



# Designing Services as per End User Expectations

Case of City Bus System

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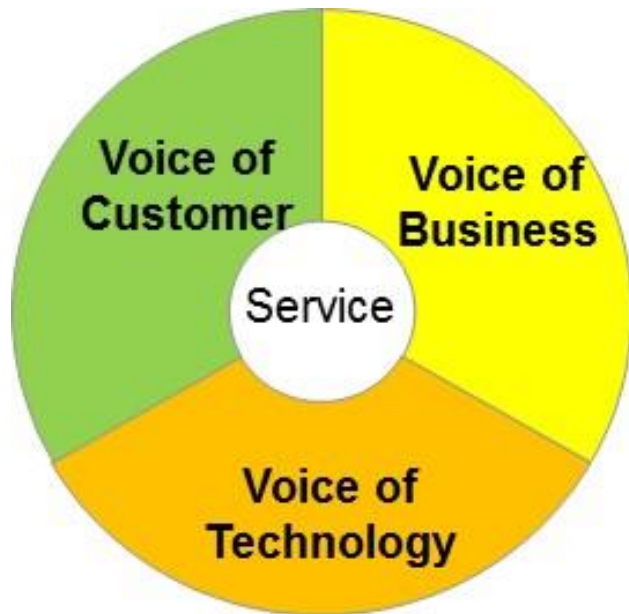
Dr. Praful Gharpure



# Setting Context

## Current Scenario

**Low / decreasing ridership for city bus services**



## The Context

**Exploring the extent of fulfilment of end user expectation in City Bus Services in Indian Cities.**

## The Issue

**The Services offered are falling short of end user expectation leading to lack of user base and subsequent impact on ROI.**

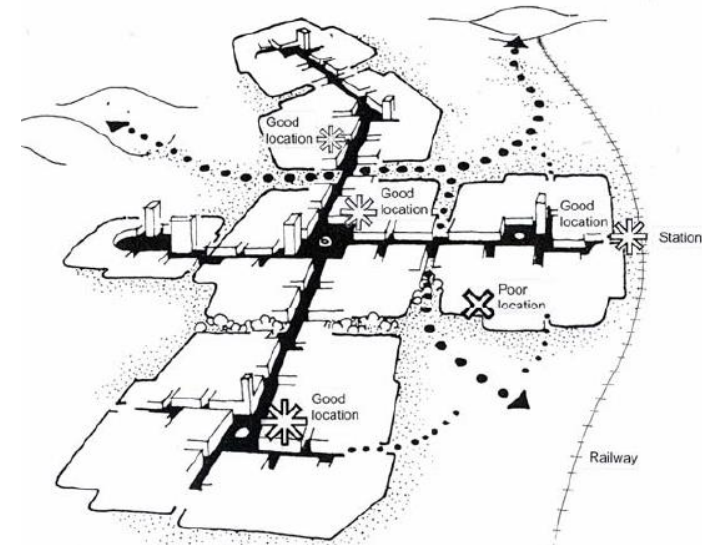
## Some insights – Bus Service

- 1. Metros rails getting developed in Indian cities are going to depend on feeder buses for their feasibility in initial phase.**
- 2. Bus services have been successful where it meets citizen expectation of punctuality , travel time saving and comfortable travel.**
- 3. Citizen are willing to pay for services at times a premium depending on quality of service.**

# End User Expectation

## Voice of Customer

- Travel Card
- Weekly/monthly/daily pass.
- Ability to order pass online.

