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redBus: ART AND SCIENCE OF PRODUCT MANAGEMENT

> Building a great product is a creative, chaotic process which you won't get right every
> time, so you have to also be learning from success and failure.

—Gibson Biddle, former VP of Product, Netflix

Founded in 2006, redBus[1] was India's largest online bus ticketing platform which revolutionized the experience of inter-city bus travel for millions of passengers. It worked on a marketplace model where customers could conveniently purchase tickets through its website and mobile apps from any of the multiple partner bus companies operating on their target routes. It was a subsidiary of the parent company MakeMyTrip Limited,[2] which was India's leading online provider of travel services. From its headquarters in Bangalore, redBus also kept expanding its presence across many countries and claimed to have served over 36 million customers worldwide with 100,000+ daily bookings as of 2022. Having partnered with 3500 bus companies globally, including most of the inter-city bus operators and transport corporations in India, redBus had a robust supply side as well.

After experiencing tremendous growth as an industry leader for over a decade since its introduction (claiming 75% market share by 2019),[3] redBus was moving into the maturity phase of its core product lifecycle. Thus, a big task for its CEO, Prakash Sangam, was to keep improving on the existing levers of growth and identifying new avenues like booking cabs and trains. Accordingly, in 2022, one of the business goals that Sangam decided to focus on for redBus was to improve one of its most critical growth levers—the conversion rate of their platform visitors to customers. Sangam commented:

> Serving the customers in this industry for the past 17 years, we fully understand the needs and pain points of our customers. There is an intent to travel when a customer comes to our platform, though it may not always be for their own or an immediate need. Converting that intent into a successful transaction is a constant area of improvement for us.

Given the revenue model of the platform to earn commissions from bus operators for every ticket sold through redBus, it was in their best interest to convert a higher percentage of online visitors (on their website and apps) to paying customers as much as possible. However, this was not an easy goal for a mature platform as most of the common customer problems were already solved over the years. So, further raising the conversion rate required a more thorough analysis of user behavior in their platform to identify hitherto unknown reasons causing visitors not to complete their transactions. It also required ideating, developing, and testing innovative design solutions to tackle some of the key issues. Sangam turned to his only team that could manage the wide cross-functional scope of this challenge—product management (see **Exhibit 1**).

An experienced product manager (hereafter mentioned as the PM) at redBus was given the business problem to improve the overall conversion rate (hereafter mentioned as CR) (see **Exhibit 3**) of the bus ticketing product funnel (see **Exhibit 2**). A funnel represents the user flow and reduction in visitor traffic through various stages of their interaction with the product to complete a transaction. To book tickets on redBus, visitors had to start with the

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Amit Nigam, Chief Executive Officer at QJobs, and Shankhadeep Banerjee, Assistant Professor of Information Systems at IIM Bangalore, prepared this case for class discussion. This case is not intended to serve as an endorsement, source of primary data, or to show effective or inefficient handling of decision or business processes.

'Search' page of the funnel, go through the bus and seat selection process, and end with the 'Thank you' page after making the payment. So, in this context, CR referred to the overall throughput of the bus ticketing product funnel, calculated as the ratio of 'Thank you' sessions over the 'Search' sessions and represented as a percentage.

While the business problem of increasing CR was clear to the PM, it was also an open and broad challenge with many potential paths and possibilities to pursue. To address the problem, it was imperative for the PM to mix the art and science of product management, i.e., to follow a scientific process, albeit with wisdom and creativity.

To understand the broader context in which the business problem was situated, looking at the common challenges in the Indian online bus travel sector should be helpful.

