

INTERNET OF BEHAVIOUR - THE CRUCIBLE FOR IDEATING DIGITAL TRANSFORMATION OF BUSINESS WITH NEW REVENUE MODELS

Abstract

Professor Gote Nyman, a curiosity-driven humanist and innovator, essayed to convey that sensible businessmen cannot make effective strategic business decisions in the future without understanding human behavior. This paper aims to examine his statement in the emerging digitalised world. It tries to simplify how IoTs, spread over the gigantic digital ecosystem, are used by business organisations to generate and extract data, study, analyse and appreciate the revealing behavior of consumers and netizens on various commercial and societal aspects linked to their demographic features.

Introduction - Digitalisation Transformation

The digitalisation of processes for operating and service functions of any business does not necessarily ensure its digital transformation. Digitalisation, including robotic process automation (RPA), leads to a more efficient and effective way of conducting the existing business, resulting in cost savings. This is the digital transformation of business processes, not the transformation of the business itself. The common belief is that enabling a bank's customers to conduct banking transactions through the Internet using a computer or a smartphone is equal to a bank's digital transformation. The reality is that they are delivering the age-old banking services using integrated digitalised processes through the internet. All these have helped banks quickly respond to society's latent demand for branchless banking and achieve cost reduction. However, no additional revenue from an entirely new business models has been generated.

On the other hand, eCommerce and QCommerce (please read Q as Quick) operators like Amazon and Zepto have created a new method for conducting the same buying-selling business by bringing sellers and buyers across a broad spectrum of products together on



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one common digitalized platform. They do not own any shops, and Uber and Ola do not own any cars.

These again clarify that the digital transformation of business is not an exclusive technological affair. Technology is undoubtedly the most critical facilitator. However, digital transformation can better be described as the fusion of technology, the internet (please read Web3), technology integration, and organisational culture that facilitates business transformation. It can potentially create entirely new business models with new revenue models.

Integrating the digitalised platform of an eCommerce player with that of the lending platform powered by RPA, of a bank can generate new business opportunities for the bank to sanction instant loans. When a buyer checks out from the eCommerce platform after buying a costly item, e.g., a smartphone, a popped up message asks whether she/he intends to avail of a loan. Her/his affirmative answer will shift the customer to the bank's lending platform to fill out a few details and upload two/three documents. Once done, the loan will be sanctioned, and the payment remitted to the eCommerce player if the buyer is found eligible as per the bank's lending policy. Thus, the bank could create a new business model with additional revenue generation through interest only because it has powered the lending processes with RPA. In the process, the buyer leaves behind many digital marks of her/his characteristic features and buying behavior. These marks are also called 'Digital Dusts', about which the author has written a chapter in his book¹.

Objective

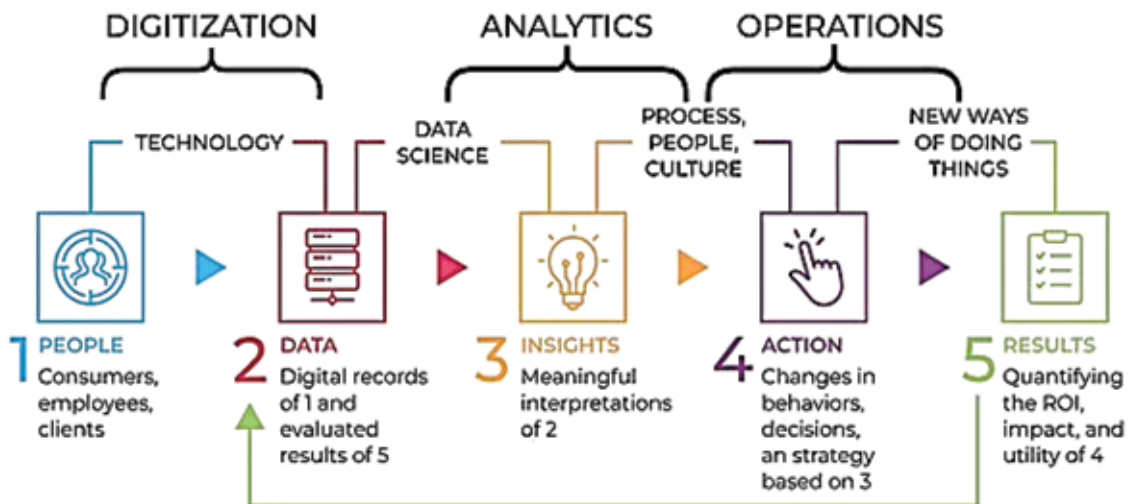
The primary objective of this paper is to simplify how IoTs, spread over the gigantic digital ecosystem, are used by corporations to generate and extract data to study the behavior of consumers and netizens on various commercial and societal aspects. Readers will get more clarity on how insights and inferences from the data analyses help them introduce new business and revenue models. It will also facilitate understanding how IoTs can help study the operating behavior and efficiency of machines, the driving behavior of drivers, etc. These again help business entities to make strategic business decisions for more profit and profitability. Besides references in the Webliography and Bibliography, there are references underneath the three graphics. Readers will get the treasure of knowledge there.

