1.1 ABSTRACT: This study aims to explore the unrevealed history of Istana Jahar, Kota Bharu, Malaysia, which has gone through numerous changes in terms of functions due to several reasons that give the impacts to its architecture. However, the discontinued historical narrative failed to provide reasons of these changes. This research will set and argue that certain parameters might be responsible for these changes and if identified, these parameters will provide a solid platform to understand the building and its architecture through ages. Hence, to capture the historical changes and its influences from the minimal sources, it is imperative to distinguish the nature of these parameters. This research will carry out the task to collect information for setting up the parameters which has significant to the changes of the in the architecture of Istana Jahar. The scope of this paper will be limited to focus on political and social parameters which have significant impacts in architectural changes of Istana Jahar. Istana Jahar is a royal testimonial that has its own prides and its architecture indeed played the significant roles to its socio-political changes in the society. By citing the case study of Istana Jahar, this research will argue on the current condition of Istana Jahar in relation to its original condition base on the political parameters to the architecture. This research will provide a research framework of the Istana Jahar and cultivate the eagerness to explore other possibilities in unveiling the architectural history in different ways. By combining layers of information, this research would provide a further platform to explore any others possibilities for the architectural historian to capture the information especially heritage buildings and help to foster a better architectural identity of Malaysia. Thus, this paper discusses for the need of apprehending the possible changes parameters of a historical building along with the proofs to capture a comprehensive data of historical building.
1.0 INTRODUCTION

1.1 Architecture and Palaces

Architecture is a medium to explore and study the cultural and hierarchical of the society because the built heritage including palaces, monuments, and other built spaces defines societies, provide them sense of prides and belonging as well as cultural identity. Architecture is also a study of forms, plans, designs, motifs and how they have evolved over time. The articulation and transformation of architecture is directly associated with the social and cultural aspiration of its inhabitants. These connection creates unique identities to the society which demonstrates the symbol of prides in the society. Furthermore, the architecture and built spaces become sites of administration, residence, state formation, and exclusion which generate multiple meanings to its existence (Khare, Delhi University).

Consequently, the architecture of the royal palaces also has certain qualities in architecture which has significant impacts in the society. This architecture even have multilayered structures of histories that has its own unique features. Its’ always having some shared spaces where different level of people in the communities come together to create it. Architecture of Malay Royal Palaces therefore, are not just a study of forms, but they are a part of a larger social cultural history. For instance, this particular case, the Istana Jahar in Kelantan has gone through radical changes in terms of its architecture, forms and functionality. Through the research of this palace, it develop the opinion of how the building was built, and what are the possible reasons behind its changes through times were, by investigating the influence of the social and politics to its architectural changes in the palace, the processes of their creation as the architectural forms draw upon contemporary cultural and philosophical discourses. In order to appreciate its heritage value and to convey the history of the building to the next generation, thorough historical research requires a kind of records that can be easily accessed and interactive in user interface.

1.2 Changes in Architecture

The changes taking place in every element which affects architecture including the economics, politics, social, as well as the technology has given significant influence on architecture in some region. The changes in these part of the social structure affect the trend of the high-class people in the society to change their taste in the built environment to suit their needs and pleasing their superior or emperor. The discourse leading towards the notion of architectural changes affected
by the social changes particularly when issues concerning society are in question. The changes in architectural elements in the society illuminate the fusion in the community which combines several fundamental features from other parts of the world.

2.0 HISTORICAL BACKGROUND OF ISTANA JAHAR

2.1 Brief History of Istana Jahar

According to the Kelantan Museums Corporation, the erection of the palace was started at the end of the reign of Sultan Muhammad II (1837-1886) and completed in 1887 during the reign of Sultan Ahmad (1886-1889). The palace was built as a wedding gift for Sultan Ahmad’s prince, Long Kundur, who later succeeded him as Sultan Muhammad III (1889-1890) (Saleh 1987; Nurul Hamiruddin, 2011). The palace was named as Istana Raja Bendahara after the official title of the crown prince ‘Raja Bendahara’. During the reign of Sultan Muhammad III, the palace was used as an administrative center for the state of Kelantan. Nevertheless, Sultan Muhammad III was on the throne for only one and a half years. Long Mansur, a brother of the late Sultan Muhammad III, was enthroned as the next Sultan. During the reign of Long Mansur, he used another palace as his official palace known as the Istana Balai Besar (the Central Palace).

