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Tuesday, 17 July 2018

EVIDENCE FROM COMMUNITY FOR ROAD SAFETY REPRESENTATIVE:

MR KWONG TSE HIN, JULIAN (continued)

(10.00 am)

CHAIRMAN: Good morning.

Mr Kwong, I will ask Ms Wong to resume her questioning on behalf of the Committee.

EXAMINATION BY MS WONG (continued)

MS MAGGIE WONG: Yes. Thank you, Mr Kwong, for coming today.

Yesterday we were on documents concerning the KMB renewal of licence documentation. We are going to continue with this exercise.

If I may refer you back to the document, MISC-2. Page 770. It is your submission in response to the public consultation, dated 16 June 2016. We were on page 773 yesterday.

At the section on recommendations, the first bullet, about incorporating into franchise requirement the requirement to set up a comprehensive standard and driver monitoring system using the installed black boxes.

And can I ask, why do you propose including this as a requirement in the franchise agreement?

MR JULIAN KWONG: Chairman, at that time I thought the

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renewal of the franchise would be a very good opportunity for the introduction of any new ideas, and that is why we had made an effort to make as many suggestions as possible in as far as they are reasonably feasible. Thank you.

MS MAGGIE WONG: The point of this is that if it is included in the agreement there can be some sort of mechanism to monitor their compliance. Is that the logic behind the suggestion?

MR JULIAN KWONG: Chairman, yes. I think so. That would also represent -- I would it see as progress. Certainly the bus companies and the government has been making an effort to make bus operation in Hong Kong safe, and we are appreciative of that. But we are not satisfied at any point as long as there are injuries, especially serious injuries and fatalities. So we are always trying to push something which we see as major progress. Thank you.

MS MAGGIE WONG: You suggested in the second bullet, "Key monitoring controls". Who would you suggest this monitoring be done by? Done by whom?

MR JULIAN KWONG: Similar to an operation like this, usually I would assume that would be the bus companies initiating the monitoring system, but the government acting as a regulatory body.

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MS MAGGIE WONG: Yes. And you made quite a number of suggestions there. We have gone through the acceleration and deceleration characteristics yesterday, and you make other suggestions concerning speeding through risky hilly roads, and you suggest certain km per hour. Are you suggesting this suggestion be put into the franchise agreement, or it was simply a suggestion that the government should keep control about all these roads?

MR JULIAN KWONG: Chairman, about this specific recommendation, that is the principle, that if we identify certain road sections with exceptional risk, which I would call critical sections, then the logical way would be to specify certain speed, whether it is 25, 30, or 40, through these sections, and make these known to drivers, and because we want to control the safety of these critical sections.

In this recommendation I did not specify which sections, but I am trying to introduce this concept, that they cannot just follow the legal speed limit when we are talking about these critical sections. Thank you.

CHAIRMAN: Who should identify the critical sections?

MR JULIAN KWONG: Chairman, I think that should be identified probably between government and the bus

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companies, and also with the help of experts. Thank you.

MS MAGGIE WONG: And the third suggestion --

CHAIRMAN: Sorry. How would this be then regulated by government, if the bus companies identified particular sections of road, they told government, government agreed, and how would this be then monitored and, more importantly, how would it then be regulated?

MR JULIAN KWONG: Chairman, I think, without going into a sophisticated monitoring system, if we are trying to go back to the basics, that would be, first, issue a notice to drivers riding on a particular route which critical sections they should pay particular attention to and what speed they are using. And secondly, they can have their inspectorate to check it, to check drivers from time to time, but of course we are trying to introduce a more sophisticated monitoring system that would be based on the black box data, and then preferably integrated with the GPS so that drivers grossly exceeding the said requirements will be identified automatically and in time.

CHAIRMAN: So the monitoring, rather than using an inspectorate, which is an old-fashioned way of doing it, is it not, would be done by real-time automated reports?

MR JULIAN KWONG: Chairman, yes. That would be recommended.

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As far as the technology permits.
CHAIRMAN: That's what you had in mind with these recommendations?
MR JULIAN KWONG: Chairman, yes. That is the case.
MS MAGGIE WONG: In the third bullet you made the recommendation:
"Through systematic and targeted safety training, drivers, should be trained to understand typical accidents scenarios and specific risks."
Who would you suggest to carry out this recommendation?
MR JULIAN KWONG: Chairman, this is a general recommendation. Of course that would need the initiative of government, and possibly inviting experts to join, and organisations such as ours would always be happy to assist government. For this particular point, my original thinking is that drivers may not be entirely aware of what accidents may happen. As I explained yesterday, it is not reasonable -- I mean, at this moment, that drivers know what the capacity of the safety barrier is, or that they understand what speed an elderly pedestrian can tolerate without having serious injuries or fatalities, but we can always translate such information or such knowledge into a simple way, and to make drivers far more aware, so that they know why and

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how they can behave better. Thank you.
MS MAGGIE WONG: At 4.4 you set out a vehicle performance using the Canadian Transit Handbook, with certain guidelines or thresholds set out. Can you explain why you used the Canadian Transit Handbook in the first place, suggesting desirable rates for standard bus and articulated bus?
MR JULIAN KWONG: Chairman, this is one of the handbooks which I obtained with the information of interest to me. As I mentioned, abrupt acceleration and deceleration could be a major factor contributing to the large number of passengers losing balance inside the bus. We also know that the design of the metro, of the MTR, has also some parameters relating to acceleration and deceleration, in order that passengers will not easily lose balance. So that is the same case for buses.
And I see that these parameters are quite reasonable. You may want to refer to the deceleration for emergency condition, as I mentioned. It is specified as 2.7 metres per second squared. As you can see, that is much smaller than the 7 metres per second squared I mentioned yesterday for emergency braking of a passenger car.
The dilemma we are facing is that if a bus driver has to apply the brake in an emergency, in order not to

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knock down a pedestrian, he has to decide that very quickly. And whether he would rather have the passengers losing balance, or to protect the pedestrian from being knocked down.
And I think that overall, worldwide, acceleration rate and deceleration rates have been accepted as an important parameter for safety for bus operation.
Thank you.
CHAIRMAN: What are the parameters set in the MTR for acceleration and deceleration?
MR JULIAN KWONG: Normally, Chairman, that would be in the order of 1.15 metres per second squared. There may be some deviation.
CHAIRMAN: Thank you.
MS MAGGIE WONG: And may I just refer you -- because you talked about this deceleration and acceleration rates. Can I take you to BM-1 bundle, page 66.
CHAIRMAN: What are we going to?
MS MAGGIE WONG: This is the submission of the black box manufacturer ZF, the screen capture showing the acceleration and deceleration rates. I will just ask if Mr Kwong can comment on one of the matters. It is the deceleration rate at 2.3 as stated in this screen capture.
Can you comment on this figure, given the suggested

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rate in the Canadian code is 2.7.
MR JULIAN KWONG: Chairman, in this regard I have not studied this in detail, but as you can see, the value of 2.3 is higher than, I think, 1.1 for the Canadian Transit Handbook for normal deceleration. I think the exact value has to be determined on the basis of the realistic operation in Hong Kong. Whether in Hong Kong for one reason or the other we would accept a higher deceleration rate, I have not studied this in detail. But what I can say is that, in general, on urban streets if the running speeds of buses is not as high, I mean that we are having bus operation at moderate speed, then there will be far less requirements for drivers to decelerate at excessive rate. Thank you.
CHAIRMAN: The requirement that the Transport Department stipulated for tachograph capabilities in the 2003 requirement was that it be capable of measuring 0.2G. Is that not correct?
MR JULIAN KWONG: 0.2G would be equivalent to 1.96 metres per second squared.
CHAIRMAN: So what is the significance of the fact that the Transport Department required the machine to be capable of measuring that level of deceleration?
MR JULIAN KWONG: Chairman, sorry, do you mean that Transport Department have the requirement that the

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mechanism in the bus can measure to the accuracy of 0.2 or --

CHAIRMAN: Perhaps I can ask Ms Wong to put it on up the screen. It is the requirement from 1983 that buses be fitted with a tachograph with various capabilities, new buses by 1 July 2004.

MS MAGGIE WONG: That would be TD-5, page 1598.

If you look at paragraph 3:

"The software for analysing on-board or downloaded data should be capable of reporting the following:

(a) Accident Report -- vehicle speed profile at time interval of 1 second for the 3 minutes period preceding detection of a 0.2G deceleration."

MR JULIAN KWONG: I see, Chairman. I think this clause considers that if the bus is decelerating at 0.2G, that means equivalent to 1.96 metres per second squared, then it would be an event justifying an accident report.

CHAIRMAN: This would be harsh braking, would it not?

MR JULIAN KWONG: I would say so.

CHAIRMAN: So the parameter that you were taken to, 2.3 metres per second squared, is more than 10 per cent higher than this requirement.

MR JULIAN KWONG: Chairman, from what I read from the document, that would be the case.

But I think -- it would be good if we can have more

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evidence, and especially based on events involving passengers losing balance, and then we can, say, compare the deceleration rate at that time, and then if we can collect this data in future, then we could fine-tune the values in a more evidence-based -- with more evidence of what the parameters should be. Thank you.

CHAIRMAN: But we can get a pretty good rough idea if the MTR stipulate 1.15. 2.3 is a lot more than 1.15, is it not?

MR JULIAN KWONG: Chairman, I presume that would be the case. But also on the understanding that bus operation is less predictable, but still I agree that we need to have deceleration rates closer to what the MTR is using, although it may not be entirely realistic in emergency situation. Thank you.

MS MAGGIE WONG: Thank you. The other matters of course are the bus safety and the bus fleets. At page 773 at the bottom to page 774, you made some recommendation there in particular the first one about -- 774, at the top:

"Upper deck front seats -- in the absence of any reasonable deformation zone, front row bus passengers could be crushed despite the use of safety belts. This is particularly important with the number of KMB buses using high-speed roads."

And also seat belts, bus door safety, et cetera.

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And you made a recommendation to ask for these suggestions to be incorporated into the franchise agreement, to be studied and improved with timetable.

Again, who would you suggest initiates this task to incorporate these suggestions into the franchise agreement?

MR JULIAN KWONG: Chairman, again, we would assume that in the franchise requirement government to specify or to regulate. Government can also study these issues and impose on the bus companies to have a timetable for improvement.

Of course it would also be the responsibility for the bus companies to conduct such studies in conjunction with the bus manufacturers, and what I was suggesting here, of course, we are advocating a far more proactive approach, that both government and the bus companies are interested in these matters, and they would see that they have the responsibility to look at these issues and to make improvements in a very proactive way.

Thank you.

CHAIRMAN: Just anticipating the questions you will be asked later, you say that what you were looking for is that the bus companies and the Transport Department act in a very proactive way. Do they do so?

MR JULIAN KWONG: Chairman, to be fair, they are proactive

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in some issues, but for those issues we consider very important, I would say that they are not proactive enough. Chairman, I would say in some cases they would be quite reactive. And we do not wish to see that certain issues are handled in a reactive way, especially for those incidents involving serious injuries and fatalities. Thank you.

CHAIRMAN: By that you mean, presumably, reacting to a catastrophic event, but only after the event. Reactive not proactive. Is that your point?

MR JULIAN KWONG: Chairman, yes. I would like to add to that point that it is not uncommon, not only in Hong Kong, that progress is made after major accidents or catastrophe. From my point of view, if the catastrophe or accident cannot be reasonably predicted, then it may be fair. However, if there is already ample evidence, or ample number of accidents happening, or there have been historic accidents, or theoretically the risk is very high, then we should not act in a reactive way, but we need to be far more proactive. Thank you.

MS MAGGIE WONG: Based on your report, you have highlighted the issues, obviously, that you consider there is ample evidence in which you make these suggestions. Is that correct?

MR JULIAN KWONG: Chairman, I presume that the counsel

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refers to those items I mentioned. I would say yes, there is already ample evidence. Of course when we talk about evidence, there can be a number of levels. There would be surface evidence. There could be evidence according to our knowledge, from accident data, or from news reports. And the highest level, of course, the evidence will be academic evidence, that is published conclusions and results in journal papers.

As far as the evidence I am talking about here, that would be at the level that to our knowledge, from news reports, from basic accident data, that, and also from the theoretical point, I think the evidence is clear enough.

MS MAGGIE WONG: If I may just go through the last suggestion, is your mentioning about bus safety, bus stops. In this paragraph you mentioned that waiting passengers at certain roads are left exposed to heavy and fast-moving vehicles. And you suggested or recommended here to incorporate into the franchise agreement that bus companies will collaborate with government to reduce the risk for waiting passengers at bus stops.

Now, how would you suggest a bus company to collaborate with the government to reduce this risk for waiting passengers?

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MR JULIAN KWONG: Yes, Chairman. Bus stop safety is a problem worldwide, I would say, not only in Hong Kong. Admittedly, many countries, including the advanced countries, have not been paying adequate attention to the issue.

We have bus stops located along high-speed roads, major roads, such as this, the one in this photograph, on Lung Cheung Road, with a speed limit of 70 kilometres per hour, on Gloucester Road, and on other major roads.

In theory, if we have a large group of passengers waiting at the bus stop and we have such fast moving vehicles running alongside, there is always the risk of an errant vehicle crashing onto the roadside and they will be trapped by the bus stop shelter, and that can lead to severe injuries.

Only a few countries have paid attention to this particular problem and acted seriously. One of the countries is Singapore. They have introduced measures, but whether that measure is effective or is really working well, then I still need to further confirm.

However, theoretically we need protection for the waiting passengers. The bus company has been responsible for introducing these bus shelters, and they do get revenues from that, with the advertisements they place on the shelter. And government is responsible for

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the road. So naturally, I would imagine that the bus company should collaborate with the government and to examine the design of bus shelters, and whether there is the need to have ancillary facilities, or equipment to better protect bus passengers.

Admittedly it is not easy, because at the same time we need to have bus passengers being able to get into the bus and to alight, but at the same time we need to have measures protecting them, so we cannot put a continuous barriers at these bus stops. Thank you.

CHAIRMAN: No, but presumably you can construct barriers that have gaps in them so that people can alight and board buses?

MR JULIAN KWONG: Chairman, yes. Although we cannot have a continuous safety barrier, there may be possibility to have safety barriers aligned in a certain angle, or else there is the possibility to install what we call bollards. In Singapore, the solution is to have bollards at these bus stops, and they have installed these at several thousands of bus stops.

However, I would like to point out one thing is that normally for highways design, we need to also protect the occupants of the errant vehicles. That means any safety barriers designed in such a way should not incur severe injuries to the occupants.

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If we have discrete sections of safety barriers then the terminal or the ending point of the barriers could become a hazard. The second point is that bollards need to be what we call energy-absorbing. If we just put a steel post or a very heavy concrete post, it is certainly good for the waiting passengers, because it will certainly stop the car. But at the same time the occupants of the errant vehicles will probably suffer severe injuries.

To conclude, I think there are solutions. Ultimately, we may be able to work out solutions which achieve the best balance of this dilemma. Thank you.

CHAIRMAN: In the road works being done on the Tai Po Road accident scene, is there not a barrier being created to protect passengers waiting at that bus stop?

MR JULIAN KWONG: Chairman, sorry, do you mean the remedial works which have been carried out there?

CHAIRMAN: Yes, aren't they creating a barrier to protect the passengers?

MR JULIAN KWONG: Chairman, I see what you mean. There is another solution what we call the protected bus stop. That means the bus stop is shifted away from the road, and the main road is separated from the bus stop with the traffic island.

That is a good solution, and that has been

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introduced on the other direction of Lung Cheung Road, and also for the bus-to-bus interchange on Tuen Mun Road. But this solution requires lots of space as well.

So in the end, the starting point will be a review of different types of bus stops, and also to look at different types of roads and speed, and then probably we need to have different solutions, including engineering solutions and non-engineering solutions. Thank you.

MS MAGGIE WONG: The bollards that you mentioned in Singapore, do you know who is responsible for installing these bollards, the government or the operators?

MR JULIAN KWONG: In Singapore that would be the Land Transport Authority, and I have studied some of the design, and they specifically mentioned that in 1998 there was a severe accident involving a vehicle crashing onto the bus stop, and then some more happened thereafter, and they started to introduce these bollards. I'm very interested actually to further obtain information from them regarding the precise design of these bollards.

But at the same time in Australia there is the bollard called the energy-absorbing bollard, which is designed for stopping an errant vehicle at up to 60 kilometres per hour. Not a bus, not a heavy vehicle, but just a passenger car. But the bollard also moves

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a bit, so that the occupant of the vehicles will not be excessively injured. This product is quite unique, so I have been doing some search in other countries. So it appears that it is the only one available in the market.

I would also like to point out that at the University of New South Wales, one of the professors also shares this idea. He suggested there should be more research on the usage of bollards at bus stops, and also in urban areas where we cannot put a continuous barrier, because people may need to get out to the road.

I have not discussed with this professor, but I think he shares the same idea, and he thinks that that should be the way to go. Thank you.

MS MAGGIE WONG: Now, Mr Kwong, this is the submission that you submitted in relation to the KMB in June 2016.

Afterwards, the LegCo did make some discussion. I'm going to take you to some of the papers in the LegCo. The first one is in June 2016, 17 June 2016, SEC-2, page 784.

This is an updated background brief on the franchise for the bus network of the Kowloon Motor Bus. It started at page 784.

If I may briefly summarise what this paper is about. It is a paper providing information on the franchise for KMB and it summarises major views and concerns expressed

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by LegCo members in the past discussions. And if I may take you to paragraph 12 with the heading "Enhancing standard of bus service", and it made reference to:

" ... the Fifth LegCo, members raised concern over the performance of franchised bus service at the panel meetings, special financing committee meetings as well as the council meetings. They urged the Administration to take the opportunity of franchise renewal to require service improvement by bus companies, including provision of real-time bus service information to passengers, provision of priority seats and barrier-free facilities, improvements in bus lost trips as well as bus service frequencies during peak periods."

It made reference to the real-time bus service information. I believe at this time they have not had this real-time bus information yet. But can you tell us what this idea is about?

MR JULIAN KWONG: Chairman, I believe it is referring to displaying, say, the time of arrival for the next bus, I mean how many minutes before the arrival of the next bus or the bus after, that can also be related to the use of the mobile phones to obtain information about the arrival of the next bus, and I think this would be the main idea.

CHAIRMAN: So there are two ways of communicating the

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information. One would be a display panel at a bus stop or a terminus, and another would be by accessing an app on your mobile phone?

MR JULIAN KWONG: Chairman, yes.

