Technopreneurship and Digital Era in Global Regulation

Mohd Nasir Alias¹*, Mohd Farid Shamsudin², Zawiah Abdul Majid³, Mohd Nasrul Hakim⁴

¹,²Department of Teknoutra Devision, Universiti Kuala Lumpur
²,³Universiti Kuala Lumpur Business School (UniKL BiS)
* Correspondence: mohdnasir@unikl.edu.my

Abstract: Some people may have overlooked the importance of technopreneurship and its development in the digital economy especially involving globalization of economic and commercial activities. While most people might have read and understand about entrepreneurship but new technologies have nurtured the rise of technopreneurs in order to sustain in the global competitiveness as well as to equip oneself with latest technological knowledge. Therefore, the author will emphasize the differences between entrepreneurship and technopreneurship in addition related to this field of digital era in global regulation. The relationship between technopreneurship and digital era will be explained and will focused on opportunities and challenges for better understanding.

Keywords: Technopreneurship, entrepreneurship, digital area and global regulation

1. Introduction

Technology growth laid significant impacts, either positive or negative to the environment, people and the society as a unity. Technology means the application of this knowledge for practical ends. An entrepreneur supplies risk capital as a risk taker and monitors and controls the business activities. An entrepreneur who are into the core businesses involving technology-based industries are known as 'technopreneur'. In order to create innovation products, technopreneur utilize the technology, business skills and creativity through a process of commercialization.

Technopreneurship is vital towards the future generation business development. People need to move out from their comfort zone to new source of income, namely towards what we call as technopreneur. As reported in Harian Metro (Kaur, 2018), there are about 500,000 jobless people in Malaysia. Eduadvisor.com reported 290,000 graduates are unemployed (Nickell, 1997). Thus, this report proof as an evidence on how critical the issues of unemployment faced in Malaysia (Leo, 2019).

2. The theoretical side

Currently, the population in Malaysia is approximately 32.63 million in the third quarter 2019 (Department of Statistics Malaysia). Just imagine in this one year alone, the big number of unemployment arises. What will happen to our current and future next generation? How could they manage to survive in daily basis? How they could enable to build or purchase their own property such as their dream house, vehicle and to endure their life journey.
Moving forward to Indonesia, which population estimated of 273.52 million in 2020, about 56.7% of population lives in Java, the most populous island? The population density of Indonesia is currently at 140.08 individuals per square kilometer (world population review.com/countries/Indonesia-population). How do the industries of all sectors could offer employment and gauge this big number of populations?

The topic presented is vital for all of us and need critical contribution of technopreneurship in helping to reduce the unemployment among the people especially to the millennium generation. At the same time the importance of people to occupy themselves with digital knowledge in ensuring they can compete with the others. Technopreneurship will help the people to sustain but to upheld, they must have knowledge towards the digital technologies currently practice by the most of business player in the world (Herry Setyawan et al., 2019). Technopreneurship is a process of developing a competent manager to become an agile leader, and ultimately to become a savvy technopreneur.

Technopreneurship and entrepreneurship are the activities related to business but the function is totally different. According to “webster” a Technopreneur is an entrepreneur in the field of technology meanwhile an Entrepreneur is a person who organizes and operates a business venture, assumes much of the associated risk, a person who strives for success and takes on risk by starting his own venture, service etc. Webster dictionary define the entrepreneur is the one who takes the initiative to create a product or establish a business for profit; generally, whoever undertakes on his own account an enterprise in which others are employed and risks are taken. The different of both technopreneur and entrepreneur can be illustrated as below:

## The differences between Technopreneur and Entrepreneur

<table>
<thead>
<tr>
<th>Technopreneur</th>
<th>Entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likes to innovate</td>
<td>Likes to compete</td>
</tr>
<tr>
<td>Is part of a team</td>
<td>Is a self-starter</td>
</tr>
<tr>
<td>Is able to do many things at once, but chooses to delegate</td>
<td>Is able to do many things at once</td>
</tr>
<tr>
<td>Is innovative and has a greater vision</td>
<td>Is creative, and has dreams and goals</td>
</tr>
<tr>
<td>Likes to be the one to control innovation and be part of an evolution</td>
<td>Likes to work for him or herself and be in control</td>
</tr>
<tr>
<td>Is motivated by a strong vision and his passion to innovate</td>
<td>Is motivated by a strong desire to achieve and attain financial success</td>
</tr>
<tr>
<td>Takes failure in stride and knows it will lead to success if correction can be made</td>
<td>Focuses his/her attention on the chances of success rather than the possibility of failure</td>
</tr>
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</table>

Basically, the different of technopreneurship and entrepreneur was clearly explained (Wiki, 2009). On the other hand, the Digital Era can be seen as the development of an evolutionary system in which knowledge turnover is not only very high, but increasingly out of the control of humans. Hence, making it a time in which our lives become more difficult to manage. For example, in the second-generation Internet, ‘the semantic web’, functionality, which understands meaning, replaces the search function of unknowingly matching words, which often have multiple meanings. In time, within this version of the Internet, software agents will exchange knowledge without human intervention. In parts of the system which are relatively stable, knowledge turnover is low, and new variation, when produced, is rarely retained.
Additionally, less stable parts of the system, faster knowledge turnover is advantageous as new knowledge is produced more frequently. Thus, this allowing for an adaptation to the changing surrounding environment. Mixing and matching rates of knowledge turnover makes for a dynamic but ever-lasting world for sustainability.

It can be concluded here that the Digital Era is characterized by technology which increases the speed and breadth of knowledge turnover within the economy and society. Evolutionary theory, as an explanation of the system we live in, states that sustainability relies on knowledge turnover.

Businesses cannot run away from the influences of technology in business dealings and operations. In order to remain competitive in this business arena, the current business must always be sensitive and enhance the business of all that they have gone through before. The difference between the two business groups was explained and, as the title focuses on the field of Technopreneurship, it is best to focus seriously in this area.

Universiti Kuala Lumpur (UniKL), the leading entrepreneurial technical university in Malaysia. Based in the heart of Malaysia’s capital and commerce area, is one of the country’s leading technical university. Offering 139 programmes in various field; foundation, undergraduate and post-graduate studies in a world class education. Graduate are taught in our so called “Teaching Factory” to gain competitive advantage through our industry-oriented programmes coupled with hands-on learning to become leaders of tomorrow’s industries.

The university aims to provide the graduates with the knowledge, skills and attitude required for their contribution to play major roles in a globalized and knowledge-based economy. The vision of UniKL is to become the leading entrepreneurial technical university in the country by 2025 through excellence in research, education, training, entrepreneurship, consultancy and community services (UniKL Web). To date, UniKL managed to produced technopreneur whom some of them earned company’s monthly turnover of more than one million in USD.

UniKL thru Teknopreneur division aims to produce as many technopreneurs. Grooming the technopreneurs to be independent and create opportunities for others. For example, one of our student graduated in 2017 and within two years’ time managed to open-up her laboratory-based business in Sabah. She recently received a recognition for Outstanding SME’s Award from Ministry Trade & Industry (MTI). She was one of the young recipient from 100 most Outstanding Entrepreneur of Sabah. The company name is Norcy Beautylab Sdn Bhd and the type of business created is Cosmetic factory. She managed to created 100 new cosmetic founders in Malaysia. The product is also available in Brunei, Kalimantan and Singapore. As an technopreneur, she is dedicated in running the business starting from the material procurement till production of the products, responsible in clinical checking of the product ingredient and finally, marketing and commercializing it. There is no rebranding activity, in another word she managed to produced her own brand as “Norcy BeautyLab”.