COMMON CHALLENGES IN THE INDIAN ONLINE BUS TRAVEL SECTOR

Though inter-city bus travel was a viable option for most of the population in India, considering the higher ticket rates and limited availability of seats in air and train travel, the online bus travel sector had not yet reached its full potential, with many passengers still preferring to book tickets offline. One of the biggest factors contributing to this preference was the digital divide in the country. In many parts of India, low internet penetration and lack of digital literacy were significant challenges to combat.[4, 5] Setting up the necessary digital infrastructure and developing digital capabilities required government support and policy interventions. Thus, tackling the digital divide factor was beyond the scope of online bus ticketing platforms. However, the situation was steadily improving on that front. The IAMAI-Kantar ICUBE 2020 report estimated that the number of active internet users in India would grow to 900 million by 2025 from 622 million in 2021.[6]

Even for passengers on the good side of the digital divide, there was a psychological factor that led to their preference for offline booking. Decades of habit of queuing up on bus ticketing booths and paying cash to get a tangible ticket in their hands was deeply ingrained into many people. For them, such conditioning was tough to overcome so easily, even if they had digital access and the skillset to book tickets online. A paradigm shift in the traditional mindset from a sense of control in physically booking tickets to trusting platforms on the internet to make bookings would either take time or require stronger motivators.

Yet another set of challenges for the online bus travel industry was managing the diversity of passenger needs and expectations in a heterogenous country like India,[7, 8] where there were wide differences in the constitution of demographics relating to wealth, literacy, language, religion, caste, population density, etc., both between and within the different states and territories of the country.[9] This not only created a lot of complex ways to demographically segment the passengers, but additionally there were many deciding factors like pricing, comfort, brand, schedule, star rating, payment options, etc., with each of them being more important than the others for different segments of passengers. There were multiple decision-making trade-offs for planning their bus travel and selecting their bus operator, which played into the minds of passengers.

Apart from customer-related challenges, the online bus travel companies were also struggling with various external and internal pressures. Under the economic pressures owing to general inflation, rising fuel prices, increasing costs of hiring resources, etc., they had to deal with the effects of rapidly bloating costs of bus tickets to maintain profitable margins. They also had to combat macro-level issues such as changing economic situations like recessions or pandemic, along with new financial regulations that could vary across various states of the country. There were also tactical challenges in deciding pricing structure (commission or flat fee), product distribution strategies (online or omnichannel), algorithm for price management of the seats (static vs dynamic), etc.

Returning to the redBus situation, the starting point for the PM to better understand the business problem was to first identify which of these common challenges was broadly related to improving the CR. The PM was able to deductively eliminate different possibilities and identify one of these challenges as the general cause of the business problem. However, a deeper investigation of user behavior was required to narrow down on the exact issues. For this, the PM first took the help of Product Analytics by using one of its key methods—funnel analysis.

FUNNEL ANALYSIS

Funnel analysis is a technique that helps PMs analyze the series of user behaviors at each stage of the user flow of a product. All user interactions on an app or website leave digital footprints which can be tracked and stored by companies for behavioral analytics. Once user behaviors are tracked, it becomes easier to understand why a prospect did not become a customer. Funnel analysis is indispensable in the product management process because of its advantages, which are as follows:

Improving conversion: The funnel analysis tells a company what is stopping a prospective customer from becoming an actual customer. The product management team can work on those cues and update the product or add a relevant feature to enable more conversions.

Streamlining the funnel: Funnel analysis conducted on all digital touchpoints can be collectively represented as the overall customer journey funnel. Instead of looking at the aggregate information, when one looks at the channel-specific touchpoints, it might provide insights into the areas of improvement in the customer journey.

Enabling greater collaboration between product and marketing teams: Product teams are mainly focused on retaining customers and marketing teams are focused on converting prospects to customers. Through the funnel analysis methodology, both teams can share insights and marketing campaigns can be aligned to the overall business objectives and specific friction areas in the funnel.

A good starting point for the redBus PM was to look at the funnel data from the redBus database in various ways, for the purpose of discovering the contributing factors that could influence the CR. This was an important area where along with the technical skills of data analysis, prior experience and domain expertise of the PM was required for the art of deriving relevant insights from the data. Funnel analysis may be done based on various dimensions such as age, gender, geography, price, etc. to identify notable differences in user behavior in any dimension of interest. The PM sliced and diced the data based on different parameters such as source cities, bus departure times, months, type of bus (AC, non-AC, sleeper, seater), etc., looking for patterns and correlations that could help narrow down the scope of the problem to a few key dimensions.