CHAIRMAN: And this system had been introduced some years earlier had it not? Step by step?

MR JULIAN KWONG: Chairman, I think so.

CHAIRMAN: By KMB?

MR JULIAN KWONG: Chairman, yes. But also by other companies as well.

CHAIRMAN: Yes.

MS MAGGIE WONG: If we go on to paragraph 17 it stated that:

"Furthermore, an additional clause had been included in the three franchises ... NWFB, [Long Win] and Citybus (Franchise 2), commencing in mid-2013 to empower [Transport Department] to require bus companies to enhance safety facilities and design."

It made a few examples here. Can you see that?

CHAIRMAN: Can you give us the examples, please?

MS MAGGIE WONG: I think the examples are simply referred to, in the next sentence:

"This included purchasing new buses with barrier-free and elderly-friendly design."

And it was suggested in the last sentence:

"The Administration would incorporate a similar

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provision to promote barrier-free facilities in the other three bus [companies] ..."

Now Mr Kwong, even though there is such a clause in the franchise agreement it appears there has not been any improvement on the black box design or requirements in terms of the black box.

CHAIRMAN: Before you get involved in that. A barrier-free entry is not a safety feature, is it? Is that not simply a service facility?

MR JULIAN KWONG: Chairman, the barrier-free facility is -- well, that is both for convenience and safety, of course. Anything inside the bus can be unsafe. So I would have wished to see explicit description of other safety facilities. So I hope that has answered your question?

CHAIRMAN: How is a barrier-free entrance a safety facility?

MR JULIAN KWONG: I would presume that for someone who needs more space to enter the bus, the barrier-free facilities would mean probably not to have a handrail on the way, say, at the entrance, so that it is wide enough for example for wheelchairs, or for people with other particular needs, to have adequate space to enter the bus.

So it is not very explicit, but that is, I presume, both for convenience and safety.

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But I'm looking of course to a focused description of safety facilities which is not existing here.

MS MAGGIE WONG: Yes, and if I may take you to a document showing what clauses or what specific clauses have been asked to be included in the new franchise in relation to KMB --

CHAIRMAN: Before you get to that, in paragraph 10 of this paper, there is reference to a discussion that had taken place in 15 January 2016 about the franchise network; do you see that?

MR JULIAN KWONG: Yes; I'm reading it.

CHAIRMAN: Ms Wong, do we have the minutes of that meeting?

MS MAGGIE WONG: We only have a letter from THB stating the follow-up actions of the meeting on 15 January, but not the actual minutes.

CHAIRMAN: The minutes appear to have been signed off on 26 August, and they refer to 15 January.

MS MAGGIE WONG: Perhaps if we may refer to the SEC-2 bundle, page 990. This is a document from the Transport and Housing Bureau dated 9 March 2016 to the LegCo, setting out what happened at the meeting on 15 January 2016.

CHAIRMAN: I'm holding a copy of the minutes. May I ask that these be given to you?

I'm told that we can show it as a soft copy on the screen.

MS MAGGIE WONG: I apologise for that, it should be in the SEC-2 bundle, page 967, it is a new document.

CHAIRMAN: Yes, that's the document I have in mind.

MS MAGGIE WONG: That's the minutes of meeting on 15 January. If you may turn to internal page 5.

CHAIRMAN: I think if we go to paragraph 13, you can see the tenor of the purpose of this real-time bus service information. It is, as becomes clear reading it, a service facility, no doubt to meet the requests of passengers that they get better information of how long they are going to have to wait in the rain before the bus arrives. That seems to have been the driving force behind this development.

Perhaps you would like to have a look at the minutes, Mr Kwong.

MR JULIAN KWONG: Okay.

Chairman, yes, I have read it. Do you want me to comment?

CHAIRMAN: Yes.

MR JULIAN KWONG: To me, real-time arrival information system is always desirable because it will reduce frustration for passengers, and actually it is providing a good service so that passengers can decide whether to wait for the next bus, or for example to access a bus

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stop, whether they have enough time, et cetera.

I think that also has something to do with safety, but not directly. Certainly I welcome that. I have no particular comment on this. Thank you.

CHAIRMAN: What does it have to do with safety, knowing when the bus is going to arrive?

MR JULIAN KWONG: Chairman, as I mentioned, I would believe that if a passenger knows when the bus is going to arrive, they will be less stressed. If a passenger does not know when the bus is going to arrive, he will be less relaxed, and there may be more frustration, and he or she may try to stand very close to the bus stop, to the curb, in order to see whether the bus is coming.

So overall, I would say that it is not a direct safety measure. There may be benefits in terms of safety, but of course I do not have any references to prove this point. Thank you.

CHAIRMAN: Of course, one of the consequences of having to provide this information was to provide information to bus companies about where their buses were, and what speeds they were going at. Is that not a consequence?

MR JULIAN KWONG: Do you mean that this system can be used in conjunction with a system for locating the bus, and also for checking the speed of the buses?

CHAIRMAN: In order to come up with information about ETA,

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you need to know where the bus is, and you need to know what speed it is doing, don't you?
MR JULIAN KWONG: Chairman, yes.
CHAIRMAN: So by a side wind, it produced access to other information that might be used for another purpose.
MR JULIAN KWONG: Chairman, yes. I would presume that often we should try to utilise the information for multiple purposes, including safety and also level of service.
CHAIRMAN: No doubt Ms Wong will explore with you how this alternative multiple purpose was pursued or not pursued.
MR JULIAN KWONG: Thank you, Chairman.
MS MAGGIE WONG: We have seen the minutes about this real-time information. May I take you to the document itself now, because we have raised the question what has been asked to be included in the franchise agreement, and how the government perceives this facility.
May I take you to the TD-3-bundle.
CHAIRMAN: What are we going to?
MS MAGGIE WONG: It is a LegCo document. It actually starts at 496, but the pages I'm going to is at 542. It is a LegCo brief on new franchise for KMB dated 28 March 2017. It set out the clause and service-related commitment to be added to the newly granted licence. It is the annex C to this paper.
This is the LegCo paper suggesting the clauses and

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service-related commitments to the most recently granted franchises placed before the LegCo. If we see the first paragraph:
"KMB will fully take on board the clauses and commitments adopted in the two most recently granted franchises in 2015 (ie the franchises for Citybus ... and New Lantao Bus ... details of which are set out below ..."
So the first is the bus service. So the emphasis is on bus service, and then the first paragraph:
"The new franchise will empower the Commissioner to require KMB to provide facilities and installation for enhancement of bus safety, and provide a barrier-free and elderly-friendly travel environment. Specific initiatives are as follows ..."
The first is service quality. So I believe the clause speaks for itself, it is about service quality.
And the barrier-free and friendly features for the bus design, that's the subparagraph (i), and also the bus stop announcement system, and paragraph (ii) is:
"providing facilities ... to ... enhance safety, such as facilities and installation that can reduce potential fire hazards on all new buses."
So the emphasis is on the fire hazards.
And paragraph (iii) is on:

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"Allowing foldable bicycles which ... will not cause ... hazard to other passengers ..."
Again a service facility.
(iv) is about providing passenger seating facilities.
And then over the page it's about passenger information:
"the new franchise will enhance the regulatory power of the Commissioner over the type, form and manner of information to be provided by KMB to passengers to ensure provision of suitable service information to passengers through better means ..."
(ii) Providing real-time bus arrival information through website and smartphone application, and installing display panels at suitable bus stops ... for disseminating such information."
Now these two paragraphs are, again, about service, providing passenger information, and even in provision of passenger information you can see the Commissioner is exerting its regulatory power as to what to convey to passengers.
So even from the agreement perspective, this is not about safety, this is about providing sufficient information to passengers, it is about service.
And the next one is the enhancement of government

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regulation. The first one is about publishing the service pledge, the time frame for responding to complaints, and also the achievement rates of passenger service pledge.
The second about is the financial, strengthen control or regulation over the financial and accounting arrangements of KMB.
The third is about conducting open tendering requiring KMB to reluctant open tendering for all material procurement contracts.
Lastly, it is about the improvement in environmental performance, in terms of the air quality, low-emission buses, et cetera.
Now in all these new clauses there was nothing, or there was no clause whatsoever about the enhancement of the black box requirements or black box capability in all these clauses. Do you agree?
MR JULIAN KWONG: Chairman, yes, I agree.
CHAIRMAN: In fact there is only one mention of a safety issue, and that is in relation to fire prevention.
MR JULIAN KWONG: Chairman, yes. Related to fire hazards and also it mentioned that the new franchise will empower the Commissioner to require KMB to provide facilities and installation for enhancement of bus safety, but this clause does not explain what these

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facilities are.
CHAIRMAN: The reference to fire hazard is a requirement to isolate the engine, is it not, that had been provided earlier for Citybus? There had been engine fires, and this was a way of reducing the risk from engine fires.
MR JULIAN KWONG: Chairman, I have not studied this. That could be the case, but my interpretation is that when we talk about fire in a bus, we also need to consider the speed of evacuation of bus passengers, and there may be other possibility of having a fire, although it is a bit remote, say, for example, a bus colliding with a dangerous goods vehicle, with combustible materials.
So the whole subject of fire hazards, I think it can be very wide, and of course it is a specialised subject. But certainly this is of interest to us as well as a potential safety risk. Thank you.
MS MAGGIE WONG: Mr Kwong, I know I am a bit out of sequence now, because I have taken you to the clauses that the government proposed to KMB, or requiring KMB to include. But I wanted to show you back a document as to what the government knows or rather what the government set out as to the public concerns, and whether it is properly reflected in the clauses themselves, and if I may take you back to the LegCo file, it is the SEC-2, page 799.
It is a document, a LegCo paper on the new franchise

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of KMB, in June 2016. It is the first page. The first page, the first paragraph set out what the paper is about:
"The government invited the public to offer views on the requirements of the new franchise for the bus network of The [KMB] ... This paper briefs members on the views received."
Now the public expressed a lot of views, and we can see at paragraph 4:
"A total of 135 submissions were received during public consultation. 27 of them were from [District Councils], different political parties, individual members of ..."
I'm sorry, it is page 799, paragraph 4.
CHAIRMAN: Thank you.
MS MAGGIE WONG: "A total of 135 submissions were received during public consultation. 27 of them were from [District Councils], different political parties, individual members of the [LegCo] and [District Council], as well as various groups. The remaining 108 submissions were from individual members of the public."
And they set out in five categories what the comments are about, and summarised them in the annex.
I'm going to take you to the annex starting at page 802.

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Over the page, in paragraph 4, there is a section on bus safety. And there are two suggestions, one is to monitor bus captains' driving behaviour more closely. Second, to improve safety facilities on buses, such as by installation of additional horizonal bars and stronger materials to build the bus body.
It appears both suggestions are not reflected in the franchise agreement clauses that we have just seen.
MR JULIAN KWONG: Chairman, I think this clause number 4, yes, I did read it at that time, and I would consider the two points very vague, which certainly did not reflect our concern, which I would consider to be more sophisticated. Thank you.
MS MAGGIE WONG: I think we have finished the KMB. And if I may just go back a little bit to the Citybus, for franchise 1 and franchise 2.
I think you have made submissions on Citybus for franchise 1 only. Because in the document you provided us I can only locate one submission in relation to Citybus on 16 September 2014. Is that correct?
That's in the MISC-2- bundle, at page 775.
MR JULIAN KWONG: Chairman. Yes. This was a submission made in 2014. So this was the first time we tried to make suggestions to government, taking the opportunity for the renewal of franchise of bus companies.

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MS MAGGIE WONG: If I may --
CHAIRMAN: Give me a moment, please, while I locate the document.
MS MAGGIE WONG: Page 775.
CHAIRMAN: Yes.
MS MAGGIE WONG: This submission is in response to the public consultation paper by the government. And if we look at this document, at the second paragraph:
"The consultation document by government states that 'the government's key consideration in granting or extending a bus franchise is whether a grantee is capable of providing a proper and efficient bus service'. We are concerned that other important values, notably road safety, quality of service, environmental friendliness and social responsibility, are not mentioned."
So you are responding first to the consultation document by the government, and second, you raise concern that the road safety and other issues are not clearly expressed in the consultation document such that you are not sure whether they gave sufficient importance to this issues; correct?
MR JULIAN KWONG: Yes, Chairman, that is the case. Because we interpreted the text in the government document as it was. So it didn't give any reference to safety. So we

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have to raise it. But of course they can explain it. If they indeed consider that the word "proper" already covers safety, and they can explain that, I mean we will be happy to accept that. Thank you.

MS MAGGIE WONG: And on that page, paragraph 5, you mentioned that:

"It is understandable that bus companies do not have sufficient incentives for many important initiatives. As stated in clause 17, this could be due to high operating costs and competitions. Yet it will not be acceptable to tolerate certain problems, in particular safety issues. In this respect government should not preclude providing more incentives through subsidies and partnership programmes."

I wanted to explore this paragraph with you. You made specific reference to safety issues that bus companies appear to lack sufficient incentives. And you suggest providing more incentive through subsidy and partnership programme.

So what suggestions are you making? What exactly are you suggesting here?

MR JULIAN KWONG: Chairman, in this clause I pointed out that safety is of paramount importance. It should not be sacrificed for reasons of, say, financial reasons, and I could see that the bus companies have been running

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on a commercial basis, and they do not receive any financial subsidies, except for the elderly concession fare scheme in recent years. That is just an idea which -- and as I said, government should not preclude. I have not come to the point that government should, or what types of subsidies they should provide, but in general I'm looking into financial subsidies. But, of course, that means we are suggesting that this issue should be explored. But we have not studied this in more details. Thank you.

CHAIRMAN: What kind of incentives did you have in mind related to safety issues?

MR JULIAN KWONG: Chairman, I think there are many possibilities. For example, to understand what safety measures and what safety strategies we should introduce, we need to have quality data, and studies conducted. As I explained yesterday, we need to study these in details: historic crashes, injury mechanisms. And then also to work with the bus manufacturers, to tell them what kind of safety problems we are having.

Bus manufacturers have been producing buses according to standards. For example the European standards, the UN standards. They may not know what problems we are facing in Hong Kong.

So in order to change the design of a bus, we need

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research, the buses can cost more and so this would be areas, for example, where the government can perhaps help to finance, even for a certain -- may not be full subsidy, maybe in partnership, so government finance part of it, maybe the bus company also shared it. Thank you.

CHAIRMAN: But for what kind of safety provision?

MR JULIAN KWONG: Chairman, okay, for research into, say, the problem of the bus front, as I mentioned.

The bus front at the moment does satisfy European standards, or the UN standards, or there is no standard. But as I pointed out, there are safety issues.

So if we want to initiate a programme to redesign the bus front in cooperation with the bus manufacturers, then who would bear the cost? Because the bus would cost more, would be more expensive, and to do the research, it also would incur the cost. So that would be an example.

CHAIRMAN: The buses in Hong Kong are all made, are they not, by European manufacturers?

MR JULIAN KWONG: Chairman, yes. To my --

CHAIRMAN: Franchised buses.

MR JULIAN KWONG: To my understanding, yes. There are probably two dominant manufacturers, European, but based in the United Kingdom.

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CHAIRMAN: Alexander Dennis, MAN, and Volvo; are those bus manufacturers?

MR JULIAN KWONG: Chairman, to my understanding, that is true.

CHAIRMAN: And the buses are designed to EU standards.

MR JULIAN KWONG: Chairman, to my understanding, yes, and also the UNECE, United Nations.

CHAIRMAN: Is there any other safety incentive that you suggest consideration ought to be given to government subsidising?

MR JULIAN KWONG: Chairman, for example concerning bus stops, as I mentioned, okay, bus stop -- at the moment they are subsidised by the bus companies, of course with revenues coming from the advertisement. And other changes to the bus interiors, et cetera. I cannot think about any more, but there should be many more which I think would be necessary. The ultimate idea is that we do not want the bus companies to be under unreasonable financial pressure because we want them to be able to make a profit, and to be happy, so that is the idea.

But I cannot provide more information at this stage.

CHAIRMAN: Well, perhaps there is one area you could help us with. The representatives of Citybus spoke about the proposals, considerations that seat belts be fitted for

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everybody. Their observation was, "Nobody will use them. If you are going to require us to install them, then government should subsidise them." Do you have anything to say about that?

MR JULIAN KWONG: Chairman, without going into details of this issue, I have read about the response from Citybus, I mentioned yesterday that we need to look at every safety provision in a scientific way, whether the measure does address the important safety issues we are facing, and seat belt certainly is an issue.

It is not incorrect what Citybus said, that passengers may not use them. If passengers do not use them it is not very satisfactory.

There are other measures we have discussed yesterday, such as the electronic stability control, and there are many other measures. However, every measure, if they are applied to every bus, it will cost. We need to select those measures which can help us to reduce the safety problem, especially those causing serious injuries and fatalities.

So the safety belt is certainly a possibility. But I have not studied the real financial implication. So I cannot comment on whether we are looking to devoting all the resources to seat belts. I would say that we should look at all the measures as a whole, and we need

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to carefully compare the different measures as regards the merits and the drawbacks, and ultimately the effectiveness. Thank you.

MS MAGGIE WONG: Thank you. And in this paper on page 775 at the bottom, with the heading "Road Safety is of Paramount Importance", you made reference to certain statistics of Citybus at clause 6(c), and you made this observation that the government:

"... appears to quickly attempt to justify the figures by stating that 'This is mainly because most routes ... by Citybus ... are plying relatively [busy] road sections in the urban area. It is thus more [likely] for accidents to happen. Notwithstanding, most of the accidents are mild in nature. They involved, for example, injuries arising from passengers losing balance inside the bus compartment or on the stairway, rather than collision with other vehicles'."

And you state:

"We do not concur with this paragraph given the paramount importance of bus safety. In fact, the consultation document has not included breakdowns, analysis and trends of accidents involving the bus companies to substantiate the statement. We consider it necessary for the document to first provide figures on the number of buses involved in fatal and serious

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accidents, pedestrian accidents, multi-casualty accidents etc. Thereafter, risk factors should be discussed and feasible solutions ... and safety improvements under the new franchise."

So you expressed here that again what you have expressed similarly in the KMB, that you shouldn't look at one single parameter, but instead the consultation paper should provide more information on how the figures or the accident rates were arrived at; is that the point you were driving at?

MR JULIAN KWONG: Chairman, yes. This is exactly the point. Because from the consultation document, it is obvious that it is far too simple. In my way of working, we need to look at historic accidents, and to learn from them. We also need to look at risk. Sometimes, for major risk, for example the bus falling off a cliff, these kinds of accidents do not happen all the time, but if it does happen, then the result can be catastrophic. So both historic accidents and risk we need to look at. But obviously the consultation document is far below my expectation. Thank you.

