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## Innovation, Islamic Finance and Economic Development

Abdul Ghafar Ismail<sup>1</sup>

### Abstract

This study investigates the impact of Islamic finance upon economic development whenever the innovation is characterized by an ecosystematic approach and pull factors. The approach leads towards an Islamic finance in circular economy. Our analysis is based on the mapping between the ecosystematic approach and innovation in Islamic finance. In these circumstances, our results shows that first, an ecosystem of innovation is made up of enabling policies and regulations, accessibility of finance, informed of human capital, supportive market, energy, transport and communication infrastructure, a culture supportive of innovation and entrepreneurship and networking assets which together support productive relationships between different actors and other parts of the ecosystem. Second, innovations that are new to the Islamic finance world are primarily found in several countries. They are based on research and development at the frontiers of global knowledge. In developing countries far removed from the international technological frontier, innovations will tend to be new to the market or new to the firm. Innovations new to the market in developing countries refer to the international diffusion and absorption of technology. The domestic firm introduces innovations which have already been developed elsewhere, but which are new to the market in their own country. Innovations new to the firm refer to knowledge flows within the domestic economy. The innovation is already present in the market, but is now adopted by a given firm.

**Keywords:** Islamic finance, ecosystem, innovation, economic development

**JEL Classifications:** E42, G21, O23, O31, P43,

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## 1. Introduction

The World Economic Forum has just released the publication of The 2019 Global Competitiveness Report.<sup>2</sup> It contains studies from the World Economic Forum related to the competitiveness of various countries in the world. For example, in 2019, Indonesia, Malaysia and Singapore were in the 50<sup>th</sup>, 27<sup>th</sup> and 1<sup>st</sup> position out of 141 countries surveyed by the World Economic Forum, respectively. There are four indicators that underlie the assessment of the World Economic Forum on the competitiveness of a country. The four indicators are the economic climate, market conditions, the quality of human resources, and the innovation ecosystem.

It is widely recognized that achieving and sustaining any development outcome depends on the ability of multiple and interconnected actors - governments, civil society, the private sector, universities, individual entrepreneurs and others - to work together effectively. Each set of interconnected actors whose collective actions produce a particular development outcome is known as ecosystem. Improving that development outcome therefore requires an ecosystems approach.

In this paper we provide perspectives on three broad questions pertaining to innovation. How does innovation impact on development? What would be the actors required to successfully progress any innovation? How could we use the mapping diagram to link between the ecosystematic approach and innovation in Islamic finance?

The discussion in this paper will be divided into five sections: this introductory part, followed by section two dealing with the link between innovation and economic development. Here, we will propose that innovation as the critical dimension of economic change. An ecosystematic approach is proposed in Section three. It is a structured approach to analyzing the innovation system Section four will identify the pull factors that lead towards innovation in Islamic finance. Section five will propose the working of Islamic finance in a circular economy. It will try to include new innovative financing models, partnerships, business models and close integration of industry 4.0 principles as a way forward. Section six will present the conclusions.

## 2. Innovation and Economic Development

In 1990s, Schumpeter (1912) said that “...*the process of economic development by combining the exploration of entrepreneurship and innovation as internal mechanism of change with the cyclical fluctuations that shape the contours of the development process.*” He claimed that economic change revolves around innovation, entrepreneurial activities, and market power. He also proved that innovation-originated market power can provide better results than the invisible hand and price competition. It shows that innovation as the critical dimension of economic change.

Scholars take different dimension in discussing the Schumpeter,s view. Later authors argue that entrepreneurs can contribute to economic development by facilitating the reallocation of resources from less to more productive uses (such as Acs and Storey (2004)), by performing ‘cost-discovery’, ‘gap-filling’, and ‘input-completing’ functions in the economy (such as Leibenstein (1968); Hausmann and Rodrik (2003)) and by supporting structural change (such as Lewis (1954); Gries and Naudé (2010)).

