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RESEARCH PAPER

# Barriers to the Adoption of Industrialized Building System in Iraqi Construction Industry

Zaid Mohammed Hatem [1*], Mundher Mohammed Alsamarraie [2], Alhamza Yassin Flaih[3], Ammar Mohammed Oda[4]

[1,2,3,4]School of Civil Engineering, Faculty of Engineering, University of Technology Malaysia

**A B S T R A C T:**

Iraq construction industry is about to experience an increasing number of new projects. With the economy slowing over the past few years, the need for residential projects and infrastructure still as priorities. Meeting these needs will be challenging, and cash out will be in high range if the construction industry still uses the conventional construction method. The significant features and factors were created based on an extensive literature review of previous research studies in developed and developing countries (68 research papers). Iraq adopted the Industrialized Building System (IBS) approach in the last decades in a few projects, some challenges stand against the continuous adoption of (IBS). Also, many studies record some challenges that prevent the application of IBS in their countries. This study paper discusses the barriers and strategies to adopt IBS in the construction industry of Iraq that are related to the importance of construction development within the context of modern building application. The methodology based on structured hypotheses that employed an online data collection and a total number of (111) questionnaire forms collected from the experts, professionals, and engineers involved in Iraq's construction industry. The questionnaire survey results addressed the barriers, and by using SPSS (statistical package for social science), the researcher correlates the presence of these barriers with hypotheses and demonstrates that the IBS adoption in Iraq suffered a lack of governmental support, money, knowledge, and expertise. Moreover, the related internal productions for successful IBS applications indicated a need to advertise and support the modern construction system by the role of public and private sectors.

KEY WORDS: IBS; Iraq; Construction industry; Barriers; Modern building systems
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## 1.INTRODUCTION:

Industrialized Building System (IBS) is defined as a construction process that utilizes building components construction equipment. Components are produced on or off-site considering the controlled environment it is transported, placed and assembled into a framework with less additional required work. developing countries, mainly depending on.

There are many identified elements and factors integrated into Industrialised building system (IBS) in the construction industry that include significant macro aspects: 1) Economic attributes that determining the success of adopting IBS in developing countries, mainly depending on funds allocated to develop and solve various construction industrialisation demands that are merged with modern-day urbanisation, the high-cost rate for present-day building construction, and congested commune area. Furthermore, increasing the amount of fiscal multiplier life cycle leading to a securer economy (Shamsuddin, Zakaria and Mohamed, 2013). 2)Social awareness on innovation systems integrated to solve many daily problems such as housing, environmental, economic, and feasible structures, thus having a

* **Corresponding Author:**
Zaid Mohammed Hatem
E-mail: mhzaid@graduate.utm.my
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macro scale into developing communities and raising living standards for all population categories. 3)Future planning for a more sustainable and renewable establishment for complex buildings integrating a life span of cost, quality, and durability. Furthermore, strategic planning's continuous process defines a thriving industry in managing all the challenges and constraints occurring in the day-to-day ground (Yunus, Hamid and Noor, 2019).

Lam, Riley, and Tucker (2009) analysed different IBS data outcome and determined that were many common indicators factors related to the outcome of IBS construction adopted in many developing countries, showing success in different abundant deliverables in construction projects represented through these significant indicators: (1) client satisfaction with the product and client satisfaction with the service (Jabar, Ismail and Aziz, 2015). (2) High reliability and quality of IBS designed qualifications (Rahimian et al., 2017) (3) handling and management of many aspects of construction challenges on-site such as risk management, quality assurance. (4) Efficient time deliverables for the designated projects (Nor et al., 2013). (5) Reducing material waste and workforces required on-site, consequently reducing much of operating costs that typically take place in a typical construction project (Pitt et al., 2009). Akram and Longden arranged three primary scopes towards sustainable construction: (1) Efficient management of resources throughout a building's life-cycle(Oleiwi et al., 2017), (2) Cost estimation for the construction phases during a different time sets specifically consisting of operation, maintenance, improvement and deconstruction(Faghirinejadfard et al., 2015), and (3) Economic profitability for local Small and Mid-size Enterprises (SMEs) due to the mere fact of consistent demands of resources for the construction of IBS components. Nevertheless, Kamar and Mahdiyar researched further and concluded that financial revenues and reconcilable achievement in securing high-quality building specification were the two most influential drivers that will drive demand and supply for a sustainability socioeconomic deliverables for stakeholders (Shamsuddin et al., 2018). Not to mention, research on welfare facilities requirements in Iraq (Hatem Z.M., Hamid A.R.A, Abba, N., 2019), concluded that IBS is considered one of the most innovative and effective systems in building welfare facilities on construction sites. These involve significant and large scale construction projects in many developing countries (Abba, N., Hamid, A.R.A., Hatem, Z. M., 2019). One of the main obstacles to research into construction industrialization was defining boundaries and establishing a clear description. The construction industry in Iraq still not yet developed as well using new methods such as IBS often interchangeable with another term, and their exact definitions depend in no small extent on the user's experience and understanding.