A clear mindset as an entrepreneur or technopreneur is important before any interested parties to commit into this area. Naturally, this entrepreneurial mind-set is already in human life. However, some is due to experiences either own experiences, family experiences and some of it is due to the eagerness in improving personal economic stability. Some may dream of getting away from the soul-crushing work done in a cubicle as an unknown cog in a giant wheel. It could be the freedom that comes from being your own master and pursuing a dream to change the world or a part of it and of course the possibility of becoming the next Bill Gates, Mark Zuckerberg or Thiel.

With entrepreneurial mind-set, the individual must be able to solve problems and make the world more amazing. Looking in the factors of technological shifts, demographic trends & regulatory matters. Meanwhile for the digital entrepreneur, ideas and innovation are at the core. Getting funding is an advantage should the idea is interesting, there is no barrier and not even
age. For example, Madison Robinson had the idea for light-up flip flops for kids when she was eight. Seven years later, she is a millionaire when her Fish Flops are being sold in national department stores like Nordstrom.

3. Issues and Challenges

In this article, the author is focusing on the challenges and opportunities of technopreneurship in the digital era. Digitalization presents great and unprecedented opportunities. However, considerable uncertainty remains on the evolution of such transformative technologies. Governments should proactively seek a deeper understanding of the potential implications for society as well as of the critical challenges these emerging technologies pose to their rulemaking activity. The challenges can be broken down into four broad categories: i) the pacing problem; ii) designing “fit-for-purpose” regulatory frameworks; iii) the regulatory enforcement challenges; iv) the institutional and trans boundary challenges (Source: OECD).

3.1 Pacing problem.

Beyond the nature of digital innovation, the sheer pace of technological change itself fundamentally challenges contemporary regulation. Digital technologies tend to develop faster than the regulation or social structures governing them. While the disconnect between the technological pace and regulation has always been a concern, there is a growing consensus that digital technologies break new “pacing” grounds.

3.2 Designing “fit-for-purpose” regulatory frameworks.

Digitalization blurs the usual delineation of markets and sectors, as illustrated by the “new” convergence in telecommunications, media markets and digital platforms. It also confuses the traditional distinction between consumers and producers, as is the case with the rise of individual ”prosumers” in the electricity market that both consume and supply energy to the network. This blurring of boundaries affects, inter alia, the scope of the regulators’ mandate and activities. The economic properties of digital business also challenge the standard cost-based regulatory models as price formation in the digital economy obeys different rules. New forms of regulatory intervention may be needed to address emerging market failures deriving from information asymmetries in some digital markets (e.g. transactions of personal information in return for “free” digital products or services).

3.3 Regulatory enforcement challenges.

Digitalization challenges regulatory enforcement by questioning the traditional notion of liability. It makes more difficult to apportion and attribute responsibility for damage or harm caused by the use of technology to end users. A specific example is provided by the difficulty to enforce copyright / property rights with the internet offering new ways to distribute content. Another example is the difficulty of attributing liability (to the vendor, the distributor, or the original equipment manufacturer?) when artificial intelligence (AI) is involved.

3.4 Institutional and transboundary challenges.

The traditional institutional framework underpinning regulations – around sector or activity-focused ministries and agencies – is also showing its limits when dealing with the transversal challenges raised by digitalization. Digital technologies can indeed span multiple regulatory
regimes, creating the potential for confusion and risks (Soeprajitno et al., 2019). Moreover, digitalization pays no regards to national or jurisdictional boundaries and drastically increases the intensity of cross-border flows and transactions. It gives businesses global reach while being able to locate various stages of their production processes or service centers across different countries. This feature enables companies to “forum shop” or to avoid compliance when it comes to their physical presence, their internal tax policy, and their policy for data protection or other regulated areas. The mismatch between the transboundary nature of digitalization and the fragmentation of regulatory frameworks across jurisdictions may undermine the effectiveness of action and therefore people’s trust in government. It may also generate barriers to the spread of beneficial digital innovations.

4. Other related issues


4.1 Technology Issues

Certain business sectors still lack availability and adoption technology as for example the manufacturing, cloud computing and IoT sector.