A substantial literature has been devoted to understanding the conditions under which entrepreneurs innovate, and the nature and evolution of national systems of innovation (see e.g. Lundvall 1992; Nelson 1993). By and large, however, this literature has been concerned with the process of innovation and its dynamics in advanced economies. Research at the intersection of the fields of entrepreneurship, innovation, and development is still in its infancy.

On the other hand, we also argue that firm as the key economic actor. The firms can be formed as owner-operated firms, incorporated joint stock companies, state-owned firms, joint ventures, and subsidiaries of multinationals. The firms are the units that make the key decisions on investment, on branching into new activities or sectors or relocating to other countries. There is a large literature that studies on firm-level behavior,

<sup>2</sup> Refer to <https://www.weforum.org/reports/global-competitiveness-report-2019>

examining firm characteristics, including their economic performance, their innovative performance, their capabilities and their business strategies (e.g. Goedhuys et al. (2008)).

Another important view is that sub-set of firms, namely owner-operated enterprises. The entrepreneur is the person who is both owner and actively involved in running his/her own business. Here the focus is often on small and medium-sized enterprises (SMEs) and self-employment, as exemplified by many papers in this collection. Like the second view, this research tradition tries to distinguish between high potential, innovative firms that survive and grow and stagnant firms that barely survive or exit the market. One sub-category of firms which receives special attention is that of start-ups, especially in the work associated with the Global Entrepreneurship Monitor (GEM), which provides estimates of start-up rates across countries. Though the emphasis of this research tradition is on SMEs, we should not forget that very large companies are sometimes also run by their entrepreneurial owners (see Szirmai, Naude and Goedhuys (2011) in their book).

In a very general sense, innovation concerns processes of learning and discovery about new products, new production processes and new forms of economic organization, about which, *ex ante*, economic actors often possess only rather unstructured beliefs on some unexploited opportunities, and which, *ex post*, are generally checked and selected by some competitive interactions, of whatever form, in product markets. However, in addition, and complementary, to product market competition, innovative efforts are shaped and selected also by the rates and criteria by which financial markets and financial institutions, such as stock markets and banks, allocate resources to business enterprises. Irrespectively of whether resources are attributed to business units ('firms') or individual projects, allocative criteria and rates of allocation should plausibly affect the amount of resources which the real sector (call it the 'industry devotes to the innovative search, and also the directions in which the agents search. In this case, financial institutions and markets - governing information and incentives, do matter in terms of micro resource allocation and aggregate performances.

However, environments which are explicitly assumed to be non-stationary (given that technologies, organizations and preferences) endogenously change over time. In such non-stationary environments, Dosi (1990) and Frame and White (2009) argue that agents continuously try to exploit 'opportunities', which they believe - rightly or wrongly - that 'are there', or might be created by their own actions. In the broadest sense, an 'opportunity' is a chance of getting a 'better' product in terms of some price weighted performance characteristics a more efficient production process (given ruling inputs costs, or even better, irrespectively of relative prices), and a more efficient organizational set-up (e.g., new organizational networks which increase the completeness of information without affecting the incentives facing organization members). Of course, an 'opportunity' will be pursued if agents believe that the cost of doing so will be lower than the expected economic benefit from its successful exploitation.

The introduction of Islamic finance and shariah-compliant firms produce another dimension in discussing innovation. Islamic finance by function is no different than the conventional finance. For example, Kahf (2007), Wan Kamarudin and Ismail (2013) and an-Ibrahim and Ismail (2015) make a very clear and direct comparison. Financial intermediaries is the major function of the conventional financial system, where they receive funds from depositors/savers and reallocate those funds to borrowers/entrepreneurs who need the funds for their economic transactions and activities. Islamic financial institutions, also as an intermediary, are doing exactly the same. Similarly, financing in general is the provision of factors of production, means of payments of goods and services without requiring an immediate counterpart to be paid by the receiver. It is equal to what is offered by Islamic financing, which provides factors of production, goods and services for which payment is deferred. Nevertheless, Islamic financial institutions do not involve lending and borrowing because interest, is prohibited by the guiding law, the *Sharia* (Algaoud and Lewis 2007). Instead it relies on three principles that involve sharing of the actual, real-life outcomes of production process, namely sharing, leasing and sale (Kahf 2007 and Wan-Kamarudin and Ismail (2013)). Reliance on these contracts is what makes Islamic finance a more active stimulant of growth in an economy as compared to conventional banking.

