	205,883	156,016	361,899	647,095	29,763	676,858	852,978	185,779	1,038,757
50-54	147,370	89,243	236,613	482,266	18,575	500,841	629,636	107,818	737,454
55-59	101,367	42,478	143,845	314,792	10,377	325,169	416,159	52,855	469,014
64-60	15,968	8,165	24,133	180,028	5,704	185,732	195,996	13,869	209,865
65+	8,649	3,382	12,031	124,445	3,619	128,064	133,094	7,001	140,095
Not specified	42	4	46	101	52	153	143	56	199
Total	2,127,551	1,215,287	3,342,838	5,786,875	283,122	6,069,997	7,914,426	1,498,409	9,412,835
Domestic worker	0	0	0	2,457,691	835,119	3,292,810	2,457,691	835,119	3,292,810
Total*	2,127,551	1,215,287	3,342,838	8,244,566	1,118,241	9,362,807	10,372,117	2,333,528	12,705,645

* Data do not include employees in the security and military sectors and non-registered in the records of GOSI, MHRSD

v. Employment Rate by Occupation

As per the statistics of the GaStat in the third quarter of 2021, the Saudi worker occupied high managerial positions and professional positions which represent only 13% of the total number of employees in different occupations. Yet, all other associate professionals skilled agricultural positions, plant and machine operators and assemblers, in additions to elementary occupations are occupied by non-Saudi workers [6].

93.7 percent of unemployed Saudi indicated that they only accept a job in the private sector, with 62.1 percent of females and 44.9 percent of males would only accept a commuting time of one hour or less, and 24.2 percent of females and 10.4 percent of males would only accept six working hours or less per day. Noting that all Saudi prefers senior and high-skilled positions [11].

Table 2.4: Participants on the job Subject to the rules and regulations of social insurance by Sex, Nationality and Main Groups of Occupations [6]

Main Occupation	Saudi			Non Saudi			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Managers	125,120	49,535	174,655	56,084	2,000	58,084	181,204	51,535	232,739
Professionals	264,166	212,785	476,951	316,894	97,816	414,710	581,060	310,601	891,661
Technicians and associate professionals	296,171	130,136	426,307	496,026	17,172	513,198	792,197	147,308	939,505
Clerical support workers	271,695	197,500	469,195	43,938	5,522	49,460	315,633	203,022	518,655
Service and sales workers	207,563	87,358	294,921	262,662	5,737	268,399	470,225	93,095	563,320
Skilled agricultural, forestry and fishery workers	1,221	165	1,386	35,952	21	35,973	37,173	186	37,359
Craft and related trades workers	39,050	3,942	42,992	890,306	3,527	893,833	929,356	7,469	936,825
Plant and machine operators, and assemblers	69,597	3,987	73,584	643,486	1,017	644,503	713,083	5,004	718,087
Elementary occupations	104,524	30,309	134,833	2,893,670	124,573	3,018,243	2,998,194	154,882	3,153,076
Other Occupation	36,809	1,608	38,417	812	121	933	37,621	1,729	39,350
Not specified	972	1,095	2,067	122,493	3,248	125,741	123,465	4,343	127,808
Total	1,416,888	718,420	2,135,308	5,762,323	260,754	6,023,077	7,179,211	979,174	8,158,385

vi. Unemployment Rate

The GaStat labor force survey indicated that the overall unemployment rate in Saudi Arabia increased to 7.4 percent in 2020. Unemployed Saudis represented 12.6 percent of the total Saudi labor force. Unemployed Saudi males represented 7.1 percent of the total Saudi male workforce. Unemployed Saudi females accounted for 24.4 percent of the total Saudi female workforce [11]

In the third quarter of 2021, the labor force rate among Saudi females, comparing to the previous quarter, increased to 34.1 percent, up 1.7 Process performance, and the unemployment rate decreased of 0.4 Process performance to 21.9%. Compared to the previous quarter, the participation rate decreased 0.7 Process performance to 65.0 percent decreasing 0.7 Process performance, also the unemployment rate decreased 0.2 Process performance to 5.9 percent [6].

b. Saudization

i. Saudization as a national policy for employment

The high recruitment of expatriates in Saudi Arabia and the shortage of job opportunities for locals pressured the government to swift their measures, aiming to reduce the impact on local job seekers [3]. Despite that the article number 48 of the labor and workers law shows that each citizen has the right to work, the article number 49 allows the inward working with competencies and qualifications needed by the country when there is no qualified citizen worker, or the number of citizen workers is insufficient [13].

The term “Saudization, appears and refers to a national strategy to replace foreign workers with citizens, adopted by the Saudi government with remarkable results on the Saudi economy in 1994 [3]. In 1970, workforce Saudization entered formally in force, and was given priority in the mid of 1990 after the launching of the sixth five-years (1995-1999) national development plan that proposed employment generation measures. In 1995, a ministerial decree proposed to replace expatriates with locals in local enterprises with an annual rate of 5% [4]. As per the ministry of labor (MoL), the annual increase rate of 5% of local workers should increase to achieve 30% in all private sector organizations, regardless their size or industry [14].

Out of the purported “Bedouin Spring”, the issue of unemployment and unfeasible financial environment to meet the emerging youth unemployment yearnings has appeared [15]. Otherwise, before the starting of the “Middle Eastern Spring” occasions, occupation creations, and job vacancies opening was appeared with broad enthusiasm in the Gulf Cooperation Council with embraced approach for “Localization” [2].

The assessment of unemployment patterns and its localization in current published writings on Saudization and employment, is still restricted to quantitative information examination, without prescriptive appraisals on solutions and methods for policy making [2].

To achieve Saudization policy in addressing the employment rate of Saudi citizens, the Saudi Arabian government embedded this responsibility to a number of established organizations, neither they operate under the government, nor in the private sector but under the supervision of the government and the Manpower Council, Ministry of Labor, as well as the Chamber of Commerce and Industry, Human Resources Development Fund, the General Organization of technical education and vocational training, the Saudi Basic Industries Corporation and the National Organization of Joint training [13].

ii. The “Nitaqat” Program

Under the Ninth Development Plan (2009-2014), in 2011 the Saudi Government developed a Saudization standard framework which sets out particular work focuses [2]. The “Nitaqat” promulgated in June 2011 works on the enhancement of the effectiveness of “Saudization” policy and its successful achievement in workforce nationalization process. It evaluates the private sector establishments based on the percentage of its local workforce to classify them under categories with codes based on their performance [4].

The “Nitaqat” process included the evaluation of the private sector organizations based on the nationalization of employees, by calculating the percentage of Saudi citizens employed in the organization. This program introduced a differentiation between industries with different quotas for each industry [5].

The organizations are classified into four ranges, based on their economic activity and size: Red, Yellow, Green and Platinum. The compliance level of the industry is calculated, and compliant organizations benefit from rewards and incentives, including higher number of foreign workers' visas, versus restrictions for non-compliant organizations on visas and other governmental services [16].

The Nitaqat program aims to provide an effective and transparent policy with a standardized tool to ensure equity in employment [17]. This program encourages the competition between private sector organizations, and reduces unemployment rates and leading actions towards economic development [5].

The industries are categorized under 50 categories, and five sizes were allocated for each industry ranging from giant to micro. For the four categories, each category represents the rate of Saudi employees in the organizations. Green and Platinum are rewarded for recruiting Saudi nationals, whereas Yellow and Red are restricted from government services [17].