MS MAGGIE WONG: In fact, you made a suggestion at page 776, the recommendation section.

You stated there:

"We recommend that past accident data and potential

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safety risks of bus operation are further verified and studied in detail, with a view of identifying opportunities for improvements under the new franchises."

And you stated at the end:

"Consideration should be given to rewarding the bus companies for achieving pre-defined goals, such as reduction of certain accident types by 20 per cent per year."

And can I invite you to elaborate on this rewarding scheme that you are advocating?

MR JULIAN KWONG: Chairman, I think we discussed this point yesterday. It is a crude recommendation, but the whole idea is that we do not always talk about penalties, we also need to motivate and encourage bus companies and drivers to work together to achieve better safety.

As regards, for example, the reduction of certain accident types by certain percentage, I think this is also in line with the ISO 39001 philosophy I quoted yesterday, that we are looking to sustainable improvements of bus safety. In many of the discussions that I followed, it seems that the society, or government appears to be happy so long as the bus accident rates remain stable. For me that is not adequate. We want to look at sustainable improvements,

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especially in line with the safe system, and also the current trend globally from UN, from WHO, that we are targeting at no serious injuries or fatalities, rather than having the figure stable, and we are satisfied.

MS MAGGIE WONG: If I may summarise what you have stated in this paper, at pages 777 and 778, you made similar suggestions as you have in the KMB submissions in terms of the bus safety standard, the bus safety bus fleets and also the bus stop, as well as the ISO 39001 standard. Can you confirm that?

First is page 777 at the top, recommendation on the ISO 39001 standard.

In terms of bus safety, in the middle, you made similar recommendation about comprehensive standard and driver monitoring system using modern technologies, including in-vehicle GPS and black boxes to be incorporated into franchise agreements.

And also page 778, the bus fleet bus safety suggestions which are similar to what we have seen in the KMB.

MR JULIAN KWONG: So Chairman, does the counsel want me to confirm these recommendations?

MS MAGGIE WONG: Yes.

MR JULIAN KWONG: Okay, Chairman, yes. These recommendations remain valid. As for the ISO 39001, as

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I mentioned yesterday, it is relatively new. For me that is certainly something to explore. My standpoint is always that we cannot impose something, and insist that something must be the right way to go. I would suggest that relevant parties, including government and bus companies explore this possibility, and whether this ISO would acceptable to them, whether they can implement them, or whether they would suggest equivalent standards which are in line with the same principles.

Where I see the value of this ISO is that it is set in a way that we give prominent attention to road safety management system involving the very high level, we look at sustainable improvements towards zero serious injuries and fatalities. It advocates plan, do, check, act cycle in line with other ISO standards.

But I understand there are many certification systems which companies nowadays have to follow, and sometimes I can understand some enterprises would consider that having a lot of certification, they to devote a lot of manpower, and ultimately we recommended this standard because we want to see a good result in terms of road safety.

We are not trying to advocate something which increases the workload, and perhaps it perhaps doesn't have an evident effect.

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To conclude, I think these are all recommendations, but whether in the end that is practical, then I would invite the authorities and the bus companies to look at every recommendation in detail. Thank you.

MS MAGGIE WONG: We have seen this response to the public consultation. I'm going to take you to the SEC-2 bundle.

CHAIRMAN: Before you do that, may I just ask you to revisit what is at page 776, your recommendation about considering rewarding bus companies for achieving pre-defined goals.

You went on to say that, understandably, there ought to be incentives for bus drivers, as well as bus companies.

MR JULIAN KWONG: Yes.

CHAIRMAN: We have received evidence that KMB and Citybus reached an agreement with the trade unions with this result, that as of 1 March, the bonuses that they allowed for, amongst other purposes, safety achievements, were amalgamated with what was called basic salary. So the bonuses became the salary.

If it be the case that that means that drivers no longer have a safety bonus incentive, what, if any, comment do you have to make about that?

MR JULIAN KWONG: Chairman, I am not in a position to

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comment on this.

In any case, whether this is an explicit bonus, or whether that is a penalty, after all, we want to see drivers voluntarily and happily seeing that it is their responsibility to drive in a safe way, and also according to the safety criteria we are advocating. That is a more complicated question as regard to the exact mechanism of how to reward them -- I can only say that that needs some study into whether we do achieve the results or not.

CHAIRMAN: As I understand what you were saying, is it is worth looking at incentivising bus companies but also incentivising drivers. If that has been removed, the bonus side of it has gone, is that a good or a bad thing? That's a simple enough question, isn't it?

MR JULIAN KWONG: Okay, Chairman. This is the first time I learned about this. Let me have a think.

CHAIRMAN: Well, let me suggest that we take the morning break now, and you can come back to us in 20 minutes.

Is it a good or bad thing, to remove from drivers the incentive of a bonus for driving safely.

20 minutes.

MR JULIAN KWONG: Thank you, Chairman.

(11.29 am)

(A short break)

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(11.49 am)
CHAIRMAN: So, Mr Kwong, is it a good or a bad idea to incentivise bus drivers?
MR JULIAN KWONG: Chairman, first of all I would like to say this is a good idea.
Secondly, I would like to point out that the reward will also need to be in other form, for example the status of bus drivers, and we certainly need to increase the status of bus drivers, because they are doing a very good job of providing service for our population, and day by day and year by year.
The last point I would like to make is that any rewarding scheme will need to be carefully worked out. For example, if we just reward drivers for having no accidents, say for the past month or past year, then is it the best way? Having no accidents could be due to luck, or having an accident may not be due to his fault, it may be due to somebody's fault.
So whether the reward should be based on, say, driving most of the time, conforming to the company's -- to the safety criteria we have been advocating, that would be a possible direction. Thank you.
CHAIRMAN: Ms Wong, do we have access to the material relating to, is it GreenRoad?
MS MAGGIE WONG: Yes, we can pull that up on screen. Thank

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you.
Mr Kwong, this is an article from the Straits Times that we extracted. And we can see, first of all, the title is "Tracker helps bus drivers to better their performance". I think it is a Singapore system, and if we roll it down, it is:
"The Tower Transit bus driver ... showing how his driving performance can be tracked and collated on a mobile phone app, which he can then review. A colour-coded panel in the bus will flash red, amber or green, according the driver's driving patterns."
So that's what we have discussed yesterday about a system where you can use a driver's app or driving habit to monitor the driving habit of a particular driver.
This is also based on the data extracted from the black box to analyse the data.
If we look at the article itself:
"The ... Anglo-Australian operator Tower Transit was prone to jerky stops and seat-sliding corning. His safety demerit score on the company's GreenRoad vehicle-tracking system was 165 last October -- more than eight times above the recommended 20."
And the system helps drivers -- not only for the company to monitor the driver's behaviour, but also

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informs the driver as to how they behave by looking at -- each of them have their own mobile device.
So what do you say to this system?
MR JULIAN KWONG: Chairman, I think this system would be a good reference, but exactly how we do it, then of course that needs further examination. But I think the whole idea is that we -- the system is trying to encourage drivers, and also to make them feel that they are good professionals, and then if they have been driving in a safe way, then they would be very well respected professionals.
I think I have no -- well, I am positive about it, but just that we should explore this in more details. Thank you.
MS MAGGIE WONG: Just for the record, we can see in the middle paragraph it started with the Tower Transit:
"Tower Transit said the GreenRoad telematics system had made the drivers smoother and safer on the road. Between last July and May this year ..."
Actually they have carried on this service for about a year:
" ... the system -- which tracks how a vehicle is driven in real time via GPS and sensors -- has significantly improved safety scores."
So it is not simply a one-off incident, they have

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been doing this constantly, so that when I showed you the article I thought I should let you know about this.
The company has 750 drivers, for the record.
And may I go back to your submission on Citybus, at MISC-2, page 779.
We have been through this, but I just wanted to alert you to what you have submitted earlier on. It is the passenger information. And one of the things you suggested in Citybus in that paragraph, Passengers Information", is that most passengers would be content if they know the timetable of their buses.
And jump to the next paragraph:
"Notwithstanding the above progress, bus passenger information ... is not consistently provided."
Then you asked that there be more commitment to develop a modern integrated system:
"The lack of a modern real-time information system, at least for more major bus facilities, is far below the expectation for Hong Kong as an international city."
And you recommended that:
"Government negotiates with the franchisee a programme to initiate pilot projects and to develop a modern bus passenger information system."
So actually, the real-time bus information is part of the thing that you are advocating in relation to the

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Citybus, which at that time has not been fully implemented.

And if we may look at your submission on what is the government's attitude towards the public views. And if I may take you to SEC-2 bundle, page 655.

It is a paper, public consultation paper on requirements of new franchises.

This paper was issued in December 2014, setting out the outcome of the public consultation on requirements of new franchises, in relation to Citybus franchise 1.

And at the bottom, paragraph 3, we see the public consultation was between 25 June and 16 September 2014. And the Transport Department invited views from the 18 district councils, the traffic and transport committees of the 18 district councils. Five district councils commented at their meetings. And over the page at paragraphs 4:

"A total of 47 submissions were received during public consultation. 18 of them were from political parties ... remaining 29 ... were from individuals."

They commented on three topics: service quality, fare concessions and government regulation.

And paragraph 5, the annex set out the major comments.

If we go to 657. Paragraph 3, it made suggestion on

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bus safety. And one of the suggestions is:

"to introduce monitoring mechanism to strengthen monitoring on the driving attitude of bus captains ...

... to improve on-board safety facilities ...

... to improve the management on ... safety equipment."

That's the major view expressed from the public consultation.

If we go to the minutes of the meeting, that is in SEC-2-bundle at page 93 -- sorry, before I go to that, there is another LegCo paper. It is at page 700.

This is also a paper on the background brief. Summarising the major views and concerns. And if I may just take you to paragraph 16, page 703. The heading is called:

"Driving safety of buses of NLB".

That is in reply in paragraph 15:

"In reply to a question raised by a member at the council meeting of 29 April 2015 regarding the driving safety of buses of NLB [that's the New Lantao Bus] subsequent to an accident happened in early April 2015 ..."

And if you see at the bottom of the footnote this is an accident where the NLB bus nearly fell off the hill on its way from Tung Chung to Tai O. It was suspected

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that there was a failure of the braking system.

" ... the Secretary for Transport and Housing ... said that all newly-recruited bus captains ... would receive training for three to five days ... and familiarise themselves with the bus ... routes ..."

And if we go to the next paragraph, it is the Secretary for Transport and Housing stating that:

" ... NLB had installed an electronic tachograph (commonly known as 'black box') on its whole fleet to record the operational data of vehicles to help monitor the bus captains' behaviour and investigate accidents."

So this paper is also touching on this black box requirement, as you can see from the Secretary for Transport and Housing's response.

And if we now go to the minutes of meeting on 17 July 2015, that's at page 937 of the SEC-2-bundle.

That's a minutes of meeting on 17 July. If we go to page 943, if you read from paragraphs 11 to 16, the focus is on the provision of service of real-time bus arrival information, and not so much on the bus safety or other issues explored in the public views.

Can you see that? If you take your time to read that.

MR JULIAN KWONG: Okay.

MS MAGGIE WONG: Can you confirm that it is all about the

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real-time provision of service of the real-time information to the passenger, and not on the topic about monitoring of drivers' behaviour as reflected in the public views.

MR JULIAN KWONG: Yes, Chairman, I have been reading it on the screen.

MS MAGGIE WONG: Have you finished reading?

MR JULIAN KWONG: Yes, Chairman.

MS MAGGIE WONG: Can you confirm the statement that I made, that it is all about provision of real-time information, nothing about the bus safety monitoring of drivers' behaviour, in that regard?

MR JULIAN KWONG: Chairman, yes, from what I have been reading, this text is mostly related to the real-time information system.

MS MAGGIE WONG: Yes.

CHAIRMAN: That's nothing to do with monitoring driver behaviour, is it?

MR JULIAN KWONG: Chairman, no. I cannot see any.

MS MAGGIE WONG: Finally, if we go to the LegCo brief setting out the terms and conditions of the new franchise for Citybus, it is in TD-3 bundle, page 570.

This is a LegCo brief setting out the new franchise conditions of the Citybus and New Lantao Bus, and if we go to page 572 --

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CHAIRMAN: What is the date of this document?
MS MAGGIE WONG: The date is 22 September 2015.
CHAIRMAN: Thank you.
MS MAGGIE WONG: And if we go to page 572, paragraph 5, it makes reference, first, to Citybus, the service performance, and over the page, NLB. And then at page 574, the public opinion on bus service.
Down at paragraph 8 it sets out the new franchise conditions and commitments. Page 574, paragraph 8.
First, we see "Incorporating Franchise Conditions and Commitments of the Most Recently Granted Franchises".
And at the bottom:
"The government has secured the agreement of Citybus ... and NLB to accept fully the franchise conditions and service/facility commitments in the most recently granted franchises ..."
And in the section or paragraph 9 it sets out the new franchise conditions and commitments.
And it boils down to three. First, provision of real-time bus arrival information; second, fare concessions; and third, enhancement of regulation on bus service.
Paragraph 10 deals with the provision of real-time bus arrival information, but there is nothing there

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about bus safety issues.
If you take your time to read that.
MR JULIAN KWONG: Yes, Chairman, I cannot see anything referring to safety here.
MS MAGGIE WONG: The third condition is the enhancement of regulation of bus services at paragraph 15, page 577. Again, there is nothing there about bus safety issues, or monitoring of driving behaviour.
MR JULIAN KWONG: Chairman, yes, that's true.
MS MAGGIE WONG: Mr Kwong, if I may refer lastly, this is the last topic I'm going to take you to, to your document on 12 December 2014. That's in the MISC-2 bundle, page 780.
This is a letter that you wrote to the Secretary for Transport And Housing commenting on the scope of the public transport strategy study. Page 780, at the bottom.
You stated there, first of all, about the safety performance and risk of public transport based on published accident statistics.
And at the bottom you mentioned that:
"... the PTSS [that's the Public Transport Strategy Study] should examine all opportunities afresh to improve safety and quality of service."
You quoted some examples, and one of them is:

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"Black box and GPS driver monitoring system ..."
You stated that there should be:
" ... systematic monitoring of driving parameters such as speed, acceleration, braking etc to reduce the risk of all types of accidents. Such system would be operated in conjunction with new protocols eg speed restriction on high risk road sections and urban streets, gentler acceleration/deceleration values etc."
You were advocating there amongst other suggestions about improvement on the black box and GPS driving monitoring system?
MR JULIAN KWONG: Yes, Chairman. That is basically consistent with what we have been recommending in many of the papers we have been submitting to government or LegCo.
MS MAGGIE WONG: Thank you.
Chairman, I have completed my questioning. Unless I can assist further.
CHAIRMAN: Yes, there is one matter.
We have a letter, do we not, that Citybus put in, in which they were asked to confirm their commitment in relation to this franchise. Can you bring that up on the screen?
MS MAGGIE WONG: Yes.
I believe that's CTB-3 bundle.

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CHAIRMAN: Thank you.
MS MAGGIE WONG: Page 582 to 585.
CHAIRMAN: Yes, that's what I had in mind.
MS MAGGIE WONG: If you see this, this is a letter from the Transport Department to Citybus concerning its commitment to provide real-time bus information. If you take your time to read this document, from page 582 to 583.
MR JULIAN KWONG: Yes.
Yes.
MS MAGGIE WONG: So this letter made no reference whatsoever to the monitoring of drivers' attitude or the improvement on the black box requirement, or the GPS driving monitoring as you proposed eight months ago, more than eight months ago.
MR JULIAN KWONG: Chairman, I would like to note that, for example, in clause (b)(1) the term "safety enhancement features for new buses", that may be relevant.
CHAIRMAN: Sorry, clause what?
MR JULIAN KWONG: (b)(1), it is the top paragraph you are reading on the screen.
CHAIRMAN: Clause 7?
MR JULIAN KWONG: Clause 7 of the new franchise. The point number (1), that has the words "safety enhancement features". So ...

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CHAIRMAN: Set out in annex 2. Do we have annex 2?
MS MAGGIE WONG: I believe that's the document we earlier -- it is not in this bundle, or we have not been provided, but if we cross-reference to the earlier document, in TD-3. Page 614. TD-3, page 614. That's clause 7, provision of the facilities.
CHAIRMAN: Don't we have annex 3?
MS MAGGIE WONG: Not in this bundle, we have not been provided with annex 2 or annex 3. It is just the letter, and also page 586, the undertaking letter by Citybus.
But if we can cross-reference this clause with the TD bundle, we can find the relevant clause.
If we cross-reference to TD-3 bundle at 614.
CHAIRMAN: Yes.
MS MAGGIE WONG: And also 652, together.
Clause 7 is the provision of the facility.
Page 652, under clause 7, it sets out:
"The new sub-clause (1) empowers the Commissioner to require the grantee to acquire, provide, adopt, maintain or modify facilities, installation, fixtures ... on its buses to enhance safety ... including provision of barrier free facilities for the elderly and persons with disability."
So based on what we see, Mr Kwong, it has nothing to

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do with the driving monitoring behaviour.
MR JULIAN KWONG: Chairman, I would like to say, these clauses are not precise enough. As far as our comments were made, so it is not something exactly coinciding with our expectations. Although we understand that normally in such a public consultation there are many submissions, and ours is only one of those. Thank you.
MS MAGGIE WONG: That complete --
CHAIRMAN: Do we not have a similar letter from KMB where one has to see what was the commitment that isn't articulated in the franchise agreement, one has to look at the letter that is not a public document that passes between the bus company and the Transport Department?
Yes, it is on the screen now. This is what I had in mind. Can we scroll down to "Enhanced safety features". It is item (iii).
Is that at KMB volume 9?
MS MAGGIE WONG: Yes, that's the extract of the Transport Department's letter to KMB dated 10 March 2017.
Now, in relation to this, we can see that the KMB stated that under the enhanced safety features it simply -- at the bottom, (iii), electronic data processing device, and also the speed limiter, amongst other things.
So, in effect, electronic data processing device is

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a black box. But apart from stating there the installation of this device, there is nothing specific about what information should be contained in this device, to monitor the driver's behaviour?
MR JULIAN KWONG: Chairman, yes. These features quoted in the document, of course I appreciate them, they may be very relevant, and --
CHAIRMAN: They could be anything, couldn't they? Because we are not told what the enhanced feature is?
MR JULIAN KWONG: Chairman, yes. Everything can affect bus safety, but some are more important than the others, and I think this probably has not addressed some of our more major concerns.
CHAIRMAN: You were asking that there be real-time, automated monitoring of driving behaviour. And all we are told here is that an enhanced safety feature which this company has committed to is in respect of electronic data processing device, but utterly bereft of any stipulation whatsoever.
MR JULIAN KWONG: Chairman, that is true. That is lacking the reference for a monitoring system in conjunction with the development of safety criteria for bus driving. Thank you.
MS MAGGIE WONG: Thank you.
CHAIRMAN: You have concluded your questions?

