



Emerging Perspectives in a Disruptive Economy: A Case Study of BEST Transport Undertaking in Mumbai City

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Brihanmumbai Electric Supply and Transport Undertaking Transport Undertaking (BEST) which is engaged in operating public transport system since pre independence years has incurred heavy losses in revenues due to re-routing of buses over the last three years since 2014. The losses have been attributed to the re-routing of buses, loss in advertising revenues and huge expenses in maintenance of its fleet. Drivers /conductors and other staff of maintenance and administration departments of BEST have been severely affected by delays in payment of their salaries and incentives and their families have been put to suffering. For the three years in a row, BEST has not had sufficient money to pay salaries; it has incurred huge bank loans to pay its 42,000 employees. That the BEST is hurting, and has been for some time, is not a secret! But now Mumbaikars are feeling the pain too: the undertaking withdrew its air-conditioned buses just as summer of 2017 began making its presence felt; it is also paring its fleet to 3,500 from 3,758, and it is looking to cancel about 150 bus routes. The real cause for the losses of BEST lies elsewhere.... Citing losses caused by the Construction of Colaba –Bandra SEEPZ Metro Construction Line 3 work, BEST has asked MMRC for compensation. BEST Contention is that the metro construction has not only caused traffic congestion on streets but also taken up space on the roads. This has made BEST to re-route buses causing heavy losses. Anil Kokil , Chairman of BEST Committee , in a letter addressed to Ashwini Bhide , Managing Director of MMRC , said that with the kind of losses BEST is going through at the moment , they will not be to withstand losses caused by metro construction. (Business Line, December 20, 2017)

Could it be due to MRTS by MMRC?

Against this kind of angst of BEST, Mass Rapid Transit System (MRTS) as operated by MMRC provides a kind of disruptive innovation. This transport innovation product competes at the low end of existing customer base of the BEST. As a competitor, MMRC has made successive attempts to please the Mumbaikars with the features as described below:

- Mumbai Metro Rail Corporation (MMRC) which operates the Mass Rapid Transit System (MRTS) since 2014 is busy expanding its services by phases across the length and breadth of urban boundaries of Mumbai with its ultra modern air conditioned rail coaches with highest levels of safety.
- Its metro system requires 1/5 of the energy per passenger km. compared to road transport system operated by BEST .Passengers of BEST suffer with snarling slow movements in congested traffic junctions across the suburban and urban roads of Mumbai and Navi Mumbai.



- MRTS is more reliable, comfortable and safer than road based system. MRTS reduces journey time between 50 % and 75% as compared with BEST bus transport depending upon road and weather conditions.
- MRTS has been a new product which has elicited eager and larger uptake from the burgeoning population of Mumbai. The correlation between the attributes of MRTS innovation and the propensity to buy the services operated by MMRC has increased multiple times as compared with BEST. Understanding the needs of customers is the key to innovating successfully in MRTS and thus created dispersion in the competition in the urban transport market.
- The disruptive innovator MMRC has become more dynamic with newer features, operational efficiency and strategies aimed at strengthening its financial position and ability to innovate further. As a new company, MMRC started eating into the revenue pie of an established player like BEST! By the time BEST realized, MMRC has added improved features to gain the upper hand in the market. The goliath of BEST was hit by David MMRC, (to euphemize) and the disruption has led to strikes and unrest among the employees and financial losses to BEST! The new market disruptive innovation has been made possible due to the price with comfort and safety provided by MMRC. Further it has succeeded in separating the markets.

Criteria for identifying disruptive opportunities include the following factors as per the perspectives propounded by Christensen:

- 1) Over served market where functionality surpasses actual need
- 2) Non – consumers who would not accept lower functionality for other attributes such as better service, adherence to punctuality, price, convenience and safety
- 3) Novelty ,technology , pace complexity (NTCP) of MRTS (Aaron J. Shenar & Dov Dvir, 2007)
- 4) Leading to an innovation which would be competitive to all customers and creating a sea change in the market of urban transport services over the last three years since 2014, when BEST started feeling sick.

