Prioritization of technology initiatives to achieve Digital transformation maturity

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Abstract: *It has been reported that there are more than 19000+ e-commerce companies in India and United states. These are the key players who are bringing innovation via online market places. The increase in demand of online merchandise ecommerce has been growing fast with advent of mobile and other tech along increase in digital consumers. This has put tremendous pressure on the existing retail players to move digital and establish e-commerce. There are startups playing in the e-Commerce space in various fronts including reverse logistics, last mile delivery, Shipping, etc., This chapter discusses the influence of emerging trends, assessing digital maturity and the prioritization approach they can take on technology initiatives.*

Keywords—Prioritization, Digital Transformation, Digital Maturity Model, e-Commerce

I.INTRODUCTION

E-commerce[1] means buying and selling of goods and services including digital products over digital & electronic network. Typically, e-commerce is focused as a) Marketplace based player who acts as intermediary between the buyer and seller b) Inventory based player who owns up the inventory and directly selling them to the consumers. India has received 10.14 billion USD despite COVID-19 crisis out of which e-commerce sector alone has received 3 billion USD[2]. In India

alone there are more than 594 organization which are involved in seed funding startups in the e-commerce space[3]. This indicates the sheer volume of startups involved in the ecommerce space.

e-Commerce business need to build or adopt the model around D2C (Direct to Consumer) model which acts a reliable measure in a competitive landscape. Business are starting to adopt the D2C models instead of relying upon e-commerce gaints like Amazon, Flipkart, Rakuten, etc., Business of different size needs to prioritize the initiatives to sustain this ecommerce space towards building a ready-to-use platforms or marketplace to have better customer engagement and intimacy. [4]

This research would be focused on the digital maturity model and prioritization approach the organization can rely upon the same to determine the "AS-IS" state and bring up on "TO-BE" state for their digital transformation initiative towards. It also discusses with simple Matrix based approach which is simple and effective to use prioritize the technology initiatives towards digital maturity on ecommerce transformation.

II. LITERATURE REVIEW

In 2010, Terry smith proposed a study which identified the relative importance of technology issues among managers which included prioritization. The discussion involved aspects like Data Privacy, Data Management, Legal requirements, security among it. The respondents were asked open ended questions indicating the major challenges which was captured into 3 categories namely IT budget, Security and Data Management. [5]

In 2016, through forreser Martin GiLL and Shar VanBoskrik built a diggital maturirty model to help companies assess their overall digital readiness. This research report discussed the various factors for evaluation criteria. The research was conducted between May 2015 to August 2015 with more than 1039 decision markers. It focused on 4 dimensions which are Organization, Insights, Technology and Culture. It also defined the maturity from low to high based on the 4 Maturity segments which would be Differentiators, Collaborators, Adopters and Skeptics with high to low respectively. This report helped in drawing digital maturity and prioritization of investments, customer journeys of business and technology decision makers [6]

In 2017, Sara Cresto Alenia and Nicole Viola focused on the technology roadmaps to be explored on moon exploration initiatives. IT described the Technology prioritization methodologies as first part of the paper and in the second part of the epaper evaluated the application of the methodology and presented the highlights of the study as conclusion. The prioritization was focused on Operative Capabilities, Building Blocks, Technology Areas and Mission concept. [7]

In 2020, presented a thesis to investigate potential prioritization techniqies instead of informal prioritization process. The case study was done on a b2b sportsbook platform. The study was performed with 8 decision makers leading product development. data analysis was performed and a method was proposed for prioritization. It involved informal meetings, semi-structured interviews. The research evaluated MoSCoW, Weigers Matrix and AHP for comparison. The prioritization approach recommended was consideration of relevance, scored based on critical parameters and compared for validation. [8]

In September 2020, Jordan Bryan discussed a framework for digital business acceleration to prioritize digital initiatives for better results. In this the author refers to acceleration is keeping up the momentum in the business. This research refers to the Gartner's framework which can be helpful in accelerating and helpful in making decisions faster. The concept was around 5 lanes and each lane to manage your speed or to accelerate according to the needs similar to a highway. Fast Lane, Growth Lane, Fix-It Lane, Slow Lane and exit lane. Each lane would address specific approach and aligned with business priorities. COVID-19 kind of situation has evolved this thought and allowed business to embrace better and informed decision making. [9]