The detailed quotas imposed in the “Nitaqat” program, bolded the previous efforts towards Saudization. Previous Saudization proposed a minimum of 20-30 percent of national employees in each organization, regardless the type of industry and the size. So, many organizations couldn't comply with minimal restrictions for non-compliance. Under the current program, the industry and the size of the organization are taken into consideration, which made compliance more attainable and realistic. The Saudi government became more aware that the private sector organization cannot raise the employment of nationals for a long period, and combatting the unemployment in Saudi Arabia [12].

- **The “Nitaqat” Stages**

The ministry of Labor in Saudi Arabia indicated that the “Nitaqat” policy went through three stages [17].

The first stage of “Nitaqat” focused on nationalization rates by eliminating barriers of hiring for Saudi nationals. Based on the Human Resources Development Fund, the ministry offered to pay some percentages to the compliant Saudi organizations that lasted for two to five years.

The second stage of “Nitaqat”, focused on the low wages of employed Saudis in the private sector, and the increasing of female participation in the labor market by removing some banning and restrictions against female recruitment. By the end of 2011, the ministry of labor added specific requirement to different industries, such as recruiting females in the retail industry [5].

The third stage of “Nitaqat” started in 2014, by adding the micro-size firms, that includes 10 employees or less. The Saudi government allowed the business owners to register as one of the firm's employee to adhere to the quota. Then the firms were able to pay directly the ministry of Labor to raise their quota, after the compliance policy and sanctions, so the firms can remove sanctions and increase their quotas [17].

- **The “Nitaqat” Process**

First the Saudization percentage is taken on the first week of the application of the program that relies on an average of 13 weeks. The second week, after calculating the nationals' percentage, the program counts the average for the upcoming 2 weeks, and so on until reaching the 13-week mark [18].

On Saudi employee will be counted as 1/3 of an employee in the first month, 2/3 in the second month, and a full employee in the third month, after the update of the system. This method is to ensure a real employment of Saudi citizen, since they cannot be dismissed after a three month of probation period [5].

The policy also described how to count “special cases” in the Nitaqat equation, such as students that cannot exceed 10% of the total number of Saudi employees. Also, one worker with disability is counted as four employees, to motivate organizations for including people with disabilities, and making them economically independent [5]. Yet, if the total number of Saudi employees with disabilities exceeded 10% of the total number of employees, each employee with disability will be counted as one employee rather than four. Moreover, the ministry of Labor counts the previous convicts released in the last two years, as two Saudi employees to encourage the nationals’ recruitment; then after two years, they start to count them as one single employee [19].

iii. The impact of “Nitaqat” Saudization on the Labor Market

The percentage of nationalization of jobs in the private sector increased from 9.9 percent in 2009 to 15.15 percent in 2013 [5]. Prior to “Nitaqat” the total number of Saudi employees was 681,500 that increased to 1.5 million in 2013 with an employment growth in the labor market [5]. Also, directly after the implementation of “Nitaqat”, the male employment increased [17].

For the female employment, more challenges appeared in providing a tailored work environment that adheres to Saudi Labor Law which proposed segregated working places for males and females, in addition to transportation issues, costs and driving banning. The Saudi government started to accommodate female workers, and contributed to train them for the job market, specially the manufacturing industry that was filled 88% by foreigners in 2011. Female employment has increased, and women occupied managerial and administrative positions as a way of increasing Saudization percentage [5].

For the private sector, the “Nitaqat” program burden the organizations and firms with increasing costs, that resulted a higher exit rate and declining total employment [20]. The trade-off between costs-benefits was the main concern about the “Nitaqat” quotas. Only 17 percent of private sector firms reported positive economic growth in 2016, and 37 percent that have announced losses, with average gain declined up to 46 percent [5].

c. Saudization Barriers in Labor Market

The review of the existing literature about Saudization barriers, challenges and unemployment rates, highlighted three types of barriers which can be considered as challenges against the implementation of Saudization, and can lead actions towards policy making and change.

Based on the existing identified literature review, the three main barriers are categorized as following: Individual barriers, Organizational barriers, and Governmental barriers. The most important role of this study, is to highlight the different barriers, and understand the linkage between them, as Saudization is a full process and intervention coordination and synchronization are a must to overcome all mentioned barriers.

i. Individual Barriers

The concept of Saudization needs to have social roots in Saudi culture, taking into consideration the individual perceptions and responsibilities. Saudi job seekers at working-age should participate actively in the nationalization policy by overpassing cultural and perceptual barriers.

- **Refusal to work in low-skilled positions**

Since 1995, Al-Ajaji stated that “A Saudi will accept a position but not a job. A Saudi will ring the cash register in his shop but will not sweep the floor. A Saudi will be a bureaucrat but never a plumber”.

This statement clarify how Saudi job seekers perceive job opportunities, which can explain the high unemployment rate by the refusal to accept low-skilled positions [21], this is very well observed in the third quarter of 2021 statistics that shows the high number of foreigners domestic workers and operators versus the absence of Saudi domestic workers for example [6]. Saudi nationals prefer to avoid blue-collar jobs due to psychosocial barriers [22]

Salah (2000), endorsed the statement of Al-Ajaji, by indicating that Saudis are not interested in technical manual work, and they prefer admin and managerial positions, which creates shortage in low-skilled workforce that are targeted by the nationalization policy [23].

Mellahi (2007) also highlighted how certain phenomenon are observed in Saudi society and culture such as high wage expectation of nationals, negative attitudes towards manual work, employers’ control and difficulties in social inclusion in the multicultural work environment [24].

- **Inactive job seeking**

Saudi youth are less proactive in job-seeking comparing to other countries, they prefer to rely on governmental or private agencies in finding job vacancies and get work opportunities.

Getting hired by organizations after the graduation, may mismatch with the worker personality who will prefer to switch and find another job opportunity. The repetition of similar situations increased the turn-over rates in organizations, which may be proofed in some case study reported in the Arab News journal that one company received a curriculum vitae from a Saudi job seeker who had worked in 13 different workplace during only one year [22].

Al-Maena (2016), presented a huge problem that limit the job seeking process, which is characterized by the preference to being unemployed in some cases and benefit from “Hafiz” program from Saudi Government by taking an allowance of 2000-3000 SR [25], and such programs discourage them to accept low-paid jobs, with unwilling to work if they have the requirements and qualifications or willing to find a high-skilled job dream [26].

- **Lack of interest in vocational trainings**

The industrial and managerial position required technical education and vocational trainings, more than theology and literature education [27]. Saudi individuals are discouraged to integrate vocational training and technical programs, as they are classified as “Low-Rank” professions in comparison to university diploma [28].

Aldossari (2020) investigated how the Vision 2030 will participate in reducing the stigma of vocational and technical training among Saudi Arabian students, by conducting quantitative study on the role of the recent socio-economic transformations in changing stigmatization and negative attitudes towards technical and vocational education. The findings showed that having parents who are university bachelor holders reported lower mean values across the acceptance of being registered in a technical program or 2 years' diploma. Also, having a low socio-economic level cannot be related to negative attitudes, were students from this level were more likely from wealthier background to register in technical and vocational program [29].

- **Preference of governmental sector jobs**

As for the preference of sector, Saudi job seekers prefer governmental sector [30]. Although, the government job market is almost saturated [31]. Mellahi (2007) points on how many young people do not join the private jobs and they prefer to wait an undetermined period of time to get their government job opportunity [32].