BEST: A Profile

The idea of a mass public transport system for Bombay was first put forward in 1865 by an American company, which applied for a license to operate a horse-drawn tramway system. Although a license was granted, the project was never realized, owing to the prevailing economic depression in the city. The end of the American Civil War, during which Bombay had made vast strides in its economy. The "Bombay Tramway Company Limited" was formally set up in 1873. After a contract was entered into between the Bombay Tramway Company, the municipality and Stearns and Kitteredge company, the Bombay Presidency enacted "The Bombay Tramways Act, 1874", under which the Company was licensed to run a Horse car tramway service in the city. On May 09, 1874, the first horse-drawn tram made its début in the city, plying on the Colaba–Pydhone via Crawford Market, and Bori Bunder to Pydhonie via Kalbadevi routes.

The mile stones of BEST are as follows:

S.No	Year (s)	Brief Description
(1)	1913 - 26	Commencement of motorised bus service by limited routes in the city
(2)	1929	Operational Losses
(3)	1934	introduced Double-decker bus
(4)	1947	Bombay Municipal Corporation acquires the transport system
(5)	1949	Acquires Bandra Bus Company
(6)	1955	Commenced operating routes in eastern suburbs in Mumbai. Case filed against private transport operators for plying buses within Mumbai city.
(7)	1964	Closure of tramways due to high operational costs and poor public support.
(8)	1974	the first company to issue computerized billing in the country
(9)	1994	Introduced electronic meters, in a move to replace the less accurate electric meters.
(10)	1995	renaming the city from Bombay to Mumbai to "Brihanmumbai Electric Supply & Transport (BEST)"
(11)	1996 -2004	Following a Supreme Court directive, BEST gradually phased out old buses and introduced new buses which comply with the Euro III pollution control standards.
(12)	2004 -2014	Introduction of cashless smart cards for automatic fare collection. With the 9/11 bombings, BEST has installed an audio-visual surveillance system (CCTV) on each of its buses to monitor suspicious behaviour on board its vehicles

BEST - A SWOT Analysis

Strengths	Weakness
<ul style="list-style-type: none"> -Established transport organization - Well maintained fleet of buses -Operating Manpower of Drivers & Conductors -Trained Maintenance Staff -Workshops & Depots located all over Urban & Suburban Mumbai -Government owned Company - Popular mode of transport - Updating of the fleet with new buses 	<ul style="list-style-type: none"> -Labour relations have become recently weak -No financial assistance from State Government /BMC -Rise in Fuel prices -Rise in prices of spares, tyres etc. -Government control on ticket fare & revenue heads



Opportunities	Threats
<ul style="list-style-type: none"> -New routes for journey cutting across Navi Mumbai , -Partnership with other agencies 	<ul style="list-style-type: none"> -Mass Rapid Transit System of MMRC -Low bank assistance towards working capital & Fixed assets -Competition posed by NMMT , VVRTC etc., -Railway System operated by CR , WR

In 1961 the fleet comprised 1045 buses. Now, BEST has a fleet of about 3600 buses. The fleet comprises single-decker diesel buses (602), CNG buses (2694), double-decker buses (122) and [JCBL] Cerita A/C buses (282). BEST currently has over 1500 environmentally friendly Compressed Natural Gas (CNG) buses on its fleet and plans to increase the number of buses. Almost all buses have two LCD TVs per bus. BEST has well maintained buses. A workshop located centrally at Dadar acts as one work centre. Its Dadar workshop has a built up area of 27,170 square meters. All kinds of overhauling, repairing of body damages, tyre cut repairs, plant and equipment installation and repairs, reclamation activities are carried out in the workshop. Six new depots were constructed for the repair and maintenance of the fleet . The Wadala depot was equipped for the maintenance of 300 buses. At this time it was the largest depot in Asia. Taking this long maintenance experience into account, BEST authorities decided that no depot should be called on to look after more than 125 to 150 buses. Accordingly, small depots were built at convenient spots in the city and its suburbs. Every depot is another work center, which provides bus services effectively on every day, carries out preventive maintenance as well as repairs on buses. Depots carry out maintenance practices such as preventive maintenance, unit replacement, RTO passing, body damage repairs of buses. BEST buses are operated out of the 26 bus depot located in four zones viz. City, Central, Western, Eastern & Suburban zones.