4.2 Cyber security Issues

The existence of cybercrimes across the multiple platforms could not be deny or even worse hackers often used malware, worms and virus as medium to control the technologies remotely, allowing the confidential information shared to them.

4.3 Human capacity development

Workers with fewer skills and less education as the speedy progresses in Fourth Industrial Revolution

4.4 Infrastructure

Technopreneurs could take advantage and discover new business opportunities. However, they need to be constructed in such a way to strengthen the capability of new businesses. This is due to in certain extent that different entrepreneur will have different capacities that will not only affect the flows of the business.

4.5 Government policy

Government intervention should be comprehensively analyzed and carefully designed for creating conducive ecosystem for technopreneurs. This intervention is believed to be crucial for supporting the technopreneurship.

5. Opportunities

The digital revolution is coming to the power industry. Renewables, distributed generation, and smart grids demand new capabilities and are triggering new business models and regulatory
frameworks. Data collection and exchange are growing exponentially, creating digital threats but also valuable opportunities. The competition for customers is shifting to the online channel; the Internet of Things promises new product and management options. Entrants from the digital economy are disrupting the industrial landscape, while governments and regulatory bodies seek to encourage smarter measuring systems and greener standards for generation and consumption.

To thrive amid these challenges, the utility of the future will be a fully digital system. This means that today’s utilities face a digital transformation of their organization and business. This can begin with quick moves to improve efficiency and expand the customer base. As the transformation builds momentum, it should open deeper digital opportunities across a wide field.

5.1 Potential at every level

The opportunities are present all along the power–industry value chain, from generation to customer relationship management (Diagram 1). As utilities pursue these opportunities, the effects are already being felt by retail customers. Many utilities have launched mobile applications for bill notification, presentment, and payment, as well as for outage management. Before long, mobile applications will extend into smart homes and connected buildings. Digital management of distributed energy resources, from individual sites to entire systems, has already begun. Many projects within the utility have a digital focus and are using techniques of the digital economy, such as agile development.

![Diagram 1 Digital Utility (Booth, 2016)](image-url)
Not infrequently, however, the potential benefits of such efforts are underestimated. Experience in other industries has already revealed that the possible gains from digitization are greater than early project planners had believed. The US logistics firm United Parcel Service, for example, introduced “track and trace” for parcels in the 1990s, aiming to improve the customer offering. Only later did it become clear that the greater transparency obtained through digitization allowed for better management of parcels, vehicles, and distribution processes. In the end, the company improved efficiency across its entire scope of operations and saved hundreds of millions of dollars.

5.2 Improving productivity and efficiency

Digital opportunities to improve operations and increase flexibility are available throughout the value chain (Diagram 2). Conservative estimates supported by analysis of real-life cases suggest that digital optimization can boost profitability by 20 to 30 percent. Utilities can realize most of this potential by three means: smart meters and the smart grid, digital productivity tools for employees, and automation of back-office processes.

Digitization has demonstrable impact on utility earnings.

<table>
<thead>
<tr>
<th>Improvement areas, case study, EBIT, %</th>
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<tbody>
<tr>
<td>Generation</td>
</tr>
<tr>
<td>• Optimized plant maintenance</td>
</tr>
<tr>
<td>• Spare-parts management</td>
</tr>
<tr>
<td>• Fuel management</td>
</tr>
<tr>
<td>Trading</td>
</tr>
<tr>
<td>• Improved decision making</td>
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<tr>
<td>• Better overall energy balance</td>
</tr>
<tr>
<td>Distribution</td>
</tr>
<tr>
<td>• Fewer losses</td>
</tr>
<tr>
<td>• Preventive maintenance</td>
</tr>
<tr>
<td>• Workforce productivity</td>
</tr>
<tr>
<td>Retail</td>
</tr>
<tr>
<td>• Individual, new products</td>
</tr>
<tr>
<td>• Better prices and customer</td>
</tr>
<tr>
<td>• Digital operations</td>
</tr>
<tr>
<td>Group headquarters</td>
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<tr>
<td>• Optimized operations and</td>
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<tr>
<td>• management through enterprise</td>
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<tr>
<td>• resource planning</td>
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<tr>
<td>Total impact</td>
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<tr>
<td>6.6</td>
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<tr>
<td>2.6</td>
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<tr>
<td>4.3</td>
</tr>
<tr>
<td>8.6</td>
</tr>
<tr>
<td>18.3</td>
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<tr>
<td>23.2</td>
</tr>
</tbody>
</table>