The major benefit and attraction towards private sector is the job security [33], and also this sector provides middle to upper level managerial positions to fresh graduates.

Kumar et al. (2019), conducted an attitudinal study the major employment challenges in Saudi Arabia, they chose a set of 8 statements questionnaire on students' attitude towards nature of jobs. 435 respondents from specializations such as engineering, medicine, business administration, computer science, law, science and Pharmacy in Prince Sattam Bin Abdulaziz University, filled the questionnaire. 40% of the respondents prefer governmental jobs and only 20% prefer private jobs. Respondents who preferred government jobs were least like to take physical or field work opportunity with high mobility. Moreover, they prefer more likely administrative jobs [34].

- **Deficit in educational requirements and qualifications**

The education curriculum in Saudi Arabia plays a huge role in preparing students for their professional and career life. This current educational system focuses on the national identity of the gulf council countries, and does not produce productive workforce [34].

The current system does not prepare nationals for work ethics and values related to modern multicultural and diverse work environment [35]. Developing proper education systems and work ethics courses for locals can lead to productive jobs, where employers support and transfer their skills to fresh graduates. Also, the modification of evaluation systems and patterns was recommended in previous studies [36]. Ramady (2005) indicated that only male percentage of Saudi graduates have scientific and technical trainings to meet the private sector requirements. And this shortage may hinder the Saudization process to replace skilled foreigners with nationals [37]. The education system in Saudi Arabia, might be updated to become more practical and technical oriented with learning by working and learning beyond traditional education [34].

According to Jadwa Investment (2015), profiles of higher education graduates in Saudi Arabia indicate the discrepancy between private sector needs and supply of Saudi work with pertinent skills. According to data from the Ministry of Education, out of a total of 129,000 Saudi higher education graduates in 2014, 65.3 per cent came from training in social and human sciences. while 16.8% of graduates came from engineering and science disciplines that are both associated with high-skilled industries [16].

ii. Organizational Barriers

The private sector in Saudi Arabia is the most important stakeholder in the country. The Ministry of Labor faced different criticism regarding the Saudization quotas in this sector, due to the various challenges that encounter Saudization goal in private firms. Businesses close down by the inability to bear the associated costs of “Nitaqat” program, that increases turnover, and hinder the access of skilled workers which leads to limited productivity [28].

The analysis of the barriers faced by the private sector in the Saudi Arabia, allows to define main barrier highlighted in the following.

- **Insufficient skilled Saudi workers**

The private sector relies on the expatriate skilled-workers and specialists, as the local population does not respond to the demands of the industrial field in term of the workers’ number and the requirements. And even the Saudi workers are available with high work demands, they do not match with the industrial market requirements [27].

- **Low-cost hiring process**

The hiring of qualified and skilled expatriates is considered as not expensive for the private sector [38]. Peck (2014) estimated that the minimum range salary for a national Saudi worker is 3,000 RS/month, yet the expatriate worker can be hired for 1500 SR/month, and high-skilled positions follow the same range [28].

Some of the private sector organizations showed disappointment by national workers that required high salaries with limited experiences and qualifications [39].

Ramlall & al. (2012), identified four barriers for Saudization in the private sector including the labor cost, social and cultural perceptions, inability to integrate in a diverse and multicultural environment [40].

- **Lack of Labor market-driven requirements and qualifications**

The available national qualifications aren’t market-driven [41]. The government acknowledges that the low educational standards of Saudi workers. Fakeeh (2009) mentioned that some firms employ national Saudis despite their capabilities to perform the responsibilities under the job description [9].

The vocational trainings provided by the government are described as ineffective in providing innovative training programs. This situation reflects the believes of employers that the technical education may leads to work fails, and lack of job readiness [42].

- **Lack of soft-skills and work ethics**

For the major role of oft-skills and work ethics in the Labor-market, Fakeeh (2009) highlighted that the difference of attitudes between national Saudi and expatriate hinder the full employment of national in blue-collar jobs [9].

Job insecurities, and the anxiety of losing the job, leads expatriate workers to show higher levels of obedience and cooperation. Yet, the Saudi national workers are more assertive and arrogant as they

consider that the private sector is obliged to hire them as per the Saudization policy. Also, expatriate workers are more recruited for having soft skills and work ethics related to each job [9].

- **Low job commitment and Ghost jobs among Saudi female worker**

The nationalization of the Saudi labor market required a high participation rate among both males and females. Social and cultural barriers limit the female participation in the Saudi workforce [43].

Most of the jobs filled by women are shop assistants or clerks [44]. Most of the employers reported the absence of professionalism and previous experience of women working in shops and sales [44]. Noting that the majority of women who are employed in these types of jobs, experiences difficulties in transportation, low salaries and limited vacations. In addition, the lack of interest and commitment, women tends to change their positions once they find better opportunities without clear reasons, and this turnover burden the industry with high-cost recruitment processes [45]

The government takes serious actions to involve feminist workforce in the labor market. Saudi companies are hiring "ghost" women to increase Saudization quotas, and the ministry of Labor warned of imposing high penalties on those actions, after the preparation to launch the third phase of its feminization campaign [46].

iii. Governmental Barriers

The most critical barriers that limit the implementation of nationalization policy are governmental that is responsible about the development of the policies, and its effective implementation. Saudi government efforts to nationalization was majorly criticized in the gulf area by the absence of analytical structure, the unclear vision, the ignorance of education and workforce development [47].

- **Unclear policies and data collection strategies**

In the early 1990, the absence of clear policies plays a role in defining the expectations of the government regarding the nationalization of workforce. The absence of statistical data on regional, sectorial and international labor market to track the waves and trends in employment, makes some policies unachievable and unreliable [47].

De Bel-Air (2015) conducted A paper addresses the historical and institutional background of labor management policies in Saudi Arabia, titled “The Socio-Political Background and Stakes of ‘Saudizing’ the Workforce in Saudi Arabia: The Nitaqat Policy”. He stated that "Governmental actors are attempting to regain control over the economy and the management of the labour market, in order to avoid the burning political issue raised from unemployment". He concluded that After reviewing Nitaqat characteristics and points to its all-encompassing design, he believes that Nitaqat is more likely to have a lasting effect than previous workforce localization initiatives [48].

Also, Koyame-Marsh in 2016, published a paper to an overview of the Saudization and Nitaqat programs. It examined the performance of the Saudization program pre and post Nitaqat titled “Saudization and the Nitaqat Programs: Overview and Performance”. She concluded that Nitaqat program has led to a significant increase in the number of Saudis employed in the private sector. However, it has not been able to reduce the unemployment rate among Saudis [49].

- **Forced Saudization in specific occupations**

Under “Nitaqat” program, Saudi government forced Saudization on specific occupations such as disability centers, strategic partnership institutes, health care, health colleges, female cosmetic centers, female sewing centers, information technology, retail, food sectors, gas stations and transportation sector [50]. The government identified those sectors after conducting surveys on the labor market using the derivative information from “Nitaqat” policy [51].

The unclear long term plans of the government on application terms, training and workforce development, basic knowledge and work ethics and skills, leads Saudi employers to shift their attention on expatriate workers to achieve the required performance, and they look for the means of “fake” Saudization in their companies [31].