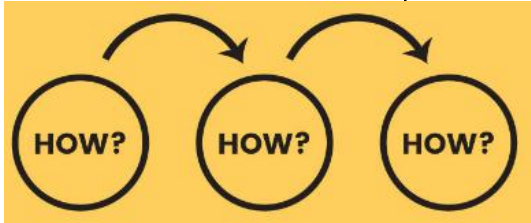


- Route list with bus timings on each stop with connecting routes.
- Location of bus stops with timetable for routes covered from the point
- Bus stops with provision of seating, roof, dust bins etc.
- Fare information chart.
- Proactive Bus delay information

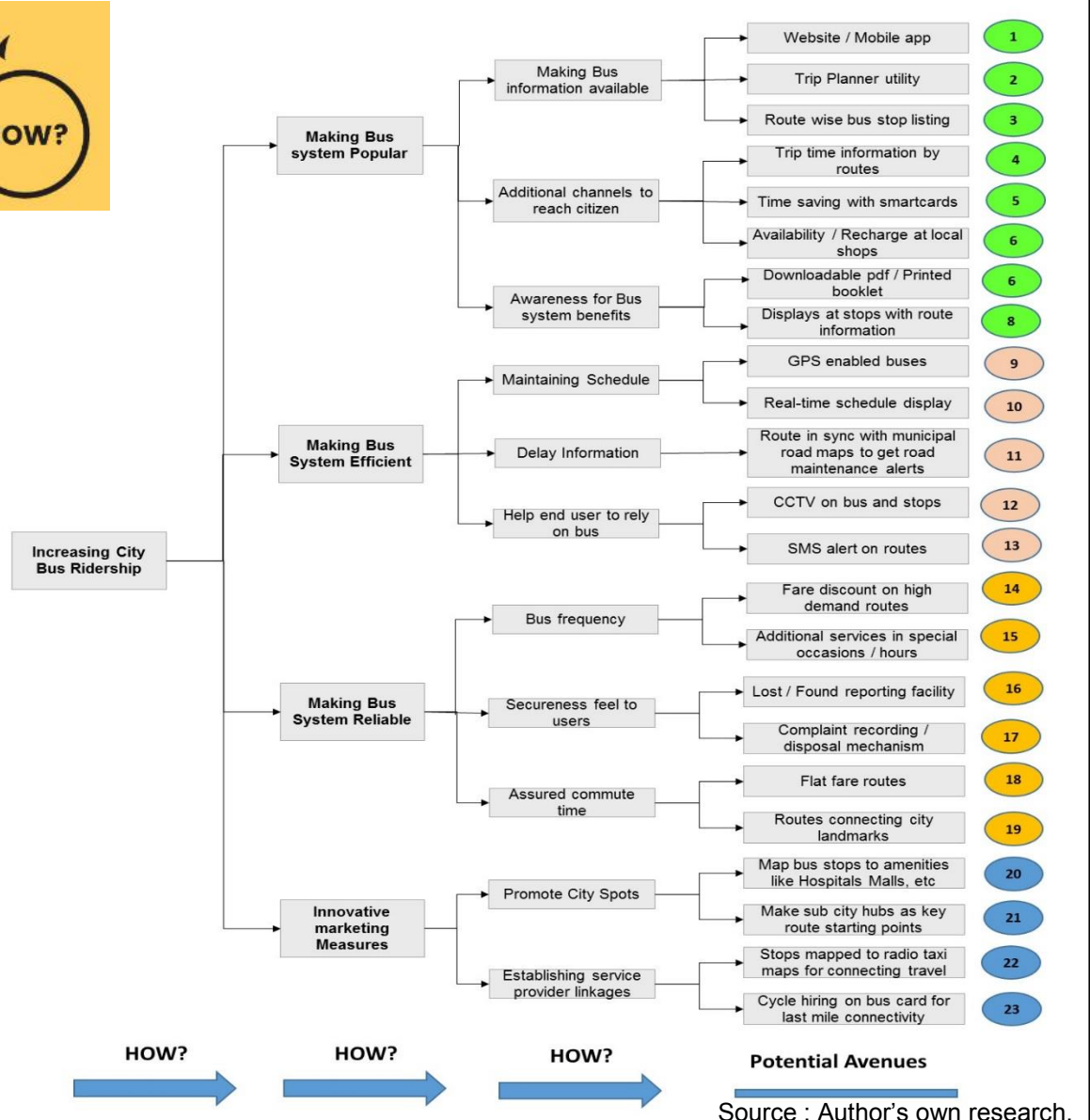


- Complaint / Feedback mechanism.
- Preventive measures for thefts / crimes on bus routes

