

HALAL CERTIFICATION OF PATENTED MEDICINES IN INDONESIA IN DIGITAL AGE: A PANACEA FOR THE PAIN?

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ABSTRACT

The rapid growth of the Muslim population in Indonesia has led to a corresponding increase in the demand for halal medicines and medication. To ensure the halal status of medicines, Indonesia has adopted a regulatory framework for halal certification and labeling for all products marketed in the country. The new framework makes halal certification mandatory for all food, beverage, medicines, cosmetics, chemicals (used for human consumption), sold in Indonesia by October 2019. However the implementation of the new framework faces complex challenges that call for innovative solutions. Apart from basic inconsistencies in the law, there are no clear regulations for implementation. More importantly, most medicines marketed in the country are patented imports and 95% of Indonesian raw pharmaceutical ingredients are imported from different doubtful halal sources. This situation makes it difficult to audit the halal status of medicines even when patent holders manufacture the medicines in Indonesia. Furthermore, for halal certification, Indonesia will need well-regulated and transparent harmonized accreditation procedures that meet global standards that patent holders can comply with.

. As a member of the WTO, Indonesia is bound by the Technical Barriers to Trade (TBT) Agreement that prohibit any trade barriers that might be presented by halal certification. With only a few months left for the pharmaceutical industry to meet the October 2019 deadline, there is an urgent need for Indonesia to look at innovative ways to implement halal medicines certification effectively and efficiently. The paper critically evaluates the systemic challenges that face halal certification for patented medicines and recommends the use of digital technology as a remedy. The paper argues that the use of Online Single Submission and BlockChain technology may be the panacea for the pains of halal certification in Indonesia.

Keywords: halal certification, digital technology, patented medicines, Indonesia.

INTRODUCTION

The rapid growth of the Muslim population in Indonesia and in other parts of the world has led to a corresponding increase in the demand for halal medicines and medication. This is turn has resulted in the emergence of a global Halal pharmaceuticals industry. However, as was noted by Loromzi and Lim there are several challenges for this emerging niche industry, foremost of which is the need to establish a proper, well-regulated, and harmonized accreditation and halal management system (Loromzi and Lim, 2015).

These challenges have been highlighted in recent times in Indonesia. In 2014 Indonesia adopted Law No. 33 concerning Halal Product Guarantee (Halal Law No. 33/2014). According to the law, Halal certification is mandatory for all food, beverage, medicines, cosmetics, chemicals (used for human consumption), organic and genetically modified products sold in Indonesia as well as for the machinery and equipment involved in processing these products. A critical element in the Halal Law is that the legislation sets October 2019 as the deadline for compliance with certification. While the law was adopted five years ago, there has not been any consistent national campaign to ensure readiness by manufacturing stakeholders. It is April 2019 at the time

of writing this paper. This barely leaves six months for manufacturers to comply with the certification requirements.

While the Halal Law is clearly well intentioned, the challenges for the country and manufacturers are many. Apart from the obvious practical difficulties with the looming deadline, there are inherent regulatory problems: Firstly, there are contradictory provisions in the legislation. Secondly, there are no clear regulations to implement the law and enforce non-compliance. Thirdly, currently Indonesia does not have a well-regulated and harmonized accreditation and halal management system that is globally accepted. Since most pharmaceutical sold in Indonesia are imported, this is a major issue. Moreover, as member of the World Trade Organization (WTO), the Indonesia is bound by the Technical Barrier to Trade (TBT) Agreement and prohibited from erecting any trade barriers. There is an issue as to whether Halal certification, which bans non-halal medicines from entering the Indonesian market, constitutes a violation of WTO rules. Finally, on another practical level, halal certification for medicines will simply be unworkable in practice since 95 percent of Indonesian raw pharmaceutical ingredients are imported from different doubtful halal sources, thus making it difficult to audit the halal status of products.

The application of halal labels is also likely to disrupt the domestic medication distribution system since almost all active ingredients of imported medicines currently in circulation do not have halal certification. Indeed only one percent of 930 active ingredients are sourced from Indonesia. The investigations into the manufacturing process and ingredients of medication will be more complex and time consuming, leading to higher costs for consumers. Moreover, with the deadline so close the Halal Products Certification Agency (BPJH-Badan Penyelenggara Jaminan Halal) will also only have short time to issue halal certificates for all goods and services.

