

AI IMPLEMENTATION IN CONVENTIONAL FOOD BUSINESSES – AN ILLUSTRATIVE CASE OF A JIGARTHANDA SELLER, MADURAI

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Abstract—Conventional food businesses in India are highly family-based. The present case study is illustrative and focuses on a small street vendor selling Jigarthanda in Madurai. The major problem of fluctuation in daily demand and uncertain predictions lead to problems in materials procurement, beverage preparation quantity, and personalised approach to customers. The case study offers AI based business management as a phased-transformation to the conventional business model, clubbed with personal judgement and practical experience.

Keywords: Jigarthanda, Madurai, Conventional food business, Artificial Intelligence.

INTRODUCTION

Traditional micro food businesses are a major part of Indian businesses. Such food businesses carry out their business at their homes with majorly relying upon their family members for labour support. The owners of the conventional food businesses implement inherited business intelligence drawn from their ancestors, and possess unique product quality. The core strength of these business models are strong relationships with local customers, offering distinctive quality foods, and location-based advantages.

Madurai, one of the oldest traditional cities in Tamilnadu, is known for its street foods, and is popularly called as “Thoonga nagaram”. ‘Jigarthanda’ is one of the innovative cool beverages invented in Madurai in 1970s, with unique ingredients like fresh and condensed milk, syrup, almond gum and ice creams. Such existence of innovative uniqueness of the food item opened up a new area of case study of conventional food businesses in Madurai city.

The case focuses on a family-based small street vendor selling Jigarthanda in Madurai streets. With just 2 or 3 labour preferably from own family, and with almost minimal or no infrastructure excepting the homes he lives, the business is started with very low capital investment. Such street-based vendor business is characterised with manual record maintenance, materials purchase based on personal judgement, and one-to-one customer relationships.

Widespread digital UPI based payments and implementation of AI tools have been a boon to conventional micro food businesses. This case study inspects the opportunities and challenges of transformation of such conventional business models into an AI-based business management, using an illustrative street-based ‘Jigarthanda’ seller in Madurai.

BACKGROUND OF THE CASE: JIGARTHANDA BUSINESS IN MADURAI

‘Jigarthanda’, an iconic chilled beverage, was found to be sold by a street vendor in Keelavasal, Madurai. The shop owner has inherited the business from his grandfather and father. He buys ingredients needed to prepare the beverage every day, based on his personal expectation of demand daily. The drink is prepared under his supervision by his family members at his home, and the owner carries to the street side shop to sell directly to the visitors, passers-by, residents of Keelavasal locality, students from nearby schools and colleges, and tourists visiting the area. The shop owner manages his collections every day that are received both as cash and UPI payments. He relies upon extra labour requirement during festivals and busy times from his own family. The shop has developed a strong familiarity among the local residents and several customers repeatedly purchase every day. The owner has no formal promotions, but just through word of mouth from existing customers, or by instant shouting at the street to bring passers-by for purchases.

Demand estimation based on personal judgement and previous day's sales by the shop owner operates well at normal days, but creates excess left over drinks, or shortages, during festival days and occasions. The shop is kept open from morning 10.00 am to 10.30 pm, and almost 130 to 160 customers make purchases on an average every day. Based on the varieties like mini, regular or special, the Jigarthanda is priced from Rs. 30 to Rs. 90. The average daily sales value ranges from Rs. 4000 to Rs. 11000 approximately.

BUSINESS OPERATIONS

The seller-owner of the conventional micro business food enterprise undertakes several business operations as follows:

- ❖ Plans and makes purchase of ingredients required as per his personal judgement. This works during normal business days, but not on festival or occasions
- ❖ Makes the beverage under the home roof to suit the unique taste of his inherited preparation. Such preparation of the drink may end up in excess left over or may result in shortage of beverages depending upon the customer visits that day
- ❖ The owner-seller makes direct sales to customers and collects either cash or through UPI payments. Manual sales records are maintained by him during 'No customer' times of the day
- ❖ The seller ensures personalised relationships with the customers who repeatedly purchase from his shop.