Data Providing Pattern of Behaviour and Latent Demands

Potential opportunities for generating new business using digitalised processes continue after one transaction, as explained in the Introduction section. Commercial service deliveries by any organisation through the Internet, eCommerce players, car-hailing service

providers like Ola, etc., generate millions of transactional data. Analyses of such data can indicate customers' frequency of using the internet-based facility, choices, and buying behavior linked to their demographic characteristics and homogeneity as groups, payment patterns, loan-taking frequency, etc. Similarly, millions of data generated from the frequency of users visiting social media platforms, patterns of text and picture-based content postings, responses to others' posts, etc., indicate many behavioral and societal features of users' characteristics.

Such behavioral understanding is also drawn from platforms not meant for commercial or financial transactions and social media platforms. One case in point is the 'My Gate' software application used by large residential complexes. Initially, it started to alert residents about visitors, delivery agents, daily domestic help, etc. Then, it enabled capturing requests for maintenance work at flats. Commercial organisations now use this app to advertise daily consumable products, new housing projects, etc. Decisions for such advertisements are based on insights drawn from analyses of data captured by the 'My Gate' APP using AI, Machine Learning, and Deep Learning tools.



Source: <https://twitter.com/antgrasso/status/1640655355767078914/photo/1>

The above graphic explains the entire process of extracting from transactional/usage data to meaningful conclusions, inferences, and insights for business decision-making. The process is iterative, as indicated by the reverse arrow from step 5 to 2. Corporates make business-specific strategic decisions, e.g., selecting digital Apps through which advertisements are to be pushed, changes in the specifications of products, etc. In the second round, the post-decision transactional data are also analysed to assess the decision's impact

and draw more insights.

Essentially, what is being analysed is the impact on customers' buying behavior. If several such corrective actions do not increase sales, one must appreciate that consumers are looking for a better product or a new mode of selling and buying. Such types of analyses only helped to ideate qCommerce. Customers have happily shifted from eCommerce. Even some eCommerce players are opening new business models that open up another revenue model with faster business.

Again, when such data are further analysed using statistical and visualisation tools, the platform owner can generate many trends and patterns about the users. They can also develop a general understanding from an overall societal and commercial perspective to exploit the same for various new business models/opportunities by selling the findings or collaborating to start new ventures with business entities. Organizations like the house of Zara have already opened their e-commerce platforms in addition to physical shops.

Intelligent analyses of such data using AI tools like Neural Networks and Generative AI can also generate society's latent demands that lie unfulfilled at a particular time. For example, suppose there is a perceptible trend of users posting pictures and videos on Facebook or Instagram with comments on the unavailability or insufficiency of certain facilities at specific tourist locations, e.g., decent hotel rooms or surface transport. In that case, one gets an indication about potential locations for new business.