To discuss the barriers that may influence Iraq's construction industry, a review of collected previous studies conducted to list all the findings and critical barriers frequency. Besides, the respondents' responsiveness on the questions of the survey in a professional community (consultants, contractors, engineers, etc.) and their impact correlation in the construction industry of Iraq. Furthermore, the research papers were divided into six groups to easily categorise and identify the barriers to adopt IBS using a coding method to highlight the practical parts in the research papers, mainly featured in the literature review part. The identified factors were established and considered as a benchmark to refer to in this research Table 1.

**Table (1)** Frequency of Critical Common Barriers from Previous Studies

| No | Barriers to adopting IBS | G1 (Ali *et al*., 2018)(Ibrahim *et al*., 2020) | G2 (Mohd Amin *et al*., 2017)(Rashid *et al*., 2019) | G3 (Akmam Syed Zakaria *et al*., 2018)(Al-Taie, Al-Ansari and Knutsson, 2014) | G4 (Jabar, Ismail and Aziz, 2015)(Mezher, 2019) | G5 (Hadi, Muhamad and Othman, 2017) | G6 (Nduka *et al*., 2019)(Abed, 2018) | Freq. (N) |
|---|---|---|---|---|---|---|---|---|
| 1. | Cost | √ | √ | | √ | √ | √ | 5 |
| 2. | Awareness | √ | | √ | √ | √ | | 4 |
| 3. | Knowledge | √ | √ | √ | √ | √ | √ | 6 |
| 4. | Attitude | √ | | √ | | | | 2 |
| 5. | Project delivery | √ | | √ | √ | | | 3 |
| 6. | Skilled workers | √ | | | √ | √ | √ | 4 |
| 7. | Design | √ | | | √ | | √ | 3 |
| 8. | Conventional builds to IBS | | √ | | √ | √ | | 3 |
| 9. | Enforcement of IBS requirement | | √ | √ | | | √ | 3 |
| 10. | Cash flow problems | | √ | | | | | 1 |
| 11. | Industrial objective | | √ | | √ | | | 2 |
| 12. | Economic condition | | | √ | | | √ | 2 |
| 13. | Stakeholder participation | | | √ | √ | | √ | 3 |
| 14. | Sustainability feature | | | √ | | | | 1 |
| 15. | Risk management | | | | | | √ | 1 |

## 1. METHODOLOGY

### 2.1. Previous Case Studies of IBS Implementations:

The sample of this research consisted of 38 case studies that have been selected from reliable resources such as journals (Springer, Elsevier, Taylor & Francis, etc.) and official reports from public and private development sectors. The time baseline was from 2015 to 2020. Data collection methods include semi-structured pilot study, statistical analysis, and extensive literature review. The analysis was to convert literature review content text and empirical data into a reliable indicator by establishing a pragmatic benchmark coefficient for dependent and independent variables. As proposed by (Mogey, 1999), observing the descriptive category of analyses, he concluded that several methods could be adopted in analysis techniques in a way it can be used to analyses the statistics and data to develop some results from the study of the results.

They were using a skewness and kurtosis equations (1,2) for analysis for the data available. The reason for the usage of skewness and kurtosis is to elaborate and clarify to the extent which variable's distribution is symmetrical. The general test is that if the number is greater than 1, the distribution is reliable. Likewise, a kurtosis of less than 1 indicates that it is not efficient. Besides, the technique developed to study the data in this analysis is by using computer software, which is NVivo 12, a qualitative data analysis (QDA) mainly for coding and Statistical Package for Social Science (SPSS) analysis the empirical data. All trials of the analysis showed some resemblance to the need for cost and funding collaboration, project efficient, research knowledge into IBS, manufacturing and risk management, the need experienced professionals,

and adopting a modern building system. The total common indicators for previous research and case studies on IBS were 15 barriers, shared by the title, effect, results, and construction development.

Finally, to correlate all the final data for the standards, Cronbach's Alpha, Kendall's, and Spearman's Equation (3,4,5) were modelled in accordance to determining the coefficient to be used in SPSS software to make decisive results there is a statically indeterminate link between the ratios of indicators. The analysed coefficient is assumed to be equal, or more than 0.7 based on previous errors and trials conducted to establish a reliable benchmark to referee (Abba, N., Hamid, A.R.A., Hatem, Z. M., 2019). The final results were constructed to test the hypothesis on the data obtained for Iraqi respondents and establish a link for the missing aspects needed by the construction industry in Iraq. The summary of the case studies depicted in the following Table 2 and 3:

N = number of items.