After trying out different dimensions which could potentially impact CR, the PM found significant differences in user behavior when the funnel data was analyzed on the dimension of distance of bus travel—for long (>250 km) versus short (<250 km) routes (see **Exhibit 4**). There was a huge gap between the long route funnel when compared to the short route funnel in the percentage of users moving from the 'Search' to the 'Seat Layout' stage. The users searching for short routes seemed to drop off significantly just after looking at the available bus options. Clearly, there was something interesting happening with the short route passengers, an unknown customer problem which if solved could potentially lead to an increase in the overall CR. Thus, using product analytics, the PM had successfully managed to narrow down the open broad scope of the problem to a specific stage and dimension of the product funnel. The target problem now was to reduce the percentage of drop-offs of potential short route passengers after they search for buses.

The PM went to Sangam with his findings and target problem. Sangam found it a valuable insight that could help redBus increase their CR. He was curious to know 'why' drop-off was happening in short routes? Unfortunately, the PM had no clear answers at this point. But he could do what scientists do when investigating a phenomenon— develop hypotheses and test them with empirical data.

DEVELOPING HYPOTHESES

While data analysis could tell PMs what was going wrong and where, it would not specify why it was going wrong. They might have some ideas based on their experience and intuition that might serve as hypotheses. These hypotheses could only be validated either by asking users directly through focus group discussions, interviews, surveys, etc. or by walking in their shoes by using the product as an end-user in real-life situations.

The redBus PM hypothesized that while the long route passengers liked to optimize for convenience, the short route customers preferred to optimize for travel duration. Even if the short journey is a bit inconvenient due to crowded buses or less than ideal bus conditions, the issue is relatively short-lived. The same is not true for long route travel, where enduring inconvenience for a longer duration would be a bigger issue. This hypothesis was logically supported by the fact that short distance travels tended to be more frequent, owing to lower fares and higher accessibility, hence lowering the hesitation to travel even for trivial reasons. Secondly, if the travel was frequent, there were fewer unknowns in the mind of the customers, and they tended to be more open for the direct walk-ins over prior reservations. Lastly, this target set of customers might also be more price sensitive, as they frequently negotiate with the bus conductors for any last-minute discounts.

To validate this hypothesis, the PM undertook several short trips to observe the behavior and interact with some customers to understand the thought process.

IDENTIFYING OPPORTUNITIES

The qualitative data analysis from the customer interactions and field studies conducted by the PM and his team all painted a high-level picture of the expectations of a short route traveler. The PM summarized these expectations into three broad categories—flexibility, information, and cost effectiveness.

The need for flexibility arose from the very nature of short route travels. For example, a salesperson would like to complete the round trip to a nearby town within the same day. However, as there was uncertainty associated with most of the sales meetings with clients, they had no way to be fully confident about the timings for the return travel. This typically led to one of the two possibilities—either the salespersons did not book the return ticket in advance and directly walked to the bus stand to catch any available bus, or they booked the return ticket in advance on the last departing bus. Neither of these were ideal options as they had to choose between a suboptimal travel experience by boarding any random bus, or needlessly wait for a long time if they become free sooner.

The need for information was relatively more straightforward to understand. Short route travelers liked to have detailed information on the available buses, their ETAs, live tracking, latest occupancy status, etc. This helped them understand the best possible option under dynamic circumstances and reduced unnecessary waiting times at the boarding points.