Higher costs on Saudi employers has been reported, due to the difficult enforceability measures and absence of qualified trained Saudis, which lead to lower performance and failure in some forcefully jobs [52].

- **Deficit in inter-ministerial collaboration**

Some sectors such as construction, health and higher education refused the Saudization policies as they require high expertise and specialization, yet Saudi workers aren’t able to deliver in the current situation [53]. As per the available statistics, Saudi employees who left their government education sector job in 2015 represent 53% of total number of employees [54].

Al-Asmari (2008) explored number of studies and efforts in regard to the process of job replacement in Saudi society. He stated that, “local human resources require further efforts to be developed and be ready to replace or reduce the dependency on expertise specially in private sectors” [30]. His study concluded by drawing attention to the importance of harmonizing between educational outcomes and actual business requirements. For this purpose, the Saudi government started to provide higher education scholarships worldwide, under an assistance program provided through the King Abdullah Foreign Scholarship [25].

Al-Asfour & Khan (2013), studied Workforce localization in the Kingdom of Saudi Arabia, related issues and challenges. They stated that “to develop local employees aligned with the demands of market needs, we have to adopt a comprehensive human resource development (HRD) framework”. They concluded that The suggested approach to help facing the emergent business challenges in the present global scenario, is to use multi-pronged approach involving all stakeholders [3].

d. The Interpretive Structural Modeling (ISM) and the barriers to Saudization

The Interpretive Structural Modeling enable the categorization of relationships between specific and different variables, that lead to a summary about an issue by ranking the different variable by their effect and significance, and provide a managerial strategy to overcome the issue. Warfield (1973) originated the philosophical perspective of interpretive structural modeling (ISM), to enable decision makers in transforming unclear, poorly articulated models of an issue into visible well-defined and hierarchal models [55].

ISM was applied for barrier analysis in many fields such as supply chain management, entrepreneurship, human resource management, education, and engineering [56]. However, studies based on the ISM approach for Saudization barriers are limited. Below, some of the studies conducted to identify the barriers using the ISM.

Goel et al. (2022) studied the deployment of Interpretive Structural Modeling in barriers to industry 4.0 on small and medium enterprises in India. The study aimed to identify the barriers to implementing the I4.0 model, by simplifying the complex interrelationship between the identified barriers to categorize the dependent and independent variables, and establish the autonomous linkages and dependent forces. It was able to explore the interrelationship among the identified barriers, and found the major barriers neglected by the SMEs, which can impact the strategic choices related to the successful implementation of Industry 4.0 [57]. Furthermore, Mathiyazhagan et al. (2013), explored twenty-six barriers to implementing the green supply chain management in the Indian auto-manufacturing industry [58]. In addition to the previous efforts of Lunthra et al. (2011) in applying the ISM to reform the relationships between barriers to green supply chain management in the Indian automobile industry [59].

In Saudi Arabia, Andejany (2017) under his PhD studies, he established a framework for lean transformation in developing countries, especially the case of Saudi Arabian industry. The framework was developed based on the literature review analysis and the interview of key personnel in ten local and eight multinational companies in Saudi Arabia [60].

We couldn't identify any study on Saudization barriers based on the ISM. Despite the limitation of similar studies, the ISM approach will facilitate the structuring of the relationship among identified barriers from the literature review and the survey that will be conducted under this study. The unrevealed linkages among the different barriers to Saudization is the most major reason for the inefficacy of any developed policy for implementation. The current work proposes a systematic approach leveraging ISM for assessing interactions among barriers and prioritizing them for the successful building of Saudization policy, with the goal of filling the highlighted gap.

III. RESEARCH METHODOLOGY

A questionnaire was addressed to Human Resources Experts having more than 5 years of experience as HR managers or HR consultants, to prioritize and identify the main barriers faced by the national Saudi Arabian companies in private sector, to apply the Saudization. The collected data was analyzed based on the Interpretive Structural Modelling (ISM) approach.

a. Tool Design

A tool was developed to identify the influence of each barrier identified in the literature on the implementation of Saudization in the private sector in Saudi Arabia. The tool aims to understand the interaction and relation between all the barriers.

4 types of influence were defined indicate the interaction between two barriers: 1) Barrier A is impacted by the Barrier B, 2) Barrier B is impacted by Barrier A, 3) Barrier A and Barrier B are reciprocally impacted, 4) There is no interaction between Barrier A and Barrier B.

b. Study sample and Inclusion Criteria

The study sample included Saudi Human Resources Experts with more than 5 years of experience in human resources management and consultancy.

We approached the HR experts via the professional network LinkedIn, by sending them direct messages to get their contact numbers and emails. A total number of 40 persons was outreached, and we shared the questionnaire via email with them after having a short phone call to explain the study

objectives and the importance of their opinions to identify the relationships between different barriers affecting the implementation of Saudization policy and the achievement of 2030 vision.

c. Data collection and tools identification

After identifying the critical barriers affecting the implementation of Saudization in the Saudi labor market, based on the literature review; they were examined and we identified thirteen (13) barriers as the most critical barriers. The panel of experts were interviewed virtually to fill a matrix of interaction between the barriers, and the matrix was shared via e-mail after explaining the study objective via phone calls.

The objective of this matrix was to understand the interaction between Saudization barriers previously identified in the research literature in Saudi Arabia, and enable decision-makers in the Saudi labor market to serve the country's VISION 2030, by describing the relationships among individual barriers, organizational barriers and governmental barriers.

d. Data analysis

The Interpretive Structural Modeling was used to identify the relationships between the barriers affecting the implementation of Saudization policy in the Saudi labor market. The first step consisted to elaborate the list of key barriers affecting the implementation of Saudization policy by reviewing the literature, and identifying the major barriers.

Having decided on the set of barriers and the contextual relation, the modeling group carries out all paired comparisons. Pair-wise comparison was made after picking two elements. Group judgment on the paired comparison is determined by consensus vote after discussion and elaborating a set of rules.

Keeping in view the contextual relationships in each element, the relation between any two barriers (i and j), and the associated direction of relation R was questioned by a group of experts concerned into Human Resources management in the Saudi Arabian labor market.

Four symbols associated with codes were used to denote the direction of the relationship between the barrier i and barrier j :

- If the barrier i is impacted by the barrier j , but the barrier j is not impacted by the barrier i , the code of this relationship is 1 and then the symbol is (V).
- If the barrier j is impacted by the barrier i , but the barrier i is not impacted by the barrier j , the code of this relationship is 2, and then the symbol is (A).
- If both barriers i and j affect each other, the code of this relationship is 3, and then the symbol is (X).
- If the barriers i and j are independent and do not affect each other, the code of this relationship is 4, and then the symbol is (O).

The structural self-interaction matrix (SSIM) for the element under consideration was then prepared by filling in the responses of the group on each pair-wise interaction between the elements.

The final SSIM consensus followed the rules below:

- Symbol is selected according to voting (highest usage).
- In case the number of (V) equals the number of (O), the consensus symbol is (V).

- In case the number of (V) equals the number of (A), the consensus symbol is (X).
- In case the number of (V) equals the number of (X), the consensus symbol is (X).
- In case the number of (A) equals the number of (V), the consensus symbol is (X).
- In case the number of (A) equals the number of (O), the consensus symbol is (A).
- In case the number of (X) equals the number of (O), the consensus symbol is (X).