$\bar{c}$ = Average covariance between item-pairs.

$\bar{v}$ = Average variance.

S= Standard deviation

$\underline{X}_i$=Initial variance

g2= covariance between Xi and X

X =Mean

G=Range [−1, 1]

C= 5-point scale

d =Ranks individuals

m=Correlation coefficient

G1=Equation(1):Cronbach's equation inputted in SPSS

G2=Equation(2):Spearman's equation inputted in SPSS

α=Equation (3): Alpha coefficient equation

W=Equation (4): Kendall's equation

P=Equation (5): rho coefficient equation

$$G1 = \frac{n}{(n-1)(n-2)} \sum_{i=1}^{n} \left(\frac{xi - \bar{x}}{S}\right)^3 \quad \text{Equation (1)}$$

$$G2 = \frac{n-1}{(n-2)(n-3)}[(n+1)g2 + 6] \quad \text{Equation (2)}$$

$$\alpha = \frac{N.\bar{c}}{\bar{v} + (N-1).\bar{c}} \quad \text{Equation (3)}$$

$$W = \frac{12\,S}{m^2(n^3-n)} \quad \text{Equation (4)}$$

$$P = 1 - \frac{6\sum d_i^2}{n(n^2-1)} \quad \text{Equation (5)}$$

**Table (2)** Analysis of research papers

| No. | Indicators for IBS | Impact scale 2.0 | Effect on other elements | Impact summary | Hypotheses classification | Test method |
|---|---|---|---|---|---|---|
| 1. | Cost | 1.42 | 1.83 | 3.25 | **Hypotheses 2** | **Skewness and kurtosis interpretation** |
| 2. | Awareness | 0.78 | 1.20 | 1.98 | | |
| 3. | Knowledge | 1.79 | 3.64 | 5.43 | | |
| 4. | Attitude | 0.96 | 0.00 | 0.95 | | |
| 5. | Project Delivery | 2.08 | 6.55 | 8.63 | | |
| 6. | Skilled Workers | 0.92 | -0.26 | 0.66 | **Hypotheses 1** | **Pearson correlation** |
| 7. | Design | 1.41 | 1.68 | 3.09 | | |
| 8. | Conventional building To IBS | 1.71 | 2.53 | 4.24 | **Hypotheses 0** | **Descriptive analysis** |
| 9. | Enforcement of IBS | 1.02 | -0.15 | 1.16 | | |
| 10. | Cash Flow Problems | 2.62 | 6.82 | 9.44 | | |
| 11. | Industrial Objective | 1.61 | 2.01 | 3.61 | | |
| 12. | Economic Condition | 1.24 | 1.04 | 2.27 | **Hypotheses 3** | **Cronbach's alpha coefficient** |
| 13. | Stakeholder role | 1.42 | 1.83 | 3.25 | | |
| 14. | Sustainability attributes | 0.78 | 1.20 | 1.98 | | |
| 15. | Risk Management | 1.79 | 3.64 | 5.43 | | |

**Table (3)** Analysis of final results for the papers

| Cronbach's Alpha | Kendall's tau_b | Spearman's rho | N of Items (Research papers) |
|---|---|---|---|
| 0.701 | 0.879 | 0.930 | 68 |

## 2.2. Hypotheses Methodology

Hypotheses are used to link between testable documents and research questionnaires. Therefore, hypotheses create a correlation to interconnects the gap from the general question that was set to investigate the problems that occur are daily. Furthermore, to generate an effective assumption, relevant explanations of a problem are ascribed by the hypothesised methodology by rationalising the overall connection between variables and constant outcomes(Sawyer, 1991).

To simplify the questionnaires and construction industry's outcome results, an empirical hypothesis is used to link between qualitative and quantitative results(Barker, 1961). This type of research methodology organises the research to a more qualified and accurate. It establishes the dynamic variations that can develop and reduce miscellaneous data; thus, the standard of control in such research is adequate even with different variables. The hypotheses are divided into four stages that are observation, testing, evaluation, and linking(Granato, Inglehart and Leblang, 1996). The hypothesis is divided into four sections to clarify the research objectives; the hypothesis uses dependent variables that are structured for changes in independent variable data from the designed questionnaires:

1. Hypotheses $_0$: Lack of awareness of modern technology building systems and the abundance of traditional building
2. Hypotheses $_1$: Absence of professional's experts to manufacture and execute IBS components in Iraq
3. Hypotheses $_2$: High capital and operational cost that prevent the implementation of IBS construction in Iraq