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MS MAGGIE WONG: I have concluded my questions.
QUESTIONS FROM THE COMMITTEE
MEMBER AUYEUNG: Thank you, Mr Kwong, for coming yesterday and today to give us a lot of opinions.
I have do have two questions to seek your insight further.
The first one is regarding the Hong Kong different types of roads. As you can imagine, driving in New Territories is very different driving from driving on Kowloon side, or even the Hong Kong Island side. My question to you is, do you support further regulation or more clear-cut criteria to determine the type of buses to be driven on different types of road condition?
MR JULIAN KWONG: Thank you, Mr Auyeung. Certainly, different roads will have different safety implications on bus driving. And I believe at this moment already there have been some considerations on which types of buses, the size, and also sometimes the features to be incorporated into these buses for using a particular road.
For example, as I understand, new buses using roads on Hong Kong Island, with the risk of having tree trunks causing damage or injuries, now they have metal bars, like a tree guard. On expressway, only on certain roads, an expressway, is it permitted to use the larger

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size of the buses which can carry 148 passengers.
However, I think your question is showing a good direction, that perhaps we should look closer into this issue. Not only that we are looking to the type of buses in terms of size, capacity, and especially the length, we also need to look at it far closer. For example, I mentioned that rear-front collision is one of our major concerns, especially on high-speed road, because the upper deck front seat passengers cannot be protected by the seat belt alone if the bus collides with a container vehicle, for example.
So it seems that there needs to be much more elaborate thoughts on what types of buses should be allowed for certain routes, which is tied up with the risks we identified, both the theoretical risks and also the historic happenings.
Do I answer your question adequately?
MEMBER AUYEUNG: Yes, following similar thought, Mr Kwong, my second question is regarding comments you made earlier, that on narrow and hilly roads in Hong Kong, your recommendation was to reduce the driving speed, and also create more safety barrier. Would installing cameras produce similar results, in your thinking?
MR JULIAN KWONG: Do you mean cameras --
MEMBER AUYEUNG: To sort of deter drivers from

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over-speeding, or even catching people for driving over the speed limit?
MR JULIAN KWONG: Theoretically, that is a possibility. I mean we are actually looking to a very simple objective. We want bus drivers to be particularly careful when they are passing through these critical sections of the road, because we cannot afford any bus, say, from falling off the cliff. To that aim, I think a camera can be a suitable measure, but bearing in mind that with current technologies, we can do it in a more efficient way.
So I think that would be my answer.
MEMBER AUYEUNG: Thank you.
Thank you, Chairman.
MEMBER LO: Thank you. We learned a lot from you in these two days. You covered a lot of ground: bus design, road design, management and monitoring systems, and many deserve further investigation.
I'm just wondering in your mind, can you identify one or two items which is a low hanging fruit, if you will, that the evidence is clear, and which is also appropriate for Hong Kong. So what are these one or two things, that are very clear we should do it ASAP?
MR JULIAN KWONG: Thank you, Professor. There are a number of areas which I have expressed I think clearly in all

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these documents.
The most imminent danger, as I see, would be the critical sections: some sections say along Peak Road, to give you an example. A cliff of 20 to 30 metres high, and we have so many buses going to The Peak nowadays, and also coaches, school buses, minibuses.
I mentioned yesterday that certainly we need to have a safety barrier. But we also understand that many of these roads are historic roads, and there needs to be funding, adequate investment. The immediate measures would be to raise the awareness of drivers and to set up the controls we mentioned.
The second issue I would like to point out, as I did already, is to reduce the risk of rear-front collisions on highways.
That can also be done immediately, by raising the awareness of drivers. And especially to identify those drivers who have a habit to follow the vehicle in front too closely, especially if their bus route is on a high-speed road, including expressway or other rural roads.
And I think that can help to reduce the risk. Because we know that these would be the accidents usually resulting in multiple casualties.
Other measures, other type of accidents, let me have

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a quick look.
CHAIRMAN: Take your time.
MR JULIAN KWONG: Yes. Okay.
Can I refer to my submission which is in bundle MISC-2. It is actually my submission report on bus safety, page 784, because this would remind me of the accidents I am trying to refer to.
Okay, the first one, passenger losing balance, is most frequent.
Raising the awareness of drivers, that could be implemented fairly quickly, I would suppose. We cannot reduce all the risk, but at least we can reduce it reasonably.
The second one, collision with pedestrians.
So again, we have talked about regulating the speed of buses in urban areas, particularly targeting drivers who are habitually going at grossly inappropriate speed.
The last one, I think the Committee would be particularly interested is, in rollover. I would like to point out that there are many scenarios of rollovers. And I would like to draw your attention, in the same document but to page 796. So these are all rollovers.
Rollovers can be due to a number of causes: driving the bus too fast around a bend is only one of the causes. Another cause, of course, is dropping off

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a cliff, that is clear enough. But there is another situation that a bus rises up the sloping end terminal of a safety barrier, and that already accounted for a number of bus rollover accidents in the past.

According to this table, the accident happening on 14 January 2017, the Citybus rolled over on Lei Yue Mun Road at Lam Tin, the casualty, yes, it's correct, one fatal and 19 casualties, and the bus actually was launched by the sloping end of the safety barrier.

You can see that there is another situation, similar accident, in 2003, 17 October. On West Kowloon Highway. Again, that is related to the sloping end terminal.

And again, you can see on 12 June 2015, yes, this one again launched by the end terminal of the safety barrier, but there was no passenger, nobody injured, and few people realised this.

So end terminals, we need to look at this issue. And especially on a highway. Because sometimes a bus driver driving too close to the roadside, and accidentally the bus went up these terminals, and it can lead to rollover. So this is another issue which we need to pay attention to fairly quickly. Thank you.

CHAIRMAN: Mr Kwong, if there are any other final matters that you want to address, please do so now, otherwise we will thank you for your evidence.

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MR JULIAN KWONG: Thank you, Chairman.

Actually, in the past two days I think what I need to express has been expressed.

I would just like to clarify some of my opinions in order that the concept and the idea is clear.

The first one relates to what I mean by highway, and what I mean by the urban road network.

Also in terms of Chinese, highway is (Chinese spoken), and urban street network, I would call it (Chinese spoken). We talk about having lower speed limit, and mostly we have been talking about the urban street network, or urban road networks, because we are talking about 30 kilometre per hour or 40 kilometre per hour speed limit.

I want to make it clear that yesterday I did not imply that highways should be subjected to such speed limit normally. Highways are roads linking urban areas, so usually there is a higher expectation.

The second point I would like to raise is that speed limits have to be reasonable and be consistent with what drivers expect, and what they perceive the environment.

So it is a very sensitive issue. And I do not wish to give the impression that whenever we find a problem then immediately we turn down the speed limit to a value which may become not quite reasonable.

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CHAIRMAN: Perhaps in that context you might like to explain the 85th percentile approach to a speed limit.

MR JULIAN KWONG: Chairman, thank you.

We have a number of concepts in traffic engineering pertaining to speed. The main idea is that the speed of vehicles is not a single value. Usually we have to determine the speed profiles. That means, say, we look at 100 vehicles, and we would obtain the value we call it 85th percentile speed. For example, if the value is 48 kilometres per hour, the meaning is that 85 per cent of the vehicles are going at or below 48 kilometres per hour. And at the same time, 15 per cent of the vehicles go at a speed higher than 48 kilometres per hour.

But I would also like to say that 85th percentile speed is not the only value we are looking at. According to the document which the chairman quoted yesterday, the document entitled "Setting Local Speed Limit, 2013", issued by the Department for Transport of the United Kingdom.

In this document actually they are advocating the use of average speed. Average speed is clear, meaning that, say, we have all the 100 vehicles counted, and we have the average of the speed. So they are not using 85th percentile speed anymore to determine speedy. They are now actually using average speed.

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The idea is the average speed probably reflects what the majority of sensible drivers wish to travel at, the speed which they want to travel at.

The significance is that if we use 85th percentile speed, then it may not be in favour of, say, pedestrians. If we use average speed, that can be a better solution.

Up to now I presume that in Hong Kong we have not been discussing this very important point enough. It will have a major implication of how we should set speed limits.

CHAIRMAN: Can you give us the reference to where average speed is addressed in this document?

MR JULIAN KWONG: Thank you, Chairman. Can I first get the bundle.

CHAIRMAN: Can you help us which document you are looking at?

MS MAGGIE WONG: I think it is SEC-3, page 1003.

MR JULIAN KWONG: Chairman, may I draw your attention to page 1014.

CHAIRMAN: Yes.

MR JULIAN KWONG: Clause 35.

CHAIRMAN: Perhaps you would be kind enough to read out the relevant part.

MR JULIAN KWONG: Yes, Chairman. It states that:

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"Mean speed and 85th percentile speed ... are the most commonly used measures of actual traffic speed. Traffic authorities should continue to routinely collect and assess both, but mean speeds should be used as the basis for determining local speed limits."

CHAIRMAN: Perhaps you would read on at 36.

MR JULIAN KWONG: Yes:

"For the majority of roads there is a consistent relationship between mean speed and 85th percentile speed. Where this is not the case, it will usually indicate that drivers have difficulty in deciding the appropriate speed for the road, suggesting that a better match between road design and speed limit is required. It may be necessary to consider additional measures to reduce the larger than normal difference between mean and 85th percentile speeds or to bring the speed distribution more in line with typical distributions. The aim for local speed limits should be to align the speed limit to the conditions of the road and road environment."

CHAIRMAN: Thank you.

MR JULIAN KWONG: Chairman, should I continue?

CHAIRMAN: Yes, please do.

MR JULIAN KWONG: Thank you. As you can see, speed limits, it has a lot of considerations based on sound traffic

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engineering considerations. I do not wish to go into too much into this, but just to point out that this document would be a particular reference if we want to explore this subject in more detail.

And after that, I would just like to clarify a few other points.

The first one refers to speed humps. I would like to quote the Chinese name. I would consider speed humps to be (Chinese spoken).

Another name is (Chinese spoken). The meaning of this is that speed hump is a physical measure, that it protrudes above the ground. And we have other concepts, like rumble strips, or transverse markings. And these would be more or less visual -- for the markings, they are more or less visual measures. That means the drivers will not actually experience the uncomfortable feeling if they go at too high a speed over a speed hump.

I note that in some of the reporting that the speed hump was translated as (Chinese spoken). So that is in relation to my answer to the counsel yesterday, whether there should be a speed hump on Tai Po Road, and I was more on the conservative side yesterday, because I sensed that you were referring to having a physical measure above the ground, which can be 12 centimetres

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high. That would be a (Chinese spoken), or a (Chinese spoken), in Chinese. A speed hump.

But of course I am open to any ideas. I would like to clarify that according to my experience on main highways, usually we do not provide a speed hump as a physical, as such. Because if a vehicle approaches it too fast, then there is safety concern.

But sometimes we do provide speed humps on a main road, subject to certain conditions. Usually we would first convert the main road, the main highway into a special section. Because the main road is passing through a village or residential district. So I only want to clarify that I do not want to dismiss a proposal, say, by a district councillor, in a simplified way in this meeting. I'm open to any ideas. But just that there needs to be study in detail.

Just two more points.

Red light speed cameras can be a possibility in future to enhance road safety in Hong Kong.

In Hong Kong in the urban areas we have a lot of red light cameras. These cameras can only determine if a car jumps a red light. But imagine if the car passes through the signallised junction on Nathan Road, passes through a green light at 80 kilometres per hour. These cameras cannot enforce the law, because they only catch

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the drivers who jump the red light.

In countries like Australia, they have combined the function of the red light camera with the speed camera. So the same camera will catch drivers who either jump a red light, or who is adopting excessive speeds.

If the driver jumps a red light and at the same time the excessive speeds, he will get two tickets. In Australia this technology is called red light speed camera.

And I understand that the supplier of these red light cameras in Hong Kong, they already can have the speed enforcement function incorporated into the same cameras. Of course subject to further study, I think that would be a very good solution, in addition to any lower speed limit we propose, to enhance the safety of urban streets in Hong Kong.

The last point I would like to clarify refers to the bundle MISC-2. Page 808.

Referring to this photograph, Chairman was very interested in this, because we have always been discussing about the possibility of vehicles or a bus falling off the cliff. And yesterday, I have expressed the point. We have been raising these questions for a long time, sometimes letters, but sometimes we just post it on our website without notifying anybody. And

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I also raised it through the district council.
I believe that government has paid attention to this issue and over the years, there are many similar issues on our roads with safety problems. Some have higher priorities, and some have lower priorities, and I would like to acknowledge that government has been paying attention to many of these issue, especially on bridges. Because after the accident on Tuen Mun Road, many of our bridges have been --
CHAIRMAN: You are referring to 2003?
MR JULIAN KWONG: Yes, Chairman.
That is the continuous programme. I would just like to acknowledge that since then, and over a long time, our bridges, which is also another source of potential catastrophe, have been equipped with safety barriers of adequate protection.
And also we discussed that there is a new consultancy by government on road safety hazard. And our organisation is aware of this consultancy, and it appears it is exactly this consultancy which is going to address this particular problem.
The last point I would like to make is that probably many of these problems are on existing historic roads, and certainly that needs adequate funding for improvements, rather than using the funding for regular

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maintenance or small-scale works.
Certainly, I think we would be in a position to continue addressing these issues and to draw the attention to stakeholders and government.
Thank you very much.
CHAIRMAN: If I may say so, Mr Kwong, you have timed your conclusion perfectly. But we thank you for your evidence, we will now adjourn these proceedings, and resume at 2.30, when we will receive the evidence of Mr Alok Jain.
MS MAGGIE WONG: Yes, thank you.
CHAIRMAN: Thank you very much for all the time you spent assisting the Committee in providing your evidence.
Thank you.
MR JULIAN KWONG: Chairman, thank you very much, it is a pleasure, and also thank you to the counsel and all the supporting staff and the members. Thank you.
CHAIRMAN: Thank you. 2.30 pm.
(1.00 pm)
(The luncheon adjournment)
(2.30 pm)
EVIDENCE FROM FORMER KMB EMPLOYEE: MR ALOK JAIN
CHAIRMAN: Good afternoon.
MR JAIN: Very good afternoon.
CHAIRMAN: Thank you, Mr Jain, for accepting our invitation

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to attend to give evidence to assist this Committee in its considerations of the factors relevant to our making recommendations to enhance bus safety.
I'm going to ask Ms Wong to begin asking you questions.
MR JAIN: Thank you, Mr Chairman.
Examination by MS WONG
MS MAGGIE WONG: Good afternoon, Mr Jain. Thank you for coming. I'm counsel acting on behalf of the Committee, I'll be asking some questions in relation to the safety features of franchised buses.
May we start off with some introduction.
Mr Jain, you have made two submissions in response to the letters from the Committee to you. The first submission you made is dated 25 May 2018. That is in bundle FE-1, page 39.
The second submission, we can find that also in the same bundle, at page 44, dated 18 June 2018. I'll be asking questions based on the two submissions that you have made.
If I may set out your background, first, Mr Jain, you have provided us with a curriculum vitae, and the curriculum, or the CV, can be found at page 46-1, bundle FE-1.
Mr Jain, you are currently the managing director of

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Trans-consult Asia, a management consulting firm, specialising in traffic and transport advisory, new technology, data analytics and clean fuel technologies.
Is that correct?
MR JAIN: That's correct, counsel.
MS MAGGIE WONG: I believe you have worked in the MTR Corporation in Hong Kong, or the KCR Corporation for 12 years.
MR JAIN: That's correct, counsel.
CHAIRMAN: Can we have the time period, please.
MR JAIN: I joined them in 1997 and I left them in 2008.
MS MAGGIE WONG: If I may take you to your CV at page 46-5, it set out, I believe, the period and the work -- and your position at the time you worked for MTRC and the Kowloon Canton Railway Corporation. It is stated there as 2006 to 2008, as general manager, marketing, transport division, correct?
MR JAIN: That's correct.
MS MAGGIE WONG: Over the page, 46-6, you mentioned something about the development of a real-time passenger information display system.
CHAIRMAN: Before we get to that, can we establish Mr Jain's academic qualifications.
MS MAGGIE WONG: Yes.
Mr Jain, can we go to your academic qualifications

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at page 46-8.
MR JAIN: Should be in the back, actually.
MS MAGGIE WONG: 46-8. It is right in the middle. Academic qualifications and professional training.
Mr Jain, I believe you obtained a bachelor of engineering, civil engineering, from Indian Institute of Technology in India.
MR JAIN: That's correct.
MS MAGGIE WONG: Then in 1994, I believe you obtained a master's programme, also on transportation engineering from Asian Institute of Technology, Thailand.
MR JAIN: That's correct.
MS MAGGIE WONG: In 2005 you have taken an integrated management course for senior executives, in the Richard Ivey School of Business.
MR JAIN: Correct.
MS MAGGIE WONG: Those are the academic qualifications you have done. I believe you are also a member of the UITP.
MR JAIN: That's correct.
MS MAGGIE WONG: Can you explain a little bit about this organisation?
MR JAIN: Sir, UITP is actually a French acronym for International Association of Public Transport. It is based out of Brussels and it has close to 1,000 members, over 100 countries, and in Hong Kong MTRC, and KMB --

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KMB used to be a member, I'm not aware if they are still a member, but MTR is a member of UITP.
MS MAGGIE WONG: If we may go back to the page where we talked about the MTR Corporation, where you referred to the development of a real-time passenger information display system. 46-6. Right above the year 2004 to 2006, there is a paragraph stating that you led the conceptualisation to the implementation of a real-time broadcasting system which was winner in best networking category and best lifestyle category.
That section. Is it in relation to the development of that system for the MTRC?
MR JAIN: This was KCRC at that time, yes. And this was known as Newsline Express.
CHAIRMAN: What information did the system deliver?
MR JAIN: Sir, this was basically in-train on-board television screens which provided infotainment which included programming, news, as well as passenger information.
CHAIRMAN: What kind of passenger information did it provide?
MR JAIN: On a normal operational day it would provide what is the next station, and some educational messages about, you know, watch for the platform gaps, stay away from the doors, and things like that. During non-normal

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operations days, when we had an incident, this means was also utilised for directing passengers in the right direction.
MS MAGGIE WONG: That was in 2006 to 2008?
MR JAIN: That was when I was heading the marketing department.
MS MAGGIE WONG: And then if we go to page 46-3 you were the --
CHAIRMAN: 46-3? Thank you.
MS MAGGIE WONG: You were employed as --
CHAIRMAN: Ms Wong, I'm not sure if it is your microphone or the angle you are at the microphone, but the sound is muffled when it comes from your direction.
Can it be moved around? Is it volume sensitive?
MS MAGGIE WONG: Maybe I'll raise my voice. Is that better?
CHAIRMAN: Yes.
MS MAGGIE WONG: Mr Jain, if you look at page 46-3, it relates to your employment at Kowloon Motor Bus, and you were employed as the head of planning and development between June 2013 to December 2015.
MR JAIN: That's correct.
MS MAGGIE WONG: Then you were promoted to be the deputy operations director between January 2016 and December 2016.
MR JAIN: That's correct.