The SSIM matrix was transformed into the reachability matrix by coding the information in each entry of the SSIM into (1) and (0), following the below rules:

- If the entry of (A, B) in the SSIM is (V), then enter the value of the element (A, B) as (1) and subsequently (B, A) as (0) in the initial reachability matrix.
- If the entry of (A, B) in the SSIM is (A), then enter the value of the element (A, B) as (0) and subsequently (B, A) as (1) in the initial reachability matrix.
- If the entry of (A, B) in the SSIM is (X), then enter the value of the element (A, B) as (1) and subsequently (B, A) as (1) in the initial reachability matrix.
- If the entry of (A, B) in the SSIM is (O), then enter the value of the element (A, B) as (0) and subsequently (B, A) as (0) in the initial reachability matrix.

On the basis of the received replies of experts, the pair-wise comparison infers certain replies due to transitivity of the contextual relation, according to the basic assumption that if an element A is related to an element B, and B is related to an element C, then A is related necessarily to the element C.

Once the final reachability matrix was prepared, it was used to proceed and extract the diagram and associate structural model, by using a series of partition induced by the reachability matrix on the sets and sub-sets of the elements. In further steps, the reachability matrix was transformed into a lower triangular format by identifying the highest-level elements and arranging them as first elements in the new reachability matrix.

Having identified the levels of all barriers, the relationship between the barriers was drawn indicating the serial number of the barrier and the direction of relation with the help of an arrow. The diagram was examined interactively to eliminate transitive relationships, then it was finalized for the ISM.

ISM MICMAC analysis was performed to confirm the consistencies of the proposed ISM model. MICMAC stands for Cross-Impact Matrix Multiplication Applied to the Classification analysis, it works on the principle of multiplication properties of matrixes [61].

IV. RESULTS AND DISCUSSION

The Interpretive Structural Modelling (ISM) was used to identify the type of interaction between barriers to Saudization among the included study population. Only 6 answers are received after 3 months of sharing the questionnaire. The analysis of information was conducting according to the methodology identified in the previous section, and respecting the seven defined steps.

a. Step 1: Identification of Key barriers affecting the implementation of Saudization policy

The final list of barriers included the following:

Individual barriers

1. Refusal to work in low-skilled positions
2. Inactive job seeking
3. Lack of interest in vocational trainings
4. Preference of governmental sector jobs
5. Deficit in educational requirements and qualifications

Organizational barriers

6. Insufficient skilled Saudi workers
7. Low-cost hiring process
8. Lack of Labor market-driven requirements and qualifications
9. Lack of soft-skills and work ethics
10. Low job commitment and Ghost jobs among Saudi female worker

Governmental barriers

11. Unclear policies and data collection strategies
12. Forced Saudization in specific occupations.
13. Deficit in inter-ministerial collaboration.

b. Step 2: Structural self-interaction matrix (SSIM) establishment for barriers, representing inter-relationship between barriers

In ISM approach experts were asked to brainstorm and come up with a structural self-interaction matrix (SSIM), which was prepared based on a set of rules. While there are no criteria for how many experts should be used for the development of SSIM matrix, previous studies have used three to five experts to come up with one SSIM matrix. For the development of the SSIM, the contextual relationship of each variable, the existence of a relation between two barriers, and the associated direction of the relation are evaluated. The first expert is the Human Resources head in pharmaceutical manufacturing company, which includes more than 10,000 employees.

The second expert is the head of talent management in an outsourcing and offshoring consulting company including 1,000 to 5,000 employees. The third expert is the head of human resources in food and beverage company, which includes 500 to 1000 employees. The fourth expert is the human resources consultant of aviation company which includes more than 10,000 employees.

Table 3.1: Self-generated SSIM.1 according to the Expert 1

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	X	X	X	X	O	O	O	O	O	O	X	X
B2		1	A	A	X	X	X	X	X	O	O	X	X
B3			1	X	X	X	X	X	X	X	X	X	X
B4				1	X	X	X	X	X	X	X	X	X
B5					1	X	V	A	X	X	X	X	X
B6						1	O	O	O	O	O	O	O
B7							1	O	O	O	O	O	O
B8								1	X	X	X	X	X
B9									1	X	X	X	X
B10										1	X	X	X
B11											1	X	X
B12												1	X
B13													1

Table 3.2: Self-generated SSIM.2 according to the Expert 2

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	O	X	O	O	A	A	V	A	A	V	V	A
B2		1	X	O	O	X	X	A	A	A	V	V	V
B3			1	X	X	X	X	X	X	X	X	X	X
B4				1	X	X	X	X	X	X	X	X	X
B5					1	X	X	X	X	X	X	X	X
B6						1	X	X	X	X	X	X	X
B7							1	X	X	X	X	X	X
B8								1	X	X	X	X	X
B9									1	X	X	X	X
B10										1	X	X	X
B11											1	X	X
B12												1	X
B13													1

Table 3.3: Self-generated SSIM.3 according to the Expert 3

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	A	O	O	O	O	O	O	O	V	V	O	O
B2		1	A	A	O	O	O	V	V	O	X	O	O
B3			1	O	O	X	O	X	O	O	O	X	O
B4				1	V	V	O	V	V	O	O	V	V
B5					1	A	O	A	A	O	O	O	O
B6						1	A	O	V	O	V	O	O
B7							1	O	V	O	O	A	A
B8								1	O	O	O	O	O
B9									1	O	O	O	O
B10										1	O	O	O
B11											1	O	O
B12												1	V
B13													1

Table 3.4: Self-generated SSIM.4 according to the Expert 4

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	V	A	V	V	A	O	O	X	V	O	O	V
B2		1	A	A	O	O	V	V	V	X	O	V	V
B3			1	V	V	V	V	O	A	A	A	A	X
B4				1	V	V	O	V	A	A	O	O	O
B5					1	A	A	A	A	O	O	A	A
B6						1	O	V	O	O	O	O	O
B7							1	A	A	O	A	A	A
B8								1	O	V	X	X	X
B9									1	A	A	A	A
B10										1	O	V	A
B11											1	A	A
B12												1	A
B13													1

The fifth expert is the head of HC governance & Policies in a banking company with 5000 employees.

Table 3.5: Self-generated SSIM.5 according to the Expert 5

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	X	O	V	A	V	X	X	X	X	X	A	X
B2		1	X	V	V	X	A	V	X	V	X	X	X
B3			1	X	V	X	O	O	A	X	X	X	X
B4				1	X	X	O	X	A	X	O	X	A
B5					1	X	X	A	X	X	X	A	X
B6						1	V	V	X	A	X	X	X
B7							1	V	V	V	V	V	X
B8								1	X	X	X	A	V
B9									1	O	V	A	A
B10										1	X	O	A
B11											1	X	X
B12												1	X
B13													1

The sixth expert is the Branding and talent acquisition excellence assistance manager in a retail company, which includes more than 10,000 employees.

Table 3.6: Self-generated SSIM.6 according to the Expert 6

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	O	O	O	O	V	O	V	X	V	O	V	O
B2		1	O	V	X	V	O	V	V	A	O	V	X
B3			1	O	X	A	O	X	X	O	O	A	O
B4				1	O	X	O	A	O	O	O	X	O
B5					1	X	O	X	X	O	O	O	O
B6						1	O	X	V	O	O	V	O
B7							1	O	O	O	O	O	O
B8								1	X	O	O	X	O
B9									1	O	O	X	O
B10										1	O	O	X
B11											1	X	X
B12												1	X
B13													1

After analyzing all questionnaires to build SSIM for each one, a final consensus SSIM was built to form the initial reachability matrix.