4. Hypotheses $_{3:}$ Unstable construction market throughout the rates of supply and demand for IBS construction

### 2.3. Questionnaire Survey

A profound review of previous studies to evaluate the most common barriers and discuss it. The questionnaire survey is also conducted to decide the level of awareness among construction industry players towards the adoption of IBS and the issues that stand against the complete application in the Iraqi construction industry. A systematic google form of quantitative and qualitative approach distributed in an experienced stakeholder forum to answer the questions for this research. In the meantime, the qualitative approach covered a list of questions that aim to encourage the respondents to answer these questions based on their opinion and site experiences. Some of the questions need the respondents to answer subjectively. The questionnaire survey continued to collect responses from the respondents for two months. A total number of one hundred and ten (110) questionnaire responses were received as the study sample. Statistical package of social science (SPSS) used to analyse the data obtained. This selection is based on previous study that calculated the minimum sample size in respect to the Iraqi construction industry (Hatem Z.M., Hamid A.R.A, Abba, N., 2018). The instrument of this survey included three parts. Information related to the respondents' background, years of experience (Rashid et al, 2019), type of construction. Correlation equation used to find the extent correlation of these barriers in the construction industry.

## 3. RESULTS AND DISCUSSION

The survey result discussed, as shown in the next section. This questionnaire created by google Forms and distributed among professionals and experts who deal with construction activities in their daily work. A total number of 110 respondents send their feedbacks relating to some personal background information and experiences.

### 3.1. Background of the Respondents

In this section part (a), the data analysed for the background of the respondents. In the figure1 site, engineers represent a considerable percentage of 38% compared to the other slices that may direct the questionnaire results to rely on the respondents' experience to specify the barriers. The consultants and the contractors also form 11% and 13% respectively.

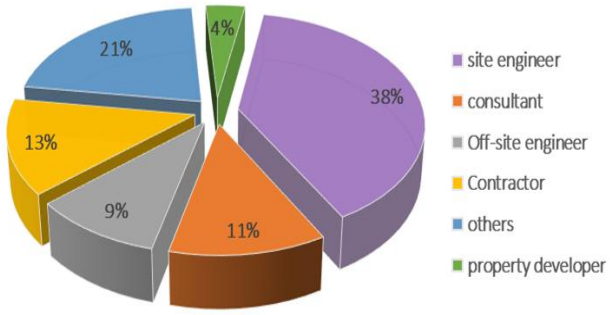


**Figure 1:** Job/Position of the respondents

In figure 2, the respondents' level of education shows that bachelor and master engineers are the highest numbers recording 43%, 36%, and in collaboration with the previous figure means to emphasise experience and practical knowledge to address the problem and barriers of this research.

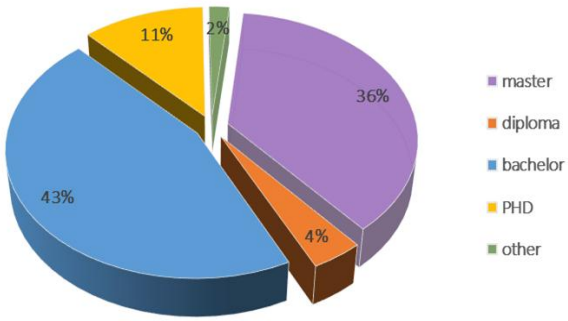


**Figure 2:** Level of education

A different percentage of 58% is shown in figure 3 concerning the respondents involved in the construction industry from 1 to 5 years and an approximately equal percentage to the other options of this questionnaire 11%, 13%, and 15%.

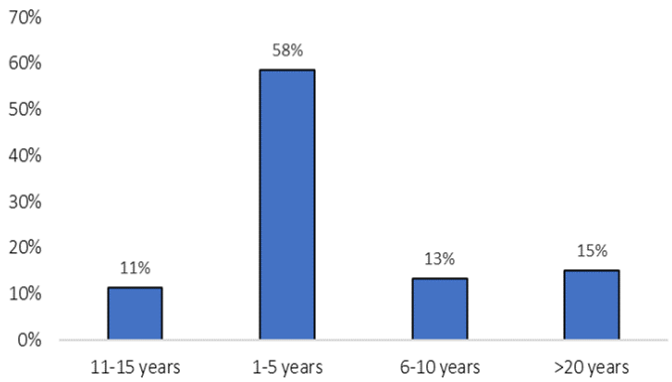


**Figure 3:** Years of experience in the construction industry

Figure 4 shows that the residential units record 40% concerning the type of buildings developed by the respondents. It is crucial to consider the opinion of this sector to address the barriers and facilitate the application of IBS in a wide range. The respondents of the Commercial and industrial projects show an equal percentage of 17% of the questionnaire's total population.