Lastly, short route travelers needed constant reassurance that they were getting the best possible deal on their ticket. As this target group was quite price sensitive and well informed about various options, they tended to negotiate the last-minute deals with the bus conductors. Often, this left the door open for pilferage where some conductors took bribes and allowed customers to travel on available seats without issuing a ticket (perhaps made possible due to lack of stringent audits), thus creating revenue leakages, the extent of which was quite unknown to the bus operators. While the PMs often served as the advocates of customer's voice, it was important for them to understand the dynamics for all parts of the ecosystem. For example, any solution that helped bus operators reduce ticket pilferage and provide transparency would be very well received by the supply side of redBus. Any friction-prone area presented holistic opportunities for innovation.

The PM could connect the dots to understand that while redBus was satisfying the need for information for the short route travelers on the bus operators, schedule, seat availability, and prices in the 'Search' page, it was not satisfying their needs for flexibility and cost effectiveness. Understanding these underserved needs of the potential customers presented good opportunities for the PM to ideate relevant product design solutions that could make it more attractive for them to purchase tickets online from redBus. The PM used the Jobs-to-be-Done (hereafter mentioned as JTBD) framework to clearly define the list of concrete problems and opportunities arising out of user research (see **Exhibit 5**).

SOLUTIONING

Inspiration for ideas can come from many sources including solutions to similar problems in other contexts. For the PM, the source of inspiration was the 'Current Ticket'[10] reservation system of Indian Railways. A 'Current Ticket' allowed short route train passengers to travel between a source and destination pair in the unreserved compartments of any train headed in that direction. This was a well-established system that worked flawlessly for trains, and solved the needs for flexibility, information, and cost effectiveness for frequent train travelers between short distances. Prima facie, it seemed like a good starting point to the PM for creating a similar solution for bus travelers, that he named as 'Open Ticket' system. He listed out how the various proposed features of the Open Ticket solution could potentially address each of the opportunities proposed in the JTBD list (see **Exhibit 5**).

At a high level, the Open Ticket solution would be pitched to the customers when their searched source-destination pair matches with any active open-ticket route. They will be given all the relevant information to make an instant decision, such as open ticket price, names of applicable bus operators, the process of redeeming the open ticket inside the bus using a QR code, cancellation policy, etc. The ideal routes for launching open ticket would be where the distance between the source and destination is not more than 250 kms, historically showing a high volume of ticket sales, with a high customer repeat rate and the customer age demography being 18 to 35 years.

On the bus operators' side, all the participating bus operators would have to agree to a common price point. Their bus staff would be given the information and training on handling common customer queries and redeeming the open ticket. The PM would have to also work with the redBus customer support team to help train the agents who might get customer queries on open ticket. Similarly, a process would have to be established with the Finance team to create a new payment reconciliation flow in order to attribute the ticket redemption to the right bus operator. This is important because unlike in the case of a regular ticket where the sale is against a specific bus right from the start, in case of open ticket the exact bus is not decided until the customer has boarded a bus. All this would have to be done in a way that is scalable. Adding/removing routes, adding/removing the participating bus operators, changing the price points, etc. should be possible almost instantaneously without any software changes.

Accordingly, user-journey wireframes were proposed by the PM which were converted into high-fidelity mock-ups by the redBus UX team (see **Exhibit 6** and **Exhibit 7**). They were brainstormed with all the relevant stakeholders, such as marketing, engineering, supply/sales, senior management, etc. to proactively understand the loopholes and refine the solution.

Once the stakeholders were satisfied with the proposed solution, the PM created a product roadmap by prioritizing various features of the solution using the RICE (Reach x Impact x Confidence / Effort) scores (see **Exhibit 5**). An objective prioritization framework like RICE helped remove personal biases of people directly involved in the solutioning process by introducing clear and objective criteria for ranking features. The product roadmap included the features and release milestone for its MVP (Minimum Viable Product) to test the core solution with customers. This concluded the design and planning of the Open Ticket solution. The next step was to develop it with the help of the Product Engineering team.