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MS MAGGIE WONG: In your CV I believe you also stated that you spearheaded research and development work on implementation of technology, data analysis, and SMART mobility.
CHAIRMAN: Where do we see that?
MS MAGGIE WONG: I think it is --
MR JAIN: Those are the areas I'm working on -- I mean, I these days work on.
MS MAGGIE WONG: Maybe I'll find the reference in due course.
But you were also Associate Professor in institutions in Hong Kong.
MR JAIN: Assistant Professor, yes.
CHAIRMAN: Professor of what?
MR JAIN: I have been teaching in Urban Planning Department in Hong Kong University.
CHAIRMAN: Over what period?
MR JAIN: I started teaching in 2004, and I still do some part-time subjects. Guest lectureship.
CHAIRMAN: What is the ambit of what you teach?
MR JAIN: Public transport operations and planning, primarily.
MS MAGGIE WONG: You set out your academic engagements at page 46-8 at the bottom, stating that you are part-time Assistant Professor, Department of Urban Planning, Hong

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Kong University, from January 2007, to present.
MR JAIN: That's what I just mentioned.
MS MAGGIE WONG: The earlier reference, Mr Chairman, is at page 46-1. At paragraph 2. The last line:
"He spearheaded the R&D work on the implementation of new technology, data analytics and SMART mobility."
CHAIRMAN: Before you move on, what is "SMART mobility"?
MR JAIN: Primarily use of technology in transport operations.
CHAIRMAN: Is this in the period 2013 to 2016?
MR JAIN: That's correct. Primarily up to 2015. Yes.
MS MAGGIE WONG: Can you explain a little bit more on the use of technology in transport operations? What does it cover?
MR JAIN: So I was involved in the early discussions for real-time operation management system, the telematics, I also led a contract, which never completed, which was about putting this data analytics platform within KMB. SAP was our consultant at that time, and we were putting the whole data into one platform, creating a data warehouse and data extraction system.
MS MAGGIE WONG: Yes. I believe you are currently a consultant for the Land Transport Authority or undertaking consultancy studies for the Singapore Land Transport Authority; is that correct?

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MR JAIN: I have not been directly engaged by Land Transport Authority but I'm working with a consulting firm advising LTA.
MS MAGGIE WONG: Yes, and what is the scope of the advice?
MR JAIN: I'm bound by confidentiality rules there, unfortunately. But it relates to public transport operation and management.
MS MAGGIE WONG: It relates to public transport operation?
MR JAIN: Yes.
MS MAGGIE WONG: And Mr Jain, may I now go to your submissions. Your first submission dated in May 2018, dated 25 May 2018, in FE-1, page 39.
Mr Jain, in your first submission at paragraph 2 -- you started at page 39 explaining your involvement in KMB as head of planning and development department, and the scope of your work. I can see that it includes "technological applications in relation to our activities and data management".
That would include the telematics and real-time monitoring system you referred to.
MR JAIN: Not precisely. Telematics and real-time operations management system had two aspects, one was the hardware part of the services -- three aspects, hardware part, software part and the data handling part. And I was primarily involved from the data handling

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perspective.
CHAIRMAN: What was the hardware? What was that?
MR JAIN: The hardware was supplied by Openmatics. This was a telematics device which was being installed on the buses. And then at the back end, the ROM system, which was the software aspects of data extraction from this telematics device, and putting that into a real-time operations management system, and the third part was how to analyse this data and then extract intelligence and knowledge out it of.
CHAIRMAN: Let's deal with them one at a time.
Hardware, Openmatics, what was the equipment? Take it slowly.
MR JAIN: Well, it is commonly referred to as a black box in common parlance. This is --
CHAIRMAN: What was its technical name?
MR JAIN: It is a CAN bus system which is something, as far as I understand, which sits on the engine, connects to the engine, collects all the operational information about the bus, vehicle performance.
CHAIRMAN: What kind of data?
MR JAIN: It has speed-related information, acceleration, deceleration, braking, tilting, fuel consumption, location.
CHAIRMAN: What was the name of the model?

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MR JAIN: I can't recall the name of the model.
CHAIRMAN: Software. What was the software?
MR JAIN: The software at that time, the intent was to develop it in house and it was termed as real-time operations management system. ROM for short.
CHAIRMAN: How was it to work?
MR JAIN: So telematics device was supposed to transmit data on a near real-time basis to back end OCC, operation control centre, and this ROM system was supposed to translate this data into understandable or comprehensible format, and then there was a platform for data analytics which will then allow us to analyse all this data and create, put it into our planning parameters when we were doing the bus route planning, scheduling, rostering, and all those things.
CHAIRMAN: Where was the operation control centre?
MR JAIN: The intent was to incorporate it into Lai Chi Kok Centre.
CHAIRMAN: How was the data to be transferred from the telematics to the operation control centre?
MR JAIN: It was over a GSM network using the mobile technology basically, 3G technology.
CHAIRMAN: That's the system that mobile telephones used?
MR JAIN: That's correct, yes.
CHAIRMAN: So that is the software side of things. And then

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finally, what was to be the data analysis?
MR JAIN: So until then, a lot of data in KMB was residing in silos in individual departments. They were collecting -- for example, engineering information was available in engineering, operational information was available in the operations department, and they were all in different systems. The plan was to put this all into a single data warehouse and create a single version of truth.
CHAIRMAN: What use was to be made of the data contained in this single data warehouse?
MR JAIN: So there were three stages. The first stage was to establish the static, what is real, what is happening on ground. The second stage was to put into some level of modeling, where we could use it for planning purposes, in short term. And the third objective, eventually, was to take it into a predictive level, where we could apply statistical tools and do some forward projections.
CHAIRMAN: What use was to be made of the first step, the real time?
MR JAIN: That was primarily for management information purposes, as well as for any investigations, reporting, so on and so forth.
CHAIRMAN: Investigations into what?

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MR JAIN: For example we used to receive a lot of passenger complaints about services, we could go back and look into the data and verify that information.
CHAIRMAN: So if the complaint had been made that the bus had been driven at an excessive speed and braked harshly, could that be investigated by analysing the data that had been put into this single data warehouse?
MR JAIN: Potentially, yes.
CHAIRMAN: That's a response to a complaint. Was there any plan to use the data proactively?
MR JAIN: So the second stage was where we went into real-time operations management system, because once we built the data models on the historic data we could translate the similar level of information and analyse on a real-time basis, and the idea was of course to monitor the whole operation on a real-time basis using what we normally call an exception management, where anything that goes beyond the threshold of normal operation you start to actively manage it.
CHAIRMAN: How was it envisaged, if it was, that this approach could address the manner in which a bus was doing driven?
MR JAIN: For example, if any bus that was being driven beyond the parameters that were set as normal operation, then it would raise an alert, and normally the

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companies, or examples that I have seen around the world, they use this green, amber, red approach. So green is normal operation, anything that goes on the outlines of threshold boundaries it starts to raise the alert as an amber, and then of course once it crosses, it is a red alert. So at that time some intervention is necessary.
CHAIRMAN: Was it envisaged that this alert raised by a parameter being breached would occur real-time?
MR JAIN: The intent certainly at that time was that.
CHAIRMAN: When did discussions about the use of telematics in this way first begin in which you were involved?
MR JAIN: The discussion regarding this started most likely before I joined. But when I joined the company in 2013 in my early part of the involvement we were already discussing this. So I can't remember the exact date when it started.
CHAIRMAN: Who was involved in such discussions?
MR JAIN: At that time -- the senior management was involved, my immediate superior was the transport development director, he was involved. IT department was involved, operation department was involved.
It was done across the company, multiple departments were involved into that discussion.
CHAIRMAN: Thank you, Ms Wong.

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MS MAGGIE WONG: You said a lot of people were involved. Can you give us an estimate of how many people?
MR JAIN: I think every different meeting had different number of people. It is not like a constant, but as I said, the departmental representations were -- these were the key departments who were involved in these discussions. There were quite a few, sizeable amount. Sometimes it used to be, depending on the issue, it could have been three or four people, or it could have been 20 people.
MS MAGGIE WONG: In any event, as you said in evidence, it was intended that the Lai Chi Kok Centre to put in all this data to be analysed by different departments' personnel; is that the idea?
MR JAIN: The idea was Lai Chi Kok would be the real-time operation management centre, the operation control centre, the data analysis was not necessarily at Lai Chi Kok Centre, it would be company wide.
MS MAGGIE WONG: So it is simply a centre to keep the information, or do you mean the real-time monitoring would be carried out in the Lai Chi Kok Centre?
MR JAIN: Yes, real-time to be carried out at Lai Chi Kok -- so this was more of screens and visualisations of where the buses are on a real-time basis, and of course data is processed through different servers and different

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processes within the organisations so data was meant to be available to a lot more people within the company.

MS MAGGIE WONG: If I can go to page 40, FE-1 bundle, paragraph 2. You mentioned in paragraph 2(a) about this real-time operational management system. And in (a) you mentioned you were:

"... involved in many meetings and discussions about the technical specifications, features, technology selection and so on in relation to ROM right after I joined the company."

But you were not involved in discussions related to funding, tendering and project management.

MR JAIN: Correct.

MS MAGGIE WONG: Is it the case that throughout the time you joined the company until the time you left, you were involved in this ROM project?

MR JAIN: I wouldn't say until the time I left, but during that period when it was being discussed as a part of implementation process, yes, I was involved in the project very actively.

MS MAGGIE WONG: And I notice in (i) of that paragraph (a) you stated that the primary reasons to implement the project were to improve safety through real-time alerts and feedbacks to bus captains.

The feedbacks to bus captains, can you tell us

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whether it is intended to be real-time feedback or a reactive feedback to bus captains after the complaint has been received.

MR JAIN: There were two things that happened. The idea was to develop a two-way communication system between the bus itself and the operation control centre, and the bus drivers were supposed to have what we call a DDU, driver display unit, and through this DDU there are two ways to intervene with a driver. One is done at the bus level where the bus, you can pre-programme the parameters that bus -- any time transcends, it creates an alert for the driver.

The second level of alert could be triggered by somebody sitting in the operation control centre. Let's say, for example, if a bus is running too fast, but still within the speed limit, and the on-board device does not detect any anomaly. However, at the OCC, a supervisor detects that on a particular section the bus driver, probably because of weather conditions or because of any accident or road conditions, they should be driving slower, then a supervisor can technically intervene and alert the driver or remind the driver to go slow in that section.

So there are two levels of interventions that can be done.

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CHAIRMAN: On the second intervention, that is the supervisor in the OCC, how would he communicate his intervention to the driver?

MR JAIN: So we had many options being discussed at the time. We were talking about just a display system. The second was we were also talking about an audio system.

CHAIRMAN: So there were two possibilities. One was through the display system or otherwise by audio?

MR JAIN: Well, display was almost there, and audio was considered as an additional possibility.

CHAIRMAN: Was audio going to be by radio or by some other means?

MR JAIN: Primarily by radio, or even 3G communication. We had not gone that far, I think, at that time.

MS MAGGIE WONG: You mentioned there were many meetings or discussions about this ROM features. Can you recall if there are minutes or documents recording what was discussed?

MR JAIN: There were a lot of presentations, if I recall, and there were e-mails post meeting summarising what was discussed, the key agenda, or key tasks to be done by respective people. But as formal minutes, as we know them, I cannot recall if they were prepared.

MS MAGGIE WONG: Yes.

CHAIRMAN: These presentations of which you say there were

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lots, were they in writing?

MR JAIN: These were PowerPoint presentations.

CHAIRMAN: On computers?

MR JAIN: Yes.

CHAIRMAN: Not on paper.

MR JAIN: Primarily on computer, PowerPoint presentations.

CHAIRMAN: Who made the presentations?

MR JAIN: Sometimes IT department, sometimes operations department.

MS MAGGIE WONG: Can you tell us who in the operations department would be responsible for compiling these presentations or materials?

MR JAIN: Who in the operations?

MS MAGGIE WONG: Or --

CHAIRMAN: If you can't remember say so, but if you do, tell us.

MR JAIN: There was a dedicated team of people in operations who were working on this. They left the company. I can't recall the name immediately. But there was a central team in the operations department, traffic department, which was looking at it.

MS MAGGIE WONG: It is called the traffic department?

MR JAIN: It was called the traffic section.

MS MAGGIE WONG: Traffic section in the operations department?

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MR JAIN: Yes.
MS MAGGIE WONG: You mentioned in paragraph (b) in line 3
" ... the telematics data was still available even after the scrapping of the project, there was some level of monitoring but the real value of ROM system was 'real-time' and that capability was sacrificed."
Now I would like to ask you this. What do you mean by "some level of monitoring" here?
CHAIRMAN: Before we get to it not being implemented, can you tell us how it came about that all this planning stopped? What happened?
MR JAIN: I was not involved in those discussions about scrapping this. But I do understand that ROM, because it was being developed in-house, it was running behind schedule.
CHAIRMAN: Yes.
MR JAIN: And that had caused some level of -- I'm looking for the right word -- some level of frustration within the company why we are not keeping up to the schedule, and then it was later announced that we are not going ahead with it anymore.
CHAIRMAN: Was this technology in any way linked to anything else that was being developed or used on the buses at that time?
MR JAIN: We were talking about a number of things that

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could happen on the buses. We were talking about having real-time transmission of fare collection information. We were talking about automatic people counters on board the buses, we ran some trials with some university professors on WiFi detection. Ultimately the idea was we could detect how many people were on board the bus, where they were on the bus, and then we could provide this information in advance to the passengers, so they knew whether they could get on the bus, or whether they can get a seat on the bus or not.
CHAIRMAN: Was there a system developed perhaps prior to when you arrived, of giving estimated time of arrival of buses?
MR JAIN: That capability was developed during my time. Actually the trial was launched in, if I recall correctly, 2014, last quarter, and then eventually it was rolled out in early 2015.
CHAIRMAN: And the equipment that was necessary to develop that system, was it in any way relevant to the ROM system?
MR JAIN: It is actually the same equipment.
CHAIRMAN: Yes. So it was another use of the data that was obtained?
MR JAIN: Correct.
MS MAGGIE WONG: Can you recall who announced or who

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conveyed the decision that the project would be scrapped?
MR JAIN: Nobody announced, as such. But when we knew, as I said in my letter, when Lai Chi Kok, the OCC, the facility was converted into office space, then it was kind of -- the message was clear. There was no formal announcement as such.
MS MAGGIE WONG: Okay.
MR JAIN: I cannot recall any formal announcement.
MS MAGGIE WONG: Thank you. About this real-time system, was it part of the function to monitor the driver's behaviour in their performance?
MR JAIN: Among other things, yes.
MS MAGGIE WONG: The reason I mentioned this is you mentioned GreenRoad, about different scorecard system. When you were thinking about this ROM system, or in your discussions, was this one of the ideas that your company at that time initially wanted to implement?
MR JAIN: That was certainly one of the intents.
Sir, in fact, when I mentioned improved fuel efficiency, this was directly linked to what we call eco-driving, green driving. There were a number of names you could call it, it is the same thing.
The idea was you could somehow nudge the drivers to drive in a better way on the road by creating some kind

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of a system where we could give them the feedback about how they are driving and whether they are outliers or whether they are falling within the normal pattern, or whether it's good behaviour or bad behaviour, and you could nudge their behaviour in a specific way without penalising them, and that would eventually yield some kind of fuel efficiency, because fuel efficiency is directly linked to acceleration and deceleration.
MS MAGGIE WONG: Yes. You mentioned about penalising them. What about rewarding them?
MR JAIN: At that time we didn't really go into details of this. The idea was not to penalise, that was certainly clear. And that was the kind of conversations we were having, but we were trying to generate the data how we were going to reward or whether we want to monitor. Those mechanisms we had not gotten around to.
MS MAGGIE WONG: Yes, but that idea was certainly conveyed during one of the meetings?
MR JAIN: Yes, we discussed those ideas, we discussed actually many possibilities at that time.
MS MAGGIE WONG: Yes --
CHAIRMAN: Did you discuss what parameters to stipulate?
MR JAIN: Basically we were looking at London as one of the examples at that time, and the way London does it is they basically look at all the -- they call it

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incidents, and anything that goes into the outliers of those thresholds, which is behavioural response such as acceleration, deceleration, braking, tilting, then the driver would get an incident on their record. And the less incidents they had, the better performance it would be considered for the driver.

CHAIRMAN: But did you consider stipulating excessive speeds at a certain level, or excessive braking or acceleration at certain levels? Did you condescend to that detail?

MR JAIN: We didn't put in the numbers, but we were trying to do a bit of statistical analysis, and at that time it was still being debated what kind of threshold or parameters or standard deviations we needed to look at.

Some discussions that did happen was about whether we should have a general blanket rule around the whole network, or whether we should define them on a route-specific, road-specific manner. Again, we were having those kinds of discussions.

MS MAGGIE WONG: You mentioned about route-specific manner How do you pick the routes?

MR JAIN: Every route has different characteristics, whether they pass through traffic junctions, whether they pass through TST urban area, whether they are on highways, so the behavioural responses are different on different type of routes. So there are more chances for a driver

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to brake hard on a stop-and-go kind of environment where they are pulling in and out of lay-bys quite often and they have to watch out for other traffic, whereas on a highway those incidents are much less.

We were discussing at that time what is the best equitable way to define these parameters which could meet the expectations of the management as well as deliver real value in the end without upsetting the drivers.

MS MAGGIE WONG: May I go back to your paragraph (b) about there being some level of monitoring even after scrapping the project. What level of monitoring are we referring to?

