

Analysing E-Commerce Integration in the Tmt Bars Market: A Qualitative Study of Infrastructure and Real Estate Giants in India

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I. INTRODUCTION

TMT or Thermo-Mechanically Treated bars is one of the major raw material demands by infrastructure and real estate developers in India, as noted in the study conducted by Tapar et al., (2021). The total consumption in the Indian market has been approximately above 25% of total global production, which suggests a market for different industries that engage in TMT bar production. The recent trend of marketing has been the development of different e-commerce platforms as observed by Jain et al., (2021). E-commerce aids in the mitigation of limited vendor barriers as well as geographical barriers, while at the same time providing both buyers as well as seller's convenience in finding adequate material based on their specific requirements. It should be noted that each product may not be suitable in the e-commerce market, as such has different aspects to be considered like the durability of the product as well as perishability and challenges in logistics and shipping. These aspects need to be considered while determining fees and locations where such facilities can be made available. These aspects will be combined in the current study, in which the TMT bars market will be analyzed and accordingly e-commerce integration strategy will be developed which can address the specific needs of the Indian market, which has been covered in subsequent sections.

II. DIFFERENT ASPECTS OF THE TMT BARS MARKET

TMT (Thermo-Mechanically Treated) bars have a unique and distinct market, primarily owing to different product specifications which have been

covered by Tariq & Bhargava (2020). Some of the major product specifications are the level of ductility, elongation, and tensile strength expected. Each of these aspects can differ based on the purpose for which it will be utilized in infrastructure and real estate projects.

Hence it can be inferred, that under the singular aspect of TMT bars, several products may be present, in each can have different specifications. This aspect makes it unique from other markets with simple standardization procedures.

Additionally, challenges have also been noted in transportation aspects which have also been covered by Chen et al., (2021). The products are complex and require significant efforts to be transported over long distances making the import of such bars a complex task. This brings back the focus to local and regional manufacturers. Here, the cost aspect should also be noted that transportation can have significantly higher costs which can make long-distance sourcing a limited option adopted by any infrastructure or real estate developer. This makes the entire market adopt a local attribute and nature. Additionally, Skèrè et al., (2023) noted that the TMT bars market has long been dominated by suppliers who are mostly small and medium-sized firms, in which there can be a large variation in both pricing as well as quality of the products. Differences can also be witnessed in the total time undertaken for delivery of the product. Here, it should be noted that major infrastructure and real estate developers can have large orders, and often may involve procurement from different SMEs, and hence can have significant variations in timing and price. Thus, the lack of larger players covering the entire market makes this market fragmented and segregated. Supply aspects have been considered in the prior

study, while demand aspects have been covered by Wang et al., (2020). Demand for TMT bars is largely dependent on the projects (either fresh construction or renovation) undertaken in the region at a specific time period, and hence demand can be witnessed to fluctuate with higher levels of variations. It should be noted here that these attributes do not diminish the importance of TMT bar markets but rather make it unique among other industries. This requires an extensive analysis in order to establish an e-commerce market for TMT bars in the country.

III. NEED FOR E-COMMERCE MARKET

The E-commerce market can provide significant opportunities for any new products, and a major aspect among them is addressing the geographical barriers which are associated with the product as covered by Javed (2020). The geographical gap has been a major challenge for TMT bar customers, making them dependent on local sources. For such aspects, the development and implementation of a proper e-commerce platform can ensure customers get access to a wide range of options both within their existing state and in other states of the economy as well. Thus, the development of a dedicated e-commerce support system can aid in improving selection choices and also improve the level of reach. Additionally, it has also been noted in the study conducted by Wilson & Christella (2019), that the e-commerce market can be a better sale channel when multiple variations of similar products are considered with different variations. TMT bars have been noted to have several specifications, which can be easily displayed under digital catalogue and representation facilities provided by e-commerce platforms. This can aid customers in selecting specific TMT bars which can fit their demands and thus place their order in a convenient manner with affirmation of product information. Such an aspect is expected to reduce time spent in information-sharing and benefit both stakeholders in the process. A similar aspect has also been noted by Rosário & Raimundo (2021), who asserted that sellers are also able to publish both payment details as well as shipping details which can be analysed by buyers while considering placing an order. Since the TMT market faces the challenge of higher costs due to long-distance transportation and logistics, it becomes important for buyers to have clear information