In 2022, Sascha Kraus and Susanne Durst proposed thematic evaolution of Digital transformation in the areas of business and management. Articles were identified and reviewed from the journals in Chartered association of business schools which are 2 star are greater. Based on the findings of the evaulation synergistic framework was proposed. This research helped to build the Body of Knowledge in this area. It recommended more research in this areas aimed at studying the impact of certain technologies for realizing and supporting different Digital Transformation related efforts in terms of improving processes, operations or business models. [10]

III. EVOLVING E-COMMERCE DOMAIN

For the ecommerce and retail players who are into buying and selling to have a solid go to market strategy they need to leverage the startups effectively. The following picture gives a high-level indication of the potential areas currently seen as trend in the ecommerce or retail trading ecosystem.
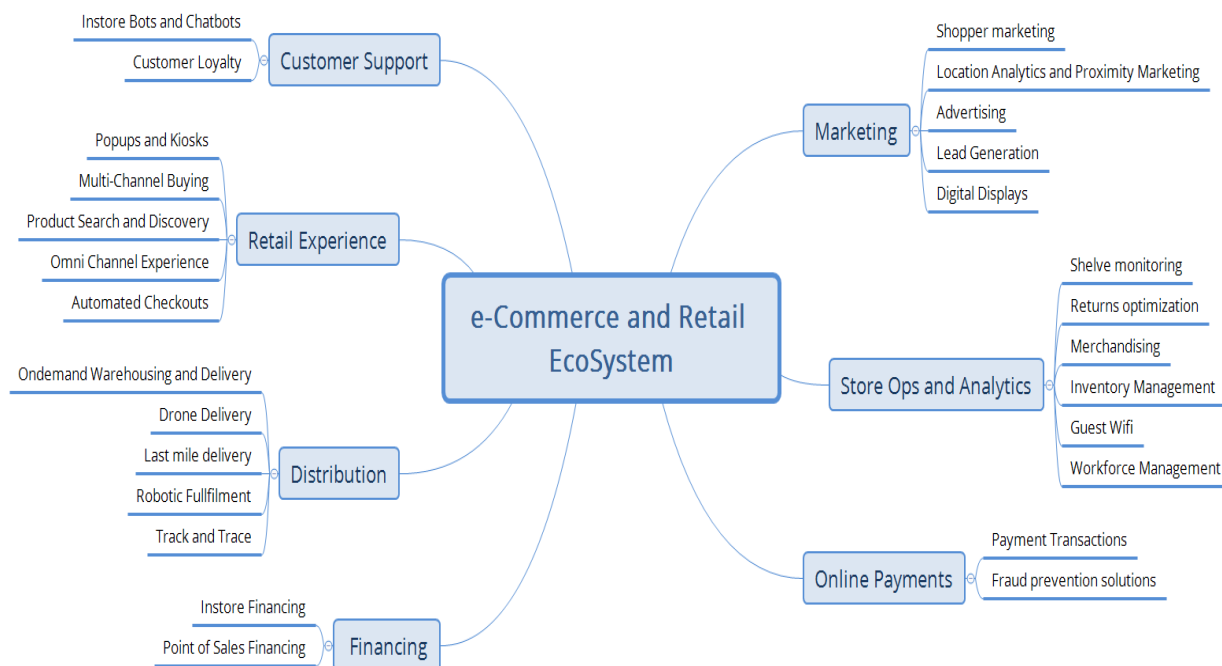

Figure 1: Emerging areas in Ecommerce and Retail Trade

Emerging trends in IoT[11], Blockchain, Metaverse are already impacting the commerce space for Anywhere operations, Privacy enhancing Computation and augmenting Human Experience respectively[12]. e-Commerce space well dominated by players like Amazon, Flipkart, snapdeal, etc., This is subsequently diverging into e-Marketing, e-Fulfillment, e-Tailing[13],m-Commerce, Social Commerce, etc., The how the e-commerce industry would largely influence by the consumers and their way of interacting with the market through web and mobile as interface. Before dwelling into the challenges lets understand how these technologies are largely influences or impact the e-commerce domain and its players where some of them are identified in the below given Figure 2: Gartner Magic Quadrant.

Figure 2: Gartner Magic Quadrant (Year: 2021)

III.Key Technology Trends

A.IoT: Internet of Things

Internet of Things is already making impact in commerce and trading[14]. For example, the use of Amazon Dash[15] button was providing physical touch experience for re-order of items like Washing powders which directly impacted the customers. Now this has been replaced by Virtual Dash buttons instead of Physical buttons. This service has been integrated by separated by Amazon Dash services which helps in replenishment through devices like Alexa. This has enabled e-commerce to more real-time and this can lead into synchronization in terms of better planning and scheduling with manufacturing itself[16].