MR JAIN: As I understand, telematics data are still being used but they are being used most as a post-event, or T plus 1, on the next day, or after the event has occurred.

MS MAGGIE WONG: So reactive rather than proactive?

MR JAIN: You can say that.

MS MAGGIE WONG: It also mentioned that the real value of the system is real time but that capability was sacrificed. So is what you are talking about reactive to the complaint rather than proactive --

MR JAIN: Yes.

MS MAGGIE WONG: -- in that sense?

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MR JAIN: So data is available real time, but nobody is analysing this data in real time or reacting to this data in real time or quasi real time.

MS MAGGIE WONG: Yes.

MR JAIN: It is the kind of -- whether you can have a 20-second response or a 24-hour response.

MS MAGGIE WONG: In paragraph 3, starting from line 2, you refer to:

"Even at the time when KMB was drawing up the plans, we were drawing heavily on the experiences from Seoul, Singapore, London ..."

And just on this, what experiences are you drawing from these countries?

MR JAIN: So just before I joined, I understand that KMB senior management went on a study tour and they visited all these cities, they looked at the systems, and when we were designing -- we were having these meetings, we were extensively talking about what Seoul is doing, what London is doing, the best practices, and how we can adopt this best practices to bring to Hong Kong.

MS MAGGIE WONG: Can you quote an example? Like what experience are you deriving from Seoul or Singapore?

MR JAIN: For example, Seoul had done this central traffic management centre, TMC, and that was something that was -- our idea of doing at the OCC level, operation

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control centre level. Transport for London were actively managing their drivers' behaviour using telematics advice. That was something we wanted to bring over. So we were looking at different examples and how they could translate for our environment.

MS MAGGIE WONG: Yes. And when you discussed or when you had all these meetings, can you recall if it involved any participation of the Transport Department? Or did you relay the message that you are planning to do this with the Transport Department?

MR JAIN: I cannot recall exactly whether Transport Department was involved in any of this discussions, but I do feel that they were aware of what we were planning to do, because we made in those days a lot of public presentations to various chambers of commerces and all that, and we were talking about the future direction of KMB on how technology is going to transform the company.

MS MAGGIE WONG: You made a lot of public presentations?

MR JAIN: Me as well as other senior management of the company made on lot of presentations and we talked about these things.

MS MAGGIE WONG: "These things" is the ROM system?

MR JAIN: ROM was one of them. Estimated time of arrival, we were talking about, which was all centred around telematics device.

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MS MAGGIE WONG: So in all these public presentations, you are saying some Transport Department people were present?
MR JAIN: I can't answer that authoritatively, but I would say this was public knowledge in a way, because we were not really trying to keep it under closed doors, so we were making public presentations.
CHAIRMAN: What you are saying was this was being disseminated widely and you would expect Transport Department might have heard about it?
MR JAIN: Correct.
MS MAGGIE WONG: Before I move on, because you made some references to this centralised management system, can I take to you a document. It is SEC-2 bundle. It is page 822.
CHAIRMAN: Ms Wong, I'm going to ask that we take a short adjournment, I would like to see if we can address the sound system, because we are getting a very muffled sound from Ms Wong, I see Mr Jain has the same difficulty. It may be the location of the speaker or we may need to swap the microphone.
May I ask that we address it and take five minutes. Feel free to leave the room if you want to, Mr Jain, but we will take five minutes. Thank you.
(3.15 pm)

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(A short break)
(3.22 pm)
MS MAGGIE WONG: Mr Jain, I'm going to refer you to the Information Note by the LegCo. It is "Franchised Bus Services in Seoul and Singapore", and it is in the SEC-2 bundle at page 822. It starts at page 822.
If we go to page 823, that's the start of the Seoul system. And over the page at page 825, paragraph 2.8 --
CHAIRMAN: Before we get there, what is the date of this document?
MS MAGGIE WONG: This document was made between 2014 and 2015, although it does not actually bear a date. It is a research paper done by the LegCo Secretariat. But you can see the IN05/14-15.
MR JAIN: At the back it is dated 3 February 2015.
CHAIRMAN: Thank you very much.
Yes.
MS MAGGIE WONG: If we look at page 825 it talks about the establishment of the bus management system at 2.8:
"To coordinate bus services on a comprehensive and system-wide basis, the Seoul Metropolitan Government has established a new bus management system ... using advanced intelligent transport system technology ... GPS terminals installed in every bus allow a central bus control centre to monitor all bus locations and speeds,

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adjust the number of buses travelling on any given route, communicate with bus drivers, and provide real-time information to passengers waiting at bus stops or checking bus schedules on the Internet."
Mr Jain, is this the system that you were referring to earlier on?
MR JAIN: It was a similar system, but if I may correct some of the things here. GPS terminals can't on their own allow all those things that are mentioned here.
GPS is just a location-based system.
MS MAGGIE WONG: Yes.
MR JAIN: So it has to be more than GPS, which usually is telematics. So I'm not sure whether they are referring to telematics there, but ...
CHAIRMAN: So GPS tells you where you are?
MR JAIN: Just the location.
CHAIRMAN: Then you need telematics to tell you speed or deceleration, acceleration?
MR JAIN: That's correct. The actual vehicle-related performance comes from an on-board device which is usually a telematics system. And telematics systems range from very simple type of devices to complex devices. Openmatics, the one that we are referring to here is quite a sophisticated one. But you can get a much simpler cheaper version of that device which can

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just give you basic information about the vehicles. There are a lot of those available in the market too.
CHAIRMAN: Does the Openmatics model Mozart mean anything to you? Openmatics model, telematics, called Mozart?
MR JAIN: The only Mozart I know relates to music. I have not heard of that, Chairman.
CHAIRMAN: What about Bach? He is also a musician. Does that mean anything to you in terms of Openmatics?
MR JAIN: No. At that time we only referred to as Openmatics or telematics.
CHAIRMAN: Have you been invited to read the evidence that we received from the ZF engineer?
MR JAIN: I received it, Chairman, but that was late at night yesterday, and I didn't get much time to go through that.
CHAIRMAN: We have been told about two models that they produce, in the wrong chronological order. The first one was called Mozart, and then the second one was called Bach. In musical terms that is the wrong way around, isn't it?
MR JAIN: I can think of quite analogy to those things. The data they produced looked a lot like musical notes!
CHAIRMAN: Yes, Ms Wong.
MS MAGGIE WONG: Mr Jain, since we are on this Mozart and Bach business, can we go to BM-1, page 64.

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This is a letter by a law firm acting for ZF, and Openmatics, to this Committee. It is a submission. The submission starts --

CHAIRMAN: Just give Mr Jain a moment so that the document can be put before him in paper form.

MS MAGGIE WONG: Mr Jain, if you would turn to page 65. This is a reply by Openmatics to the questions raised by this Committee, and black is the question, the answers in blue are the answers provided by ZF and Openmatics.

If you look at the second paragraph it made reference to the fact that:

"Openmatics entered into a supply contract to deliver telematics systems, dated 16th of April 2013 with Kowloon Bus Company ... and Long Win Bus ..."

So we can see the date there is April 2013. I believe that's prior to the time you arrived.

MR JAIN: That's right. I joined in June 2013.

MS MAGGIE WONG: Yes, and they continue by stating that:

"Openmatics starting offering telematics services by using the first black box system called the 'Mozart Box'. Later on ... replaced ... by a successor platform black box called the 'Bach Box'. However, clients can use both systems in parallel as KMB does."

Mr Jain, I know you don't know much about the name of the black box system, but have you seen, during the

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time in one of your discussions, one of the black boxes? Was that shown to you? The actual physical black box? Was that shown to you?

MR JAIN: I can't recall, no.

MS MAGGIE WONG: Yes. So would it help if I showed you the photo? Would it remind you --

MR JAIN: But having said, I have seen black boxes. I have seen the device.

MS MAGGIE WONG: Yes.

MR JAIN: Not exactly by Openmatics in KMB context, but I've seen the device.

MS MAGGIE WONG: You have seen one, yes. And if we go to the next page at 66, it made reference to a driver feedback system, and the thresholds set by KMB for that vehicle, and it set out certain acceleration rates, deceleration rates and tilting angle and certain configuration of speed and speeding areas.

Do you know much about thresholds in this telematics system, Mr Jain, or setting up of thresholds?

MR JAIN: Well, one thing that stands out to me is tilting angle here.

MS MAGGIE WONG: Yes, why?

MR JAIN: That it is an outlier.

CHAIRMAN: The bus is already falling down, isn't it?

MR JAIN: That's right. 44 degrees is beyond control.

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CHAIRMAN: So it is intended not to give any alarm?

MR JAIN: Possibly.

CHAIRMAN: You set a position that is beyond purpose.

MR JAIN: That's correct, yes.

MS MAGGIE WONG: What about the deceleration rates?

MR JAIN: Is this a global parameter or is this route specific?

CHAIRMAN: I think we are to assume it is global.

MR JAIN: I would assume that 2.3 in a sloping situation would be considered acceptable because that is sometimes needed in Hong Kong. On a flat road possibly this would be too much.

MS MAGGIE WONG: Thank you. And if we go to page 68, right above paragraph 4, there is a reference to the Openmatics -- what the Openmatics system installed at KMB can identify. It states that it can identify records of speeding recorded every second and stored together with the related GPS data. Malpractice of harsh braking --

MR JAIN: I'm sorry, I cannot locate where you are reading.

MS MAGGIE WONG: Page 68 -- I'm sorry about that, Mr Jain, the blue section, if you see the third paragraph:

"The Openmatics telematics system installed at KMB ..."

Do you see that?

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MR JAIN: Yes, I have read it.

MS MAGGIE WONG: Thank you. It says:

" ... can identify:

Records of speeding; recorded every second and stored together with the related GPS data;

'malpractice' of harsh braking;

Abrupt acceleration;

The corresponding bus registration numbers with the assistance of other systems

The Openmatics telematics system installed at KMB cannot identify:

Route numbers of certain buses.

The data are collected as defined by the system. Every second, the system collects the defined data and sends that data every 30 seconds -- if connected to Wi-Fi or to ... the defined FDP server. The information is also stored locally on the telemetry unit (black box) for 30 days."

I would like to ask a few questions about this system installed at KMB being able to identify the four matters.

Are these the four matters that in one of your discussions that you have explored as part of your real-time monitoring of the drivers' behaviour?

MR JAIN: As far as I understand, the telematics device

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gives you the speeding -- not speeding data, but the speed data.

Also it gives you the braking performance, which you can define as harsh or non-harsh. But what you define them as are configurable parameters, whereas the data generated are the exact data from the device that are performance-related data.

Similarly, acceleration is given by them, but what is abrupt or what is non-abrupt are configurable parameters.

This is my understanding of their device.

CHAIRMAN: Yes, and we have seen that illustrated on a previous page where we see the data parameters that have been put into the machine, including that non-performing tilt angle.

MS MAGGIE WONG: So the clients can choose the parameters?

MR JAIN: So technically, these parameters can be route-specific, can be location-specific, and also you can design your thresholds based on specificity of a particular route or a particular road section, rather than having a global parameter.

MS MAGGIE WONG: Yes.

CHAIRMAN: Yes, so you could define your threshold depending on where the bus is?

MR JAIN: Correct.

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CHAIRMAN: In other words, you know where its latitude and longitude is, you know that puts it in a 50-kilometre per hour zone, and you put a threshold at whatever you might decide, perhaps 55, but when it goes into a 70 zone, you put another value, 75, perhaps.

MR JAIN: Absolutely, Chairman.

MS MAGGIE WONG: So in all these meetings you were discussing about these parameters and the capability of what the black box can do?

MR JAIN: That's correct, yes. What we were discussing at that time is how best to utilise this information to improve safety and improve the operation the performance.

CHAIRMAN: As you said, this had a monetary incentive because if you drive in a better fashion, you don't indulge in unnecessary acceleration, you don't brake, you come to a stop gently, then you use less fuel.

MR JAIN: Absolutely, Chairman.

MS MAGGIE WONG: And the second matter I would like to ask is this 30 seconds. According to this information, the data can be collected every second, but in here, the system only collects data every 30 seconds.

So this is also --

CHAIRMAN: No, it transmits data every 30 seconds.

MR JAIN: But that is also a configurable parameter. You

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can have a constant stream of data, or you can do every 10 seconds, every 30 seconds, or you can even not have that transmitted.

CHAIRMAN: Yes, that was the effect of Mr Kulis' evidence, which you have yet to read. But that was what he said, that you can configure this as you can the other things.

MS MAGGIE WONG: That's what you earlier said, that's the benefit of the real-time capability that was sacrificed.

If I may go back to your submissions at FE-1, page 40. And we were on to these countries that your company at that time was deriving experiences from.

You also made reference to New Zealand, the GreenRoad.com where reference was made to bus companies having the advantages or benefit of the system and, in particular, halving of incidents of poor driving behaviour. And it also states that the accidents from collisions fell by half, while accidents caused by bus drivers plunged by 70 per cent.

At that time was this matter or this GreenRoad system discussed in one of the group meetings?

MR JAIN: Not exactly. This information is something that came to my knowledge only I think last year.

MS MAGGIE WONG: Last year?

MR JAIN: And I have quoted it here.

MS MAGGIE WONG: If I may show you an article about

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GreenRoad.

It is the article dated 12 July 2012, making reference to GreenRoad as "a leader in driver performance and safety management".

And in the second paragraph it states that:

"GreenRoad has already --"

CHAIRMAN: What is the date of this document?

MS MAGGIE WONG: 12 July 2012.

CHAIRMAN: Thank you.

MS MAGGIE WONG: In the second paragraph it states:

"GreenRoad has already reduced driving risk 60 per cent for the 70 buses in London where it has been in use by 110 drivers since 2010."

And then jump to the next paragraph:

"Using mobile and cloud technology, GreenRoad helps drivers self-improve. It provides drivers with instant feedback about their manoeuvres using the traffic light LEDs on the dashboard as well as detailed analysis and recommendations for drivers and depot managers."

This system was set out in your paper, but at that time was this -- because I see the article is dated 2012 but wasn't explored, was it, in one of your meetings?

MR JAIN: Not exactly this company, but I think the concept that is mentioned in this article, we are certainly aligned with these concepts.

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MS MAGGIE WONG: If we go back to your submission, FE-1, page 40, paragraph 4. It made reference to the scrapping of the project. And you also stated that:

"One of the fundamental changes in management after 2015 was that instructions and decisions were seldom documented and often reversed arbitrarily without discussion or consultation with other internal stakeholders."

Internal stakeholders, who do you mean?

MR JAIN: I mean people working in various other departments.

MS MAGGIE WONG: Yes. Over the page, page 41. You mentioned at paragraph 2:

"Due to the specific nature of questions ... are specific to KMB, but a lot of what is happening in the franchised bus industry in Hong Kong is also a direct result of systematic problems such as outdated regulatory framework, lack of open competition, lack of adoption of technology, lack of transparency, and a ... [the] relationship between the regulator and the franchisee."

So you have identified five problems here.

CHAIRMAN: Before you get involved in the details, you used the word "systematic '", but in fact do you mean "systemic"?

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MR JAIN: Yes, that's correct. Thank you, Chairman.

MS MAGGIE WONG: The first one is the outdated regulatory framework. Can you elaborate on why you consider the current regulatory framework outdated?

MR JAIN: The regulatory framework that is prevalent in Hong Kong at the moment, I think that was adopted decades ago. At that time, the technology for monitoring various things didn't exist. Now, we have obviously gone to a much different level of data that is available from operations. We are talking about artificial intelligence, autonomous buses and all those things. The current regulatory framework in Hong Kong does not really allow for anything that is something that fits into the norm of 20/30 years ago.

For example, autonomous vehicles is a classic example. If any bus company in Hong Kong would like to introduce autonomous buses, the regulatory framework or the legal framework does not even exist, whereas other cities have gone ahead and adopted or they have modified their systems or regulatory frameworks, to allow for these innovative new ideas or innovative practices. Hong Kong still lacks those things.

MS MAGGIE WONG: Which cities are we talking about?

MR JAIN: We are talking about China, Singapore, Dubai, Abu Dhabi, a lot of cities around the world have adopted or

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reformed their regulatory systems to adopt open data framework, they have reformed to allow for autonomous test trials, e-bus, electric bus, solar buses --

CHAIRMAN: Just dealing with autonomous vehicles, is the point you are making this, that in Hong Kong you are required to have a person in a vehicle, and it can't be driven by a computer; is that the point?

MR JAIN: That's one. Second is if you want to put any kind of vehicle on road in Hong Kong it has to go through a type approval process, and the type approval process itself does not allow anything beyond, I would say, post-war specifications.

MS MAGGIE WONG: It is more concerned about the nature of the bus. In terms of regulatory framework, what about the black box system? Do you know much about how one or whether one knows anything about what can be installed in the black box system for buses? I think in Hong Kong it is completely lacking. What about, in your experience, in other countries?

MR JAIN: I think it is more of a norm these days, rather than exception. If we go to any of the developed cities, they are very widely adopting a telematics system, places like even Turkey, I was there and Turkey has these things in place. European cities, they all have telematics devices on board. Again, going back to

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Singapore, Dubai, Seoul, Tokyo, all these cities which are very comparable to Hong Kong, high public transport usage, they are adopting telematics devices and it has yielded significant benefits in terms of operational performance and efficiency.

MS MAGGIE WONG: Yes, and we have touched on regulatory framework.

The second complaint is about lack of open competition.

Can you elaborate on that?

MR JAIN: For example I would look at Singapore, and quote that example. In Singapore they were running their bus system almost in an identical manner to the way we do in Hong Kong until 2012, 2013, when they started looking at reforming the bus operation in Singapore based on the changing environment of public transport.

And at that time they looked at it and they realised the bus operation in its present form in Singapore was unsustainable, and they completely changed the model and adopted a new regulatory framework, which has now brought in much better services, much better performance, a lot of innovation, and they have, I would say, assumed leadership in bus operation at least in this region at the moment.

That is the kind of thing that has happened because

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they have opened the market for international players to come in, and participate in the process, and bring in best practices from around the world.

Once you have no competition in Hong Kong, we have been working with the same operators all throughout without any risk of them being -- there is nobody upsetting the apple cart here, which means that those incentives to bring innovation, incentives to bring efficiency, don't exist. And that is what I mean here with the open competition.

CHAIRMAN: By that, do you mean that Singapore invited tenders to run bus routes, and that produced competition, and new international players, as it were, came in to run buses in Singapore?