regarding expected payment as well as the time it will take for goods to be delivered. These aspects are covered by the e-commerce platform, hence ensuring transparency in information and at the same time ensuring both stakeholders agree to such conditions. Additionally, Kitukutha et al., (2021) noted that e-commerce platform development and incorporation can address the challenges of the requirement to visit the shop physically, engage in physical inspection, and place orders. TMT bars can be considered as a market where major orders are in the form of bulk orders. Both aspects of selecting vendors based on bidding and further negotiations can be covered under the e-commerce platform, relieving the buyers from the need to find different suppliers, and at the same time, allowing suppliers to select orders in which they can have higher rates of profitability.

IV. EVALUATION OF E-COMMERCE FEASIBILITY AND APPLICABILITY

Several aspects are required to be analyzed in order to establish the feasibility and applicability of a product to be considered for the e-commerce market. The first aspect of total market demand as well as the size of the market has been considered by Li et al., (2020). This aspect requires analyzing whether there is sufficient market demand for the product to be included in the e-commerce segment, and secondly, analyzing whether the total size of the market is justified to have an e-commerce business which can run profitably based on such a product. These aspects aid in the initial evaluation of the idea for the e-commerce market. Additionally, Meng et al., (2021) have also suggested considering different attributes of products being considered to be adopted for e-commerce business. Some of these aspects can be the ease with which products can be transported to different locations, the standards of the product and how it can be ensured that standard product is delivered, the level of complexity attached to the product, and the total human resources required in processing and movement. It should be noted that some products may be complex or harder to transport, but still, be covered under the e-commerce spectrum which may involve additional charges, and thus shall be determined before the development and implementation of a dedicated e-commerce platform. The logistics of the product have again been covered in the study conducted by Xiao et al., (2021). While e-

commerce is traditionally connected with the purchase and sale of products over digital platforms, such needs to be transported to the location of consumption as well. Here, various aspects such as the perishability of the product, durability of the product, and the weight and size of the product should be considered. It should be noted that products exceeding basic limitations are still under e-commerce but such can impact the feasibility and affordability of the platform. Finally, the level of digital infrastructure available in the economy should also be considered, as per the argument forwarded by Jiang & Murmann (2022). This can range from both availability of internet infrastructure to dedicated payment and cybersecurity mechanisms. It should be noted that digital infrastructure is a broader term which has limited influence on e-commerce platforms as well as buyers and sellers. This aspect has been considered as such and can impact the availability of e-commerce systems throughout the country. Hence, these aspects are required to be considered to analyse the applicability and feasibility of e-commerce integration for the TMT bars market.

V. RESEARCH GAP

Analysis of prior works in the section below as well as studies conducted by Lv et al., (2020) and Zhang (2021) has presented significant research gaps. The primary research gap is the lack of any study which has specifically focused on different aspects of the TMT bars market and how such can be considered while developing a distinct e-commerce platform. Prior studies do discuss different aspects of the TMT bars market and studies also exist in the domain of different aspects which are required to be considered while determining the feasibility of a product in the e-commerce market. However, the gap exists in combining both domains together to establish a practical solution to develop an e-commerce market which will deal with TMT bars throughout the country. Additionally, this has also been noted that there are two major clients for the TMT bar industry, infrastructure firms and real estate firms, both of which have different requirements. However, there exists a major lack of studies regarding how such demands can be considered and met while developing an e-commerce ecosystem. Thus, it can be inferred that a primary research gap has existed throughout the

aspect of e-commerce integration in the TMT bar industry which will be addressed in the current study by conducting qualitative interviews with major clients.

