

DIGITAL ENTREPRENEURSHIP: THE TECHNOLOGY DEPLOYMENT IN INTERNATIONALIZATION SPEED IN THE DIGITAL ENTREPRENEURSHIP ERA AND OPPORTUNITIES-TIRUMALA TIRUPATI DEVASATHANAM (TTD)

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ABSTRACT

Moore's law is the one that made the people exploit the advancements of technology in their routine activities or actions and hence in the economic growth. Consequently, in the literature of Entrepreneurship, new jargons started appearing and the list is just growing: Technology Entrepreneur, Digital Technology Entrepreneur and Digital Entrepreneur. Till five years ago the term, 'Technology Entrepreneur' was considered as an Academic Term, but today the same society is speaking on the advancement of 'Digital Entrepreneur'. In 2015, it was envisioned that the Moore's law will die on its own in the coming decade. This article explored corporate entrepreneur who had deployed the technology in the international speed in the digital entrepreneurial era successfully and identified the entrepreneurship opportunities in the same arena.

Keywords: *Technology Entrepreneur, Business Innovation Capabilities, Computing Paradigm, Corporate Entrepreneur*

INTRODUCTION

When the information technology started its journey within the society, the society got fascinated with prefixing every business with the letter 'e' and every part of business used the prefix 'e' such as e-billing and e-business and the term coined 'e-com' for Electronic Commerce. In this band-wagon, entrepreneurs too joined as 'Technology Entrepreneurs'. The growth of 'bandwidth' (internet) led to the exponential growth of technology entrepreneurs and in turn they become digital entrepreneurs. Subsequently, the digitization was the buzz word in the developed nations and continues to be the buzz word among the developing nations. Hence the new word coinage 'Digital Entrepreneur' happened as the intersection of technology entrepreneur and digital technology.

Like Moore's law, the most prominent industries also forecasted their advancements such as *Erooms law*, *Experience Curve Effect* and so on. These forecast laws have created the real opportunities for the intelligent entrepreneurs. The advancement in information technology and utilization of IT in any business witnessed the increase in value creation to a much greater extent than what would have been potentially possible in the traditional way.

The advancement in Technology, paved the way for corporate entrepreneurs and researchers classifying the

seven themes of technology entrepreneurship into three clusters (reference preferable as the 7 themes and 3 clusters are not introduced previously in this paper so far). In this article, the emergence of Tirumala Tirupathi Devasathanam (TTD) as corporate entrepreneur and in the avatar of digital entrepreneur is discussed.

In the Indian Society, the temples were constructed and managed by monarchs then by the respective elected government either central or state. Most of the states created endowment boards to administrate the temples in the state that exceed a certain revenue income, for example, as per The Hindu Religious Institutions and Charitable Endowments Act, 1997 (Karnataka Act No.1, 2001; Ghosh, 2011). However, till recently, only a few temples utilized the technology to reduce the hardships in administration and satisfy the needs of pilgrims to a maximum extent.

Given the advancement of cloud computing, corporates or individual could utilize the concepts and knowledge of technology to open the new vistas of business opportunities. Depending on the need, the entrepreneurs could choose SaaS, IaaS and PaaS or any combination of these three. Also, the technology firms' offer totally managed services to their customers, which included the security, compliances and so on with an added cost. Hence there is a huge potential for the exploitation of ideation to business creation and new era of digital entrepreneurs.

LITERATURE REVIEW

One of the major economic agenda of any government is to promote the entrepreneurial ventures and to achieve macro-economic growth. To attain this, the government lays down the frame work to define the government's role in this sector. Many researchers studied and suggested models for the same. Friedman (2011) tried to define the relationship between the governance effectiveness and entrepreneurship. Minniti (2008) questioned the role of government policy on the entrepreneurial activity as unproductive or destructive. Oni & Daniya (2012) studied the role of government and other financial institutions in the development of SME. Mason & Brown (2013) suggested in their study that government should have good public policy to support high growth firm.

Many researchers did study the Country specific, Industry specific, Innovation policies and Incubation at University levels. All these studies focused on the government policies and their growth patterns and made attempts to evolve frame work.

