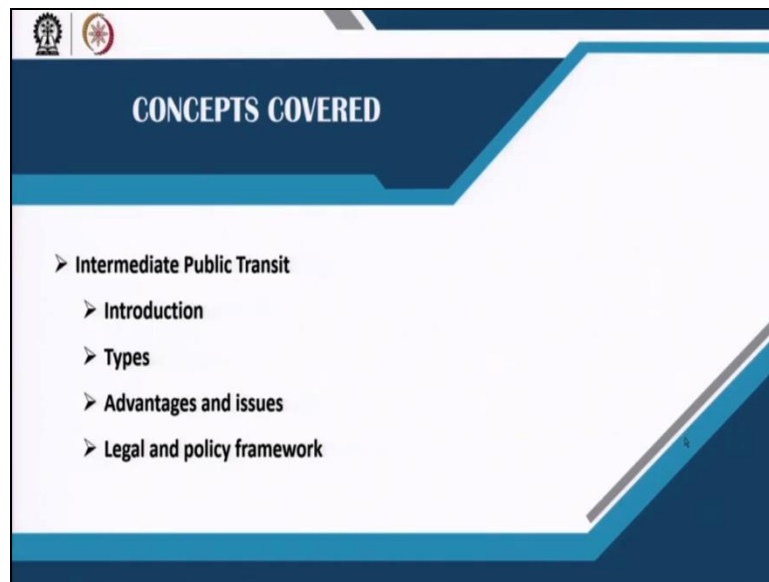


Introduction to Multimodal Urban Transportation System (MUTS)
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Module No # 03
Lecture No # 14
Public Transportation: Intermediate Public Transportation

Welcome back friends, now that we have looked at 2 different types of public transportation systems, that are buses and urban rail, let us now introduce you to another more popular mode of public transportation systems, but which we often call an intermediate public transportation system.

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So what are intermediate public transportation systems? What are their different types? When can intermediate public transit or IPT be advantageous, and when they can harm the public transportation system? We will be looking at that and also give you an overview of the legal and policy frameworks under which the IPT works.

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Intermediate Public Transportation (IPT)

Introduction

- Intermediate Public Transport (IPT), sometimes known as **paratransit**, refers to road vehicles used on hire for flexible passenger transportation.
- IPT may have fixed routes or may follow on demand routes depending upon the type of demand.
- IPT are usually dominant mode of transportation in developing or underdeveloped countries, especially where the PT network is not sufficient.



Source: www.newstration.in



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So when we talk about intermediate public transport, what we are trying to say is, we are talking about those types of services that connect you to the larger public transport system in your city. They can also be called para-transit, essentially these are the auto rickshaws, cycle rickshaws, or even sometimes taxis, or Ola, Uber or Van pools, Car pools, etc. that will take you from your origin to your larger public transportation network in your city.

So these IPTs are meant to act as a bridge to connect you to the larger metro, or public transportation system in your city. However, we have also seen, especially in the Indian context, that when a urban area does not have a public transportation system or where public transportation system is not viable, because of several reasons, IPT usually is the only public transportation system that is available in your urban area.


You may have come across shared auto rickshaw systems in many of the towns and smaller cities that you may have visited, where they almost act like a minibus, where there are different people sharing the same auto rickshaws and are going to different destinations along a fixed route. So we will look at how these different forms of IPT work, and when are they beneficial and when are they not so beneficial for the city.

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Intermediate Public Transportation (IPT)

Introduction

- IPT include cycle rickshaw, auto rickshaw, taxis, minibus, carpools, e-rickshaws, chakdas, etc.
- IPT includes all modes which provide a transport service for a price, filling the gap between private transport and conventional bus transport.
- It caters to the excess demand for the transportation services in urban area.



Source: www.myroyalfield.blogspot.com



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So when we say IPT we include everything that provides you access, for example, cycle rickshaw, auto rickshaw, taxis, minibus, car pools or even the new e-rickshaws that are currently available in many cities. IPT usually caters to the excess demand for transportation services in the urban area. So sometimes what happens is the demand is such that it is not being met by the public transportation system that is there but at the same time it is not financially viable to increase the access or improve the public transportation system.

So it is not yet viable to have another metro line in your city but you can already see that the demand for the existing metro line has been surpassed, so during such times IPT becomes very important, where they are now almost supplementing your existing public transportation system in your city. This has also been noticed in many cases, especially in India.