Route	Description
Ordinary	Ordinary routes are the most common, with buses on these routes stopping at all stops. Buses plying on these routes are identified by a white route number on a black background.
Limited	Buses on these routes stop only at important places and skip all the minor stops in between on high volume routes. They used to have a marginally higher fare and are identified by the route number in red on a white background. In 2008, the fares of Limited and ordinary buses were brought at the same level. The route number ends with LTD.
Special	These buses ply on select routes covering railway termini and the central business districts. These routes have a fare marginally higher than the 'Limited' routes and are identified by the route number in white on a red background.



Express/Corridor	These buses service long distance intra-city routes, and have fares that are the same as the Special routes, but with lesser number of stops. They have route numbers indicated in red on a yellow background. These buses do not skip the flyovers, like other buses.
BSEP	These buses ply on the new BRTS routes, which is now under Bus Services Enhancement Programme worldwide.

Modes of Revenue:

Though the BEST is a government-owned company, it does not receive any financial assistance from the BMC or the State Government. BEST also earns revenue by way of advertisements on its buses and bus-stops, and through rent from offices on owned properties. The BEST, being a public utility company, cannot increase bus fares to maximize its profits. An increase, when effected, is usually carried out to curb losses due to inflation. BMC's approval is needed before such an increase of BEST ticket fare goes into effect.

Passengers have several options to pay the fares for the bus operated by the BEST.

- Single journey (paper ticket issued by the bus conductor).
- "Daily travel as you like" pass (issued for a day).
- Bus pass (Go Mumbai Smart Card).
- Prepaid RFID Smart Card.

The fares vary depending on the type. Paper tickets are valid only for single journey. Commuters have the option to buy daily pass, distance-wise bus pass values and zonal pass. Students are eligible for discounts on monthly and quarterly passes and senior citizens for discounts on weekly, fortnightly, monthly and quarterly passes.

Single Journey Fares

Single Journey Fares are valid only for single trip between any two points. They are issued on paper ticket by the bus conductor. All fare payments must be made in cash. The fare depends on distance of the destination. Single Journey fares are not valid for transfers. Ordinary and Limited bus service have same fares.

Go Mumbai Smart Card

On January 02, 2007, BEST launched multi-application railways cum buses and 'Go Mumbai' Smart Card. But this has become out of date. Now BEST uses Prepaid RFID Smart Cards for purchasing tickets and issuing bus passes.

Distance-wise bus pass

Distance bus value pass are valid only between two destinations (on km basis) on ordinary and limited bus service. Unlimited rides and transfer are available between opted destination except for single rides. The bus passes are valid for travel between any two destinations up to a distance of maximum of 20 km.



These are issued on a RFID Smart Cards and verified by conductors using a machine. Passes are issued and renewed at all bus depots and also online through website of BEST undertaking.

Prepaid RFID Smart Card

BEST began offering prepaid RFID Smart Cards in August 2012. The card can be recharged at bus depots in multiples of 100 (max limit Rs.10000) and then can be used for purchasing tickets. BEST offers 5% bonus travel value on every recharge. This smart card is also used as an ID card for issuing one day 'as you like' travel passes (payment can be made by cash or Prepaid RFID smart card according to Passenger's wish).

Zonal Pass

Zonal passes can be purchased according to the service type. These can be used on any bus routes (Air Conditioned and non AC). Types of zonal passes available are-(1) Mumbai City Non AC- Only south Mumbai till Bandra/Sion (2) Mumbai Suburban Non AC- From Bandra/Sion till Dahisar/Mulund (3) Magic Non AC (within BMC Limit)- Entire Operational area (except Navi Mumbai, Thane, Mira road), (4) Magic Non AC (beyond BMC Limit)- Entire operational area. (5) Magic AC (within BMC Limit) (6) Magic AC (beyond BMC limit).