This paper proposes that while the challenges are clearly significant, they are not insurmountable with the application of digital technology such as Online Single Submission and block chain technology that can facilitate investigation, screening, and tracking authenticity and validity of halal labels.

METHODOLOGY

This paper is a legal research to evaluate the halal certification with the pains of systemic challenges for patented medicines in Indonesia. This research is also intended to recommend the use of digital technology as a remedy by using Online Single Submission and Block Chain technology as a panacea for the pains of halal certification. To visualize the above views, this paper uses the conceptual, statute, and comparative approaches. The primary legal materials which are used are all applicable legislations, while the secondary legal materials are in the form of literature and related materials.

RESULT

HALAL PATENTED MEDICINES

Halal as an Arabic word coming from the Quran that means permitted, allowed, lawful or legal (Riaz & Chaudry, 2004). Halal can also be understood as permission by Islamic Law to consume or utilize certain things (Ambali & Bakar, 2014). The most important principle of Halal is the permissibility of certain things whose right is with Allah alone (Al Qaradawi, 2007; Zakaria, 2008). The concept of Halal includes any Islamic Shari'ah-compliant products which start with food and beverages and moves from it to cover banking and finance, tourism, cosmetics, jobs, travel, technology and transport services, pharmaceuticals, etc (Khan & Haleem, 2016).

The subject matter of halal products is the raw materials and manufacturing processes for such products. Product is only halal if the raw materials and ingredients used are halal and it is fully compatible to the Islamic guidelines (Zurina, 2004). The raw materials derived from certain animals are considered non-halal including corpses, blood, and pork (Article 18.1 of Halal Law). Halal manufacturing processes require that the location, facilities, equipment, processing, storage, packaging, distribution, and sale of Halal Products be strictly separated from non-halal products. Additionally, Halal manufacturing facilities must be kept clean and hygienic, free from impurities (najis), and free from non-halal materials. It is because the basis of Halal itself is

hygiene and health with objective to ensure that all products taken or used are absolutely clean and not harmful to human health (Hayati et al, 2008). Halal principles are not isolated to the religious only but appeal as healthy and hygienic cuisine style as people become more health-conscious (Khan & Haleem, 2016).

Halal logo or label on medicines communicates and convinces Muslim consumers that the medicine is produced and prepared according to the Islamic requirement. Medicine is halal if it has been prepared, processed, manufactured or storage using instruments or ingredients that were permissible by Islamic Law. The assessment of halal status of medicines does not only apply to the sources involved only but also to the synthetic process of active ingredients and excipients (Azzis et al, 2012). Medicine itself is defined as a substance used to alleviate, nurse, cure or to prevent illness in humans or a substance used to promote better hygiene (Lokman, 2001). Medicine can be ingested, applied, injected or used internally through some other aperture (Halim et al., 2014).

In order to meet halal standard, the end pharmaceutical products, process and all the materials used therein (raw materials, active pharmaceutical ingredients, excipients, and finished dosage forms) must be free from "najis" (filth) that is essential for ensuring halal product integrity. To Muslim patients, the Halal certified medicines assure that the product does not contain pork, or ingredients derived from the pork or other ingredients which are prohibited according to Islamic Law such as alcohol, or non permitted animal products or derivatives. Any animal products or their derivatives used have to be from animals slaughtered in accordance to the Islamic law. It also guarantees that the product has been manufactured using process and equipment that are dedicated for Halal medicines. This standard also makes the medicine safe for human consumption. Safety in the Halal pharmaceutical context means that the medicine is non-hazardous, non-poisonous, and non-intoxicating to humans when consumed, injected or applied for the purpose of therapeutic curing or for healthy-living.

In Indonesia, patented medicines account for the majority of the pharmaceuticals market (Drug development, 2018). The final product of medicines marketed in Indonesia are patented imports, including raw ingredients. Only 1% of 930 active ingredients come from this country. Ironically, 95% of Indonesian raw pharmaceutical ingredients are imported from different doubtful halal sources. In addition, almost all active ingredients of imported medicines currently in circulation do not have halal certification.