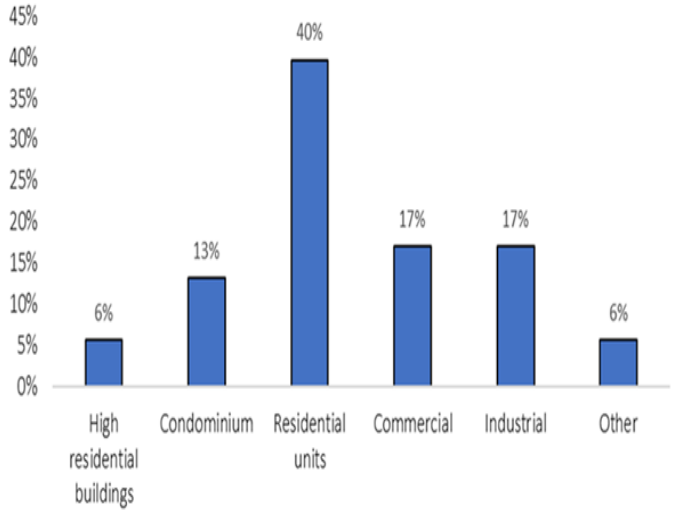


**Figure 4:** Building types developed by the respondents

### 3.2. Results of The Questionnaire Barriers

This part (b) is to analyse the objectives listed and problems, in so an analysis is performed to test the hypothesis theory using both quantitative and converting it to empirical statics Table 4 using several systems to effectively evaluate and prove the critical components of the hypothesis constructed to fit Iraq's existing conditions Figure 5. The system used to correlate and correct any misapprehension responses of the surveys. A correlated series is established to test the indicators' validity as illustrated in Table 4 using Pearson correlation in SPSS (Abba, N., Hamid, A.R.A., Hatem, Z. M., 2019). The parameters used in the analysis is correlated to the values obtained from the barriers values created from the systematic analysis of previous studies, survey response values, and structured coefficient of mathematical limits of accuracy for testing the listed hypothesis.

**Table (4)** Indicators correlation using the parameters

| Indicators | Signified indicators | Pearson Correlation | Test |
|---|---|---|---|
| | Series 1 | Series 2 | |
| Cash Flow Problems | .990 | 0.98 | ✓ |
| Convert from Conventional To IBS | .978 | 0.86 | ✓ |
| Design | .973 | 0.47 | ✗ |
| Economic Condition | .950 | 0.34 | ✗ |
| Cost | .910 | 0.36 | ✗ |
| Skilled Workers | .921 | 0.07 | ✓ |
| Transportation | .830 | 0.76 | ✓ |
| Attitude | .773 | 0.97 | ✓ |
| Limit Enforcement of IBS Requirement | .721 | 0.69 | ✗ |
| Awareness | .697 | 0.49 | ✗ |
| Industrial Objective | .629 | 0.77 | ✓ |
| Stakeholder Participation | .539 | 0.202 | ✗ |
| Sustainability Feature | -.239 | 0.06 | ✗ |

Furthermore, its noticed that in accordance to the previous case studies of IBS in developing construction industry, the similarity is led to several spot factors that consider an impactable drivers for advancing and changing construction methods of building. As such these are resembled from Table 4 and Figure 4 of mainly funding issues that diverges into other causes and developing changers as regarded in previous experiments and notes of already developed nation. Noticed in the trials and errors conducted in the scope of management and world leading industries as reviewed in the selected cases of this research.