IoT-Enabled Data Collection

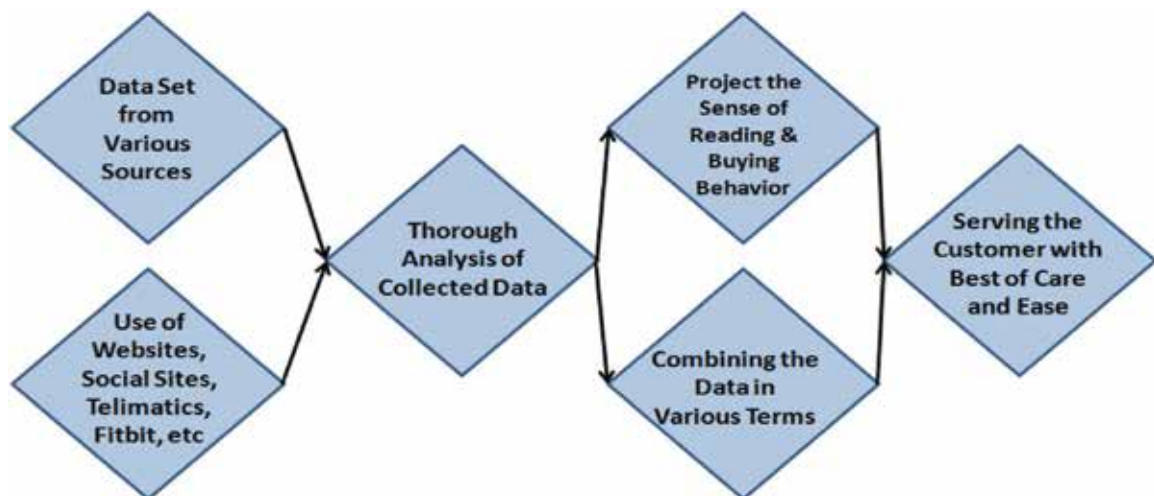
Human beings use a device to access and participate in a computing system and cyber network through the world wide web (www). Such a device can be a personal computer, tablet, handheld phone, or wearable like a smartwatch. In the contemporary environment, a person can join only through voice by advising digital assistants like Alexa and Siri. Each such device is called an Internet of Things (IoT). Such IoTs are the sources from which the computing platforms/systems of various apps like mobile banking apps of banks and non-financial apps like 'My Gate' collect users' data.

Even wearable devices like smartwatches linked to smartphones are primary IoTs, while the phone is

the secondary. They capture data, among other items, for daily physical exercises and send it to the user's smartphone. The App, in turn, allows the provider to pick the data for subsequent analysis and commercial exploitation. All primary and secondary digital devices are the Internet of Things or IoT, which function as crucibles for generating ideas for new products and/or business and revenue models.

IoT's are also used in industrial and agricultural activities. Machines are fitted with IoT's containing robust sensors and cameras to capture and send to connected computers the machine's performance data and behavior related to input and output, rejections, breakdowns, consumption of utilities like electricity, etc. Plant managers gain insights and inferences drawn from analyses of such data for meaningful use in plant management, initiating maintenance actions, fixing specifications for materials utility usage, etc. Finally, each machine's operating behavior and performance can also be revealed by data analyses and visualisation.

In the surface transport sector, insurance premiums are being proposed to be dynamically fixed by the driver's driving behavior and the routes adopted on different days. Cars can be fitted with specially designed IoT's to collect the related data and provide daily data to the insurer's computing systems. Even the 'Fastag' straps pasted on the vehicle's windshield help camera-fitted IoT's fitted at the Toll lane cross pass without payment, and the linked banks get intimation for collecting money from the owner's account. Subsequent analyses of all such data help insurers strategically decide insurance policies and premium pricing terms, manage customer relationships, and provide care services (CRM&CS). The following is a typical flow diagram that can be considered for this purpose:



Source: https://ars.els-cdn.com/content/image/1-s2.0-S2666351121000437-gr4_lrg.jpg

Drones can be fitted with cameras and edge computers and powered by the GPS App to send pictures of crops' physical conditions linked to the geophysical location, the quantum of insecticides and pesticides sprinkled, and crop conditions after such treatment. The concerned business entities can use inferences drawn by analyses of such data to make several strategic decisions related to crop management, crop insurance management, pesticide quality and delivery, and so on. Such drones are also considered as IoTs.

IoT Influenced CMC

Computer-mediated communication, or CMC, takes place when two computer users communicate with each other through computers. It can be written or verbal. The latter takes place in virtual meetings and conferences. Readers might have observed that off-late, various professional and social media Apps like LinkedIn, Instagram, Facebook, etc., prompt what is to be written against pasted pictures or replies to be given against other persons' posts. LinkedIn even provides an AI-based drafting facility. Such Apps have opened up business opportunities for AI tool providers to provide embedded AI Tools.

These embedded AI tools influence, guide, and direct users to write what the App providers want, which can create future business opportunities. Again, analyses of the narratives finally posted by the users indicate the behavior of the users and collectively all users in terms being influenced or not. All these can collectively be called Computer-Mediated Communication or CMC.