Table 3.7: Consensus Self-generated SSIM according to the Experts opinions

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1		X	V	O	O	A	A	A	O	A	A	A	A
B2			V	O	O	O	O	O	A	O	A	A	A
B3				X	X	A	A	A	O	A	A	A	A
B4					X	O	O	O	A	O	O	O	O
B5						A	O	A	A	A	A	A	A
B6							X	A	A	A	O	O	X
B7								A	A	A	O	X	A
B8									A	V	V	V	V
B9										V	O	O	V

B10											O	V	V
B11												V	V
B12													X
B13													

c. Step 3.1: Initial reachability matrix development

The development of the initial reachability matrix was done by replacing A, V, X, O by 1 and 0 in accordance with the VAXO rules [62].

Table 3.8: Self-generated initial reachability matrix

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
B1	1	1	1	0	0	0	0	0	0	0	0	0	0
B2	1	1	1	0	0	0	0	0	0	0	0	0	0
B3	0	0	1	1	1	0	0	0	0	0	0	0	0
B4	0	0	1	1	1	0	0	0	0	0	0	0	0
B5	0	0	1	1	1	0	0	0	0	0	0	0	0
B6	1	0	1	0	1	1	1	0	0	0	0	0	1
B7	1	0	1	0	0	1	1	0	0	0	0	1	0
B8	1	0	1	0	1	1	1	1	0	1	1	1	1
B9	0	1	0	1	1	1	1	1	1	1	0	0	1
B10	1	0	1	0	1	1	1	0	0	1	0	1	1
B11	1	1	1	0	1	0	0	0	0	0	1	1	1
B12	1	1	1	0	1	0	1	0	0	0	0	1	1
B13	1	1	1	0	1	1	1	0	0	0	0	1	1

d. Step 3.2: Final reachability matrix development

Based on the initial reachability matrix, a final reachability matrix was prepared following the principal of transitivity. Transitive relationship is where an element “a” is related to an element “b”, and the element “b” is related to an element “c”, then “a” is also related to “c”.

From the final reachability matrix, the reachability and antecedent set of each enabler was obtained. The reachability set consists of the factor itself and the other factors, which it may help achieve, whereas the antecedent set consists of the factor itself and other factors, which may help achieving it. The intersection of these two sets is named as “interaction set” [63]. Then, if the intersection set was the same as the reachability set, barriers were placed at the top level. The top-level barriers satisfying the above condition were removed from the element set for further calculation and the work is repeated iteratively until all levels were determined. These levels helped to build the diagraph and the ISM model.

Table 3.9: Self-generated final reachability matrix

Barriers	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	Driving Power
B1	1	1	1	1	1	0	0	0	0	0	0	0	0	5
B2	1	1	1	1	1	0	0	0	0	0	0	0	0	5
B3	0	0	1	1	1	0	0	0	0	0	0	0	0	3
B4	0	0	1	1	1	0	0	0	0	0	0	0	0	3
B5	0	0	1	1	1	0	0	0	0	0	0	0	0	3
B6	1	1	1	1	1	1	1	0	0	0	0	1	1	9

B7	1	1	1	1	1	1	1	0	0	0	0	1	1	9
B8	1	1	1	1	1	1	1	1	0	1	1	1	1	12
B9	1	1	1	1	1	1	1	1	1	1	1	1	1	13
B10	1	1	1	1	1	1	1	0	0	1	1	1	1	11
B11	1	1	1	1	1	1	1	0	0	1	1	1	1	11
B12	1	1	1	1	1	1	1	0	0	0	0	1	1	9
B13	1	1	1	1	1	1	1	0	0	0	0	1	1	9
Dependence Power	10	10	13	13	13	8	8	2	1	4	4	8	8	

1=Indicate Transitivity

e. Step 4: partition the final reachability matrix to levels

Based on the final reachability matrix, the reachability set and antecedent set for each objective are determined. The reachability set consists of the element itself and other elements to which it may reach, whereas the antecedent set consists of the elements itself and the other elements which may reach it.

The intersection of these sets was derived for all elements. Top-levels elements represents that the reachability and intersection sets are the same. The top-level elements of hierarchy cannot reach any higher than their own level.

To identify the next level, top-level elements were separated out from other elements and the same process is repeated continuously. The whole process of partition was based on establishing precedence relationships, and arranging the elements in topological order.

Table 3.10: Self-generated levels partitioning matrix

Barriers	Reachability Set	Antecedent Set	Intersection	Level
B1	B1, B2, B3, B4, B5	B1, B2, B6, B7, B8, B9, B10, B11, B12, B13	B1, B2	II
B2	B1, B2, B3, B4, B5	B1, B2, B6, B7, B8, B9, B10, B11, B12, B13	B1, B2	II
B3	B3, B4, B5	B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13	B3, B4, B5	I
B4	B3, B4, B5	B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13	B3, B4, B5	I
B5	B3, B4, B5	B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13	B3, B4, B5	I
B6	B1, B2, B3, B4, B5, B6, B7, B12, B13	B6, B7, B8, B9, B10, B11, B12, B13	B6, B7, B12, B13	III
B7	B1, B2, B3, B4, B5, B6, B7, B12, B13	B6, B7, B8, B9, B10, B11, B12, B13	B6, B7, B12, B13	III
B8	B1, B2, B3, B4, B5, B6, B7, B8, B10, B11, B12, B13	B8, B9	B8	V
B9	B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13	B9	B9	VI
B10	B1, B2, B3, B4, B5, B6, B7, B10, B11, B12, B13	B8, B9, B10, B11	B10, B11	IV
B11	B1, B2, B3, B4, B5, B6, B7, B10, B11, B12, B13	B8, B9, B10, B11	B10, B11	IV

B12	B1, B2, B3, B4, B5, B6, B7, B12, B13	B6, B7, B8, B9, B10, B11, B12, B13	B6, B7, B12, B13	III
B13	B1, B2, B3, B4, B5, B6, B7, B12, B13	B6, B7, B8, B9, B10, B11, B12, B13	B6, B7, B12, B13	III

From the above Table 3.10, we can observe that top barriers are three; Lack of interest in vocational trainings (3), Preference of governmental sector jobs (4) and Deficit in educational requirements and qualifications (5), and will be placed at the top of the diagraph. At level two, there are two barriers; Refusal to work in low-skilled positions (1) and Inactive job seeking (2). At level three, there are four barriers; the insufficient skilled Saudi workers (6), the low-cost hiring process (7), Forced Saudization in specific occupations (12) and Deficit in inter-ministerial collaboration (13). At level four, there are two barriers; Low job commitment and Ghost jobs among Saudi female worker (10) and unclear policies and data collection strategies (11). Then at level five, one barrier which is Lack of Labor market-driven requirements and qualifications (8). Finally at level six, one barrier, Lack of soft-skills and work ethics (9).

Based on the level positioning obtained and final reachability matrix, the conical matrix (lower triangular matrix) was structured. The conical matrix is a simple arrangement of the barriers of the final reachability matrix in a sequential manner based on the identified levels, and it is used to define the relationships among barriers.