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Intermediate Public Transportation (IPT)

Introduction

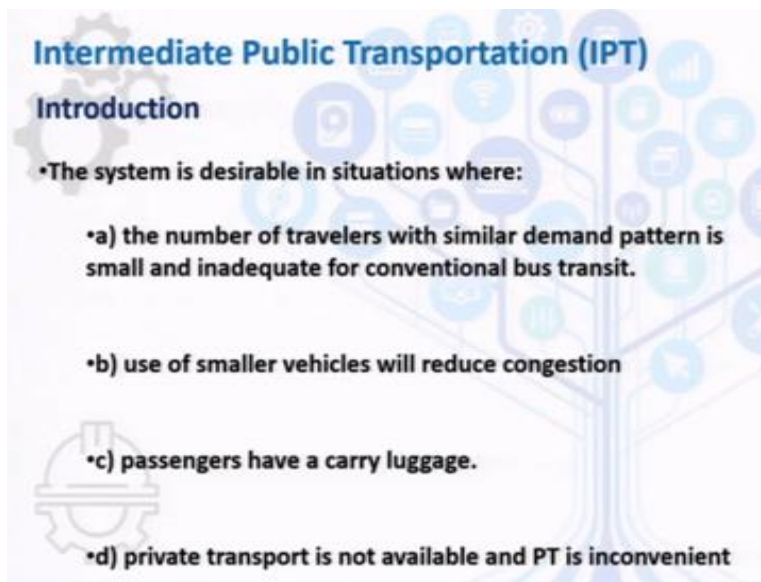
S.No.	Criterion	Public transport	Intermediate transport		public transport	Private transport
			Auto-rickshaws	Tempos (shared)		
1.	Fixed Route	✓	×	✓		×
2.	Fixed Schedule	✓	×	×		×
3.	Fixed Fare	✓	May/may not	May/ may not		×
4.	User -one among many/access to all	Accessible to all	For personal trip	Accessible to all		For personal trip

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If you compare them to public transport systems, they are usually more flexible, both route wise and schedule wise. So you can hire a taxi to go anywhere, anytime, they do not run on any fixed schedules, they can run on your schedule, usually their fares are little bit higher than public transportation systems, which almost always have some fixed fares, based on a distance, so on and so forth.

So many cases you get the flexibility with your IPT but you might have to pay higher fare and sometimes we may also see that IPT is acting very similar to a public transportation system, especially when IPT also allows a vehicle to be shared by multiple people, so that is when they resemble a public transportation system.

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The IPT system is desirable under several circumstances, but if you look at it from a policy perspective or a very high level perspective, you can say that the number of travelers with similar demand pattern is small and inadequate for conventional bus transit. So when the demand is very less what happens is a bus transport system becomes financially not viable.

We have already looked at how bus transport revenues are collected, how they can be generated through transit marketing, so despite those strategies, even if then your bus transport system is not financially viable, in those cases IPT becomes the only alternative for your city. Alternately the use of smaller vehicles will reduce congestion as well. So if your streets are very narrow especially in smaller towns, where you do not have wider roads and if you have buses or at least the new generation buses that are much wider and longer and require a large turning radius, that may not be very feasible for your city or for your small town, so in these cases also you will see that these smaller vehicles or the smaller IPT vehicles becomes very popular. Usually they are always cater to people who are carrying some kind of luggage. So that becomes almost like your private taxi. Any IPT, any auto rickshaw, or any taxi allows you to have a space to put your luggage and hence people always prefer them, while they are going to their destination.

And if the private transport is not available and PT is inconvenient, so if you do not own any vehicle or not in a position to own a vehicle and public transport is too few buses per hour or there is no metro or the metro is too far from your house, in such cases IPT also becomes a very important and starts playing a major role in the public transportation system of your city.

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The slide is titled "Intermediate Public Transportation (IPT)" and lists the following features:

- The features of IPT include the following:
- First and last mile connectivity
- Door-to door service
- Flexibility

The slide also features a photograph of an auto rickshaw parked in front of a yellow building with a red door. A small inset image shows a man speaking. The slide footer includes the NPTEL logo and the text "NPTEL Online Certification Courses IIT Kharagpur".

It does provide the first mile and the last mile connectivity and hence they are becoming very popular. The auto rickshaws will take you from your door to the destination door, whereas fixed route public transportation systems, i.e. your buses, do not provide that last mile connectivity. So IPT as a genre started becoming very popular because of this facility that it provides, i.e. it provides door to door facility, it is flexible, so you can avail it anytime you want to avail it.