To quote a few, Thiruchelvam *et al.*, 2010 did a study towards effective policies for innovation financing in Asia, especially shared the experience of Malaysia.

Wonglimpiyarat (2011) did a study on the financial program on Innovation in Malaysia. Musibau & Kamariah, (2013) in one of his studies concentrated on the impact of financing at early stages of Technology start-ups.

There are many evidences of blooming of small digital enterprises especially in the areas of mobile app development and IoT areas, many individuals started doing these kinds of work as their main job, without starting any firms and act as consultant, but no one studied in this direction.

There is a study by Reuber (2011) which talks about the opportunities due to penetration on Internet (2011). The very old but relevant study on digital entrepreneur was done by Rosenbaum & Cronin (1993). Another study discussed about the opportunities of technology entrepreneurs in the context of African nations (Beeka & Rimmington, 2011). In 2014 another article by Bengtsson & Johansson (2014), discussed on creating opportunities for small firms. In the context of religion based digital entrepreneurship or application of technology, there is dearth of scholarly research publications. However, there are reported articles regards Vatican, but it is mainly on digitization of ancient library manuscripts and not on crowd and financial management, typically in an Indian scenario

such as TTD. However, banking and asset management and transparency brought by technology is an emerging topic of debate as indicated by articles, for example, in Fortune and Economist. In view of the importance of Sustainable Development Goals (SDGs) of the United Nations there are also reports of alignment of religious institutions such as Vatican with the SDGs, e.g. climate change, energy and managing resources prompting entrepreneurship including vibrant start-up hub formation and involvement of budding tech minds ranging from AI to waste management (Albanese & Follain, 2017).

Most of the countries did not frame consistent policies on technology and technology innovations that resulted in piecemeal growth with less impact on economy. To achieve the effectiveness on the innovation systems, polices must be formulated to operate in a stable economic environment and be able to scale to address the issues which may rise from across the boundaries. Many reforms from various fronts are required to encourage the technological innovations and the developments of digital entrepreneurs.

The Success story of TTD:

Many temples in India earn huge income but temple administration does little in adoption of technology for smoother management of temple affairs and keep the pilgrims in a comfort zone. Tamil Nadu is popular for its temples and income from Tamil Nadu Hindu Religious and Endowment board is close to Rs. 6500 crores per annum on an average. Kerala Devarasom board income is close to Rs. 1100 crores and so on. As everyone knows the Contribution from Devotees is the highest in the world as it can be vouched with the fact that a typical contribution received is approximately Rs. 1200 crores per annum and like, there are some high-income temples such as Siddhivinayak temple and Shirdi Sai Temple which are managed by Private Trusts. Irrespective of whether a temple is managed by Private trust or State, the only fore runner of technology adoption is Tirupati Temple from Andhra Pradesh. Major goal of technology adoption at TTD is to manage the pilgrim crowd and ensure the pilgrimage satisfaction. TTD participated in the Republic parade at Vijayawada won the first place due to its colorful theme. On this occasion, TTD Executive Officer claimed that 'more amenities to pilgrims with more technology- TTD EO TTD Parade Vehicle wins first place'.

A short note about Tirupati Temple:

India is considered as the 'Land of Magnificent Temples'. Tirupati is one of the 108 Divya Desams

which are dedicated to Lord Vishnu. Coincidentally, among the five temples which attract more pilgrims, Tirupati is the leading one, on an average 3.5 crore pilgrims visiting every year. Everyday approximately 70000 pilgrims are having darshan at the temple. Managing such huge crowd in the temple premises is a herculean task. Hence, TTD decided to deploy technology in all possible directions to satisfy the pilgrims to the maximum possible extent.