Table 3.11: Self-generated conical matrix

Barriers	B3	B4	B5	B1	B2	B6	B7	B12	B13	B10	B11	B8	B9
B3	1	1	1	0	0	0	0	0	0	0	0	0	0
B4	1	1	1	0	0	0	0	0	0	0	0	0	0
B5	1	1	1	0	0	0	0	0	0	0	0	0	0
B1	1	1	1	1	1	0	0	0	0	0	0	0	0
B2	1	1	1	1	1	0	0	0	0	0	0	0	0
B6	1	1	1	1	1	1	1	1	1	0	0	0	0
B7	1	1	1	1	1	1	1	1	1	0	0	0	0
B12	1	1	1	1	1	1	1	1	1	0	0	0	0
B13	1	1	1	1	1	1	1	1	1	0	0	0	0
B10	1	1	1	1	1	1	1	1	1	1	1	0	0
B11	1	1	1	1	1	1	1	1	1	1	1	0	0
B8	1	1	1	1	1	1	1	1	1	1	1	1	0
B9	1	1	1	1	1	1	1	1	1	1	1	1	1

f. Step 5: contextual relationship diagraph

After identifying the levels of the barriers, the relationships between the barriers was drawn indicating the number of the barrier and arrows according to the direction of relationship. The drawn diagraph was examined for interactivity to eliminate transitive relationships. After eliminating the transitive relationships, the diagraph was finalized for the interpretive structural model to give information about hierarchy among the elements.

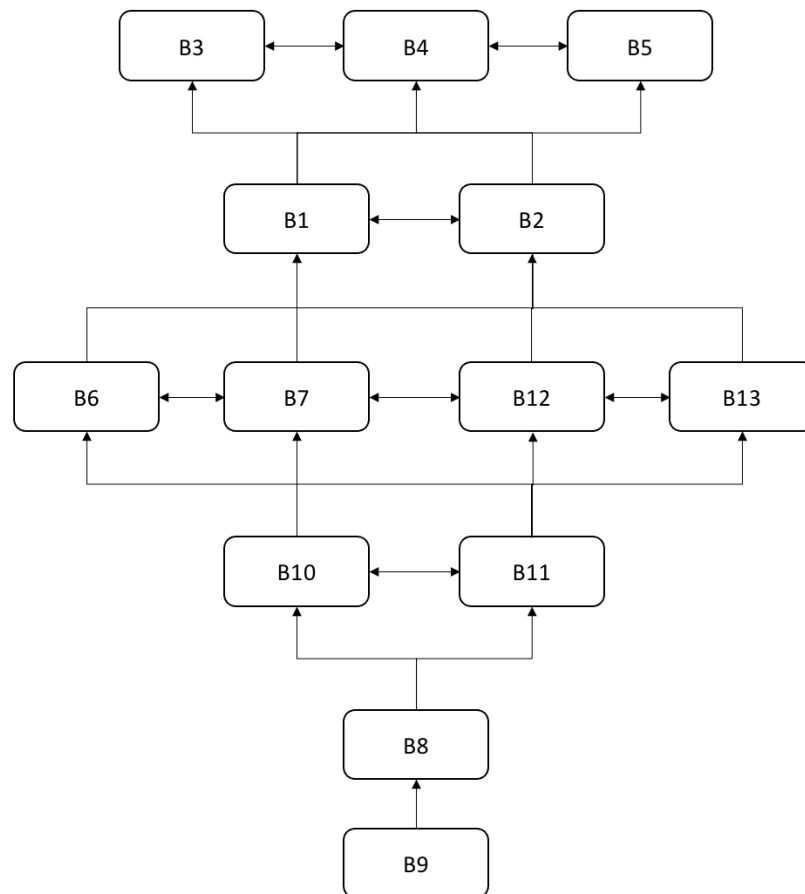


Figure 1. Self-generated contextual relationship diagram

g. Step 6: ISM model based on contextual relationship diagram

The structural model was derived from the connective information in the contextual relationship diagram. The details of barriers are indicated in the respective boxes with indicated relations according to the diagram. The interpretive structural model depicts the elements and provides a clear demonstration with an understanding of the inter-relationships among the different barriers affecting the implementation of Saudization strategy.

a. Step 7: ISM model examination for inconsistencies

The MICMAC analysis was performed to analyze the dependence and driving power of barriers, and to present them graphically into four clusters: Autonomous, Dependent, Linkage and Driving cluster [64].

The MICMAC matrix is divided into four clusters. The barriers placed in cluster one, are called Autonomous Barriers. They indicate a weak driving power and subsequently a weak dependence power. These variables are disconnected from the system, and they are not linked to other factors and they are independent. In the first cluster, No barrier was placed, which indicates that no any barrier independent and has a weak influence on the remaining barriers.

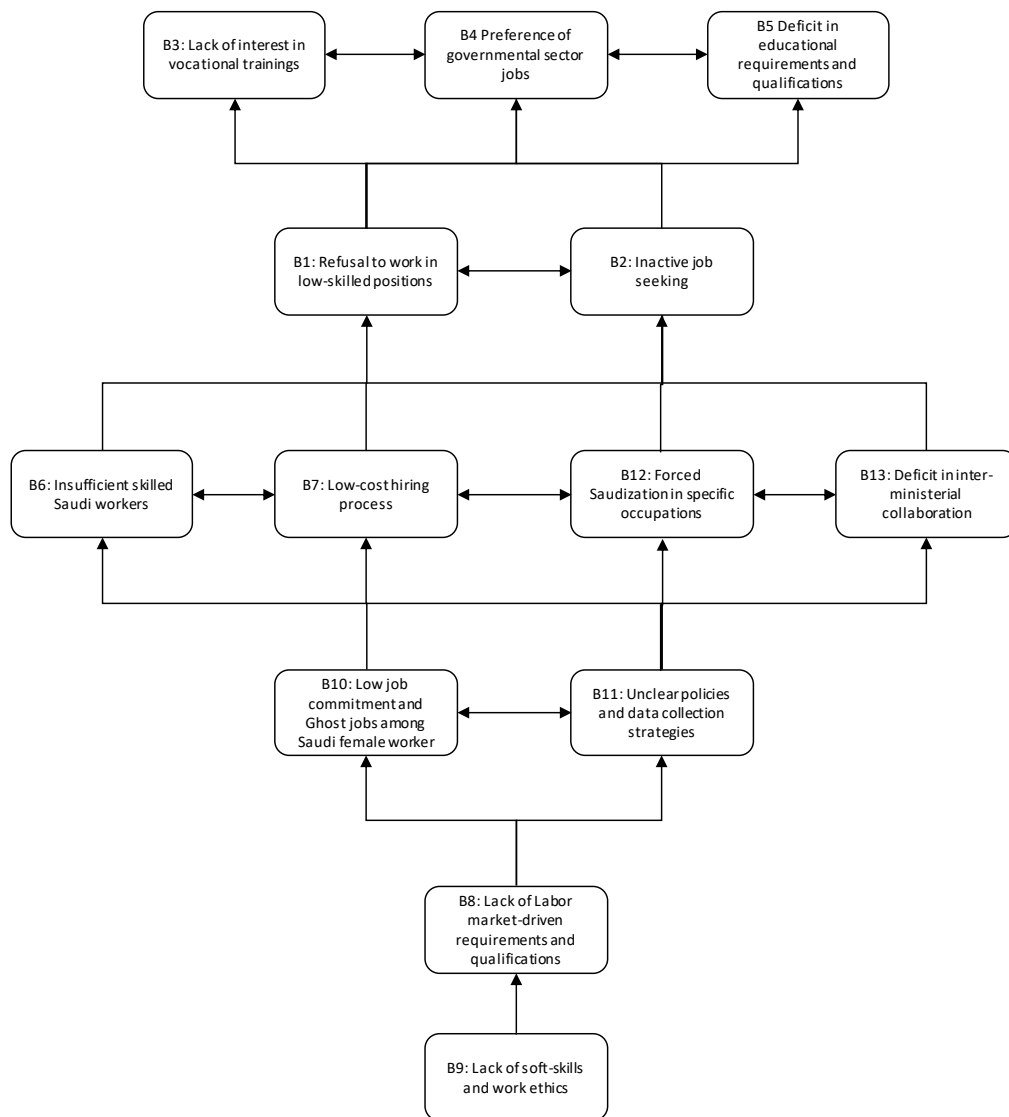


Figure 2 Self-generated ISM Model for Saudization barriers.