So that allows you to not own a vehicle as well. So your cost of owning a vehicle goes down as well, but your flexibility remains. So with the biggest advantage of owning a vehicle is the flexibility that you get. Now if the same amount of flexibility is being provided to you by the intermediate public transport system or the IPT, then you are saving on the cost or the capital cost of buying a private vehicle yourself. So those are some of the advantages of an IPT system.

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Intermediate Public Transportation (IPT)

Classification

- The IPT services can be under two broad classifications, i.e. **Contract carriages** and **informal public transportation** (bus-like).
- Contract carriages refers to services provided by the vehicles in a predefined manner in terms of origin and destination with intermediate stops.
- Informal public transportation services refer to services of intermittent nature provided with complete flexibility in respect of origin, destination and even route.

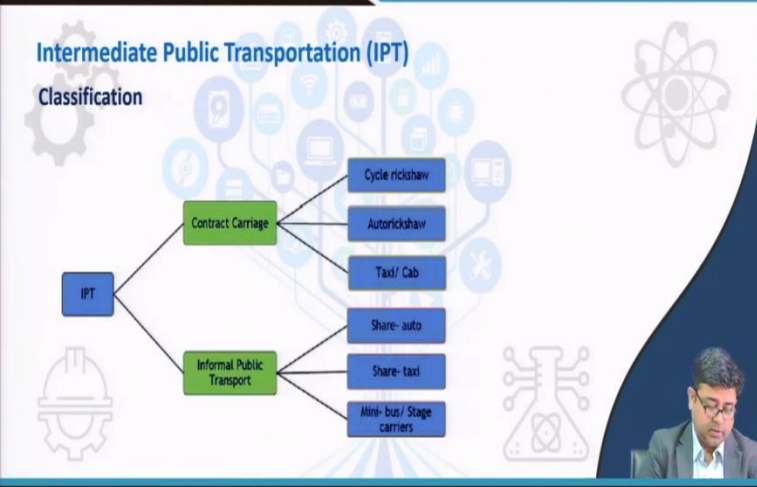


There are 2 broad classification of IPT system, if you can look at it in that way, one are contract carriages and one are more informal public transportation which look like, feel like a bus system, but really is not a bus system. It is not a part of your entire city network they are only in pockets and certain parts of cities or they are contract carriage like your rickshaws, auto rickshaw or cycle rickshaws.

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Intermediate Public Transportation (IPT)

Classification



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graph LR
    IPT[IPT] --> CC[Contract Carriage]
    IPT --> IPT2[Informal Public Transport]
    CC --> CR[Cycle rickshaw]
    CC --> AR[Autorickshaw]
    CC --> TC[Taxi/ Cab]
    IPT2 --> SA[Share- auto]
    IPT2 --> ST[Share- taxi]
    IPT2 --> MBS[Mini- bus/ Stage carriers]
  
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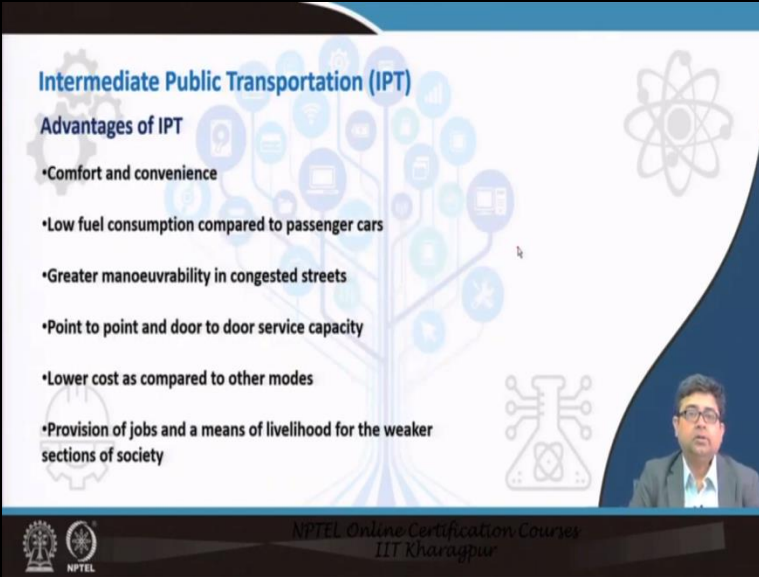


So this gives you an idea of what we are talking about. So for example, if we are talking about contract carriages, your cycle rickshaws and cabs whereas if you are talking about informal public transport, wherever you are sharing something it becomes something of an informal public

transport. In many cities you would see that you can share autos, there are share taxis, even the new Ola, Uber services you can ride with the others to save cost, so that is those kind of category, those kind of vehicles, those kind of services will come under the informal public transport category of IPT.