Khan (1987) illustrated the economic effect of substituting interest with Islamic financing and found that essentially the same market forces are operative and profit-shares instead of interest equilibrate the market loanable funds. Given an adequate supply of loanable funds, under Islamic financing two direct effects will take place. First, investment maybe higher since entrepreneur can pass part of the uncertainty of the production to

the financiers and no competing financial assets diverting funds from real investments. Second, the ability to pass part of risk to financier will encourage composition of investment towards more risky and reduce cost pressure for business efficiency which fixed interest rate imposed. At the same time it may also lower cost of production and encourage output, whereas specification of a profit-share will not affect the price output decision.

Hence, the risk sharing based financing *musharaka* is the preferred Islamic mode of financing because it adheres most closely to the principle of profit and loss sharing (Mirakhor and Zaidi 2007, and Ismail and Tohirin (2009)). Comparing profit-sharing (*mudaraba*) with interest-taking (conventional loan) Uthman (2006) found that workers' share of profit has a positive impact upon the national profit rate and share. This condition implies that profit-sharing is more conducive to investment, capital accumulation and hence job creation than the interest-based system, which is in line with the Islamic economics aim to redistribute wealth and social justice, maintaining a balance with individual interests (Khan 2008). Also, financing modes that depend on profit and loss sharing bring important advantage since they have almost same effect of direct investment, which brings pronounce returns to economic development (Al-Jarhi and Iqbal 2001).

### 3. Ecosystematic Approach of An Innovation

The process of developing, testing and scaling innovation for sustainable impact (as discussed in section two) cannot be undertaken by any one actor working in isolation. The support of a wide range of actors across the value chain is typically required to successfully progress any innovation. Therefore, an ecosystematic approach is proposed here – it is a structured approach to analyzing the innovation system. The innovation ecosystem consists of business owner (or participants), start-ups, academia, technical and support services, government and the individuals that drive results.

**Business owner** – it can be in the form of *private equity firms* or a *private companies* or a *startup companies*. *Private equity firms* manage money committed by pension funds, other institutional investors and high net worth individuals. In contrast to venture capitalists, Private Equity firms are typically interested in more mature companies with a business that is already established, although they can also buy companies that may be deteriorating or not making the profits they should be due to inefficiency in order to revitalize their profits through more streamlined operations to increase revenues.

The *private companies* play a crucial role in innovation ecosystems. Business-led initiatives, such as research and development partnerships, knowledge-sharing platforms, technology and skills transfer, and infrastructure investment have the potential to catalyze, develop and scale innovation, while also providing fertile ground for future innovation to emerge. While driven primarily by considerations of profit, private companies are increasingly recognizing the importance of working in partnership with governments, research institutions, development agencies and civil society actors to collaboratively tackle large-scale social and economic issues that are hindering the development of new markets and the efficiency of their broader business environments.

A *startup* is a company working to solve a problem where the solution is not obvious and success is not guaranteed. They are usually small and initially financed and operated by a handful of founders or one individual. For this reason, startups represent a powerful engine of innovation - they are inherently innovative, agile and adaptive which gives them an advantage over the more rigid structures prevalent in larger corporations. They also have the ability to pioneer new solutions that others perhaps may overlook or disregard, bringing continuous creativity and healthy competition into an ecosystem. Pioneering a new idea in the presence of industry giants can be a daunting prospect, but by questioning the accepted standard successful startups such as Airbnb and Uber have redefined whole industries.

**Government** - Governments (including development agencies) play many critical roles in promoting innovation, primarily in terms of creating a supporting policy and regulatory environment in which start-ups are encouraged and able to thrive through a variety of tax or partnership

incentives that enable the growth of scientific research, angel, venture capital and private equity communities. They are also essential in ensuring innovators have access to the technological infrastructure (e.g. internet) they need to advance their products and networks. Governments can even play an "entrepreneurial" role themselves by envisioning and financing the creation of entire new fields ripe for innovation (e.g. aquaculture), and then acting as a partner to help take successful innovations to scale and sustainable impact.