Since Islamic Law is a simple and easy to follow, the use of non-halal medication is allowed in moderate amount if there is an emergency or life saving situation (Al-Munajjid, 2004). Medicines that contain prohibited ingredients can be used only in the absence of Halal alternatives (Easterbrook & Maddern, 2008). In permissible circumstances impure things such as camel's urine or intoxicants are tolerated remedies for certain diseases and acceptable strictly for a particular circumstance (Annabi & Wada, 2016). The medicine containing alcohol is necessary for the life of the person who takes it, that it was recommended by a

knowledgeable and trustworthy Muslim physician, and there were no Halal alternatives (Al Qaradawi, 2007).

Actually, non-halal medications can be avoided and the awareness on the halal medications must be developed among all health care professionals since majority of Indonesian patients that seek treatment are Muslims. Muslim patient specifically asked for a medicine that was less likely to have non-halal ingredients (Daher et al., 2014). Muslim academicians, health care and other professionals should produce accessible halal references on specific medications for the public.

THE NEEDS OF HALAL MEDICINES

The Muslim population is about 2.18 billion people across the world. It is estimated that one out of three people in the world will be Muslim by 2030. The halal market is estimated to grow from US 666.25 billion in 2016 to over US R857.45 billion by 2022. Halal market is expected to reach US\$739.59bn by 2025, and the halal market overall – encompassing travel, entertainment, food, finance and other services is expected to reach US\$12.14trn. Islamic Islamic Finance accounts for 43% of the halal industry, while the halal food market accounts for 36% (Alan Straton, 2016). Muslim consumer spending is expected to reach US\$2.6 trillion by the end of the decade from roughly US\$1.9 trillion and Indonesia's 204 million people consume about US\$138 billion of halal products every year (Hutton, 2017). Halal products are consumable products such as food, beverages, medicines, cosmetics, chemical products, biological products, genetically engineered products, or any goods that can be use and applied by humans in accordance with Islamic principles.

The rationales for the sweeping changes in certification rules is to position Indonesia as the benchmark for halal certification. With a population of 262 million, Indonesia is the fourth most populous country in the world (Census.gov, 2018) and the world's largest Muslim population, with 82.7% of people identifying as Muslim (BBC, 2018). The position of Muslim majority is triggering a big demand for halal pharmaceutical products. Global Islamic Economy Indicator 2017 announced that Indonesia is in the top 10 countries of the largest halal industrial consumers in the world. In halal medicine and cosmetics, Indonesia is ranked sixth and tenth in the world. In the future projection, the government wants Indonesia to be categorized as the world's top 10 producers of halal products, including in pharmaceuticals (Halal Focus, 2017a).

For Indonesian Muslim patients, obtaining bona fide sources of Halal medicine would be paramount and the lack of halal medicines in market circulation need to be addressed simultaneously to assure Halal pharmaceuticals integrity. Although the use of non-halal medicines are potentially permissible in strict circumstances, medicines with halal certification are confidently accepted by consumers especially Muslims as well as those of other religions. The awareness on the halal medications should be developed in order to reduce the consumption of non-halal medicines. Lada, et al., (2009) proposed that as halal awareness on

medication grows, then the concept will expand beyond Halal food to encapsulate other markets including pharmaceuticals. Shabana (2013) claimed that as Halal awareness increases the need for industries to be Halal certified will also increase.

BENEFIT OF HALAL CERTIFICATIONS

Halal certification benefits not only to the consumers but also for the medicine producers. For the consumers, halal logo or label clearly convinces Muslim consumers that the medicines are produced and manufactured in accordance with Islamic Law. The reliable halal certification ensures that the consumers do not need to check all the ingredients and the production of such medicines. It will serve the halal and healthy products by ensuring all items carrying the halal logo are prepared in the most hygienic way and clean to be consumed. It also allows the consumers to confidently make an informed choice at the time of purchase.

For medicine producers, halal certification provides a competitive advantage that allows them to use the certification as a product differentiation technique which increases the company revenue. As Halal certification is considered as a certification standard for quality to differentiate products (Annabi & Wada, 2016), it communicates to consumers about the quality of medicines because they are processed differently in accordance with high qualified religious requirements.

Halal product certification is the prerequisite for entering Indonesian and the global Halal market, thus Halal certificate for medicines allows producers meet the Halal requirements from the importing countries and then can help the business expands its marketplace to increase its sales and revenue. It also enhances its marketability not only for Muslim consumers but also non Muslims. Halal certificate will attract all consumers including non Muslims who now do respond positively to halal products (Hasnah, S H. et al., 2009). At international market, it can expand the marketability of the medicines especially in other Muslim countries as result of an increasing awareness of Muslim consumers all over the world of their obligation to consume Halal Medicines.