Otherwise you have your for-hire vehicles, so these mostly can be used as a private vehicle. You can just hire a cycle rickshaw for wherever you want to go, so you are not sharing it with anybody, you can hire auto rickshaw, and you can hire a taxi or a cab.

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The slide is titled "Intermediate Public Transportation (IPT)" and lists several advantages. It features a background graphic of a tree with various icons representing different modes of transport and services. A small video inset shows a man speaking. The slide is part of an NPTEL Online Certification Course from IIT Kharagpur.

Intermediate Public Transportation (IPT)

Advantages of IPT

- Comfort and convenience
- Low fuel consumption compared to passenger cars
- Greater manoeuvrability in congested streets
- Point to point and door to door service capacity
- Lower cost as compared to other modes
- Provision of jobs and a means of livelihood for the weaker sections of society

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So the advantages of IPT are manifold, you can have comfort and convenience that was otherwise being offered by your own private vehicle. Now, you can get it through the use of a IPT, low fuel consumption when compared to passenger cars, greater maneuverability especially in congested streets, so we will see how that sometimes can be, can have a negative connotation as well.


But you must be very well aware of how auto rickshaws especially can maneuver through the traffic in congested streets. Of course, they provide the door to door service, and the cost is, especially if you are sharing the public transport vehicle, usually much less than your larger citywide public transportation system. And of course, it is a means of livelihood and it provides the opportunity to sustain families in different parts of cities.

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Intermediate Public Transportation (IPT)

Issues in IPT

- There is no credibility for behaviour of Auto drivers
- There is no accountability by Auto owners
- There is no security for women, especially in late night operations
- In many autos, fare meters are tampered
- Many Auto drivers "refuse to come" when passengers want to go to a particular place



Source: www.indiatoday.in



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However, there are issues with intermediate public transportation. The major issues is the behavior of the auto drivers, especially times when they reject trips, which has become a major issue in many cities across India. They would not want to go to a certain area to drop you off because they know that they may not get a person for the trip back from there. So it is the demand, i.e. if your city or if your destination is in an area which has lower demand for them, they would reject the trip and then that leaves you in a dilemma or that leaves you in a situation where you are left with no alternative, but to use your own private transport, use your own car or 2 wheeler. There is no accountability many times, you see poorly maintained auto rickshaws, and sometimes when the auto rickshaws are being shared, you see that there are too many people sitting in an auto rickshaw. There are efforts being made to improve accountability, but that is a lacking in many cities across the country, night operations and security for women are an issue.

And in many autos what you notice is that the fare meters are tempered with so how do you have better enforcement of fares while using auto rickshaws, that is being also looked into and we have already talked to talk about the refusal part.

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Intermediate Public Transportation (IPT)

Acts and regulations

- The existing Central Motor Vehicle Act 1988 identify the Regional Transport Authority (RTA).
- RTAs are primarily responsible as a registering authority for all vehicles including IPT vehicles.
- However, there is no institution that can enforce the various duties and responsibilities related to motor vehicles.

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When we look at the issues, we then try to look at what are the acts and regulations that can help solve this issues. The existing Central motor vehicle act of 1998 identifies any regional transport authority. They are responsible for registering all the IPT vehicles however they cannot enforce to various duties and responsibilities related to motor vehicles. So they can only register them but the behavior and are the operations of the IPT vehicles are not being enforced by many of these acts.

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Intermediate Public Transportation (IPT)

Acts and regulations

•The act does not detail:

- the method for fixing the routes and fares
- use of modern technologies to improve performance of IPT vehicles
- mode of financing the vehicles
- improvement of socioeconomic conditions of drivers, etc.

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They do not detail the method of fixing routes and fares. This is one of the major issues with hailing taxis or auto rickshaws is because of the different fares that they can ask, or even

rejecting the use of a meter. Many times we have experienced that they would not go by meter and they would just charge a flat fare. So there is no way or no mechanism in place that can regulate all of those things.