EXECUTION AND LAUNCH

The PM worked closely with the engineering team to answer their questions, understanding any technical constraints for developing certain features and jointly coming up with acceptable workarounds. The product development process used in redBus was Scrum, which is an Agile methodology. In the Scrum-based execution environment of redBus, all the feature requirements were listed into a 'product backlog' and coded in multiple short development cycles of 2 weeks, referred to as 'sprints', over a period of 3 months. For each sprint, some features from the product backlog were transferred to the 'sprint backlog', and each feature was further broken down into a list of technical tasks, which were assigned to the members of the engineering team. A daily standup meeting ensured that there was transparency amongst all stakeholders around the schedule, milestones, new challenges, any internal or external events that could lead to reprioritization, etc.

The PM also ensured that the status was regularly communicated to the teams and individuals having key stakes in the success of the product. Feedback was also taken from various stakeholders after the completion of each sprint at a sprint review meeting and suggested changes were incorporated into the backlogs of future sprints.

Once the MVP for the solution was developed, it needed to be launched and tested on the real users on the live redBus platform. To avoid any potential adverse impact on the business metrics, the PM decided to do a controlled release of Open Ticket only to 10% of the visitor traffic on redBus for the initial few weeks. This was administered through an A/B testing experimentation platform, so that a direct comparison of the funnel CR was possible between control group A (90% traffic not having access to Open Ticket) and test group B (10% traffic having access to Open Ticket). If the CR for the short route travelers came out significantly higher for the test group, then the solution could be labeled a success.

MONITORING

The MVP of the Open Ticket solution was released on the redBus platform with practically no unforeseen deployment challenges. The user behavior data was regularly analyzed with hourly, daily, and weekly views to spot any patterns, seasonality, or bottlenecks.

The PM observed that while the solution technically worked flawlessly, most of the users were dropping off as soon as the new option was presented to them in the funnel. Typically, the users would stay on the new screen for three to five seconds, before either clicking on the 'Skip' button, or closing the app altogether through repeated pressing of the 'Back' button. Furthermore, most users who had successfully booked the 'Open Ticket' ended up canceling shortly after the booking.

These behaviors indicated that the users were confused about this new solution, which surprised the PM, as all the information about the 'Open Ticket' was provided to the user at the right time in the right context. The user experience design seemed simple enough and all that users had to do was to make a choice to buy the ticket with a single tap. So, what exactly went wrong? The net impact of this launch was apparently having a completely opposite effect of the original objective on improving the CR. But thanks to the limited exposure through the A/B experiment, even though the CRs were adversely impacted due to much higher funnel drop-offs, the overall business impact was quite contained. However, given the cost and effort already put into the Open Ticket solution as well as that planned for its future releases, the leaders and stakeholders at redBus were not happy with the unexpected results.