- Information on crowded routes.
- Delay Information & real-time update.
- Need for fast commute routes linking city landmarks / office places / Central business districts

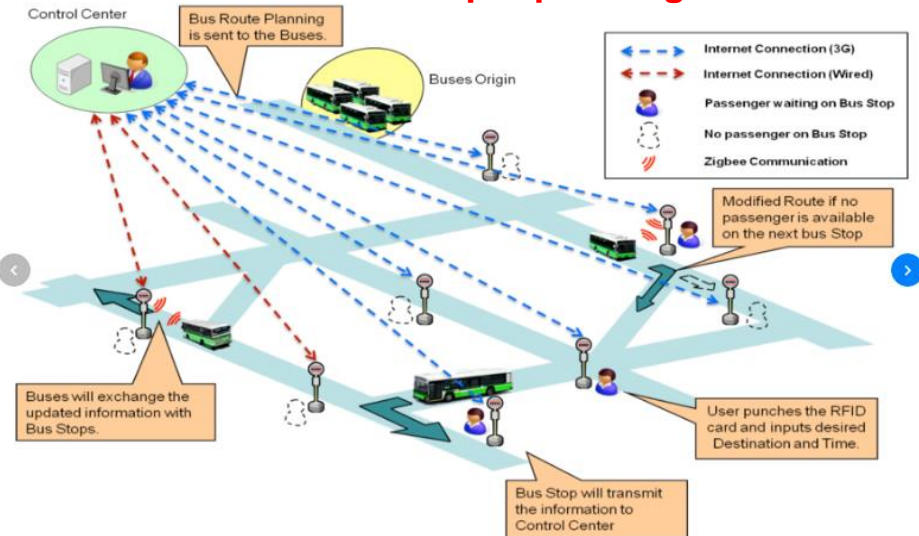


Focus Area



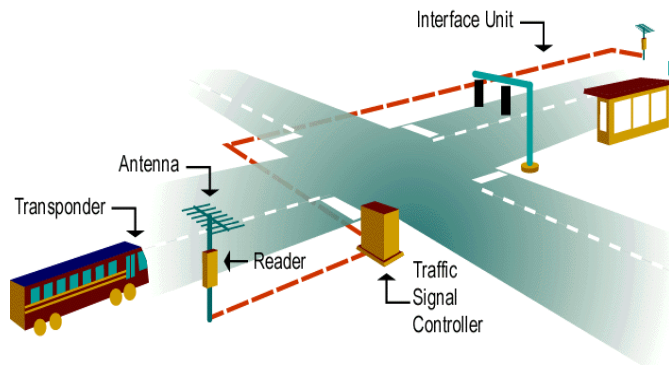
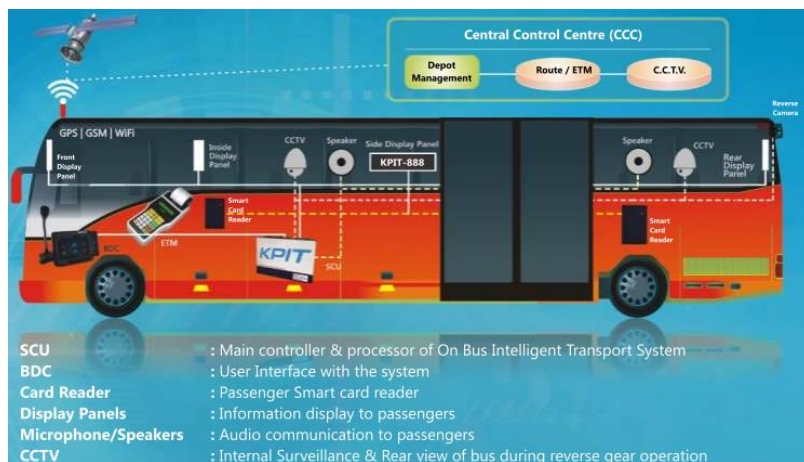