When the ecommerce backend operations are critical for Last mile delivery, the supply chain operations are also leveraging IoT in the areas of Inventory management, Shelve management, Track and Trace, etc., Robotic automation for pick and place in the warehouse with respect large volumes are possible with CPS (cyber physical systems)[17] which also helps in real-time field data in supply chain scheduling and co-ordination[18].

B.Blockchain

Blockchain provides varies business models[19] which can be adopted at different levels based on the levels of exposure to the organization. Blockchain in combination with Internet of Things can be used for transfer of ownership[20] and it can be also helpful in ensuring quality product reaching the end customers through appropriate grading mechanisms[21]. There has been various researches[22] [23] going on how blockchain would impact ecommerce including the areas of e-tailing, consumer engagement, supply chain management etc., e-Commerce products value chain and supply chain are being integrated with blockchain enabling traceability from product development till the customer acquisition[24].

C. Metaverse:

Metaverse would emphasize the concept of digital humans and would be critical in connecting with the customers. It would help in establishing empathetic relationship with the end customers and would engage in more real-like conversations which would be crucial for 24x7 like human support fueling better pre-sales and post-sales support for commerce transactions. This is already happening and we can find examples like Ella (a policies officer) which revolves around AR/VR technology. [25] Warby Parker also has a try on capability which are available for eCommerce enablement [26] .

IV. EVALUATING CURRENT MATURITY ON DIGITAL TRANSFORMATION

In an organization or technology startup the key focus is to survive, lead and stay ahead to be competitive in the market and this has been part of research[5]. So, organization strive to take the initiatives to stay ahead in the curve among the rapid information technology domain changes[27]. But when it comes to take the right technology initiatives which would sustain the needs of market, driving innovation with the limited resources in the organization is always challenging.

Especially on the e-Commerce domain this has been point of discussion on continuously as the trends and adoption of technology changing. The effect of innovation strategies and initiatives in the organization(s) has been studied[23], [30], [24] and reported which could show us light on approach to be taken on selecting the technology initiatives among IoT, Blockchain and Metaverse. It is essential that organization has some guidelines on how to approach this problem. Essentially it can be looked out from the perspective of organization maturity[31].

A. *Pivoting to Digital Maturity: Way to measure and move forward*

Organization look at technology initiatives as digital transformation journey[10]. It would evolve as they progress. It's a well know paradigm that you cannot improve if you cannot measure it. Measuring the organization maturity[32] would help to assess where the organization and where to go and how these technology initiatives[33] could drive the organization success. There are also

systematic literature review in the area of different digital maturity models available[34]. Measuring the current maturity level would lead to prioritizing the technology initiatives much better.

B. DMM

Organization(s) like Deloitte has discussed the digital pivots which could pivot and propel the digital maturity involving transformation[35] in the year 2018. . The ambition of the digital maturity is around the 3 questions 1) What is my overall focus for the business 2) How will I configure the business to enable to overall business strategy 3) What are the capabilities we need to execute against our business strategy and business model ?. They outline the 7 different factors as given in the Figure 3: 7 Pivotal factors for digital transformation maturity. Subsequently Deloitte along with TmForum they have come up with Digital Maturity Model (DMM)[36]. This model is divided into 6 dimensions namely Customer, strategy, Technology, Operations, Culture and Data. It outlines 30 Key performance Indicators and related metrics to arrive at scorecard based on which prioritization can happen

Figure 3: 7 Pivotal factors for digital transformation maturity

C. Digital Acceleration Index

Digital Acceleration Index is introduced by BCG (Boston Consulting Group)[37]. This particular measure helps in identifying and evaluating digital strengths and weakness of the organization in comparison with their competitors, digital leaders and industry average. The maturity is evaluated around 42 dimensions. This was built around the data from more than 11,500 companies. This revolves around 6 building blocks namely Business strategy driven by digital, Digitize the core, New Digital Growth, Changing the ways of working, Data & Technology and finally integrating the ecosystems. It has been identified that the following four accelerators a) Investing Significantly in Technology, Data, and Human Capabilities b) Putting AI at the Core of the Digital

Transformation, c) Establishing Governance and Adopting a Platform Operating Model and d) Connecting Technology and Human Capabilities has impact on digital transformation journey.

V. HOW TO PRIORITIZE A TECHNOLOGY INITIATIVE FOR e-COMMERCE TRANSFORMATION?

From organization stand point now when the digital transformation maturity of the organization is assessed, there is clarity arrived in terms where we the organization and where it intends to reach with specific technology initiatives. Such initiatives cannot be taken based on the decision of stakeholders which could be biased it would be more appropriate if the organization adopts prioritization framework or method upon which it helps to arrive at consensus.