Sangam scheduled a meeting with the PM to discuss the next step. But the PM was unsure about what to propose from his side. He was now facing a grave dilemma—whether to persevere with the Open Ticket idea by trying to fix it, or drop it completely and pivot to a new idea?
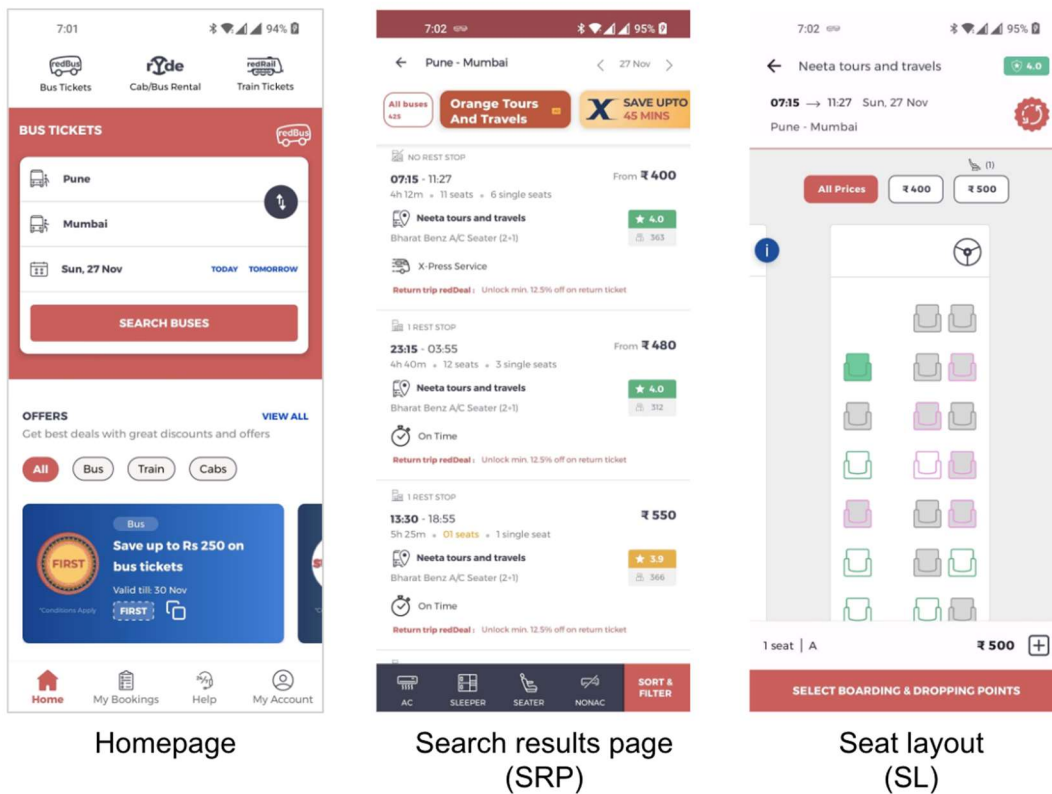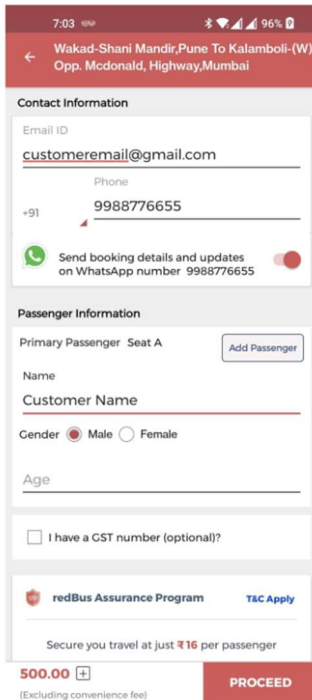
Exhibit 1

Stakeholders in Product Management
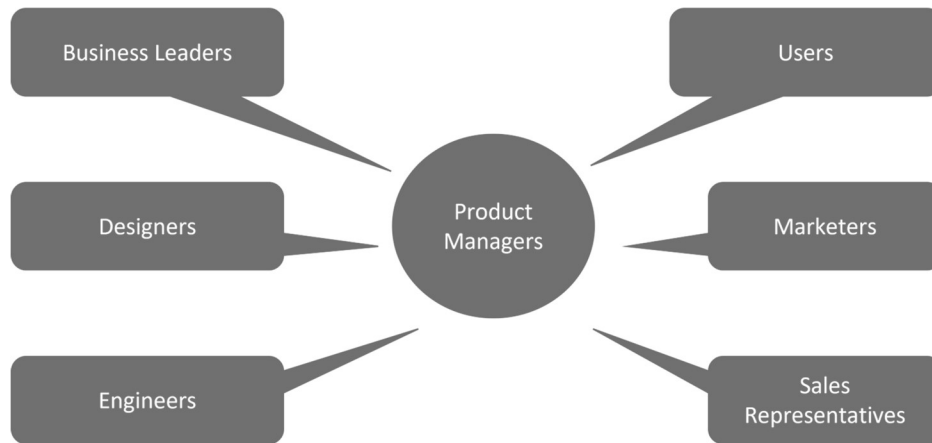
Source: Case Writers compiled this exhibit from publicly available data.