HALAL CERTIFICATION IN INDONESIA

Halal certification is the process of certifying products or services as pronounced by the shariah law (Khan & Haleem, 2016). A system of the Halal certification and verification become a key element as assurance to Muslim consumer on halal integrity. To assure halal integrity, In 2014 Indonesia enacted Halal Law No. 33/2014 which obligates Halal certification as mandatory for all products sold in Indonesia as well as for the machinery and equipment involved in processing these products. The Halal Law sets October 2019 as the deadline for compliance with certification. This barely leaves six months for manufacturers to comply with the certification requirements.

To oversee the process and provide halal certification, government forms new institution for halal certificates i.e. BPJH in 2017 under Halal Law mandate. BPJH will take over MUI's role, which was previously the sole

institution that issued halal certificates. Halal certificates will be issued by the BPJPH, but the process of verifying whether or not a product is halal will be carried out by a different agency, namely the Halal Inspection Institution (Lembaga Pemeriksa Halal -LPH). In general, LPH will check and verify whether or not the raw materials and manufacturing process are halal. These activities may be carried out inside or outside the manufacturing facility. LPH may be established by the government and public institutions such as universities. To run its operations, LPH must be accredited by BPJPH, employ at least 3 inspectors, and has its own laboratory or cooperate with another party that has a laboratory.

To achieve halal certification, medicines companies must ensure that the end products, equipment and raw materials (processed ingredients, additives and processing aids) used during production are complied under Shari'ah (Islamic) Law. In addition, if the companies produce non halal medicines, they must have two different plants at two different locations because the Law No. 33/2014 requires that the companies must separate production locations for halal and non-halal food. For imported products, pharmaceutical companies are not obliged to go through the certification process, and are only required to register their 'foreign' halal certification to (BPJH) before the products are marketed and distributed in Indonesia.

Based on the Halal Law, after certification as halal drug, companies must put the Indonesian halal logo on their product packs. This logo communicates to the Muslim consumers that marketed medicine is certified according to the Halal standard of the respective BPJPH. Medicines marketed in Indonesia are approved to use Indonesian halal logo only and the logo must be displayed on pack or the main part of product package. Before using the logo, companies including the importers must obtain an approval from the National Agency for Drug and Food Control (NADFC), based on Head of NADFC Regulation No. 27/2017 on processed food registration.

The Halal Law introduces criminal sanctions imposed for non-compliance with halal related rules, as previously under the MUI regulation criminal sanctions were not possible due to the nature of its status of being an Islamic non-profit organization. Companies holding halal certificates and also on LPH. Holders of halal certificates that fail to maintain the halal quality of their products may be subject to 5 year imprisonments or IDR 2 billion in fines. LPH, on the other hand, may be subject to 2 years imprisonment or IDR 2 billion in fines for failing to safeguard trade secrets in the form of the formula of products that they evaluate.

CHALLENGES OF HALAL CERTIFICATION REGULATORY CHALLENGES

The Halal Law has fundamental flaws that will cause major regulatory problems for the public. Although purports to establish the legal framework for halal certification and labeling for products, it has contradictory provisions. For instance, Article 4 stipulates that "Products that entered, distributed, and traded in Indonesia **must** be certified as halal". Article 4 can be interpreted to mean that "all products in

Indonesia must be certified halal". In legal context, "**must**" means "**obligatory and necessary with legal consequence**" (Efendi, 2018). The obligation in Article 4 it can be interpreted that non-halal products may not enter or be traded in Indonesia. This obligation will result a restriction of non-halal medicines in Indonesia because drug producers who do not obtain halal certification cannot enter and trade in Indonesia. However, conversely Article 26 of the Halal Law provides an opportunity for entry and distribution of non-halal products provided that they bear non-halal information on their label. This contradictory provision is likely to confuse drug producers/companies who market their products in Indonesia.

In addition, the Halal Law provides that within two years of enactment of law (in 2016), regulations on halal certification shall be further enforced by government regulation. However, there has been no publication of the he Government Regulation yet, although the draft of government regulation has been finalized. The absence of implementing regulations such as the Presidential Regulation (PP) and the Regulation of the Ministry of Religious Affairs (PMA) leads to legal uncertainty.