**Development agencies** - whether these are bilateral, multilateral or foundations - are always looking for new and innovative ways to address social and economic challenges. Most agencies have tended to focus on supporting very early stage innovators, helping them with relatively small amounts of seed capital funding to develop or test their idea. They often help stimulate innovation in a particular sector through launching competitive products or services, while others are expanding their financial instruments and taking on roles more akin to that of venture capitalists and investing in businesses that have outgrown microfinance, but are too small for mainstream private equity or banking investments.

**Academia** - Research institutions are crucial for innovation due to their role in knowledge creation and diffusion, and are a primary tool for governments seeking to spur research and innovation in their economies. Some perform fundamental research, while others focus on more short-term market-oriented projects. Importantly, research institutions also often provide tertiary education and training, which means they play an important role in creating entrepreneurial students who will contribute to the future human capital pool of innovators and inventors.

**Individual** – an individual may act *angel investors, venture capitalists* (both are known as mudharib) and professionals (human capital). *Angel Investors* play an important role in helping fast growing small firms overcome common funding gaps between research and development and transition to scale in the innovation scaling pathway. They are often less risk averse than venture capitalists and can sometimes directly advance innovations by taking a position on the board of the start-up, assisting its management with their own knowledge and experience while also widening the range of contacts and networks that the firm needs to secure additional supporters and follow-on financing.

A *venture capitalist* is an investor who either provides capital to startup ventures or supports small companies that wish to expand but do not have access to equities markets. Venture capitalists are willing to invest in such companies because they can earn a massive return on their investments if these companies are a success. Although venture capitalists can experience major losses when their picks fail, these investors are typically wealthy enough that they can afford to take the risks associated with funding young, unproven companies that appear to have a great idea and a great management team. Their investment is typically much larger than an Angel Investor, and can take the form of equity, quasi-equity and sometimes debt, straight or conditional (i.e. with the interest and principal payable when the venture starts generating sales).

**Professionals** (Human Capital) - people are at the heart of an ecosystem, and the speed and efficiency of the process through which an innovation is designed, tested, adapted and scaled depends on the quality of the people involved in the process. For this reason, strong innovation ecosystems require a large and diverse group of professionals with a range of technical skills as well as the passion, determination and risk-taking behavior to drive innovation forward even when faced with the inevitable and often significant challenges and obstacles that will arise along the way. If there is not enough human capital within an ecosystem, competition over the talent that does exist intensifies and undermines true collaboration and trust between different actors.

**Technical and support services** - Incubators and accelerators play an important role in the innovation ecosystem in providing a supportive environment for startup and fledgling companies. This typically includes a physical space for innovators to convene and share ideas while benefiting from shared technology infrastructure and equipment. They also often provide innovators with access to a network of business and technical

advisors/mentors capable of providing guidance and assistance in (such as) product development, finance, business planning, marketing, legal consulting, and manufacturing.

Market facilitators and intermediaries – both play an important role in innovation policy. Their role is to link organizations within an innovation ecosystem, and to facilitate the transfer of ideas, technology and other resources to help commercialize them at scale. Ideally they are small and agile entities (sometimes just individuals) who are perceived to be neutral or impartial within the ecosystem, which enables them to provide important 'bridging' functions between actors who might otherwise struggle to collaborate, understand or trust each other. As such, they are often the 'glue' that helps to hold an ecosystem together, and who can take a broad perspective across all of the various actors involved to help shape and improve how they interact for different purposes.

From the above discussion, it shows that an ecosystem of innovation is made up of enabling policies and regulations, accessibility of finance, informed of human capital, supportive market, energy, transport and communication infrastructure, a culture supportive of innovation and entrepreneurship and networking assets which together support productive relationships between different actors and other parts of the ecosystem. Hence, innovation ecosystems can operate at multiple levels (e.g. city, regional, national) and within multiple sectors (e.g. agriculture, health, education). Because of this breadth, it can be difficult to draw meaningful boundaries around who is or is not part of an innovation ecosystem. It is therefore helpful to focus first on the sector and problem that the innovation is seeking to address (e.g. "low literacy rates among young generations in inter-generational transfer in Malaysia") and then consider the specific actors, resources and contextual factors that the innovation will need to engage, utilize or influence to be impactful.