Exhibit 2

Illustration of redBus ticketing mobile app funnel (5-step user journey)

Homepage   Search results page (SRP)   Seat layout (SL)

Exhibit 2 (Continued)

Customer info
(CI)

Payment

Thank you

Source: redBus

Exhibit 3

Funnel Conversion Rate

$$CR = \frac{\text{Thank you sessions}}{\text{Search sessions}}$$

Objective - Optimize the overall funnel conversion rate

Source: redBus

Exhibit 4

Funnel Analysis of Sample Routes (Long versus Short)
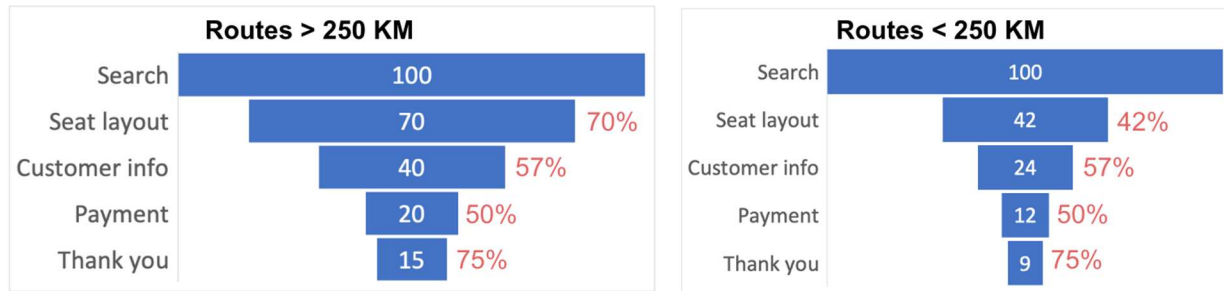
Source: redBus

Exhibit 5

List of JTBD with Possible Solutions

| Category	JTBD	Possible Solution	RICE Score
Information	Bus schedule	Show SRP listing with all possible bus options	350
	Real time ETA to the boarding point	Sort the listing in the increasing order of bus ETAs	300
	Real time bus occupancy	Show the occupancy % in each bus listing	300
Flexibility	Reaching at the destination in the quickest possible time	Tickets valid in majority of the buses on a given route	350
	Ability to cancel in the last minute without any penalty	Zero cancelation fee	200
		Auto-refund in case of unutilized ticket	100
	Frequent bus options	Infographic with number of bus options against various time windows	200
Cost	Predictable and lowest prices across all bus options	Negotiate a common bus fare across the bus operators	200
		Negotiate a discounted fare in favor of increased ticket sales	250
	No surge pricing	Fixed price	250
	No price negotiation at bus stop	A simple, no-touch, and self-serve mechanism to redeem the ticket	300