Another challenge relates to the compliance with international agreements. As member of WTO, the Indonesian government is bound by the Technical Barrier to Trade (TBT) Agreement of WTO and should not create unnecessary trade barriers in any regulation which contradicts with the TBT Agreement. Taking this into account, it is most likely that the government will eventually permit the importation of non-halal medicines as long as it is clearly labeled as non-halal medicines. It is expected that the government will publish enforcement Regulations in line with the WTO Agreement by permitting the importation of non-halal products provided they are clearly labeled as non-halal food.

PRACTICAL CHALLENGES

The enactment of the Halal Law and the ensuing government regulations are bound to create a myriad of practical challenges. The practical challenges are very complex because halal certification will deal with industry players who mostly are not eager for halal certification. The Halal Law is considered burdensome for pharmaceutical businesses because it is difficult to apply. The Association of Pharmaceutical Companies urged the government not to apply halal certification to medicines. They argued that medicines sold in the market are made of materials that are halalness and possibly even some are forbidden. So that if certified automatically the drug manufacturers would have difficulty to produce their medicine (Halal Focus, 2017).

In addition, since the government has the task to give a guarantee that every product is halal, or permissible, through the Halal Products Certification Agency (BPJPH), it seems that the agency is the only body with the right to issue halal certificates. The certification body (BPJPH) will only have short time to issue halal certificates for all goods and services marketed in Indonesia. There is a question about how the agency can examine a large number of products in such a short

time. It will be very difficult for the agency to be able to examine so many products. As a comparison, under the previous voluntary halal regime which was overseen by the Indonesian Ulama Council, a semi governmental body of Muslim clerics, issued 35,000 halal certificates over five years. The food and beverage segment has more than 1.6 million companies and tens of millions of products that will need to be inspected (Hutton, 2017). If it is established this year, the BPJPH will only have a short time to issue halal certificates for all products and services. It would seem that in order to meet this target, the agency would simply work as quickly as possible and become nothing more than a rubber-stamping body. In addition, the capacity of the certification agency would need to be continually enhanced to meet the anticipated increase in applications for halal drug approvals.

A lot of experts in specific production processes and drug development are needed in the different types of production process within the pharmaceutical production chain. As the different types of production process within the pharmaceutical production chain seek certification, different types of questions peculiar to each niche process are bound to crop up. Therefore, experts in specific production processes and drug development will be needed to deal with these questions. Other steps to strengthen the certification process may include introducing tests for DNA and protein sources, and publishing the list of halal pharmaceutical sources based on the available pharmacopoeia, to name but a few (Norazmi & Lim, 2015).

Furthermore, pharmaceutical industry groups are worried about compliance costs which may be as much as S\$4.4 billion. Businesses face headaches from everything from reprinting labels, which can cost S\$7,000 per product as well as how to dispose of finished goods that can have a shelf life of three years. The companies will bear the brunt. They will be obliged to add halal labels to all products. The burden on companies will be even heavier because these certificates will have to be regularly renewed. Companies unable to afford the cost of certification will go out of business.

There will be another major inconvenience that the high compliant cost will rise prices thus causing a drop in sales, given that people's purchasing power continues to decline. In addition, every product without a halal label will have to be withdrawn from the market. Companies who fail to do this, face two-year jail terms or fines of two billion rupiah, according to articles 56 and 57 of the law. Even companies whose products have halal labels will have to withdraw them so new labels can be attached.

There is still a lack of understanding on the halal concept that will deter the process. There will be another major inconvenience that every product without a halal label will have to be withdrawn from Indonesian market. There is still a lack of understanding on the halal concept that, with most of the community tend to associate halal with the religious matter.

More crucial is the issue of halal certification for medicines. The investigations into the manufacturing process and ingredients of medication will be far more complex and time consuming, leading to higher costs. Since it is obligatory to submit pharmaceutical products

to BPJPH, it means that the BPJPH will have to supervise the halalness each stage of production of any product, distribution and how it is served to consumers. The requirement for halal certification adds one more regulatory layer for pharmaceutical companies. Products not only have to move through more traditional regulatory pathways, complete with various clinical trials, but also meet halal requirements that often ban the use of porcine products. Aside from raising high production costs, this will certainly make it difficult for the halal certificate institutions to verify. As a result, the pharmaceutical industry would be vulnerable to sanctions and will affect the uncertainty of the pharmaceutical business that will ultimately disrupt the supply of medicines to the public.