By adopting an ecosystems approach to innovation, as shown in Table 1, we recognize that: (a) an innovation ecosystem is made up of different actors, relationships and resources who all play a role in taking a great idea to transformative impact at scale; (b) the effectiveness of each part within the innovation ecosystem is moderated by other parts of the system (e.g. entrepreneurs depend on being able to access financing); (c) a change to one part of the innovation ecosystem leads to changes in other parts of the innovation ecosystem (e.g. an increase in internet connectivity will accelerate the design and testing of new technologies).

Table 1: Ecosystem of Innovation in Malaysia and Indonesia

Actors	Variables	Malaysia	Indonesia
Business Owner	Law origin	English law-	Dutch law
	Related law	Federal law; state law; State Enactment law; Islamic Financial Services Act	State law; Islamic banking act; zakat act
	Ownership	Rights and Obligations of owners	Rights and Obligations of owners
Government	Types of Government Level	Federation	Unitary
	Policies and Regulations	Less restrictions	Less restrictions
Academia <sup>3</sup>	Number of publications	286,411	110,610
	Number of citation per documents	7.36	5.43
Individual	Angels investors	Yes	Yes
	Venture capitalists	Yes	Yes
	Education index <sup>4</sup>	0.70	0.62
Technical and support services	Internet speed: (a) Rank in the world; (b) time to download 5GB movie <sup>5</sup>	(a) 30; (b) 0.28:37	(a) 92; (b) 1.42:48
Market facilitators and intermediaries	Corruption Perceptions Index <sup>6</sup>	Rank = 61/180; Score=47/100	Rank = 89/180; Score = 38/100

#### 4. Islamic Finance and Innovation

An important distinction in the innovation literature, as discussed in section 2, is between innovations that are new to the Islamic finance world, innovations that are new to the domestic market or innovations that are new to the shariah compliant firm. We will do the mapping between the ecosystematic approach and innovation in Islamic finance. By having a mapping, we suggest that there four variables related to innovation in Islamic finance. as We refer to Table 2.

**Digital Technology** - Modernisation of the practice has been driven, at least in part, by technological advances and Industry 4.0 policy framework. Digital technology is changing the financial services landscape. As customers continue to seek faster and more personalised services from Islamic financial institutions, robotics and automation have emerged as viable tools. Robo-advice, for example, can be both cost and time effective. The Islamic finance market is embracing both fintech and robo-advisors. Islamic financial institutions are embracing robo-advisory methods through access to Shariah-compliant portfolio management using fully automated real-time software to analyse thousands of global securities and pinpoint those with the highest growth potential.

The robo-advisory can analyse thousands of halal securities worldwide in order to create portfolio allocations with the highest growth potential for its clients. There is also a large non-Muslim market of potential clients who may be interested in ethical investing, which robo-advisory is able to help into. It will boost the future

<sup>3</sup> Refer to <https://www.scimagojr.com/countryrank.php>, Data were gathered for a period of 1996-2018

<sup>4</sup> By adding the mean years of schooling index and the expected years of schooling index and then it will be divided by 2 The data was released by Human Development Report 2016. [https://en.wikipedia.org/wiki/Education\\_Index](https://en.wikipedia.org/wiki/Education_Index)

<sup>5</sup> <https://www.atlasandboots.com/remote-jobs/countries-with-the-fastest-internet-in-the-world/>

<sup>6</sup> <https://www.transparency.org/country>

of the wealth management and ethical finance industry. For example, by combining a Wall Street-level portfolio management with socially responsible track records and investment principles, the service providers can create a new niche in the industry of ethical finance.