Among the AC buses, the "AS-4" is most popular bus with morning office goers, as it covers a distance of about 30 km from Andheri to Mantralaya in only one and half hours. The "AS-4" from Oshiwara Depot to Backbay Depot, has become the route with the highest revenue for BEST. BEST has introduced A/C Cerita services on certain routes. All are tagged with a route number and its corresponding destination. They are displayed in the front in Marathi and on the side in English. The routes operated by the BEST can be broadly classified in the following categories:

- Feeder Routes: These routes which feed the railway stations either from the residential complexes or business districts.
- East-west connectors: These are the routes, which run east/west, where railways have no role to play and connect the western suburb with the eastern suburb.
- Trunk routes: These routes run south-north through the city and are almost parallel to the railways.
- AC express routes: These route runs on western and eastern express highways, to provide faster services to the commuters.
- AC standard routes: These are air conditioned routes across the city.

The above routes are further classified into types depending on the number of stops the bus takes and type of bus used. The routes operated by the BEST can be broadly classified in the following categories. In June 2005, in order to cut costs, BEST decided to hire buses from private operators instead of procuring new buses. These buses would look the same as a regular bus, but the maintenance and salaries would be taken care of by the private operators. Passengers of all kinds used the bus transport.

The continuous proximity of both the lines from 2002 to 2008 indicates an efficient management. The average fleet utilization of 89% is remarkable achievement among Indian city bus undertakings. The bigger the gap between the two lines, lesser the supply of public



transport to citizens resulting into increased congestion on streets due to more personal vehicle usage. The average buses operated monthly versus passengers carried indicates that there has been no significant increase in passenger ridership even though bus fleet and the supply increased after 2007-08, the ridership are steady and constant, in fact declining after 2008-09. BEST undertaking increased the fleet after 2007-08 with an aim to provide better public transport service in Mumbai, as well as cater more passenger ridership, but it didn't end up into reality. From the year 2010-11 the line of actual operated buses has started dropping down. The passenger kms. offered started decreasing until 2008 after which it rose till 2011 and again dropped. While the passenger kms. performed increased until 2010 thereby having a drop. More the gap in the offered v/s performed more the lack of supply in public transport. The minimum distance between offered and performed indicates best maintenance activities carried out which improves the performance of the system. In the financial year 2014–15, the company earned Rs. 839.18 crore from its transport department. However, its transport department is expected to earn 9486.8 million with a loss of 1403.0 million. This gives it an estimated net loss of Rs. 5 million. Newer management techniques, such as retrenching of excess staff (494 till date), and the closure of less patronized routes, have reduced the losses in recent years, from a high of Rs. 1.75 billion in 2011. BEST has been facing losses in advertising revenues. Shri Anil Kokil, Chairman of BEST Managing Committee said the losses in advertising revenues due to dysfunctional bus stops ran up to Rs.35 Crore. In this regard, Anil Kokil has further said “Because of Construction, a lot of our bus stops have become dysfunctional. BEST is losing out on the revenues earlier gained through hoardings on those bus stops dysfunctional. As per reports, the cash strapped organization of BEST was sitting on losses of approximately Rs.880 Crore. (Ibid) Daily earnings from its transport system is Rs. 20 million. It collects Rs. 7 million worth of five rupee coins daily, Rs. 4.8 million worth of ten and twenty rupee notes, and Rs. 6 million worth of fifty rupee notes, through its fare collection system. This has led a unique situation wherein it has accumulated a surplus of short change. In July 2015, the company floated tender inquiries to 54 banks to exchange the loose change, which totalled 46.7 million. However, none of the banks sent in a single bid, some citing that their vaults are full, and others saying it would be unprofitable for low denominations, given security considerations.

How the Illness began for BEST?