There should be acts that also incorporate the modern technologies of tracking where you are, so now in many cities in auto rickshaws are coming into the fold of the transport network companies TNC's or the Ola, Uber so you have Uber autos or Ola autos where now you can actually know beforehand, what is it going to cost? And also where the auto rickshaw is? And from the security point of view you can inform your friends and family where you are.

The act does not cover how to finance those vehicles and also how to improve, obviously how to improve the social economic conditions of the drivers is also not being looked at.

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The slide is titled "Intermediate Public Transportation (IPT) Permits". It contains the following text:

- It has been also observed that the permit system in India is of two types
- 1) Open permit system, with no cap on the number of permits issued
- 2) Closed permit system, where there is a cap on permits
- However, the cap on the number of IPT vehicles is ad hoc, resulting in many unauthorized vehicles operating in cities

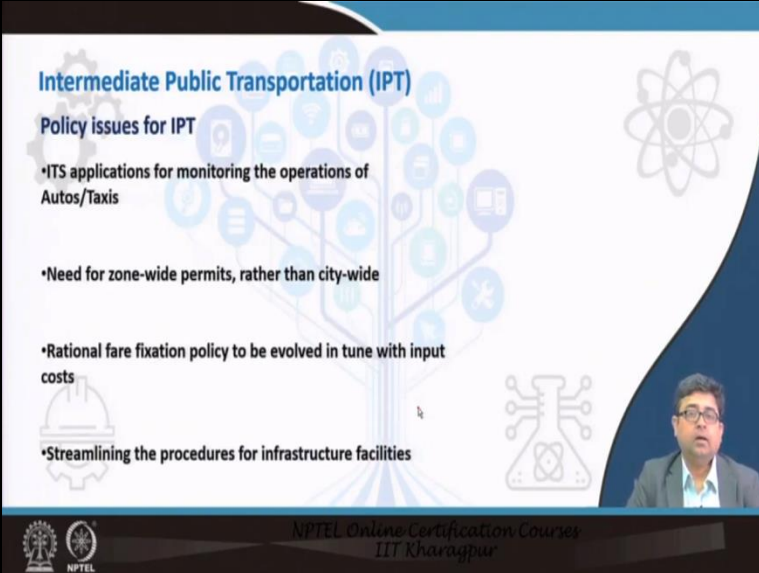
The slide features a background with a tree-like structure of icons representing various transport modes. A small inset video shows a man speaking. At the bottom, there are logos for NPTEL and IIT Kharagpur, along with the text "NPTEL Online Certification Course IIT Kharagpur".

It has been also observed the permit system in India usually is of open permit system or a closed permit system where there is a cap in the number of permits but when it comes to IPT vehicles, the permitting is very adhoc. And there is no limitation of the number of registered IPT vehicle in any of the cities and that in many times causes a conflict with the existing public transportation systems as well where now the ridership of public transportation systems in some of the cities are declining whereas the usage of IPT systems is increasing.

So many urban transport planners are worried with the situation, saying that whether IPT system should only act as feeders to the public transportation system or whether they should be a parallel public transportation system in themselves. So if they are a parallel public transportation system, then they are now competing against the existing a bus network or a metro network whereas if they are feeding to it them they are acting for a different purpose.

So should they be complementing the larger public transportation system or should they be supplementing and competing with them, is something that many urban cities or many urban locations are already dealing with.

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The slide is titled "Intermediate Public Transportation (IPT)" and lists "Policy issues for IPT". The background features a stylized tree with various icons in its branches, a gear icon, and a molecular structure icon. A small video inset of a speaker is visible in the bottom right corner of the slide.

- ITS applications for monitoring the operations of Autos/Taxis
- Need for zone-wide permits, rather than city-wide
- Rational fare fixation policy to be evolved in tune with input costs
- Streamlining the procedures for infrastructure facilities

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When you look at some of the policy issues for IPT, like we have already mentioned, there are several ITS applications now that will allow you to track especially if they are registered or if they are a part of any of the transport network companies such as Ola or Uber. So that allows you better security. There is a need for zone wide permit rather than city wide. Certain IPT, if they have city wide permits, then they become more like a public transportation system itself.