Islamic microfinance models have had a larger impact over the last couple of years. Platforms such as Micro-Takaful and social finance have gained traction. The total assets of Islamic microfinance industry are estimated at US\$500.5 billion. According to a survey by CGAP, Islamic microfinance institutions reach 300,000 clients through 126 institutions operating in 14 countries and an estimated 80,000 clients through a network of Indonesian cooperatives.

### **Shariah-compliant platforms**

The shariah compliant firms are also responding very well. The new shariah-compliant products are designed to help Islamic financial institutions to become more efficient when dealing with complex transactions.

In jurisdictions, such as Malaysia, cross-border multicurrency channels have been designed to link regional and global economies, such as the recently launched Investment Account Platform (IAP). The IAP is a Shariah-compliant investment platform which will help reposition Islamic banks as investment intermediaries rather than just credit providers. The plan, drawn up by six Malaysian banks, will see the IAP act as a marketplace for SMEs looking for funding. Businesses will be vetted by the banks, and there will also be a secondary market for investors. This secondary market has attracted comparisons to peer-to-peer lending and crowdfunding, providing investors with direct access to the businesses which interest them. A similar project – Bursa Suq Al-Sila in Malaysia – has seen been active since 2009 and demonstrates the appetite for this kind of banking.

### **FinTech Platforms**

FinTech platforms are also adding Shariah compliance to complement their core markets. For example, Canadian FinTech company Goldmoney certified its gold-based financial products as shariah-compliant products. #

FinTech companies have made strong advances, however there are still hurdles to overcome, particularly in areas such as education, marketing and achieving Shariah certification. Therefore, FinTech should partner with a legacy Islamic finance institution in order to get up to speed. P2P lending and robo-advice platforms are well positioned to benefit from FinTech's burgeoning relationship with Islamic finance and Shariah compliance.

### **Asset finance**

Innovation in Islamic banking is not just limited to technological progress, however; asset financing is also playing an important role. The International Monetary Fund noted in 2015 that Islamic finance assets had seen double digit growth between 2003 and 2013, from \$200bn to around \$1.8 trillion. It shows that Islamic finance is in many ways ideally suited to asset finance. As a result of this, and with less conventional liquidity available, over the last few years we have seen major growth in this area. Examples of this include the multi-billion dollar Shariah-compliant aircraft leasing fund managed by the International Airfinance Corporation, which is the first Shariah-compliant aircraft leasing fund. We have also seen a number of airlines entering the Islamic finance market and many of the world's leading airlines, including Emirates, Etihad Airlines and Saudi Arabian Airlines, have issued sukuk to raise funds via the debt capital markets, generally for the purpose of funding the acquisition or leasing of new aircraft.

As shown in Table 2, Islamic financial institutions in several countries, like their non-Islamic counterparts, are now able to offer services to their clientele via digital means such as FinTech Platforms. While there has been some pushback from more conventional customers, many of whom would prefer to conduct their business in a traditional brick-and-mortar bank, the digital revolution has continued. New services such as online and

mobile banking, and payment services essential. Islamic financial institutions are also responding to the emergence of digital currencies and the blockchain which underpins them.

Improving innovation and access to Islamic finance is an important part of the market's growth and also a close relationship between Islamic finance and real sector (via halal activities). Embracing technological developments will undoubtedly help Islamic finance to fulfil its potential and grant the scale, access and outreach it needs to connect with would-be customers in developing markets. Islamic finance is increasingly considered as an alternative source of funds for many companies, particularly as the industry embraces FinTech. It is also receptive to asset financing.

Table 2 Mapping Between Ecosystem and Innovation Variables

Actors	Ecosystem Variables	Innovation Variables
Business Owner	Shariah-compliant platforms	Commodity platforms; Investment Account Platforms
Government	Industry 4.0 Policy Framework	Digital currencies like shariah compliant e-wallet and blockchain
Academia	Number of scholars/publications	Knowledge
Individual	Financial literacy	Fair
Technical and support services	Digital technology; FinTech Platforms	Various financial platforms, such as zakat, P2P
Market facilitators and intermediaries	Global Islamic Economic Indicator	Halal parameters – such halal media, pharmaceutical, fashion,

## 5. Islamic Finance in Circular Economy as A Way Forward

As discussed in section 2, business owner (for example in manufacturing sector) takes raw materials from the environment and turns them into new products, which are then disposed after use. In a system of linear processes raw materials might eventually run out while waste is being accumulated. Multi-dimensional supply chains with new flows and formats, service networks, recovery loops for products and materials are needed. Their value needs to be protected, to design them to be ready for resale, repair, remanufacturing or recycling.