Historically (Since 1844) Istana Balai Besar was the main administrative centre of the state. It works as place to hold the coronations, installations, investitures and many other ceremonies. This also accommodates the office of the Sultan. Istana Raja Bendahara became a palace for Long Senik, a prince of the late Sultan Muhammad III. In 1911, Long Senik became a Sultan of Kelantan also known as Sultan Muhammad IV. During the reign of Sultan Muhammad IV, the Istana Raja Bendahara was renovated several times (Nurul Hamiruddin, 2011). Sultan Muhammad IV had ascended the throne after the sudden death of Sultan Muhammad III. He has made the Istana Balai Besar as his residence and Istana Jahar still in use for other purposes. The palace was named Istana Jahar after Sultan Muhammad IV’s visit of Singapore in 1911. The name Istana Jahar was given to that palace when a Jahar tree was planted inside the compound of Istana Raja Bendahara, under the order of Sultan Muhammad IV. Since then the palace was famously known as the Istana Jahar. Later, the palace was given to his son Tengku Ismail using the title Tengku Seri Indera Mahkota. After the death of Sultan Muhammad IV in 1920, Tengku Ismail replaced him with the title of Sultan Ismail and stayed at Istana Jahar, endowed by his late father. Later, Sultans of Kelantan which then as Sultan Ibrahim (1944-1960) and Sultan Yahya Petra (1961-1979) no longer resided at the Istana Jahar (Rashid, 2013).

From the time of its completion, Istana Jahar has gone through several renovation and adaptive reuse processes. There was a time when the palace was left abandoned since the succeeded Sultans had their own palace of residence. The original Istana Jahar was revamped in 1965 after so many years of abandonment. During the time of Sultan Yahya Petra, the Istana Jahar was refurbished and reconstructed to its current form. After a few series of renovation and refurbishment works, Sultan Ismail Petra has lend the Istana Jahar to the Kelantan Museums Corporation for restoration and adaptive re-used as the Kelantan State Museum, which was later converted to Kelantan Royal Tradition and Customs Museum.
2.2 Architecture of Istana Jahar

This building was historically a single storey timber building with a few sections like other Royal palaces such as Istana Balai Besar and Istana Tengku Sri Akar. However, the function of the building has gone through radical changes due to several reasons to suit the need of the Sultan during that time. Currently, it is stand as double storey masonry building with a combination of traditional Kelantanese architecture and European architecture. Though, it was original influence by the European or it was changed because of the colonization by the European, it is the subject to be investigated. The fusion in architecture can be found inside this palace where the roof forms, the wall panels, and other ornamentation was clearly belongs to the Kelantanese architecture. However, the installation wrought iron spiral staircases, iron balustrades, and a semi octagonal porch represents the foreign influence particularly Georgian architecture into the architecture of Istana Jahar. The current function of Istana Jahar is as the Kelantan Royal Tradition and Customs Museum. As this palace was used as residence palace for at least two Sultans of Kelantan, then there must be some facilities and services to run their daily routines and activities. However, it is possible that this kind service spaces were demolished while the palace was transformed into a museum.

Figure 03: The picture of Istana Jahar before partly demolished to allow for the new building to be constructed
(Source: Mubin Sheppard, Kelantan planter's Association)

Figure 04: Sultan Muhammad IV and His Royal Family member, the significant changes to Istana Jahar happen during his reign of power in Kelantan 1905-1920
(Sources: http://muhammadismailibrahim.wordpress.com)
3.0 ARCHITECTURAL STYLE ACCORDING TO SOCIAL STRUCTURE

3.1 Social Structure in Kelantan

Ever since the early nineteenth century, Kelantan’s traditional architecture used in buildings and structures in Kota Bharu has been influenced by their previous emperor including Siamese Kingdom and other colonial counterparts. Palaces of royalty and the elite were often designed and built based on the Kelantan indigenous architecture by the local handicraftsmen as well as the highly skilled carpenters. All the architecture elements were thoroughly knitted including facades, interiors, furniture, antiques and patterns were typically from Malay traditional architectural style with the combination of some elements from the European country. Such influences were evident only in the properties of royalty and the elites. A few factors that might contribute to architectural changes in the society considering the facts that Kelantan was under a few rulers before it merge under the union of Malaya. Some of the factors including:

i. The Siamese Emperor
ii. The presence of British colonization.
iii. The Local indigenous architecture
iv. The westernization of the royalty of Kelantan and Siam, such as the Sultan Muhammad IV and King Rama the 5th, the former emperor of Siam.