So now you can take it from and one part of city to other, so they are almost supplementing the public transportation system rather than feeding it to it. But if there are only the regional permits given or zonal permits are given, then they are more likely to be feeding to the larger public transportation system. There should be a rational fare fixation policy, it cannot be that in night

hours they can charge whatever they want to or when they are travelling to a destination which has lower in demand, and they can charge higher fees.

So there has to be, you have to have some kind of fare fixation policy. This is a bigger debate, i.e. it is also going on when you talk about in your Ola, Uber systems, when they ask for a surcharge or when there is a surge pricing, how do you control? Or how do you put a cap on the maximum amount that can be charged? That is also being debated under this umbrella of fare fixation policy and there has to be procedures for providing particular infrastructure facilities for them as well.

Especially having a proper auto stands or rickshaw stands near a larger public transportation hubs is very essential in order to allow the traffic to flow in an unimpeded way and not allowing people to hail the services from different points, but to have specific points so that the flow of vehicles along the roads are not affected.

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The slide is titled "Intermediate Public Transportation (IPT) Policy issues for IPT". It features a background graphic of a tree with various icons representing different aspects of transportation and technology. The text on the slide is as follows:

- Streamlining the procedures for infrastructure facilities
- Designing organization structure for monitoring operations
- Public information about IPT system
- Integration of IPT with other modes
- Making IPT business commercially viable and prescribing entry restrictions

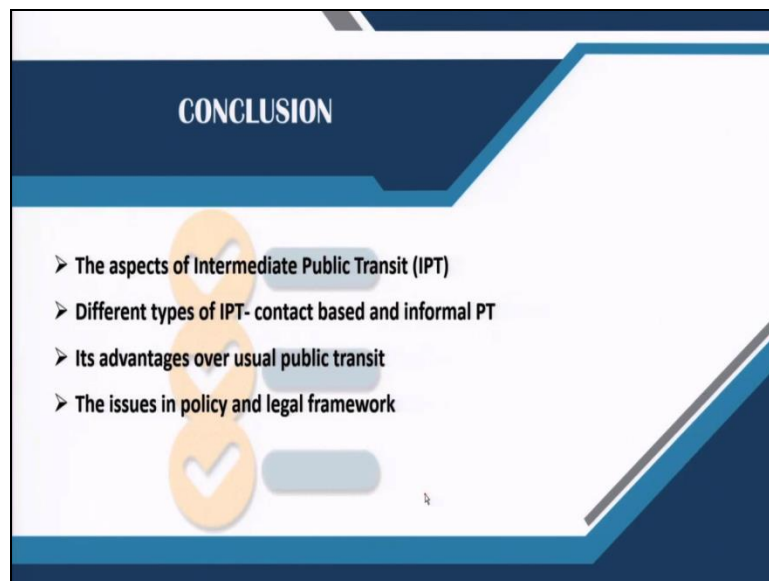
At the bottom of the slide, there are logos for NPTEL and IIT Kharagpur, along with the text "NPTEL Online Certification Courses IIT Kharagpur". A small inset image of a man in a suit is visible in the bottom right corner of the slide.

Procedures, which we have already looked at, are designing organizations structure for monitoring operations. So you see due to the lack of monitoring their operations you often find that there are lots of conflicts between a user and the driver. There are lot of conflicts that take place and the user feels that there is nobody that he or she can approach in order to solve the conflict because there are not enough monitoring agencies that are available.

Information about IPT systems, we have already looked at, more mobile apps are required, and also integration with other modes. So if they are acting as a feeder system to the larger public transportation systems, they have to be integrated with them. So when you get off from a metro station you have to make sure that there are sufficient number of auto rickshaws at the stand so that you can then have a seamless multimodal journey rather than get off a metro station and then you have to wait for 10-20 minutes, that adds to your travel time, and then many times you are reluctant to use the public transportation system.

So IPT has to be integrated with the existing public transportation systems. And of course, they have to be commercially viable. You just cannot keep on increasing the number of registrations of these IPT vehicles. Because then the revenues collected per vehicle goes down and then because it is a means of livelihood for many small business owners or many people who are not very wealthy, in order to keep their revenues intact, we have to look at how to keep them all commercially viable.

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So that was a quick overview of all the IPT systems. Although we look at them as very individual systems that are running on our transport network but they play a very important role. Especially if they are feeding to the larger public transportation system in your city, it provides the last mile connectivity and helps in the ridership of the large public transportation systems. Sometimes when there is a lack of public transport availability in your city, IPT systems can work as an alternative to public transportation system. Thank you very much for your attention.