Mark Raison from COCD (Center for development of Creative Thinking) an Belgian organization working on creativity since 1977 recommends an 2 x 2 matrix which would help to prioritize based on the feasibility and originality. Typically, this is called How-Now-Wow Matrix. The steps involved to arrive at the matrix is to list the initiatives and potential value it delivers on one end and other end we need to work on the complexity and effort required from the organization to provide such value.

It's essential to know what value we are going to provide based on the given initiative. e-Commerce business has different metrics which can be used to determine the customer value such as Net Promotor Score (NPS), Average Handling Time, First Response, Average order value, CAC (Customer Acquisition Cost), etc., [38] From the organization standpoint Competitiveness Metrics, Market Share, Customer Retention, Net Profit, Conversion Rate, Cart Abandonment Rate, CLTV (Customer Life Time Value), CSAT (Customer Satisfaction).

Example use case, assume an small e-Commerce organization want to align their technology strategy among the following initiatives outlined in the Table 1: Sample Initiative list.

Table 1: Sample Initiative list

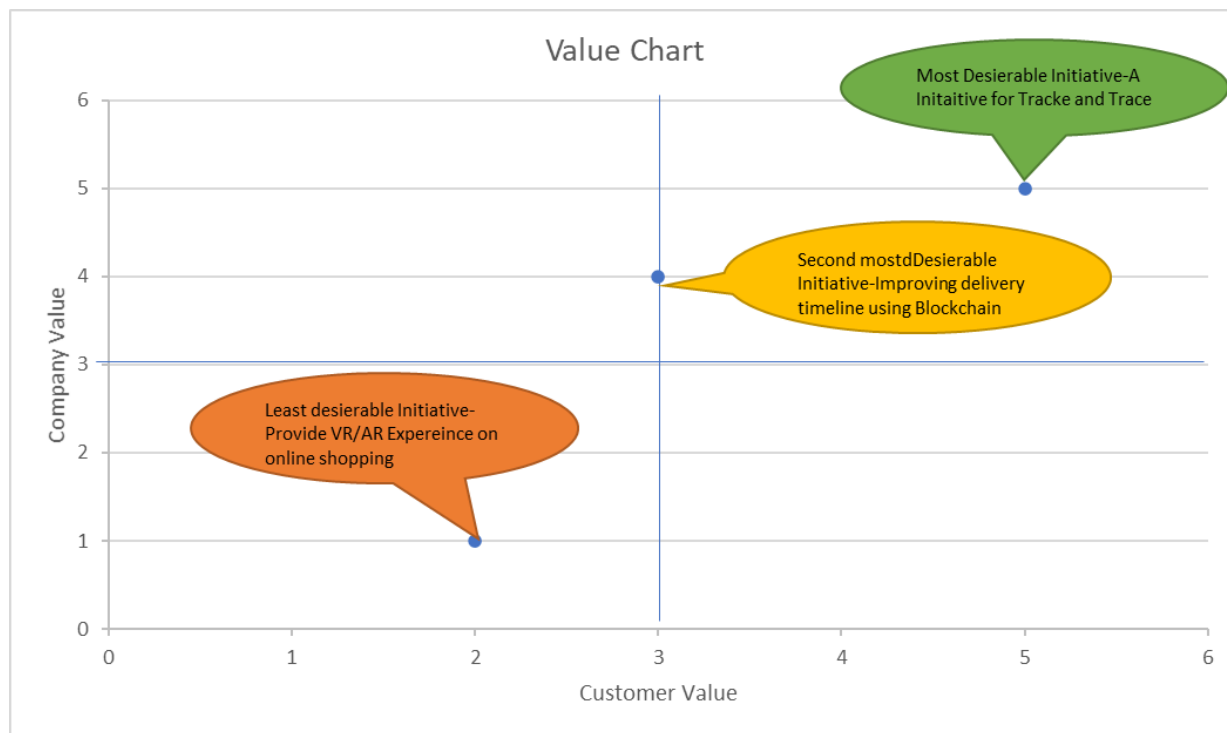| Technology Initiatives		
A	Improving customer experience of delivery using IoT for Track and Trace	IoT
B	Improving delivery timelines using Blockchain for real-time transactional data	Blockchain
C	Provide VR/AR experience on online shopping	Metaverse

Figure 4: Value Chart

Subsequently to arrive at the value chart and identifying its quadrants we identified the value to be arrived against Company Value and Customer Value. This would be part of the evaluation of the potential value which would be driven by the initiative. This would be plotted to arrive at the chart as given in

Figure 4: Value Chart. Then similar chart is made for technical feasibility of building the solution and the ability of the organization to execute and rollout the same.