The city's experiment with a common transport card, conceived in 2006 and implemented in 2007, has failed miserably in terms of revenue and ease of operation to the consumers. The card, launched first for BEST buses, was later extended to Central and Western Railway services and promised to be a transport card for seamless connectivity in Mumbai. While BEST conductors were provided with hand-held devices to validate the cards, Go Mumbai devices were installed at all railway stations. There were also plans to extend it to toll collection, taxis



and autos. But the dreams crashed after Kaizen Limited, the company involved in the project, failed to supply enough number of hand-held devices to check the card's validity. Another reason for its failure was that the commuters did not find it easy to use. According to railway officials, of the 37 lakh commuters who travel every day by Central Railway (CR), only 12,000 used the 'Go Mumbai' card. Of the 33 lakh commuters on Western Railway (WR), only 39 lakh consumers used it of date till July 2017. "There was a problem of machines. A lot of them were plagued with technical problems," BEST spokesperson NA Walawalkar said. On August 1, 2017 the BEST stopped issuing monthly and quarterly smart cards. Then it was the turn of the railways, which decided to discontinue them in September 2017. Asked for the reason behind the move, CR officials said the service delivery points at stations where cards were being renewed and refilled were abruptly shut down, leaving commuters in the lurch. "We have stopped issuing new Go Mumbai cards. The existing cards will remain in the market till December 28 after which the project will be shut down. As it is, it was a pilot project," a WR spokesperson said. However, according to CR officials, the State Bank of India that was the payment operator between the railways and Kaizen has expressed willingness to do the project and discussions are on between the two parties. "It may just be revived. Let's keep our fingers crossed," a CR official said.

Forget city, national transport card on its way. Top officials in the Urban Development Ministry at the Centre have said that Mumbai need not be bothered by the failure of the "Go Mumbai" card. The metropolis will soon get a new card that will be valid not only on the city's trains and buses, but also on new transit modes like the metro, monorail, fleet taxis, and even autos and toll plazas.

Design of the 'Go Mumbai' scheme is faulty: Consider a daily 'travel as you like' ticket of BEST. A passenger has to pay Rs25 and can travel on non-AC/non-express/non-corridor buses in the entire BEST operations area. If a passenger pays Rs40, then he can travel in all BEST services, except the AC services. The Go Mumbai smart card on the other hand is the most risky option. As you enter the railway station or a bus, if the smart card does not have the amount exceeding the maximum fare on the system or the bus route, it rejects validation and you have to buy ticket with cash, adding to the effort of having to go to the ticketing window, standing in queue and worse, having an amount locked in the purse that is equal to the maximum distance fare from the station or the point of boarding the bus. If while entering the railway system or the bus, you validate the entry point data on your card and while getting off, the validator malfunctions, there is a liability of losing the entire fare deducted while boarding and not getting refunded while disembarking. Since first class "Go Mumbai" card validator is separate for second and first class, any mistake can result in loss of e-money. People are reluctant. It is not surprising that the 'Go Mumbai' smart card could not find customers. All other initiatives are quite popular. One can fully travel cashless by expending money through e-purse. For this,



BEST needs to provide e-purse/cash bag with every conductor like Automatic Ticket Vending Machines (ATVM) s at every railway station.

There is a valid fear that ATVMs may not function properly and one may have to resort to standing in a queue. People have experienced malfunctioning coupon validating machines. But my personal observations are that ATVM are rarely, if ever, out of order. It takes just 20 seconds to get your ticket. (*Sudhir Badami*, urban transport analyst). When it comes to the average age of buses, BEST's fleet is the oldest at 8.4 years, though it did not report any over-aged bus in the year 2014-15. Similarly, BEST reported a low fuel efficiency of 2.84 km per litre of diesel and 2.70 km/kg of CNG. BEST has the highest staff to bus ratio of 8:4. BEST buses had the low occupancy rate of 56.17 per cent. Consequently, its staff productivity (measured in terms of number of kilometers per bus per day) has become the lowest.