Table 3.12: Driving and dependent variables for MICMAC analysis

Barriers	Dependence Power	Driving Power
B1: Refusal to work in low-skilled positions	10	5
B2: Inactive job seeking	10	5
B3: Lack of interest in vocational trainings	13	3
B4 Preference of governmental sector jobs	13	3
B5 Deficit in educational requirements and qualifications	13	3
B6: Insufficient skilled Saudi workers	8	9
B7: Low-cost hiring process	8	9
B8: Lack of Labor market-driven requirements and qualifications	2	12
B9: Lack of soft-skills and work ethics	1	13
B10: Low job commitment and Ghost jobs among Saudi female worker	4	11

B11: Unclear policies and data collection strategies	4	11
B12: Forced Saudization in specific occupations	8	9
B13: Deficit in inter-ministerial collaboration	8	9

In the cluster II, placed factors have strong dependence power, they are influenced by other barriers but they do not influence others. In this cluster 5 barriers were placed: Refusal to work in low-skilled positions (1), Inactive job seeking (2), Lack of interest in vocational trainings (3), Preference of governmental sector jobs (4), and Deficit in educational requirements and qualifications (5).

In cluster III, barriers placed have strong driving and strong dependence power. They are unstable and any action on these barriers will affect the other and have a feedback effect on themselves. They are considered as the connecting link among all barriers [65]. In this cluster, four barriers were placed: Insufficient skilled Saudi workers (6), Low-cost hiring process (7), Forced Saudization in specific occupations (12) and Deficit in inter-ministerial collaboration (13)

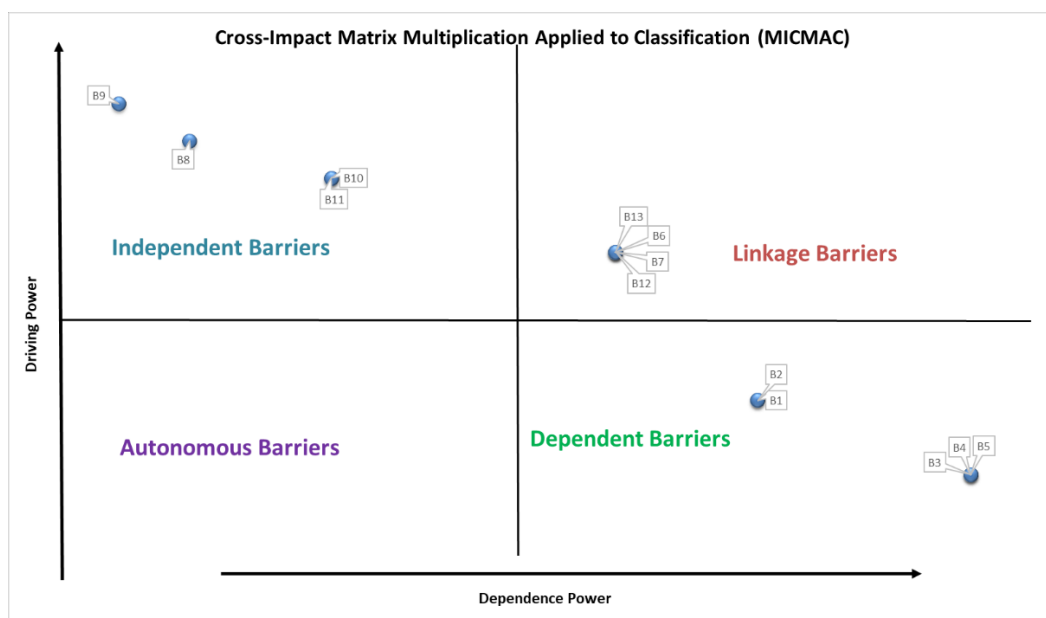


Figure 1 Self-generated MICMAC MATRIX

Finally, the fourth cluster consists of four barriers, indicating a strong driving power and low reliance. This indicates not only the importance of those barriers but also their position as main difficulties to implement Saudization. Lack of Labor market-driven requirements and qualifications (8), Lack of soft-skills and work ethics (9), Unclear policies and data collection strategies (11), Low job commitment and Ghost jobs among Saudi female worker (10).

V. CONCLUSION AND FUTURE WORK

The study identified thirteen Saudization barriers affecting the implementation of Saudization policy in the Saudi labor market based on systematic literature review and expert opinion. On a second stage, and according to expert opinion, an ISM model is developed along with MICMAC matrix analysis to understand the inter-relationships between the barriers, and how they affect each other.

The ISM model and MICMAC analysis shows that top barriers are three; in ISM Model, Lack of interest in vocational trainings (3), Preference of governmental sector jobs (4) and Deficit in educational requirements and qualifications (5) are placed at the first level, which implies that this barrier has influence on all other barriers but does not get affected by the other barriers. Same results were supported in MICMAC analysis which shows that those barriers are placed in the second cluster (Dependent Barriers).

The study shows that most of the barriers are inter-dependent and affected by each-other, which means that the achievement of the VISION 2030 implies the implementation of strategic inter-sectorial coordination plans, targeting strong driving barriers and linkage barriers at the same time and same level, to achieve the highlighted objectives and reach the expected outcomes.

This study aimed to provide an insight analysis to different stakeholders in the Saudi labor market about the interrelationships between individual, institutional and governmental barriers affecting the Saudization. A conceptual framework can be developed according to this model to serve as a base for the action plans of the upcoming years until 2030. It also can be useful for each party to understand their own responsibility in accelerating the achievement of the Saudization policy.

The ISM model has multiple advantages, in parallel with limitations. The most important limitation that should be taken into consideration is that the ISM barriers relationship depends totally on the expert's knowledge and their experience within the industries. Therefore, some subjectivity bias can affect the judgment of the barriers and can manipulate the results.

Regardless of the inherent limitation of the ISM, this study contributes significantly to build more practical knowledge by suggesting a model that highlights the most important barriers that should be addressed, and the interrelationships between those barriers affecting delay of implementation of Saudization or limitation or reaching the pre-identified targets of percentage of Saudi workers in the Saudi labor market.

This model should be tested and can be used to develop action plans for university and vocational trainings orientation of Saudi students, awareness and developmental strategies on institutional levels, in addition to creating intermenstrual strategies and coordination taskforces to enhance the actions and reach the vision 2030.

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Ethical statement: The author declares that he has followed ethical responsibilities.

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