How- Now-Wow matrix is primarily used a idea selection tool. This tool was popularized based on Game storming. How represents idea which are innovative in nature but complex to implement and to be considered as future goals. Now – Represents the unoriginal ideas which are easy to implement and proven to work well, Wow- represent new ideas easy to implement and executable to actualize.
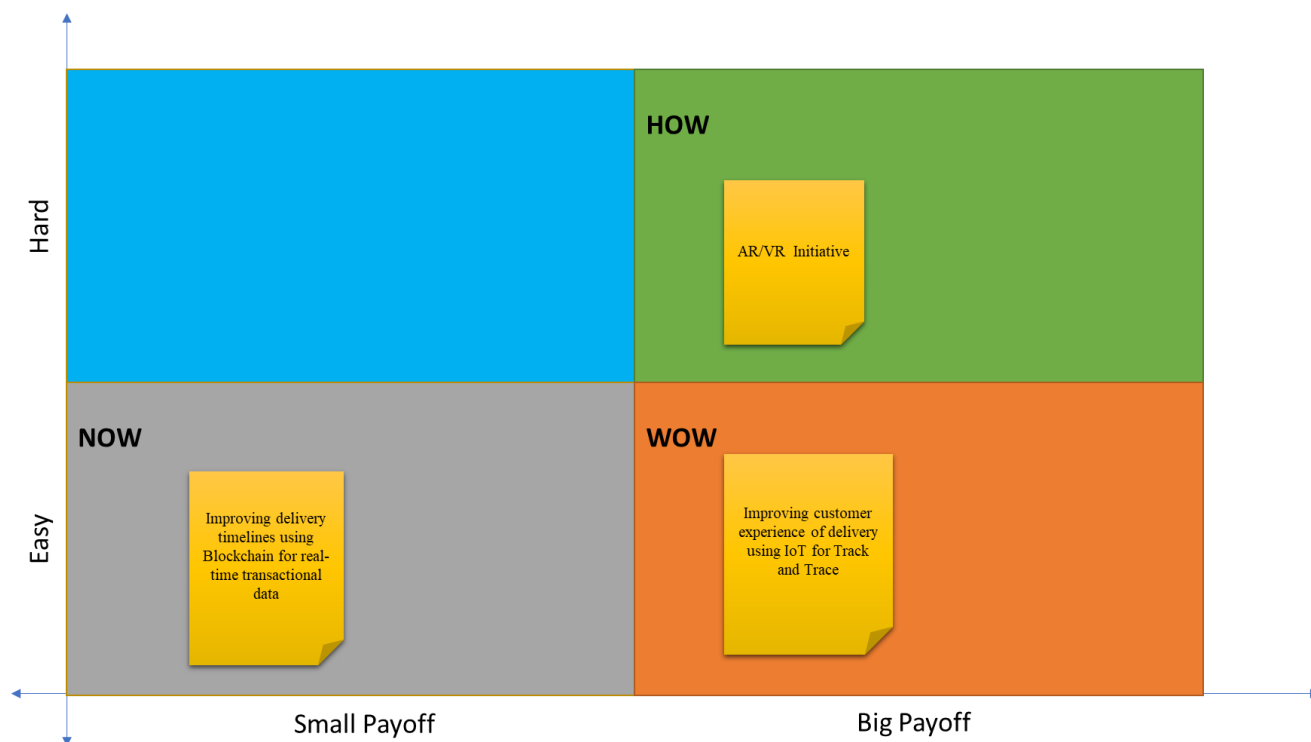
Figure 5: How-Now-Wow Matrix

With the help of this kind of matrix provided in Figure 5: How-Now-Wow Matrix the business can prioritize the initiative. With the given use case improving the customer experience by providing the safety of delivery for track and trace to ensure safety till delivery would have big payoff.

VI. Conclusion & Future work

This research paper has provided insight on approaches available to evaluate the maturity of the e-Commerce organization. Subsequently it highlighted the approach towards prioritization value-based matrix and finally arrived at How-Now-Wow matrix which can be used to plot the initiatives and take decision strategically. Future research can be in the areas validating this framework with different scale of organization and validate the same. Also, further research needed to look at financial(s) of the organization to tie with this from implementation standpoint. Efforts required to integrate the maturity levels to the initiatives and prioritization at the program level.

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