## Bus Route alteration as per passengers Volume



## Bus Stops with Information on Services

Source Paper titled -Intelligent Bus Stops in the Flexible Bus Systems  
By :Razi Iqbal\* and Muhammad Usman Ghani



Source : Product information Literature & Illustrative Images

## IOT Solutions for Bus

## Ticketing

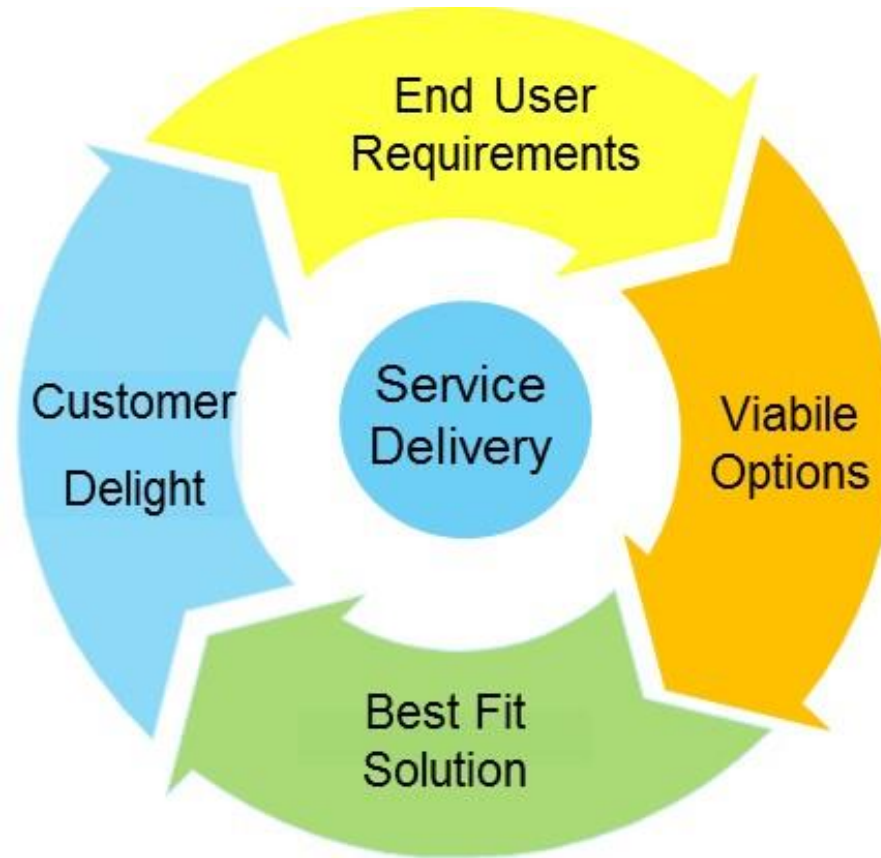
# Mapping & Prioritizing End user requirements to Potential Solutions

