

**UNIVERSITI TEKNOLOGI MARA**

**ONTOLOGY-BASED ISLAMIC  
BANKING PRODUCT  
INFORMATION FOR INFORMED  
DECISION MAKING AND PRODUCT  
INNOVATION**

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## ABSTRACT

The Islamic banks need to remove the grievances on them and gain support of their customers. There were presumptions that the issues were due to the customers' lack of understanding. Hence, there was need to identify the actual root causes of the issues and the factors that had been impeding the customers' understanding. The issue of the grievances could be attended by improving the customers' decision making with the use of information systems. Yet, such systems need to hold the information on the banking products. The information on the Islamic banking products could be modelled in form of a domain ontology. The objectives of this research were to ascertain the real issues of the grievances on the Islamic banks, the effect of lack of understanding of the product on the grievances, and then build a domain ontology on the Islamic banking products which is capable to facilitate customers' informed decision making and innovation of new products. The research was done qualitatively to identify the issue of the customers' grievances by identifying the factors that are causing the grievances and also the factors that have been hindering the understanding. Among the factors that had hindered the customers' understanding was due to the distinct concepts and terminologies, predominant use of Arabic terms, variation of practices by different banks and also the diverse Shariah concepts adopted by products of similar nature. With the use of software engineering approach, the research studied the characteristics of the Islamic banking products to design an ontology on the Islamic banking products. The conceptualised ontology includes knowledge on the prevailing Islamic banking *Shariah* concepts and contracts, the commercial banking processes and others. It also defined the roles played by the bank and its customers respectively according to the different *Shariah* concepts. The ontology was evaluated with the use of competency questions related to the information needed for decision making and interviews were conducted with customers, non-customers and also the bank staff. With such ontology, the customers will be supported to make informed decision making which would satisfy their need and the banks may innovate more new products. These would eventually remove the grievances in the long run.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

The main purpose for the establishment of the Islamic banks is to offer financial services in accordance to the canon law of Islam; i.e., the *Shariah*. They are meant to serve various financial products while averting *riba* (usury), *gharar* (ambiguities) and *maysir* (gambling). Since the establishment of the first formal Islamic bank, Mit Ghamr Savings Bank in Egypt in 1963 [1], many Islamic banks were founded and grew rapidly. Today the Islamic banks serve 38 million customers globally [2] and play a prominent role in the global Islamic economies and finance. The Islamic banks had expanded not only in Muslim countries, but also in non-Muslim countries such as Hong Kong, United Kingdom, France, Japan, Australia, Sri Lanka and many more [3]. The Islamic financial assets around the world had hit \$1.8 trillion in 2013 [4], which represented around one percent of the global financial market [5] with an annual growth of 17.6% annually [6]. They had outperformed the conventional banks over the past decade especially in Middle East and certain Asian countries where its penetration rate was above 15 per cent [4]. In Malaysia, the industry has grown rapidly contributing 22% to the nation's total financial assets in 2011 and provides 11% to the total employment in the financial sector [7].

#### 1.1.1 Issues On The Islamic Banks

Like any other industries, it is critical for the Islamic banks to obtain the support of its stakeholders, especially their customers for ensuring its continuous development. Unfortunately, grievances of the customers against the Islamic banks have been rising. Complaints on the Islamic banks had surfaced overtly and despite their decades of operations [8]. The Islamic banks were also accused of causing unbearable financial burdens to their customers and alleged as having no difference from their conventional counterparts [9][10][11][12][13][14]. It is crucial to identify the causes for the complaints and adverse allegations against the Islamic banks. The Islamic banks were founded based on the religious needs of Muslims to abide to their