All the above mentioned factors have contributed in shaping the architecture of Kelantan. It reflect the society’s way of life, their belief, and philosophy (Ezrin, 1997). These altogether, form important components in the uniqueness of a culture. Hence, it has always been the main source of references in social and cultural studies in architecture.

Figure 05: The Exploded 3D virtual model of Istana Jahar (Source: KAED Heritage Studies Team Istana Jahar 2013)
Kelantan-Pattani architecture was fundamentally similar to Kelantan’s architecture as it was once ruled together under the ‘Great Pattani’ (Pattani Besar), besides having similar geographical features and the people were normally blood related and families. This southern part of Thailand’s architecture shows the unique Malay Architectural features which have significant influence in building the royal palaces in Kelantan. It was stated in history where the King of Siam had visited Kelantan in 1905 during the reign of Sultan Muhammad IV, then, some of the features in Royal palaces was renovated and changed to look almost similar in architecture and it’s characteristic. The most distinctive features that are both Kelantan and Siamese were sharing is the use of Singgora tiles as the roofing material. This type of material is hardly to find and only a few manufacturers available currently. The relationship between Kelantan and Pattani is still going on with the trading activities, exchange of goods, visiting their relatives between these regions.

Architecture in Kelantan is a mixture of many styles of architecture and not exclusive to only Malay architecture even though it has some unique identity. Some of them include the European architecture fusion with the Kelantan indigenous Architecture to suit the climate and local condition of this region. New construction technologies and materials have been introduced in the construction including the glass, metal staircases, masonry structure building and many more. Consequently, the royal palaces also influenced by these movement where the re-construction of the royal palaces also using those new type of construction. Istana Jahar which was constructed originally from timber was renovated by adding the double story masonry structure. It was believed that the European especially British had started to make its move in influencing the architecture in Malaysia before the World War II, (Gullick, 2000).

The combination of Malay and European influence architecture can be seen with the installation of concrete columns in Istana Jahar. Furthermore, the semi octagonal porch and the metal cylindrical staircases inside the Istana Jahar strengthen the argument about this combination in architecture. Furthermore, due to the other external factor mainly from the colonization, their impact in changing the perception about architecture in Malaysia has influenced in social, politics, as well as architecture. This phenomenon can be seen from the many aspects including architecture and culture. These distinctive architectural styles have significant cultural and heritage values, many of which are being conserved by the relevant authorities until today.

**Figure 06:** The timber columns and decorative wall panel (Janda Berhias) inside Istana Jahar (Balai Tarik)  
(Source: Mubin Sheppard)
4.0 PARAMETERS OF HISTORICAL CHANGES

4.1 Parameters of Changes that Affect the Architecture in Kelantan

This particular study is to set the parameters for further research in developing the 3 Dimensional model of *Istana Jahar* using the available information. As the fundamental idea is to find the possible causes or reason behind the changes in the architecture of *Istana Jahar* based on the historical narratives, sets of parameters may be infinitive; however, the limitation of resources has constraints this research paper into smaller sets of parameters which are the social, politics and culture. The priority is to understand the chronicles of the events occurred that lead to the changes in the architecture of *Istana Jahar* in particular.

The study from the chronicles of events occurred in Kelantan’s history has given the significant impact to the architecture of Istana Jahar. Some of the event include social, political, and cultural. From the study based on the textual description by various sources, the Istana Jahar has gone through at least five major changes as describe below:

i. 1887-1889- The construction of *Istana Jahar (Istana Raja Bendahara)* started during the reign of Sultan Muhammad II, initially was a single story timber building.

ii. 1900- 1905- Istana Jahar has been renovated into a double story timber building- Sultan Muhammad IV

iii. 1905-1920- The additional portion of Istana Jahar was constructed with double story masonry structure, with semi octagonal porch during the reign of Sultan Muhammad IV after the visit of Siamese emperor in 1905.

iv. 1965 –Another series of renovation was done and it was eventually converted into the offices and Kelantan State Museum.

v. 1990- Another set of renovation to facilitate the use of Istana Jahar as Royal Tradition and Custom Museums.