Currently, there is a growing need for material, water and energy because of both population growth and increased demand by infrastructure, industry and consumers in our economy. According to Marc de Wit et al (2018), circular economy activities have the potential to address a significant share of this need – dampening or possibly, reversing the raise in resource use and in turn reducing resource depletion, climate change and the pollution of natural resources.<sup>7</sup>

In an effort to empower the entrepreneur in relation to reduce dependency on primary materials and energy, while at the same time becoming an economically viable alternative to the linear economy. Therefore, a circular economy is introduced. Products are designed for durability, reuse and recyclability, and materials for new products come from old products. As much as possible, everything is reused, remanufactured, recycled back into a raw material, used as a source of energy, or as a last resort, disposed of. Consequently, this would lead to the emergence of more sustainable production and consumption patterns, and could thus provide

<sup>7</sup> Refer to <https://www.circle-economy.com/team/marc-de-wit/#.XanEQugzaUk>

opportunities for Malaysia to achieve economic growth and inclusive and sustainable industrial development in line with the 2030 Agenda for Sustainable Development.

The transition towards a circular economy requires systematic innovations including new epistemology, new innovative financing models, partnerships, business models and close integration of industry 4.0 principles.

Industry 4.0 creates enormous opportunities to enable circular economy in which end of life products are reused, remanufactured and recycled. Industry 4.0 helps the entrepreneur in using the paradigm shift from centralized to decentralized smart manufacturing and production and refers to the computerization of manufacturing. Entrepreneur can increasingly apply an innovative solutions including through the “Internet of Things” (IoT), cloud computing, miniaturization, and 3D printing that will enable more interoperability and flexible industrial processes and autonomous and intelligent manufacturing.

While supporting the manufacturing industry and increasing its competitiveness, circular economy brings innovations need innovative financing mechanisms such as impact zakat financing. All investments have consequences for individuals as well as for whole communities and for the economy. In addition to generating financial returns, investments can create jobs and thus have positive impact on the society and also on the environment. Impact investment goes beyond avoiding harm and managing risk and aims to generate a positive social or environmental impact alongside a financial return.

It is not only innovative financing that concerns us, because the primary function of an Islamic financial system is to facilitate the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment. This function encompasses a payments system with a medium of exchange; the transfer of resources from mudharib to rabbul mal; the gathering of savings for inter-generational transfer (or faraid); and the sharing of risk through partnership model. The operation of an Islamic financial system involves real resource costs (labor, materials, and capital) employed by Islamic financial intermediaries (e.g., Islamic banks) and by financial facilitators (e.g., halal standards). Much of these resources are expended in the data collection and analyses in which Islamic financial market participants engage so as to deal with big data.

So far, the circular economy only look at the environment and entrepreneur, without recognizing the Owner of environment or entrepreneur. Because the Owner is the Creator of environment and entrepreneur. In addition, innovation is a means to preserving how maqasid syariah are achieved rather than an outcome in itself.

## 6. Conclusion

The innovative ideas could be efficiently generated, developed, tested and ultimately scaled for development impact. But they also require the coordinated, collaborative action and resources of the actors collectively referred to as the ‘innovation ecosystem’ and also the ethical values. Improving innovation and access to Islamic finance are an important part of the market’s growth and also make a close relationship between Islamic finance and real sector (via halal activities). Embracing technological developments will undoubtedly help Islamic finance to fulfil its potential and grant the scale, access and outreach it needs to connect with would-be customers in developing markets. However, there is no excuse that technology has achieved a new level but ethical values are left behind. The end goals of economic development will collapse.

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