The pilgrims broadly fall in to various categories as free darshan (accounts for 60%), Rs 50 ticket holders called Sudarshan token holders (accounts for 16%), Rs 300 ticket holders named as Pratyeka Pravesha (special entry and accounts for 13%), other important category called VVIP break darshan (accounts for 3%) and other categories such as Differently abled persons, parents of infants & senior citizens. Most of the time, every pilgrim could get one second to see the deity with an average waiting time of 6 hours. The temple normally operates 20 hours and hence temple management could accommodate at most 72000 pilgrims. On certain ritual days, the temple operates only 14 hours and it would be starting point of crowd accumulation and longer waiting time for having darshan.

A portion of TTD wealth is spent on health, education and district administration and remaining portion is utilized as directed by State Government. In this financial year, the Gold deposited by TTD is close to 3000 kilograms with one of the banks.

Digital Initiatives of TTD:

In 2016, the temple management of TTD decided to use IT solutions to transform Tirumala as Digital Tirumala, in addition to existing 60% automated IT solution in practice and new generation technology on mobile platforms. The existing IT solutions at TTD are e-seva, e-donor, e-accommodation, e-hundi and so on for pilgrims and TTD has chosen TCS to develop new generation technology for the smooth administration with transparency and pilgrims' delight. Besides these activities, TCS agreed to support the web-based activities such as online publications and maintenances of all IT services.

TTD has many arms such as hospitals, zoo, educational setups from primary to higher education and managing many other temples in Andhra Pradesh. Hence, TTD have Hospital Management System, Cottage Management System, various Darshan Management Systems and Advanced Reservation Systems and the list is on. As on today, TTD has installed close to 700 CCTV cameras in the interest of pilgrims. TTD has

been using biometrics for queue management so that long wait can be reduced to reasonable wait times by allocating specific time slots to the pilgrims. As a next step, TTD decided to have facial recognition system to avoid mishaps especially during the great festivals such as Brahmotsavam. There will be enough staff to monitor the footages and analytics group will analyze and suggest the necessary activities for the temple administrators to avoid mishaps. The initiative has been decided by TTD, soon after the release of iPhone X and hence TTD is keen on implementing technology with the internationalization speed.

Because of technology and right administration, Tirumala has emerged as a role model for municipalities in our country. Because of the adoption of technology, TTD is also known as Tradition, Technology and Devotees.

Opportunities

Cloud computing paradigm changed the business scenario from the traditional way. All organizations had EDP department, then IT department and necessary IT infrastructures and finally needed software. Today, one can do business without owning all these, due to cloud computing. India is famous for its magnificent temples and government bodies are managing the temples, especially Hindu temples and a few temples are managed by private trusts. Any individual or corporate could simulate the model of TTD and get into this business arena. In Kerala, one firm started similar setup called as Temple Manager and in its kitty they have only two temples and its operation extended to the neighboring state of Tamil Nadu.

Every state has its own board to manage the temples in the respective states, if an individual or corporate could develop software product or at least proof-of-concept to demonstrate the capabilities, there is huge potential. The success of TTD can be extended to high income temples initially, then to all other temples. To start with, the implementation of this software product could be targeted with temples managed by Private Trusts.

Challenges

As in any field of technology application, resistance to change is anticipated by opposing mindsets due to several reasons, such as, lack of knowledge about long term benefits, lack of knowledge about Return on Investment (ROI) on the IT infrastructure and software as a service (SaaS) running expenses, vested interests who may not be able to divert and scheme pilferage of the temple revenues for personal comfort or other purposes. Overcoming these challenges may require

public awareness about productive utilization of their donations, administrative tact, and political will.

CONCLUSION

In this article, the success of TTD as it emerged as digital entrepreneur and the executive office of Tirumala proudly claiming that TTD stands for 'Traditions'; 'Technology'; 'Devotees' was explored. Today the Indian Government should focus on the entrepreneurial start-ups in the emerging domains of Internet of Things (IoT) and Artificial Intelligence (AI). A lot of corporates and University Incubators are engaging in this domain. Government of India's ATAL programme should shell out a major pie to these domains. This article identified a potential area for the technology entrepreneurs as the development of software for temple administrations and suggested that the state governments should also provide better pilgrimage services during melas, festival seasons to make divine experience as unique religious marketing service platforms. Opportunities and challenges in application of technology were also identified and discussed.

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