The greatest challenge concerns distribution and supply chain. The application of halal labels will disrupt the domestic medication distribution system. Almost all active ingredients of imported medicines currently in circulation do not have halal certification. Only one percent of 930 active ingredients come from this country. If all medications containing non halal-certified ingredients are banned, there could be severe disruption to disease prevention programs. Moreover, the Halal Law may also potentially disrupt the investment climate in Indonesia, which would potentially work against the government's efforts of trying to achieve an investment-friendly environment at the global level.

DIGITAL HALAL CERTIFICATION AS A PANACEA GENERAL INITIATIVES

Indonesia needs to establish an efficient Halal standard that is consistent international standards. Recently there are more than 400 known Halal Certification Organizations with many different standards: local, regional such as the Arab Gulf Cooperation Councils Halal standard, and international standar (Halal Focus, 2014). Halal regulations need to align with other collective standards from the Organization of Islamic Countries (OIC), Muslim-majority countries worldwide and international halal standards such as *International Halal Integrity (IHI) Alliance and Standard and Metrology Institute for Islamic Countries (SMIIC)*. More specifically, the government should adhere to halal standards regulated in Codex Alimentarius as part of Indonesia's commitment to the TBT Committee in the WTO. WTO allows each country to apply halal standards to protect Muslim consumers in accordance with GATT Article XX (general exception). However, the halal standard must be established and implemented in accordance with the Technical Barrier to Trade (TBT) Agreement, in order to gain international trade benefits. Government should observe the provisions of the TBT Agreement in implementing halal standards in measuring the consistency of the Halal Law with WTO law. This would also reduce trade restrictions for foreign producers who market their products in the territory of Indonesia.

Trade restrictions should be eliminated by providing additional rules or explanatory notes in the application of articles 4 and 26 of the law. The rules should also describe procedures relating to non-halal products , so

that the interpretation can allow non-halal products to enter the territory of Indonesia.

In the global context, the BPJPH should be able to cooperate with halal certification bodies in exporting countries in order to recognize halal certification of the countries concerned. This will reduce discriminatory treatment between imported products and domestic products that have halal certificate. Moreover, as regulatory body to proceed halal certification, BPJPH avoids to be a rubber-stamping body only because according to Tiemen and Maznah (2013), it is important to have a halal regulatory body which has role to ensure halal integrity and to oversee the quality assurance mechanism for manufacturers and suppliers within the supply chain.

Furthermore, the establishment of halal assurance standard should be made efficient by simplifying the processes and procedures for obtaining halal certificates, whether these processes are related to additional tests or procedures in obtaining halal certificates. Simple processes and efficient procedures will be cost effective. A one-stop shop is required for the process and procedures for obtaining halal certification. The scenarios are foremost to establish a proper, well regulated, and harmonized accreditation and management system of halal certification.

INITIATIVES IN DIGITAL AREA

Halal certification is a process whereby the features and quality of products are according to the rules established by the Islamic Council, which further allows the Halal marking (Straton, 2016). Certifications have become a complex task, and what makes it even more difficult is the trust-worthiness. Strict guidelines need to be maintained given that the Muslim population is dependent on it.

Digital halal certification is a relatively easy way to track authenticity of halal certification, validation before making a purchase decision. The authenticity and validation of halal certification is important because there have been many instances of halal certificates being wrongly justified. For example in 2011, Orion a Cold Storage in Cape Town, South Africa was accused of using halal labels on disapproved meat. Orion labeled halal on Kangaroo meat from Australia and Water Buffalo meat from India even though they were not approved by South Africa's Muslim Judicial Council (MJC) (Straton, 2017).

According to United World Halal Development (2017), digital halal certification protects stakeholders from the vulnerability of fraudsters and helps in bridging the gaps between industry and consumers by ensuring:

- a) the genuine certificate is an essential part of the Halal Authenticity
- b) that certificates are added with patented 2D encrypted QR codes with Track & Trace to make sure secured
- c) the reliability of Halal Certificate Issuing Authority / Body
- d) that Halal certificate security is essential as several references are made prior to issuance to a vendor
- e) that the security offered is not breached.