MR JAIN: That's correct. I'll give you one example of a company called Tower Transit there. Prior to Tower Transit coming into the market, in Singapore they always complained about driver shortage -- because of the same reasons as we quote in Hong Kong.

Today, Tower Transit has surplus application of people who want to drive their buses.

CHAIRMAN: How has it achieved that?

MR JAIN: Because they have adopted a completely new type of HR engagement, human resource engagement with the drivers, and I have visited their depot, and it is

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a very pleasant experience, where literally everybody greets everybody, it is a flat management structure, and drivers consider themselves to be really part of the whole delivery process.

CHAIRMAN: That is Singapore?

By contrast how would you describe Hong Kong?

MR JAIN: In Hong Kong, I would say that it is a very "us and them" mentality. The management thinks the drivers are an entity which is troublemaker, which is always asking for this, and asking for unreasonable things, whereas if you ask the drivers -- and I'm a qualified licensed bus driver, and I can tell you the drivers think that the management people who sit in this air-conditioned office know nothing about bus operation, they are the ones running the whole show.

You can see there is a lack of mutual trust there, and this is what I mean, we need to reform this industry, make sure this industry is attractive, for people to come and join as an employee, and of course also need to understand that this is something which becomes the fabric of the city. Bus operation is moving -- KMB moves 3 million people in Hong Kong, total bus operation is about 4.5 million people.

And if we can't address these issues, this is, if you ask me, we can buy the best buses, but if we can't

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have the proper good drivers to run these buses, the whole exercise is futile.

MS MAGGIE WONG: Thank you.

CHAIRMAN: Since you have touched on it, what is your opinion or assessment of the quality of the buses and the way in which they are maintained, generally, in Hong Kong?

MR JAIN: I would rate it quite highly. I think the Hong Kong buses are very well engineered, they run for 17, 18 years, and even at the end of their life they are in a very good condition.

CHAIRMAN: Because they have been maintained properly?

MR JAIN: That's correct, yes.

MS MAGGIE WONG: What about training? The drivers' training?

MR JAIN: There are two aspects of training. One is the classroom training. The second is the motivational aspect of training. And I do feel that, and I have looked at documents that have been submitted in the first lot, which were sent to me last Friday, and it is a fact at that there is a lot of effort people are putting, ticking a lot of boxes in terms of number of hours, this and that, there are enough manuals there, but the motivational aspects of training where people feel part of the company -- one fundamental aspect of

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service quality is where the employee considers it's not just his job to deliver a service, but it is his duty to deliver a service. And I think that is the kind of level that one needs to transcend in terms of training, which personally I feel is lacking at the moment.

CHAIRMAN: You spoke of the contrast with Singapore with competitive tendering. What is the position in Hong Kong?

MR JAIN: In terms of?

CHAIRMAN: For tendering for the renewal of franchises. What happens in Hong Kong, compared with Singapore?

MR JAIN: In Hong Kong, there is -- first of all, I have not seen any tendering in last 20 years. And two, whenever there is a renewal, usually the approach that our regulator has taken here is to say: this company has been performing well, hence we should renew their franchise. Whereas they have not really looked at benchmarking the companies on what is happening internationally. Are we up to the speed to the international level of innovation, international level of efficiencies, and can we push or nudge the existing operators into that direction, or bring new players into the market which will eventually uplift the whole game?

MS MAGGIE WONG: And the next complaint you said is lack of adoption of technology.

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We have heard one example about telematics. Apart from that, what other comments can you make about this?
MR JAIN: In terms of technology, we are now talking about -- I'm currently involved in a study of artificial intelligence, use of artificial intelligence in public transport, I'm doing that on behalf of UITP, and I can tell you the kind of things people are doing in bus industry are superb. In Singapore SMRT has developed a system called Prolearn. What they do is they have installed cameras in the buses and they collect all the real data points of individual driver behaviour on the road and they predict which driver is going to have an accident.

And then they customise that learning process for that driver, so the driver is retrained and avoids that accident.

So it is an intervention and prevention process in the safety management that has drastically reduced -- now I have the figures with me. If you want I will be happy to provide those, but they have significantly reduced the incidents that the driver would otherwise have on the road because of this training system.

It is just a simple data collection and training system for the driver.
CHAIRMAN: Are these figures compiled by Singapore's Land

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Transport Authority?
MR JAIN: This figure was -- I have -- I came to know of these figures in Germany when SMRT CEO was making a presentation.
CHAIRMAN: Perhaps you would be kind enough to provide them to the Secretariat.
MR JAIN: Absolutely.
MS MAGGIE WONG: When was this study carried out?
MR JAIN: The study is ongoing at the moment, as we speak.
MS MAGGIE WONG: And can I understand correctly, is it a system that you have collected all the data, and then making analysis and prediction that certain drivers are prone to accidents, and then that driver will be picked out for retraining?
MR JAIN: Yes. Before they have an accident.
MS MAGGIE WONG: Yes.
MR JAIN: So this is just one example. The second example is predictive maintenance, automation in the depots, so a lot of hazardous processes in the depot could be automated.

So a lot of companies are doing a lot of things around the world to uplift these technological aspects of operations.
MS MAGGIE WONG: Since we are on technology, may I ask you about a few other equipment or technological devices.

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One is called electronic stability programme. Have you heard about that?
MR JAIN: Yes, I have.
MS MAGGIE WONG: How do you find that programme?
MR JAIN: I mean, it is something which certainly enhances the vehicle performance, especially on roads where it would have a higher tilting and those things, so it is basically an electronic device which will change the centre of gravity of the bus, or adjust the centre of gravity of the bus. So yeah, it certainly enhances the vehicle performance, no doubt about it.
CHAIRMAN: Perhaps a short way of dealing with this would be to take Mr Jain to the working group paper on this. The Transport Department have told us that in March of this year they convened a group made up of franchised bus operators and bus manufacturers, to consider a range of technological advances. And this is being done at some haste because it is apparently going to be able to report this month. And they set out the various matters being looked at.
MS MAGGIE WONG: That is in TD-1, page 98. That's the Transport Department paper.

Mr Jain, if we look at page 98, it sets out from (a) to (f) certain technology, or safety devices that the working group has been exploring.

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CHAIRMAN: If you have the paper version in front of you, if you go to page 94 and have a look, you will see how this is explained by the Transport Department. As you can see, the paper is entitled "Application of New Devices or Technology on Franchised Buses".

Then we get a history of what they have been looking at.

But this working group was set up in the middle of March, I think it was, of this year, to examine these matters, and as I have told you already, they are doing so in some haste.
MR JAIN: Chairman, I think it is a good initiative by Transport Department, but I think what triggered was something that should not have triggered this. They should have done this nevertheless. This is what I mean about being a bit outdated on these aspects, where we are reacting to things instead of acting in advance and being proactive about this.
CHAIRMAN: Thank you.
MS MAGGIE WONG: Thank you.

Paragraph 10 refers to a number of on-vehicle safety devices that have been explored. The first one is the electronic stability control and roll stability control.

At paragraph 12, this particular device is elaborated on. And we can see how the braking system

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helps steer the vehicle on its intended track. But in terms of the use of this device, is it widely used in the world so far as your experience is concerned, or at least in Singapore?

MR JAIN: I think in the new buses that they are purchasing, this is certainly there. I'm not very sure whether they have retrofitted the older fleet of that.

MS MAGGIE WONG: If we look at the second suggestion at page 98, it is "Capping the maximum speed at [70 kilometres per hour] on downhill by the speed limiter".

It was elaborated on at page 101 that this is also reactive to the 2003 Tuen Mun accident. And it states at paragraph 17 that:

" ... the speed limiters are in-built systems of modern buses geared to the electronic engine management system. The setting or activation of the speed limitation function is controlled by a software ..."

Then in the last line:

"In a free rolling situation, the vehicle speed is not determined by engine revolutions or gearing but rather by the force of gravity acting against the rolling assistance of the vehicle."

Then:

"The three bus manufacturers have initially advised

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that it is technically feasible to engage retarder to slow down a bus when the speed limit is over 70 [kilometres per hour] under the downhill situation."

So my question is this, Mr Jain. Hong Kong's geographical condition is quite unique because we do have a lot of steep downhill roads, and if one is setting, for example, the telematics to 70, configuring the speed limit to 75km per hour, it would mean that when the bus is driving downhill it would be much faster than 75. And this suggested solution by using speed limiter, how would you consider this suggestion, or what is your comment on this?

CHAIRMAN: Before you answer that question, isn't the speed limiter set at 70 kilometres per hour?

MR JAIN: It can be set at any speed --

CHAIRMAN: In Hong Kong, isn't that what is required?

MR JAIN: That is right, yes. 70 is the maximum that is allowed under the Road Traffic Ordinance.

CHAIRMAN: I think the question is this. If you are going down a steep hill the vehicle can go more than 70. Because all that is happening under the current system is your fuel is being starved.

MR JAIN: That's correct. If you asked my opinion this is a device that is of course needed in Hong Kong. Retarders, if I recall correctly, retarder was almost

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evented in Hong Kong 20 years ago because of this downhill issue where a double-decker bus was coming down the hill and, if I recall, there was an incident on Hong Kong Island because a bus could not stop in time and it just went into the junction.

Having said that, in these modern times, again, there are systems which can go beyond this, as in not just 70 kilometres an hour, they can be dynamic limiters. Basically you can geofence the areas where the bus speeds can be regulated to the road speeds.

So in a 50-kilometre zone the speed limiter can set itself to 50, whereas in a 70-kilometre zone it would limit itself to 70. So you will not have a situation where a bus can still drive at 70 in a 50-kilometre zone.

MS MAGGIE WONG: I think that's the next proposal suggested by the Transport Department about speed control by GPS, or geofencing.

MR JAIN: Yes, that's what -- yes.

MS MAGGIE WONG: But we know there are certain problems about geofencing or GPS in high rise buildings.

CHAIRMAN: In roads surrounded by high rise buildings.

MS MAGGIE WONG: On roads surrounded by high rise buildings. Do you know if there is any recent technology where this problem can be solved or rectified or ameliorated?

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MR JAIN: Some of these are addressed by having multiple data sources to capture the same information.

GPS is one source. And sometimes in bus operation, because we are running fixed-route operation, you know exactly where the bus is going, and you know the number of turns that the vehicles are making, you can do a process called dead reckoning.

CHAIRMAN: By that you mean the number of revolutions of the wheel?

MR JAIN: Yes, of the wheel. So you know the exact distance of the wheel, you know the exact route, so even if you don't have a GPS position, you can literally work out where the bus is.

CHAIRMAN: By dead reckoning?

MR JAIN: By dead reckoning. That's one way of doing it. The second way is -- because all the buses, because of the telematics device, they already have a 3G device on board, you can also use the GSM network and using your telecom towers to locate the bus.

So GPS is only one point of reference, the second point of reference comes from the GSM device.

And, as I said, dead reckoning could be your third points.

Once you have three data points you can triangulate and you can with a high degree of confidence tell where

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the bus is.
MS MAGGIE WONG: You raise a point that with this technology you can actually adjust the speed in the telematics programme. If you have a digital map, if the -- we know that the Transport Department has a digital map of the speed limits of the whole territory in Hong Kong. Can you combine the system of the digital map with the telematics system so that the system itself can automatically adjust the speed limit without the operators configuring it, but automatically it would adjust its speed limit based on the location where the bus is?
MR JAIN: Theoretically the answer is yes. But you will need to built that infrastructure of communication between TD and the bus operators, whereby any changes by the Transport Department on the speed of a particular road would be automatically transmitted and goes into the system.
I would say the possibility goes even beyond that, because bus operation is not always directly correlating to the traffic restrictions imposed, speed restrictions imposed by the Transport Department. There are sections in the bus operation, and I can tell you, where the drivers are trained to slow down because it is a black spot, because the visibility or sight lines are poor.

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Even in those sections you can limit the speed of the buses without affecting the rest of the traffic.
CHAIRMAN: So you could fit in variable thresholds depending on where the bus is, depending on, one, the legal speed limit, but two, the exceptional limit that you, the bus company wants the bus to have as a maximum going around a particular bend, or whatever it is?
MR JAIN: If it is a sharp, 90-degree turn, you can actually limit the speed to 20kph or 30kph for those turns.
CHAIRMAN: Then you could generate an exceptional report if there was an infraction of any of those various thresholds?
MR JAIN: That's correct.
There are two ways of doing it, one is you can limit the bus not to even cross it. So even when the driver tries, it just does in the work.
The second is you can allow the driver to drive at a higher speed but you would generate an exception report and then take a post-event action.
CHAIRMAN: Are you aware of this digital map that sets out the speed limits that are imposed in Hong Kong?
MR JAIN: I do understand that that is available in the public domain, yes.
MS MAGGIE WONG: Even before I asked you, you already knew about this digital map?

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MR JAIN: Yes, I think it is public knowledge, as far as I know.
MS MAGGIE WONG: Thank you.
The next device they suggested is the collision prevention device, which is at page 103, and Mr Jain, may I refer you to the comments made by the franchised bus operators at paragraph 26, which is at page 105.
The last line:
"In sum, the FB operators do not consider that the installation of collision prevention and lane-keeping devices are effective for enhancing the safe operation of FB services."
And the first question I would like to ask is, Mr Jain, do you know whether it is common to use this collision prevention device in the world?
MR JAIN: The answer is yes, it is common, I think it is a very relative term. But it is used in many places. But I would also say that I would disagree with this statement here.
We are tending -- I mean, what I'm hearing right now, are we are looking at this technology as something which is very static, which means it is a one-size-fits-all, whereas I completely agree, you know, I just had a quick glance at paragraph 26, and I agree that in certain situations in Hong Kong, because

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Hong Kong lanes are very narrow, the traffic is very close to each other, these devices would become a nuisance in a way. But today, the technology allows us to customise this device, make them even self-learning devices. If you know how artificial intelligence or machine learning systems work, every road, section by section, you can define parameters and road conditions and you can set the alert levels accordingly.
So you don't have to apply exactly the same alert levels on the highway when a vehicle is travelling at 70 kilometres an hour, to a vehicle when it is running at 30 kilometres an hour in Nathan Road in a stop-and-go situation. So, you can apply different parameters of proximity. Or you can even deactivate at 30 kilometres an hour because you know the type of accidents it would -- even if it has, it won't be fatal, but at 70, the fatalities could be very high.
There are different things you can set, which could be completely dynamic based on the section of the road, the route, the type of the bus, a lot of things you can do, even the number of passengers on board the bus.
CHAIRMAN: We have been referred to a paper produced by Citybus in 2014 after they had a trial of, I think, they called it Mobileye.

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MR JAIN: Yes.
CHAIRMAN: Have there been developments since 2014 to date in this kind of technology?
MR JAIN: Chairman, if I can resort to some rhetoric, the world has changed since 2014.
MS MAGGIE WONG: And the last device that was mentioned --
CHAIRMAN: Perhaps we could -- have you been referred to this paper before, the Citybus paper?
MR JAIN: In fact, during my KMB period I -- I have not referred to this paper, but I met Mobileye people at that time. We have had meetings with them. And I have seen at that time -- I think they also did a trial with KMB, but that was prior to when I joined, if I recall correctly.
CHAIRMAN: It might help if you just glance at the report, because -- we take what you say, that the world has changed since 2014, but perhaps we can refer you to where it is.
MS MAGGIE WONG: CTB-3, page 601.
CHAIRMAN: Perhaps the question really I'm inviting you to answer is this. Having seen what the concerns are in that report, are these concerns that are now addressed by the developments in technology?
MR JAIN: I had, again, a quick look at one of the numbers which I would consider the most relevant here. It is

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the accuracy of Mobileye. When I look at that table, even the unions say that the accuracy was 69 per cent.
Anything which is 69 per cent accuracy and can save lives, I would look at adopting that system and fine-tuning it instead of abandoning the system.
CHAIRMAN: So your answer really is, as with other devices, you can now configure variable thresholds which would make the technology of use; is that how you would put it.
MR JAIN: Precisely. Because there are two things we look at in these aspects, one is the severity of the collision and the frequency of collision. So, severity at high speed is much higher, the frequency may be lower. Whereas in urban areas, you can have more frequency, because the proximity is higher, but the severity is much less.
This is part of the risk management exercise that a bus company should adopt. So every time you introduce a new route -- and this is the part of safety culture, safety management systems, that the bus companies need to adopt, where they can look at the data which is coming from various devices, as well as the traffic conditions. So it is a part of the risk management in advance.
If it is a more stop-and-go, the number of traffic

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lights are more, the speed is less, the risk profiles are different from when the bus is running on a highway, unhindered at 70 kilometres an hour.
So in operating terms these are two different buses, two completely different types of things.
MS MAGGIE WONG: And as you said, the technology has moved on since this report. So now, as far as you understand, this technology has been moved on so that you can customise the fittings to configure it to make sure it is less of an annoyance in busy streets. Is that what you are telling us in terms of this device?
MR JAIN: That's correct. And if you look at the kind of trials that are happening in the autonomous device world -- so in fact there is a journey to autonomous driving, which is called level 1 to level 5. If you look at levels 3 and 4 of autonomy, these are really not autonomous vehicles, these are still driver-on-board, but there are so much assistive technologies to the driver that the driver is really there to do manual overdrive. So he only intervenes in exceptions.
At level 4 the driver is literally basically watching out. He is not driving/driving, the bus drives itself. At level 3, the driver drives, but there is so much assistive technology he has in terms of proximity detection, in terms of any hazards, a lot of

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pedestrians, for example. So all these cameras and sensors they are actually providing you the information to adapt to a particular environment.
MS MAGGIE WONG: Yes, and the next device is the driver monitoring device. It appears to be quite a new device in terms of detecting unsafe behaviour. That is at page 105, and it states:
".. unsafe behaviour like dozing, drowsiness, bad posture".
Then we see at page 105, that at least two operators advised that they would install a similar system and do a trial from early May 2008.
Mr Jain, my question is this. We know in Hong Kong that drivers drive a long period of driving hours. This device is intended to detect drivers who are fatigued.
Is this device commonly used in the world? And how effective is this device throughout the world?
MR JAIN: I have not seen a very widespread use of this device yet. But I am aware of a number of trials that are happening.
In my opinion, this technology is still at the evolutionary phase. It will eventually come, certainly, it is not perfected yet. Because there are a lot of false positives that it is generating, which makes, I would say, a situation -- it has the potential to make

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a situation worse than making it better. Because it alerts the driver at the wrong time, sometimes, and it distracts them from focusing on driving, because too many false positives can distract you.