1 Earnings before interest and taxes.

McKinsey&Company

Diagram 2

These innovations form the foundation of the digital utility, supplying the massive volumes of data that are its lifeblood. For utilities invested in the right analytics capabilities, they enable data-based analyses, planning, and diagnostics. Smart grids are more efficient and less capital intense, allowing for predictive maintenance and better asset health. Smart
meters are a requirement for the advanced credit and collections algorithms that can identify which customers will need help to avoid default. The array of means used to better analyze existing information ranges from local diagnostic tools to highly complex planning instruments. With such tools, utilities can optimize staffing levels at power plants and manage the intricate energy terrain of renewable and conventional sources, trading options, and patterns in demand.

5.3 Productivity tools for employees.

Mobile enablement for employees is quickly becoming a powerful productivity-boosting capability (W. Setyawan et al., 2018). Since smartphones provide the platform, grid companies can now digitize the core process of work management to greater effect. This means better asset management, engineering, planning, scheduling and dispatch, as well as execution and job closeout. Since the 1990s, this process has been managed through enterprise-resource-planning systems, which have generally been unwieldy—easy neither to use nor to extend to scale. With the latest digital and mobile technology, utilities can more easily incorporate all work into a single view with universal access.

In Germany, one energy supplier has already successfully completed a digitization program and now applies a full tool kit to improve the productivity of its maintenance personnel. GPS and traffic information have been added to conventional route planning and management tools, which increased productive hours by 15 percent. All employees carry a diagnostic tool giving access to reference samples, root-cause analysis, and the range of available replacement parts. They can use the tool to make direct contact with experts if more complex error patterns are detected. Engineers will eventually be provided with information about potential maintenance contracts for customers.

6. Automation of back-office Processes

Administrative processes in customer management and billing (including changes in provider, address, or product) are proliferating. Distributed generation and multiple channels are resulting in more convoluted and error-prone processes. The rewards of process standardization and automation are therefore growing. Process-efficiency opportunities are also evident in the significant variation among retail providers in cost per customer, the cost of resolving errors, and billing inquiries. In one case, a company digitized a single core process and cut process costs by 20 percent in the first year while also improving customer satisfaction. The key drivers were higher-quality data and effective process automation.

6.1 Smart homes, connected buildings, smart cities.

Many utilities already offer solutions for networked energy management that include the remote control of buildings. Utilities can use information from smart meters to realize additional applications in this new business area, alone or with partners. Municipal, regional, and national governments are launching smart-city initiatives, aimed at promoting technical innovation and systematic applications of the Internet of Things in urban landscapes. Utilities are partnering with cities and builders to implement sensing technology and data analytics in “self-learning” buildings, as part of integrated municipal energy and environmental planning.
7. Conclusion

Technopreneurship is linked with digital era and there is no limitation in creating big impact for the society. It gives new motivation to economics transformation across the countries, worldwide. Knowledge enrichment on technopreneurship is a pre-requisite towards building a more sustainable nation. Technopreneurs must equip themselves continuously with the rapid changes of current technologies. They also need to be sensitive and aware of the opportunities and potential challenges when involving with this business. Realization of this rapid change, this current study, therefore, aims to focus the issues and challenges facing by technopreneur during the development of new digital era. It is essential for us to think without the box when we implicate with technological approach during the digitalization era.

8. Acknowledgement

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