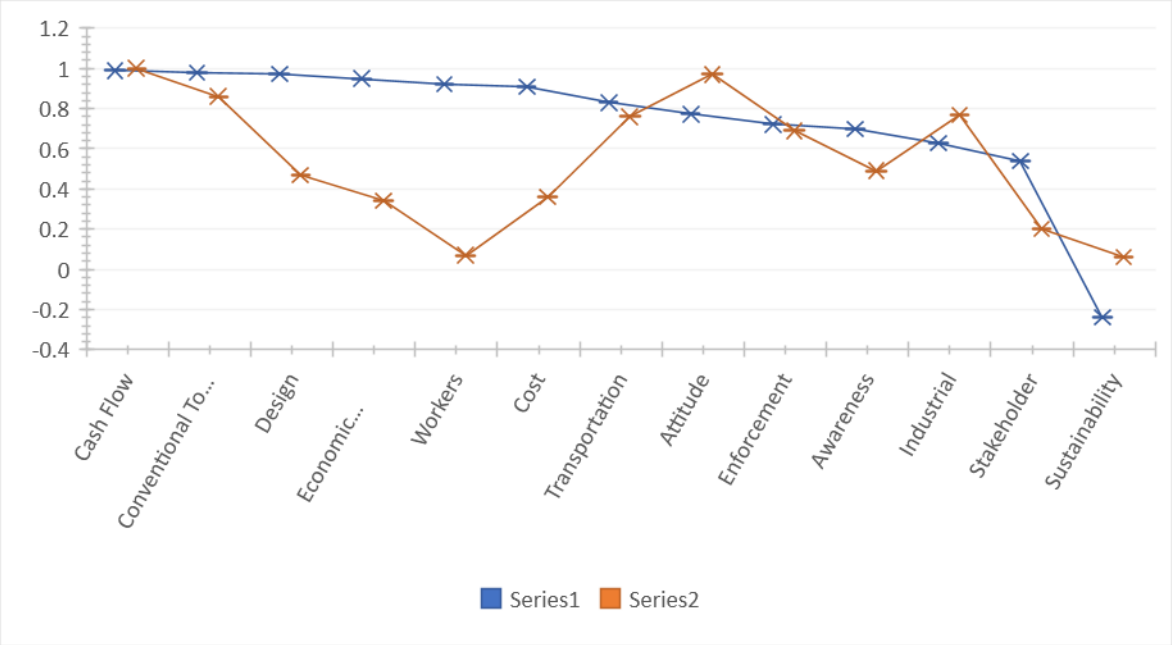


**Figure 5:** IBS barriers related to construction industry management

For part (c), the data received questionnaires responses are analysed in SPSS. A descriptive statistic is directed for distribution numbers and repeated variables in phases of uniformity and potential deviations. Many researchers recommend that the correlation system is applicable to examine the relationship between combinations of variables. To properly analyse the relationship, a correlation concept is used mainly know by Pearson's product-moment correlation (r). Pearson's correlation coefficients are typically adopted for usually disbursed data which shows the linear relationship between two or more variables. Pearson's correlation coefficients (r) equation (1,2) adopts a statistics range of interval from -1 to +1 Table 4. To establish the strength of variance of two variables compared, coefficient of resolution is calculated and measured on Pearson's range of -1 to +1, using a cross-product feature in SPSS to create a gauge of compelling correlation represented in positive figures closest to +1 that represents the most significant barriers to implement IBS system in Iraq, this is illustrated and defined in the vertical axis in Figure 5. Followed by forming IBS standards to be referred to in an empirical method and analysis, economic conditions and cash flow were the most significant barriers preventing IBS building in Iraq with an average coefficient of (0.9) Figure 4 and is clearly resembled in the chart in Figure (5). Series1 represents the values obtained from the analyse of previous studies that are focused in IBS application. Series 2 represents the final values analysed from the respondents in context to IBS barriers.