All the event that occurs have significant changes which related to the changes of political power, for instance, the timeline shows that all the changes happen were occurred during the reign of different Sultan or rulers. This might be some of the reason for changes to fulfill the architectural taste of the ruling Sultan. This is to show how the political power may influence the architecture of the palace.
Furthermore, the cultural parameter may have significant impact where the local craftsmen which involve in the construction of the palace injects the Malay architectural input in designing the ornamentation and other significant Malay architectural features in Istana Jahar. Some of the feature includes the uses of singgora tiles, Janda Berhias wall panel, installation of ‘Ekor itik’ and ‘Sirip Naga’ as roofing features. These are among the features which the cultural elements from Kelantanese and Siamese culture in arts and architecture.

**Figure 09**: ‘Ekor Itik’ and ‘Sirip Naga’ as part of the roofing features in Istana Jahar

**Figure 10**: Singgora Tiles used as the main roofing material for Istana Jahar

### 4.2 Virtual Knowledge Platform (VKP)

The Virtual Knowledge Platform (VKP) for this case is described in the Fig. 11. The most important aspect of the VKP is that it not only relies on architectural or archaeological sources, rather it adopted a cross disciplinary approach. Hence any small discovery at any discipline can be used in this framework to observed how it will affect the three dimensional expression of this structure. It also helped the future researcher to be aware of the type of information to be looked for and how this should be used to understand the architecture of Istana Jahar. This framework also demonstrates the possible scope for future extension of the research that would engender further refinement the virtual model. However, the ends are kept open to accommodate the outcome of the future studies in these areas within this framework to verify the model at more detailed level. The most interesting part is that VKP itself is flexible and can be modified in future if necessary. This is a continuous process and would go on, as more resources are made available.
5.0 DISCUSSIONS AND CONCLUSIONS

This research is a progressive research which need more research activities to be done. The notion of this research is to argue a few fundamental problems which are still under investigation. The basic idea is to develop the theory of architectural changes in Royal palaces in Kelantan due to certain issues. All the issues lies with sets of parameters in history which may have impact on architecture. Even though the parameters available are limited, but, with the collective information that has been gathered through the data collection session and other fieldwork activities. The heritage building is a memory of the past which should be preserved for the future generation. Though, the original building has been destroyed, but, the data and information about that particular building should be well-preserved. All the information regarding this research will be used to reconstruct the virtual model of this building using digital tools. The physical documentation or conservation in its true form not only ensures the formal characteristics of the building, but at the same time put a considerable impact on the others, especially on the intangible aspects. The tangible aspect of this data will be form into sets of parameters then later translated into virtual model based on the timeframe setup in this research. In order to preserve this whole set of values, a detail inventory of information is needed before going into a physical documentation and conservation of the monuments, because if the meanings are not recorded properly, it will harm the memory of the palace itself. This phenomenon is importance in the cases where the architecture of the building changes through time or become vulnerable to destruction because of less durable materials like brick or timber.

Figure 11: Initial Scheme of Virtual Knowledge Platform (VKP) for Istana Jahar
(Source: Md Mizanur Rashid)
The other issue is to convey the information to the people through the available technologies today by transforming all the information into certain type of data which can be easily accessible by the people. The people can access the information by scanning the coding information using their devices and all the desired information will be available in their devices. They can participate in giving some input for adding the information with certain clarification and limitation. For instance, in the case of building that currently has been totally changed and loss of its original forms, there are ways to reconstruct the building by using the digital technology and virtual modelling to re-build the building. This research will contribute to provide the possible historical parameters that can bring the building into virtually restored. Superficially, it seems difficult to understand the complex history of the continual changes made to the building due to time and other requirement. This method would allow creating models with complete reliability from the original architectural structure and possibly easy accessed information for the people.

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