		How's														420	330	435	330	252	180	234	255	54	99	225	72	327	291	267	165	63	216	201	279	165	171	270	159	231
		Interactive website / Mobile app/Sms Updates	Trip Planner Utilities	Displays at bus stops / Downloadable Pdf document	Route lists with bus stop mentioning timings / delays	CCTV on Buses	GPS enabled on buses for real time location mapping	Online ordering of smartcard pass	Service catalogue for information dissemination	Card pass sale / Recharge points in local shops / onboard buses / over internet	Routes mapped to Municipality road network for synchronization of road works	MIS for key indicators like highly in demand route identification .	Busstop mapping to linkradio taxi as connecting option	Special routes for offices / enroute city amenities like Malls , Hospitals, Tourist places	Customer services like - complaint logging facility , Lost & Found reporting etc.																									
		Measures																																						
Customer Expectations - Warts	Easy access to bus route details	5	9	9	9	9	0	9	3	9	3	6	6	6	6	0	420	Customer Importance Rating	5	9	9	9	3	0	3	3	9	0	6	3	3	9	0	330	Relationship Totals					
	Availability of list of bus stops	5	9	9	9	6	0	6	9	9	3	3	6	9	9	0	435																							
	Information on connecting routes	5	6	9	9	3	0	3	9	9	3	3	3	3	6	0	330																							
	Distance & Fare information	3	9	9	9	9	0	9	3	9	3	6	9	3	6	0	252																							
	Information on bus timings	3	9	9	3	3	0	9	0	3	0	9	9	3	3	0	180																							
	Bus delay information	3	9	9	3	3	6	6	0	3	3	9	9	6	9	3	234																							
	Information on crowded routes	5	6	3	3	0	0	0	9	9	9	0	9	0	3	0	255																							
	Facility for day /week/month fare pass	1	9	6	3	6	0	9	0	0	0	9	9	0	3	0	54																							
	Road repair related diversions	3	0	3	0	3	0	0	9	3	9	0	0	3	3	0	99																							
	Options for avoiding cash dealing onboard bus	5	3	0	3	0	9	6	0	0	6	0	9	0	0	9	225																							
	Preventing theft / crime on bus / routes	3	9	0	3	0	0	0	0	0	0	0	0	3	0	9	72																							
	Expect my request to be resolved the first time																																							
		How Important																																						
<p><b>Importance Ratings</b> 5 - High 3 - Medium 1 - Low</p> <p><b>What's - How Relationship</b> 9 - Strong 6 - Moderate 3 - Weak 0 - No relationship</p>																																								

# Extent of Fulfilment of End user Requirements in Existing Systems

City	Interactive Map / Mobile App / Website	Trip Planner Utility	Displays at busstops / Downloadable pdf document	Route lists with bus stops mentioning timings / delays	CCTV on buses / bus stops	GPS enabled buses for location mapping	Online ordering of smartcard pass	Service catalogue for information dissicimination	Card pass sale / recharge at local shops / onboard buses / over internet	Routes mapped to municipal roads network for synchronization with repair works	MIS for key indicators like highly in demand route identification	Busstop mapping to link radio taxi as connecting options	Mapping enroute city amenetied like malls , hospitals,tourist places etc	Customer services like - complaint logging facility , lost & found etc.	Over All Ranking
	Measures														
Ahmedabad	Green	Yellow	Orange	Orange	Orange	Yellow	Orange	Yellow	Yellow	Red	Orange	Red	Orange	Yellow	Blue
Bangalore	Orange	Yellow	Yellow	Orange	Orange	Yellow	Yellow	Yellow	Orange	Red	Yellow	Red	Red	Red	Blue
Chennai	Green	Orange	Orange	Orange	Red	Yellow	Red	Yellow	Yellow	Red	Red	Red	Orange	Yellow	Blue
Delhi	Yellow	Orange	Orange	Orange	Orange	Yellow	Yellow	Yellow	Yellow	Red	Red	Red	Orange	Yellow	Blue
Indore	Yellow	Yellow	Orange	Green	Orange	Orange	Orange	Orange	Yellow	Red	Red	Red	Yellow	Orange	Blue
Kolkata	Yellow	Yellow	Orange	Green	Orange	Yellow	Red	Yellow	Yellow	Red	Yellow	Red	Red	Yellow	Blue
Mumbai	Orange	Orange	Orange	Orange	Orange	Yellow	Yellow	Yellow	Yellow	Red	Red	Red	Red	Yellow	Blue
Pune	Green	Green	Green	Orange	Orange	Yellow	Green	Orange	Orange	Red	Yellow	Red	Orange	Green	Orange
Surat	Green	Green	Green	Green	Orange	Orange	Orange	Orange	Orange	Red	Red	Orange	Red	Green	Orange
Incentive Ranking Criteria															
Yet to Start	Initiative on plan but not implemented														
Infancy	Available in static form , enhancemend desired														
Evolving	Partially available with enhancement for ease of use needed.														
Matured	Stable and userfriendly feature. Potential to scaleup to high standard.														
Overall Ranking is based on cumulative scores for offering															

# Inferences of Study



**For Effective Service Delivery - Equilibrium is needed amongst**

- **Customer Needs**
- **Business Needs**
- **Optimal Technology Usage**



# Thank You

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