Source: redBus
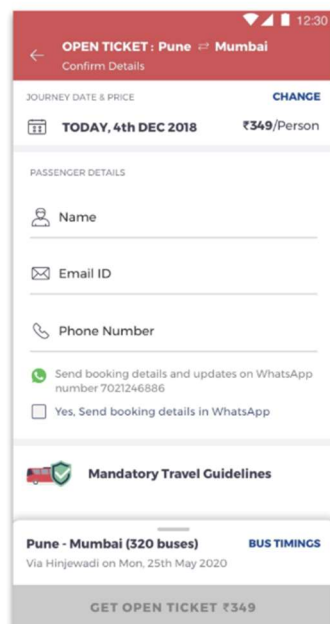
Exhibit 6

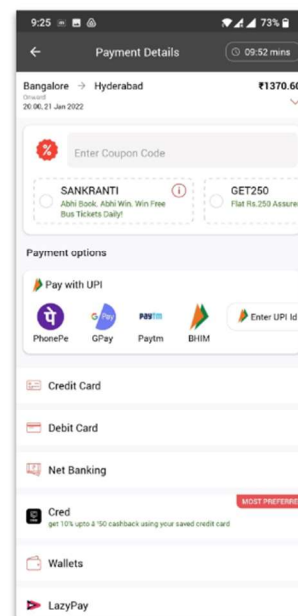## Open Ticket UX Mockups
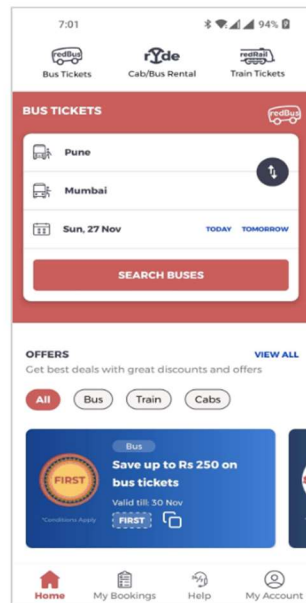
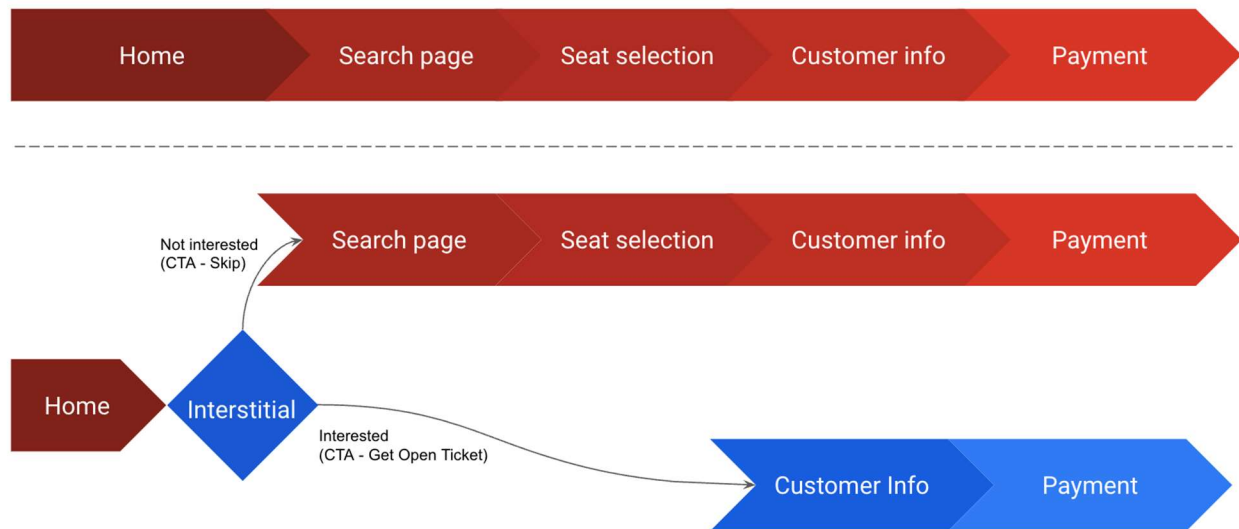Homepage
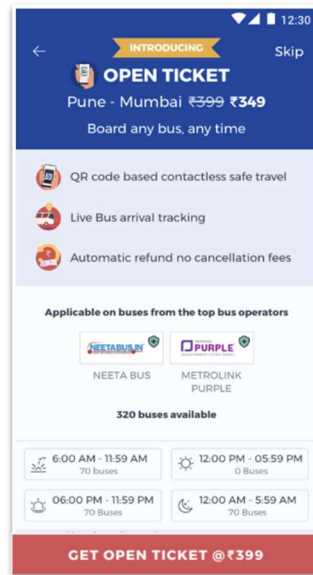
Interstitial

Customer Info

Payment

Source: redBus

Exhibit 7

Existing User Journey Map versus Open Ticket User Journey Map

Source: redBus

Note: All the web links referenced were last verified and accessed on July 30, 2023.

[1] https://www.redbus.in/info/aboutus

[2] https://www.makemytrip.com/

[3] https://www.business-standard.com/article/companies/redbus-riding-on-untapped-road-transport-corporations-to-drive-growth-119121400014_1.html

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