DIGITAL HALAL CERTIFICATION: THE INTERNATIONAL TRENDS

There are emerging trends of digital halal certification in several jurisdictions. One instance is HalalChain launched in Dubai developed by HLC Technologies to allow consumers to trace and track halal products, helping them overcome regulatory uncertainty and any doubts about accreditation. HalalChain resolves these issues by offering a public permanent ledger for Halal related transactions across the value chain. As a public blockchain that serves as an open distributed ledger that can record transactions between two parties efficiently, in a verifiable and permanent method, HalalChain can track and verify Halal food, pharmaceuticals and cosmetics through all stages of production, processing and distribution across the entire supply chain. The system will revolutionize the integrity of Halal compliance through real-time monitoring, comprehensive Halal standards application, as well as in ensuring Halal certification integrity. HalalChain is a comprehensive ecosystem where the Islamic economy and the digital economy complement each other. However, the use of HalalChain is not only limited to the Halal industry, it can be used to bring transparency to food label claims such as organic, non-GMO, and gluten-free (Halal Focus, 2018). HalalChain also provides comprehensive solutions to instant e-payment, e-commerce and other industry applications powered by blockchain and the Internet.

Similarly, UK-based Halal Trail tracks livestock and fresh food from the farm throughout the supply chain, ensuring verification is legitimate. On the other hand HalalGuide, is an existing global platform used by 1.5 million Muslims worldwide on a peer-to-peer network, helping them connect with various halal resources. It recently unveiled a partnership with blockchain developer Apla.

NEW DIGITAL TECHNOLOGY AND THE FUTURE OF HALAL CERTIFICATION

Another system is POCertify which is a new decentralized application using blockchain and smart contracts technology to publish Halal certificates. Blockchain technology, together with Islamic principles, will digitally encrypt the Halal Certificate in its PDF format, and verify the Halal Certificate on the blockchain. Blockchain technology has been widely hailed by enthusiasts as revolutionary because it is entirely decentralised. This means storage is not in one central point, removing the need for powerful central authorities and putting control in the hands of individual users instead (Fin24, 2018). Blockchain technology is a perfect fit for the needs and demands of Halal food traceability. Blockchain solves halal compliance global challenges, including the lack of a globally recognized Halal certification system, inaccurate and unauthentic data on Halal products, poor regulation of raw materials for Halal products, and the difficulty of managing a centralized regulatory system for Halal food. The condition and status of the product can be updated to the Blockchain in real-time and easily accessed by

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people seeking knowledge about it. The end-consumer benefits from a more holistic understanding of Halal product information, and can be assured that the items he is consuming are purely Halal. End-consumers will use the WhatsHalal app, which leverages the Blockchain, to procure tertiary services like food delivery and restaurant reservation. They also contribute to the eco-system by making product enquiries and providing feedback, which in turn can be relayed to producers who can provide more information and/or further refine their processes as necessary.

Smart Contract aims to expedite the application for Halal Certification, while also bringing transparency and traceability to the process, as the information will be publically verifiable, and immutably recorded on BlockChain. All of the information, such as the results of Halal testing, laboratory and venue inspections, evaluation of the equipment and supplies of producers and the analysis result of the component ingredient list will be recorded on the BlockChain. The certifying bodies are able to instantly and quickly review the information from the BlockChain and come to a decision. Therefore it can save time and money.

By developing digital halal certification, it will be relatively easy to track authenticity of halal certification, validation, and more importantly it has the potential of assisting Indonesia to be a champion of global halal standards by leading the harmonization of standards that will be applicable for businesses to navigate and support simple, transparent and straightforward procedures.

CONCLUSION

As a leading Islamic nation, it is welcome that Indonesia has decided to introduce proper standards for Halal certification. However the reality is that Halal certification is complex particularly in the manufacture and marketing of pharmaceuticals and medicines. The problem of the Indonesia is compounded by international trade treaty obligations and relevant standards. There are also significant domestic pressures from stakeholders justifiably concerned about the impact of the Halal Law. For Indonesia the certification arrangements are potentially a big pain both in regulatory and practical level that needs an appropriate panacea if the country is to realize its ambition of leading the Islamic world in Halal certification. Modern developments in digitization of halal certification can provide the panacea for the pain.

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