Linda K. Kaye et al. (December 2022)², concluded that *"In an Internet-enabled era, we are citizens in a vast array of different online spaces, and the behaviours afforded to these spaces are becoming increasingly complex. Within the study of computer-mediated communication (CMC), there is an assumption that behaviour occurring in CMC is equivalent to that depicted in the communicated message. However, we note that this is not always the case."* The objective of their paper was to clarify *"different typologies of online behaviour."*

IoT Influenced Business

Many readers and authors, even five years before, have taken travel insurance before foreign travel by filling up physical forms through an agent. The same is no longer required courtesy of the 'Ola' App on the Smart Phone. Once a car is booked to travel to the airport, the app will prompt whether the user is interested in buying travel insurance. Ola also provides a facility for availing

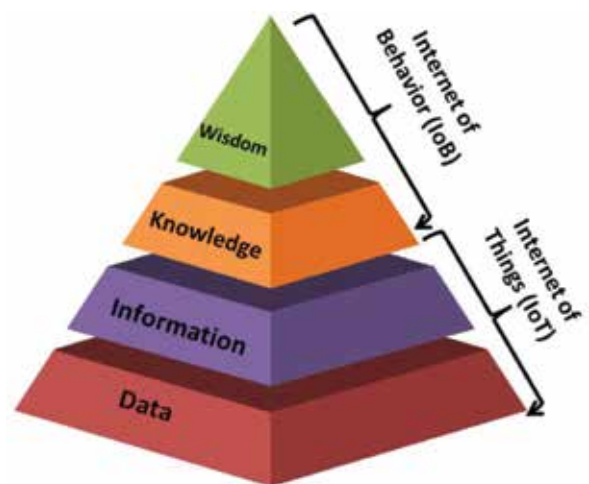
of credit facility provided based on the pattern of use.

The benefit to the customer is that even if she/he readily does not have money in hand or the bank for payment using UPI, she can avail herself of Ola and pay after a few days. Ola charges Rs. 100/- as a fee even if the payment is delayed by one day on a credit value of Rs. 2,500/-. They also have a 'Cash Wallet' model where riders can deposit cash instead of carrying physical cash. This model has lost its utility after the proliferation of UPI.

FinTech terminologies christen the above facilities to customers as 'Embedded Finance' and 'Embedded Insurance.' Thus, Ola is operating one new business model besides car-hailing services by selling travel insurance policies on behalf of insurers and earning commissions. By giving credit facilities to customers for a few days, Ola does not lose anything because it pays drivers and its other service vendors after some days. Moreover, this might have also increased their sales.

IoB – The Crucible for New Business and Revenue Models

The above discourse essentially deals with understanding users' behavior marks, which have been left on the internet through a wide array of computer applications and Apps operated using smartphones. Thus, the internet contains gigantic exhibits of human beings' online behavior pocketed in many social platforms and apps used by customers and recipients/beneficiaries of services provided by commercial or governmental organisations. Business entities use all these as crucibles containing enormous potential for crafting new business models and revenue models.



Source: <https://www.sciencedirect.com/science/article/pii/S2666351121000437>

The above pyramidal graphic delineates the hierarchical dimensions of the Internet of Behaviour (IoB), from data to providing wisdom to business leaders to take forward their businesses with sustainable prosperity. IOTDesignPro³ has defined IOB as “.... a source connecting an electric device to the Internet, and is the extension of IoT that reveals significant information about our behavior. It is the interconnection of devices that provides vast data and valuable insights into user experience, search experience optimization, behavior, interests, and preferences”. Gartner has defined IoB in a little more advanced way, adding location tracking and facial recognition into it. and is a combination of technologies that focuses on “tracking location and facial recognition of the people, connecting the data, and mapping them to behavioral events”.

Conclusion

The author will consider his efforts in writing this paper to have met some success if this paper helps business entities achieve the goals narrated in the Objective section of this paper. The author will be happy if CMAs feel encouraged and appreciate the necessity of acquiring the knowledge and skills of data scientists so that they can participate in the strategic decision-making process of business entities in the emerging digital era. **MA**

Bibliography and Webliography

All the quoted websites were accessed in September 2024.

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3. <https://iotdesignpro.com/articles/what-is-internet-of-behavior-iob>

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