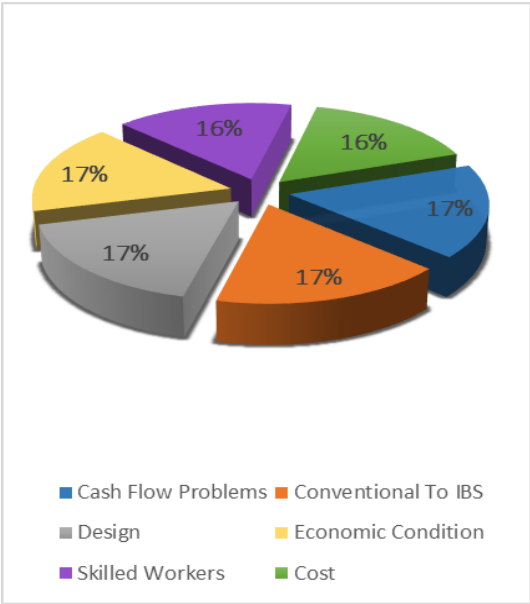


**Figure 6:** Financial Role

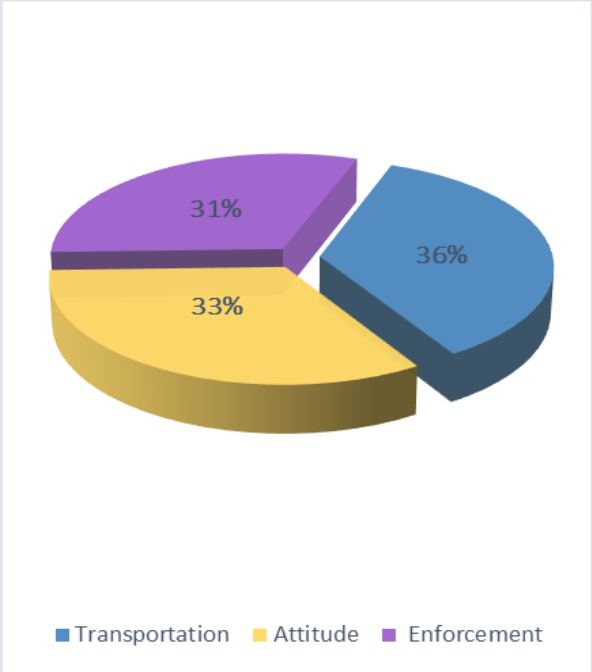


**Figure 7:** Public and Private Sectors Role

There are not many reliable records about IBS ideas in Iraq, and the government has to act in this regard. Modern media play the prominent role in making people familiar with the advantages of IBS and educating them about advanced building systems around the world; however, with a low coefficient on this subject (0.69), there is a need to increase the understanding on this system. The existence of the defined standards for sustainability in public and private agencies is significate low with a (-0.239) coefficient. In other suitable buildings are yet to be introduced in Iraq construction industries. The primary stakeholder and government officials responsible have a significant impact on applying and encouraging IBS in Iraq, as indicated in the analysis with an average coefficient (0.7). Material availability and manufacturing IBS components are available to be invested and explore the potential of manufacturing. As for the transportation and lifting equipment needed, Iraq has various heavy moving vehicles and lifting cranes, as shown in results averaged (0.8) Figure 5 and the survey's results indicate that in figure 8.

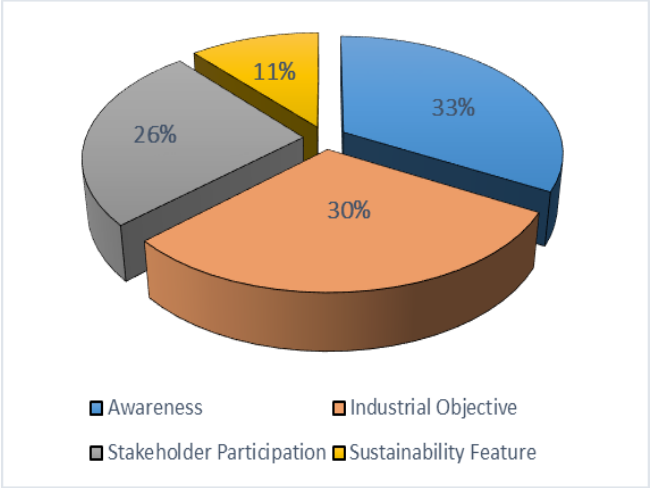


**Figure 8:** Significant Stakeholders' Impact

In conclusion, Iraq is in a deficient situation in terms of the degree of models defined for the use of industrial building systems (IBS), furthermore. The result also pointed out that more than half of respondents admit the application and potential benefits of using modern building and construction systems in Iraq. According to the results, the most popular project type needed is residential and housing (refer to Table 2: Analysis of research papers), Considering IBS is an efficient solution to this continuously occurring issue Figure 3. The final results for the obtained analysis are shown in Figure (4), highlighting and illustrating the most impact factors considered as barriers for the IBS system in Iraq. Both figure (3,4) results with previous studies conducted in developing countries, where an installation of new building and construction knowledge is lacked, thus a survey concurs with the barriers previewed in the literature review in a mathematical and descriptive interpretation. Also the leading results that are illustrated in the figure above point to many neglected or in other word in need of more studies for leading to improvement of construction industry in accordance to world standards in application and consideration.

For the analysis part of hypotheses (3), Cronbach's alpha is used to evaluate the attributes of internal consistency factors and how closely linked a set of components are as a systematic classification, which is in the case of research IBS barriers. As a consequence of the analysis, the following was revealed, knowledge and training importance of the IBS concept in this research is represented as a fair reach awareness on the basic needs to achieve and fulfil IBS potential without

neglecting ethics and local traditions. From the retrieved analysis data, it reveals, there is knowledge of the essential potential aspect of aesthetic IBS details in Table 5. Furthermore, there are three factors interested between the hypotheses parts, mainly found in the critical prospect of education and coordination between the construction industry and universities (higher education research and development institutes).

However, the rest aspects related to construction industry contribution mainly by public sectors showed little importance, which indicates that there must be communication between the primary development sector to establish IBS Figure 9.

**Table (5)** Cronbach test related to indicators

| Indicator | Cronbach's Alpha | Test hypotheses |
|---|---|---|
| Local workers impact | .625 | ✕ |
| Design integrated with IBS | .630 | ✕ |
| Aesthetic features | .769 | ✓ |
| Qualifications in Design and Production | .597 | ✕ |
| High-level educational institution into IBS | .766 | ✓ |
| Effective supervision techniques | .622 | ✕ |
| IBS effect on construction | .658 | ✕ |
| Extensive coordination before construction operations | .725 | ✓ |