CENTRAL MANAGEMENT ISSUE

The major business problem experienced by the conventional micro business food vendor is the estimation of demand which is highly fluctuating due to variations in weather, festivals and occasions. Due to this the beverage preparation, materials purchase and labour predictions also gets affected. This central problem has paved way to study the case and explore opportunities and challenges in AI implementation.

AI IMPLEMENTATION AREAS

Artificial intelligence can be implemented in different areas of business by using low-cost AI tools and mobile applications.

- The seller can identify the sales in future based on previous years' sales data, including the abnormal demands on festivals and occasions
- Based on the demand forecasts, material requisition can be identified using AI tool
- Daily cash transactions and expenses under different heads can be recorded using AI tools
- Promotional content development and customer relationship through AI mobile applications

DISCUSSION AND ANALYSIS

The Jigarthanda seller relies mainly on conventional business practice, personal judgments, and manual records management for his business. The major issue is the fluctuating daily demand and failure to predict the same, resulting in the wastages or shortages of materials. Lack of systematic record maintenance also leads to non availability of data to predict the sales. This challenge can be overcome by the adoption of inexpensive AI tools gradually into business. The stages of implementation of AI can be shifting from traditional business to digitalisation of business activities, creation of consistent business data, creating charts and summary reports viz. data analytics, complete AI adoption, and using AI insights business improvements can be planned.

STRATEGIC ALTERNATIVES

The seller has three possible strategic alternatives:

Option 1: Continue with the present conventional business model

The present conventional business model followed by the seller may be continued. The seller may adopt the same personal judgments, conventional practices and handwritten records. This alternative involves no cost to the seller, but the problem of unpredictable fluctuating demand and its impact will persist.

Option 2: Use basic digital tools

The seller may adopt basic digital tools like mobile applications to record daily sales, purchases, cash revenue, and digital payments. This option of adapting to basic digital tools will not involve heavy expenses to implement, but provides the seller with systematic records maintenance. This step also helps seller to maintain systematic sales records and evaluate the sales patterns, and thus forms the basis for the implementation of AI based management.

Option 3: Implement AI based management

The Jigarthanda seller may implement inexpensive AI applications for forecasting the demand, material requisition planning, generation of summary reports for finance, and marketing promotions. Such implementation will enable more systematic business performance, but needs basic knowledge of AI tools, compilation of dependable data, and examination of investment in technology. The seller must also ensure that such AI implementation must facilitate personal judgement and not makes completely technology dependent business.

RECOMMENDATION

The successful recommendation to the Jigarthanda seller is gradually starting with option 2 of adopting basic digital tools, and gradually moving towards AI based business management of option 3. The complete business transformation doesn't happen overnight, but a gradual and step by step approach. AI implementation in conventional food business must complement the already possessed business intelligence and experience of the small street vendor. The suitable business model for the conventional Jigarthanda seller may be the personal natural business intelligence of the seller supported with digital records management, and AI based business management. Such reinforced business model based on traditional intelligence will strengthen the seller's business.

CHALLENGES TO AI IMPLEMENTATION

The AI implementation is not free from risks and challenges. The conventional street seller may be confronted with challenges of investment for AI based applications. Although sophisticated business infrastructure is not required, even the minimal investment in smart phone, digital payment records, basic accounting software and AI tools can be a financial burden to the seller. The seller must also possess basic digital knowledge and possess reliable data to digitalise. Also the initial stages of implementation will face cyber security issues and AI errors, and privacy problems may arise. The seller may get trapped to too much dependence on technology and develop a risk of loss of personal customer interaction.

CONCLUSION

The illustrative case study on the conventional food business viz. the Jigarthanda seller in Madurai provides the challenges and opportunities of adopting AI based business management. Successful implementation of AI is dependent on minor investment, digital knowledge, privacy and trust, and reliable data. But potential benefits of systematic business management will re-imagine the conventional food businesses and support the micro enterprises hugely. Gradual implementation from manual to digitalised records, followed by analytics and AI based business management and decision making will be a competitive advantage. Future of conventional food business lies not in replacing human intelligence, but human business intelligence supported with inexpensive artificial intelligence.

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