VI. AIMS AND OBJECTIVES

The aim of the study is to analyze the applicability and feasibility of E-Commerce integration in the TMT bars market, based on the perception of major clients, infrastructure and real estate companies in India. To address such aim, the following objectives have been adopted:

- To identify different attributes of TMT bar markets in India and how much can change with E-commerce integration
- To investigate the perception of managers in infrastructure and real estate companies in India regarding the E-commerce market for TMT bars
- To explore different E-commerce options for developing a dedicated E-commerce market for TMT bars in India
- To analyze the applicability and feasibility of E-Commerce integration in the TMT bars market in India
- To suggest strategies to develop and implement a new E-commerce market for TMT bars in India

Research Questions

In order to address the above research objectives, the following research questions will be taken into consideration:

- What are the different attributes of TMT bar markets in India and how can such change with E-commerce integration?
- What is the perception of managers in infrastructure and real estate companies in India regarding the E-commerce market for TMT bars?
- What are the different E-commerce options for developing a dedicated E-commerce market for TMT bars in India?
- What is the applicability and feasibility of E-Commerce integration in the TMT bars market in India?
- What can be different strategies to develop and implement a new E-commerce market for TMT bars in India?

VII. RESEARCH METHODOLOGY

The interpretive paradigm as noted by Alharahsheh & Pius (2020) has been adopted in the study. This paradigm will allow each respondent to have a different perception of similar situations, and hence give equal importance to the opinion and perception of each individual. It will allow consideration of the opinion of each manager in infrastructure and real estate as a unique respondent. In accordance with the paradigm, a qualitative research approach, as stated by Vindrola-Padros & Johnson (2020) has been adopted. This research approach allows the collection and analysis of non-numerical data in the form of texts and interviews in order to derive inferences from the data collected. Here, more emphasis is given to the uniqueness of the individual than statistical validity. Further, an exploratory research design, which is covered by Asenahabi (2019), will be implemented. Such research design will allow addressing research questions which have limited prior literature to support research questions. This research design is considered important for the current study, to address the novel research gap in the e-commerce market for the TMT bars industry. Data for the current study will be collected through qualitative interviews in which the total population will consist of all managers in the infrastructure and real estate markets. Out of the total population, 15-20 managers will be selected through purposive and convenience sampling, as covered by Andrade (2021). Those managers will be selected with whom communication is easy, who are willing to participate in the study, and who have prior experience in marketing. The data will be collected through qualitative interviews, and such will be analyzed through a manual thematic analysis procedure established by Sundler et al., (2019). Interview transcripts will be carefully analyzed and themes will be derived based on common occurrences of words or ideas, which will be then analyzed in accordance with research objectives.

VIII. SIGNIFICANCE OF THE STUDY

The current study has significant implications for both academic scholars and members of the TMT bar industry. The study will address the research gap regarding both the applicability and feasibility of the e-commerce market for the TMT bars industry, by

taking into opinion the prospects of major clients, namely Infrastructure companies and real estate developers. Similarly, this research will aid TMT bar-producing and marketing companies in developing the e-commerce market and better addressing the needs of clients. This will aid in better and more efficient development of both the infrastructure as well as real estate industry in India. The interview instrument developed can be adopted by further scholars to analyze the prospects of such an industry in different markets around the world.

IX. LIMITATIONS OF THE STUDY

The current study has several limitations. Firstly, the current study has been conducted using qualitative methodology, adoption of quantitative methodology may have provided objective data under which different aspects can be established with statistical analysis. Additionally, the current study has taken into consideration the different perspectives of both infrastructure developers and real-estate organizations together, considering the view of one specific group may lead to a change in results. Moreover, the current study has been based on the entire TMT bars industry, but strategies can differ based on small and medium industries or large players in the industry. Finally, this study has not taken into account any experimental approach, in which different e-commerce forms were experimented upon, to derive insights based on actual observation.

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