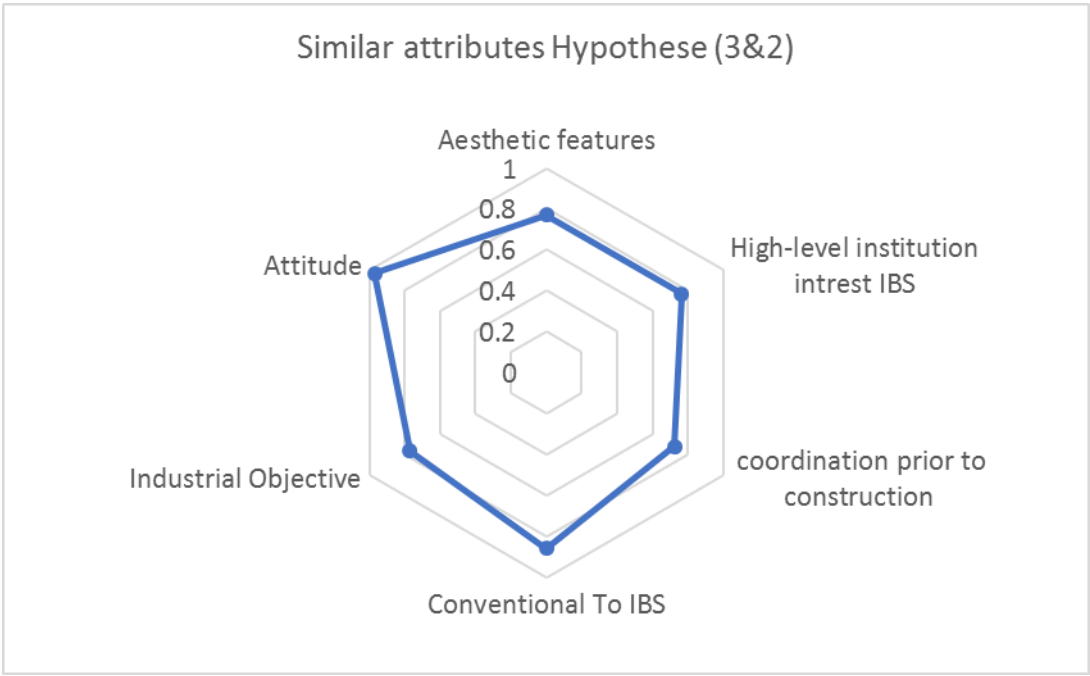


**Figure 9:** Similar attributes of hypotheses (3&2) based on Cronbach's Alpha coefficient

## 4. RECOMMMENDATION

To overcome the barriers towards implementing IBS that addressed in the literature review and the questionnaire survey, the respondents assure that the application of IBS should be taken immediately. In the respondents' opinion, the first step should be taken by the government to encourage institutes, public sector to adopt the idea of converting from conventional to IBS in a wide range, support, and plan strategies in the building and constructions sector. The government should lead the initiatives and enhance the application of this system in the private sector. IBS added as a mandatory option at least for the need for residences and housing units. Furthermore, the government should support fabrication units, produce skilled workers, and

create opportunities for Iraqi labourers and workforces (Mahdi and Mawlood, 2020; Mahdi, Wali and Yuosif, 2020). To increase the application of IBS, the government should support some companies well known in this field of constructions to invest in future projects and change the ideas of the people towards the implementation of the IBS system giving high-quality specifications and futuristic design. Seminars, advertisements, and documents need to promoted in a wide range to increase people's awareness of the positive side of using the IBS system. To stimulate the demand and supply of the IBS system, the government should think about tax reduction, help to increase the Number of IBS manufacturers by giving flexible financial plans for investors.

## 5. CONCLUSIONS

From the analysis and interpretation, it can be decided that the most significant elements towards the barriers of IBS in Iraq's construction are the financial aspect, awareness into modern construction system, and most importantly the crucial role of the public and private sector to adopt IBS in their construction development and future needs for continuous demand for improvement in building supply. The particular peculiarity of IBS will benefit and promotes more investment in construction. With the addition, the adoption of this alternative construction method, there must be full awareness of the capacity of IBS in enhancing construction features such as cash, time, quality, safety, and sustainability environment. An incorporated appraisal process and effective collaboration are required between major influencers (Designers, Planner, Engineers, Governments officials, and Researchers) related to IBS application in Iraq on the key attributes. Also, from the results obtained and in testing the basic hypothesis a concurrence can be generated with the appliance of previous cases conducted in the aspect of IBS, in explaining and linking the results the methodology was affluent in drawing into summary for interpretation (Ali, M. M. *et al.* 2018). As for the null hypothesis, the descriptive results show that the theory for the barriers of IBS is in accordance with previous statement of scholars that highlighted the main factors that contribute to application of modern construction systems in developing countries (Mohd Amin, M. A. *et al.* 2017).

As this concurs with previous studies conducted in other construction related aspects that followed a similar pattern for determine and concluding the importance of construction development context within the daily practice and guidance of Iraq's current perspectives(Hatem, Hamid and Abba, 2019; Hatem, 2020).

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