The BEST is also facing existential challenges on another front: improved public transport options. From older facilities like share-an-auto services, to infrastructure projects like the Mumbai Metro and the Mumbai Monorail, to private sector offerings like app-driven private taxi services, all have taken passengers away from the BEST. "Passenger patronage has reduced by over one million passengers in the last six years, from 45 lakh passengers per day to just about 28 lakh passengers per day today," General Manager Mr. Patil says.

Travelling by public transport vehicles in India is not a pleasant experience, and for good reason. A majority of the buses run by its state road transport undertakings (SRTUs) is old, and there is a shortage of funds to replace or refurbish them. According to a government report, most SRTUs are unprofitable. Buses operated by other transport operators like Navi Mumbai Municipal Transport (NMMT), Vasai Virar Municipal Transport (VVMT) etc., also poses competition and adding to the woes of BEST.

Nobody's problem

As per budget estimates for 2017-18, the BEST's deficit will be Rs. 590 crore. The BMC, the BEST's parent body, has two looming threats of its own to deal with: the imminent burden of the GST, and that octroi, its major source of income, will soon vanish. It is unlikely that it will take on the burden of financing the BEST's deficit. BEST spokesperson Mr. Rao says that even though the BMC is sitting on bank deposits of over Rs. 60,000 crore, it still refuses to bail out the BEST. Mr. Ganacharya thinks that the BEST's parent body, the BMC, should help its undertaking, but the civic body seems to think its aid is discretionary rather than its duty. Certainly, the BMC's actions indicate it has no intention of supporting the BEST. Even when the BMC has given loans, it has levied high interest rates: its current loans to the BEST - around Rs. 1000 crore — come with a punitive 10% interest price tag. Despite being an undertaking, the BEST gets no concessions even on property taxes or octroi, or surcharges levied by the corporation. For every bus ticket purchased, the Maharashtra Government takes about 0.15 as a nutrition surcharge to fund its tribal development schemes, which amounts to Rs. 10 crore a year. But the State government has preferred to look the other way too. Further muddying the waters are allegations



that the BEST is being set up for failure. “There are strong rumours of an industrialist eyeing a takeover of the BEST,” Mr. Raja says. “Which is probably why BEST is being deliberately left out in the cold?”

Disowned by the BMC

Municipal Commissioner Shri Ajoy Mehta seems to be quite firm about not helping the BEST until it is clear how the Undertaking will spend the money. Not only has he refused to release funds, he even asked the BEST to first implement corrective measures before seeking funds. Mr. Mehta also reportedly shot down a proposal to levy 0.8% surcharge for BEST from property taxes levied in Mumbai on the grounds that “those who don’t travel by bus should not be made to pay for it.” When the BEST asked the BMC for a financial package of Rs.1, 000 crore, the civic body asked it to shape up and bring out an action plan. A senior political functionary at the BMC said, “If we help out the BEST at this stage, they will get into the habit of turning back to us for help at every given opportunity. Let them adopt and implement some corrective measures and then we shall help them out.” There is political consensus about getting the BEST to clean itself up before any aid is given. Shri Manoj Kotak, leader of the BJP in the BMC, says, “Staff payments and enrollments need to be discussed. The BMC is ready to offer help to the BEST, but there has to be accountability and transparency about spending. They cannot be allowed to just walk away or waste the money that is handed over to them.” Yet Shri . Kotak is against the BEST trying to help itself by hiking fares and optimizing routes: “There should be no tariff hike if they receive help from the municipal corporation. Also, the re-routing should not inconvenience passengers.” Shri Atul Shah, BEST committee member, says, “Services cannot be curtailed just for the benefit of the staffers. What about the inconveniences caused to the 28 lakh passengers?” Transport losses for BEST have been increasing over time and are no longer covered by profits from electricity supply. In the medium to long term BEST will have to find other sources of revenue to cover transport losses reduce costs or increase bus fares.

Case Questions;

- 1) What is Disruptive innovation? Describe in the context of BEST and its rival MMRC.
- 2) Give a quick story of BEST
- 3) What went wrong with BEST? Can you give solutions? Discuss

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