Having said that, there are three technologies that are working here. One is a camera-based technology, which is looking at the driver's face and detecting the micro-expressions on his face. The second is one that comes into the category of variables. There are variables which are like glasses, like Google Glass, which look at their cornea, the dilation, and movement of the eyes. And the third is you can wear it like a watch.

So there are multiple types of technologies being tested. I'm pretty sure in a year or two, we would see some convergence, we will see some success there. However, at this moment, I have not seen very widespread operational deployment of this.

MS MAGGIE WONG: Apart from these devices mentioned, do you have any other suggestions --

CHAIRMAN: Before you move on. You will be aware, no doubt, of the tram accident in Croyden in 2016, where the findings were that the driver had fallen asleep having started work early in the morning. Are you aware that Transport for London recommended that one of these

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anti-drowsiness cameras be deployed. I think Guardian. Are you aware of that?

MR JAIN: Yes, I know.

CHAIRMAN: So that is one of the deployments of the technology, but there are not very many, is that what you are saying?

MR JAIN: I know this was deployed, but I'm not sure of the success in terms of data that is coming, whether this is really a success story or not. Because if you are dealing with 40 or 50 per cent of false positives, that gives you technology fatigue, so you tend to ignore the technological interventions, which is what I meant, yes, the technology is there, but it has not yet come to a convergence where we can have the confidence of 95, 97 per cent on this.

CHAIRMAN: Thank you.

MS MAGGIE WONG: In terms of the technological devices mentioned in this paper, do you have any other suggestions from your experience that may be useful in terms of ensuring safety of bus driving in Hong Kong?

MR JAIN: There are N number of good examples around the world which are being deployed at the moment, people are testing, trying. Artificial intelligence which is, to me, a progression of good data analytics system. You take it to the next level, machine learning, and then

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you take it to the next level, where you bring it to an AI-based system, more predictive.

So basically, what it does, let's say hypothetically in this Tai Po incident, if the bus was tilting -- even before it starts to tilt, driving behaviour, it would detect a very minute level of data and it would create that intervention framework. It would even tell the supervisor what kind of prescriptions, it would provide the prescriptive information to the supervisor on what kind of intervention is necessary.

So what we are doing now is we are removing a lot of human factors from these things. Because many times what happens is supervisors are making split-second decisions and sometimes it is affected by their emotions, personal state, psychological state. Once you have these AI-based systems -- I wouldn't say they are very intelligent systems, but they are very rational systems. So they give you very rational advice and that allows you to act in a much accurate manner, in a way.

This is the new frontier that has opened, and a lot of companies are working in these areas, they are going towards operations, customer interface, engineering, safety, security, all these areas you see very widespread adoption of these technologies now.

CHAIRMAN: So this use of technology would enable

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a supervisor to pick up, or rather the data would be presented to him, in exceptional reports, excessive braking, excessive acceleration, speeding, more excessive braking, a pattern would be emerging, and the supervisor could intervene real time.

MR JAIN: Yes, I would go a level ahead of this. Because currently the supervisor in a normal ROM system I described, he sees whether a bus is an outlier, what it does, what the AI kind of system does -- I mean, our human brain can process only a few variables, and mankind has also evolved in a way that we can learn, unlearn and relearn, whereas an AI-based system never forgets anything. We tend to forget, they never do.

So what it can do is it can look at the conditions of the vehicle, the conditions of the road, at that time what kind of weather conditions, prevailing weather conditions are, what kind of traffic conditions are in the surrounding, and what kind of driver characteristics are, and it can bring all these parameters into one framework and customise a response for that situation.

So we are talking about not just bus speeding, we are talking about before a bus even speeds it can do a risk assessment based on all these parameters and create an intervention framework.

MS MAGGIE WONG: Intervention framework in a sense that the

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system takes over, or it would simply inform the supervisor?
MR JAIN: It can even tell the driver: be careful today, it rainy, there is a lot of traffic, a water pipe has burst at this particular section, so don't drive above 30 kilometres an hour. You know.
MS MAGGIE WONG: Okay. Got it.
So it is informing you in advance how to drive?
MR JAIN: Correct.
MS MAGGIE WONG: And the next complaint you made is the lack of transparency, and a hand-in-glove relationship between the regulator and the franchisee. That's at FE-1, page 41.
The lack of transparency and the relationship between the regulator and the franchisee, can you explain a little bit on the transparency?
MR JAIN: Lack of transparency, when I wrote that, I meant a lot of data not being in the public domain. I can relate to a personal example. I was standing at a bus stop near my house, it's a reliable bus service, and I had a bus coming on my app in two minutes' time, and the bus came and went on my app, and I never saw the bus.
And there is no way I can go back and check and no way I can verify this kind of information so I can write

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a complaint -- and I have written quite a few complaints about bus services in my area, and usually what I receive, and I classify them as cooky cutter responses, they are very standard responses "We are looking into it", "We constantly review it", but nothing is changing, and that is what I mean, that because there is a lack of transparency, what is actually happening is something that as a customer, I am at the receiving end most of the time.
MS MAGGIE WONG: Compared to Singapore, can I ask this: about all these technological devices that were suggested to be put into buses, would the government in Singapore give any subsidy directly or indirectly towards the improvement in adding this new technology to buses?
MR JAIN: So in Singapore the current model is that government buys all the buses. So the asset belongs to the government and it is given to the operator to operate. The operator is held accountable to very stringent KPI, key performance indicators, and if they exceed those indicators there is a mechanism for incentives. So that perpetuates itself into an investment in innovation.
MS MAGGIE WONG: By keeping the asset of the buses, they control the technology or the standards of the buses by

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doing that, or are there any reasons behind the Singapore government having all these buses purchased?
MR JAIN: So the reason for them to purchase buses is actually not relevant to technology or anything. They wanted to create a different kind of model and their objective was to at that time run buses more from a social perspective rather than commercial perspective.
I'm not sure whether you want to cover that aspect of their reform. But as far as the technology is concerned, the government defines the baseline technology, which means these are a requirement as a part of the franchise, but then they also offer incentives to the bidders to exceed these parameters, and that's where the innovation comes.
So base line is there. So on-board devices, giving data streams directly to their OCC or central control centre, those things are defined in the contract, those are requirement.
CHAIRMAN: In the franchise agreement?
MR JAIN: Yes.
CHAIRMAN: Is that the case in Hong Kong?
MR JAIN: In Hong Kong the definitions of these are very loose, I must say. We call that a light touch regulation, but which means that the parameters are so wide that there could be a high degree of manipulation,

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which is what I mentioned in my letter as well.
MS MAGGIE WONG: At page 41, you mentioned about lost trips, reporting system has gaping holes which allow a very high degree of manipulation. So my question is: how would this lost trips reporting system affect the safety aspect of the operation of buses in Hong Kong?
MR JAIN: This is not related to the safety, I must say.
MS MAGGIE WONG: Okay.
If we go now to your second submission dated 18 June 2018, page 44.
You made reference in the first black bullet about Hong Kong lacking a central traffic command centre --
MR JAIN: Correct.
MS MAGGIE WONG: -- which can monitor the real-time operations of all transport operators. So what you are suggesting is the government itself should have a central traffic command centre. But in what way could it monitor the real-time operations of all transport in Hong Kong given the volume of buses in Hong Kong and the number of operators? How would you suggest it operate?
MR JAIN: Counsel, actually, I would make reference to the paper you have shown earlier about Seoul and Singapore. If you refer to that, there are two levels. One is a bus management system, and then there is a central traffic management centre, they call it GMS or

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something, I can't remember.
CHAIRMAN: Yes, perhaps we could refer Mr Jain to that.
MR JAIN: That's exactly what I'm talking about. At the bus operator level you have a bus management system which is looking at the bus assets, whereas at the central traffic control centre you are looking at bus as an asset, but also its interactions with the rest of the transport system, rest of the traffic, traffic lights, the road infrastructure, all kinds of things which is really in the public domain.
MS MAGGIE WONG: If I may refer you to the SEC-2 bundle, page 825, paragraph 2.8 makes reference to a new bus management system, but in this case, it is a central traffic command centre. So what you are suggesting is apart from the -- there are two levels, the first is the bus management system, which is managed by whom, if I may ask?
MR JAIN: By the bus operator.
MS MAGGIE WONG: By the bus operators.
MR JAIN: If you refer to paragraph 2.10 on the same paper, that is a central traffic command centre.
MS MAGGIE WONG: Ah. So it would require the connection between the bus management system and the transport operation and information service system in order to get the data from the bus management system to monitor. Is

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that the case?
MR JAIN: That's correct, yes. But it looks at it from a city perspective, looks at the entire transport assets on the road, whether it is a moving asset or a fixed asset.
MS MAGGIE WONG: And is that also the system in Singapore?
MR JAIN: They have a similar system. I'm not exactly sure the extent of it that it entails, but they have a significant number of these functionalities in that system.
As far as I know, one thing that I have recently gathered as a part of my study on artificial intelligence, they are even deploying drones on traffic situations to collect real-time traffic data and then adjusting traffic lights or creating response systems or variable messaging systems to direct traffic and balance the traffic flow on the network.
So there is a very wide-scale application and adoption of these things. Especially -- this is normal operation but if you look at those one in a million eventualities where you have an emergency situation, this is the kind of system which can save a lot of lives.
MS MAGGIE WONG: And I can see in that paragraph, this system appears to be instead of the bus operator giving

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information to the public about the real-time information, it would be this central traffic command centre releasing the information from the government source to the public. It appears it works like that. Do I understand that correctly?
MR JAIN: They work hand in hand, they are not discrete entities, they have a relationship between them. If you really want to know which bus has how many people in it, I think it is the BMS which would look at these things, whereas at the higher level, getting the traffic information, getting information about junctions, incidents that have happened, which is beyond the remit of the bus operator, that information would be available from this traffic command centre, which would be then used by the bus companies to verify their information.
So there has to be a two-way flow of information to create a better response in the end.
MS MAGGIE WONG: Yes. Understand.
At page 45 at the first bullet you make reference to the:
"Current regulatory model in Hong Kong where there is a cap on profit without a cap on losses is designed to suit continuity of incumbent operators."
Can you explain that as to what it meant?
MR JAIN: So in the past this regulatory framework when it

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was created, the bus companies used to have a guaranteed profit model, in those times. And it was, I think, in the '90s sometime, this was changed to a profit cap model.
I put myself in a bus operator shoes, and this is what happened in KMB up to 2012. Because of the railway expansion, the KMB ridership started to go down and KMB started to lose money. The only way to come out of this, from losing money is either you give up the franchise when it doesn't work, or you start raising fares, which is not the right way.
Because the government controls the topside, regulatory framework controls the ceiling of the pricing, and then it should also give some kind of a floor for pricing. Otherwise for commercial operators around the world it would be of no significance.
So, for example, imagine a scenario where the bus operator cannot make profit in Hong Kong, what will they do? Being a commercial operator, mostly part of listed companies, they would have to terminate the franchises. What are we going to do as a city? Because if the bus operation is not making profit you can't even attract international players to come into the market. So there has to be, I would say, a reasonable degree of commercial framework which covers both the upside and

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low side.
Why I'm saying it only favours the incumbent operators is because the incumbent operators they have already incurred a lot of expenses and fixed costs, so they can make the system work for them, whereas a new operator cannot enter this market and have the same level field to operate.
But if you have a sustainable commercial model there, then you can attract international entities because then they will look at the longer-term play of the bus operation.
MS MAGGIE WONG: And the bullet from the bottom at page 45, you refer to:
"Current reporting and monitoring system is archaic and was designed in an era when technology to monitor buses and drivers did not exist."
Can you explain a little bit on this statement.
MR JAIN: This goes back to the regulatory framework. So, for example, now it is increasingly around the world, the bus regulators are managing the bus operation based on what I mentioned. EWT, schedule adherence, and all these things. In Hong Kong we are only looking at when the bus leaves the terminus, and after that we are not monitoring its performance along the journey, so the bunching happens a lot in Hong Kong. There are a lot of

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problems because of traffic and stuff and we are not able to address it. As a customer, if you are standing in a stop, intermediate stop somewhere, you may have three buses coming at one time and then for the next 20 minutes or 25 minutes you may have no buses coming.
So what others have adopted, they are using technology to create space between these buses, so if you go to London, the bus may stop at a particular stop for a little while, just to create that separation, and even services to customers. So when you are at a bus stop you are getting continuous even services. So every three minutes, it does not mean zero minutes and then six minutes, it means maybe 3.3, 3.5 minutes. So the variance of those things is reduced. And this is the kind of monitoring that regulatory agencies are doing around the world now.
So Singapore, when I mentioned the KPIs, they are directly related to these kind of parameters, which are exact data points along the journey on a bus route rather than you just start from the depot and that's it, and after that you forget about it.
MS MAGGIE WONG: You mentioned here about excess waiting time, EWT, at stop-by-stop level, and monitor punctuality of each trip end to end with telematics and real-time operation management system making this

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possible.
So you have got to have telematics and real-time operations together in order to achieve this excess waiting time. Is that the case?
MR JAIN: Telematics is already there. Real-time operations is a software layer over this hardware. So it is not a very difficult exercise on top of that.
I normally would not -- I would marry these two because most of the people I have seen who have invested in telematics have also invested in real-time operation. So it is a natural progression to telematics. As far as I know, even Openmatics, they supply you a real-time operation management system as a part of their offering.
So most of the system providers they are putting it as a package. At KMB we decided to do it on our own for other reasons.
This is one package, once you have these kind of systems, which in Hong Kong we already have, it allows us to have -- those data points are available, but we are not monitoring or regulating that. We don't have the regulatory framework for those data points.
MS MAGGIE WONG: Yes, understand. Another thing I would like to ask you is the five-year forward planning programme. And you mentioned, if I could go back to your submission at page 39, FE-1. At the bottom, you

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said that:
"As the person responsible for coordinating, preparing and submitting 5-year forward planning programme including the route development plan ... to Commissioner of Transport, one of my roles was to vet the coherence of our safety-related plans with the rest of the operational plans."
I would like to ask, were you involved in any way with the forward planning programme for the years 2018 to 2023?
MR JAIN: The one that was submitted recently?
MS MAGGIE WONG: No. Previously.
MR JAIN: So I made the submissions in 2013, 2014, 2015 and 2016.
MS MAGGIE WONG: Okay. But not --
MR JAIN: So 2016 submission theoretically included plans for 1018 and 2019 in a way, but they were not firmed up. They were notional in that sense.
MS MAGGIE WONG: Thank you.
If I may just show you the forward planning programme to see if you have seen or whether you have any input on some of the matters there.
If you go to TD-1, page 180 -- the reason I'm asking is, first is the new KMB licence was discussed in 2016, in the course of 2016, but in fact the actually granting

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of the licence was in March 2017. Of course when you planned this forward planning programme you have to look into the accident rates and everything two years before.

So if I can ask you to take a look at this report, in particular -- this was the KMB forward planning programme.

CHAIRMAN: For what date? When was it prepared?

MS MAGGIE WONG: This report was prepared in June 2017, at page 1035. In bundle TD-4.

And may I first of all ask whether you have made any input whatsoever to this report?

MR JAIN: I have not, counsel.

MS MAGGIE WONG: Then I don't need to ask you --

CHAIRMAN: But presumably the topics came up year after year? The same sort of topic?

MR JAIN: That's correct, Chairman. So after 2016 submission I was involved, and I left KMB in December 2016 --

CHAIRMAN: So you were not involved in June 2017.

MR JAIN: That's correct.

CHAIRMAN: But perhaps the point can still be made by reference to a particular topic?

MS MAGGIE WONG: If I can take you to page 187, I am interested particularly on the bus captain training and the monitoring, planning programme.

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Perhaps I can do my question this way. If you look at this paragraph, or this particular section, it made certain references to the:

"... KMB dedication to provide safe, reliable and comfortable services ..."

And then they mentioned something about elements of defensive driving, good driving attitude. And then:

"Driving performance monitoring is carried out with systematic checking by driving instructors and followed up with disciplinary actions if required. Moreover, real-time driving indicators ... will also help to identify those bus captains who have a higher incidence of 'harsh braking' on a given route than is normal. This information can be used to ensure that appropriate proactive feedback is given to a bus captain with aim of promoting improved driving behaviour that will in turn serve to prevent/reduce 'loss of balance' cases ... "

It made reference here to real-time driving indicators to help to identify those bus captains that have bad driving habits in a way. And then they emphasise the proactive way or proactive feedback. But without -- when I discussed with you about the lacking of this real-time indicator, or real-time information back to the Lai Chi Kok Centre, is it achievable?

MR JAIN: It is achievable, but I think what it means here

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is that they use data generated real time at a later date using in a proactive manner, but using reactive data, to then train the driver.

So this is something that is happening, as I said, it is a T plus 1 response.

CHAIRMAN: This is historic review of real-time data?

MR JAIN: Correct.

CHAIRMAN: But it is historic.

MR JAIN: It is historic, so it is using data generated real time, and then somebody analyses it and then tells the driver, "Last month you have not been driving very nicely", so it is a proactive feedback, yes, but it is based on reactive data.

However, what I referred to is that you can generate it on a real-time basis and real-time response.

MS MAGGIE WONG: And they also mentioned something in 8.3.2 above the first bullet:

"The electronic tachographs are being used to monitor bus captain performance, especially with regard to speeding."

And then the second bullet:

"Real-time driving indicators are installed in all buses which can help bus captains to utilise the driving skills learnt in the Eco-safe Driving Training ... "

And then:

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"As denoted above, the benefits of such Eco-safe driving to the bus captains are:

1. Reduce the risk of accidents ...
2. Reduce stress levels ...
3. Increase confidence in vehicle control ... "

Again, this of course is also reactive to the historical data, but not --

MR JAIN: And this eco-driving is actually exactly analogous to green driving, or GreenRoad, what you were referring to. It is just a terminology.

CHAIRMAN: Eco-driving means don't accelerate sharply, don't brake sharply, use the fuel you have already put into the engine to glide you to a stop.

MR JAIN: A lot more coasting, yes, so you burn less fuel.

MS MAGGIE WONG: The next section I am interested in is the 8.3 --

CHAIRMAN: Before you move on, whilst you were with KMB, were there any parameters inputted into creating thresholds for automatic reports of driver misbehaviour, for example speeding?

MR JAIN: Okay. Automatic reports, to --

CHAIRMAN: Were there automatic reports?

MR JAIN: No, as far as I know, there were no automatic reports, but their people were analysing driver data based on their performance. So it was more of

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a statistical analysis. People were analysing it.
CHAIRMAN: But the equipment was capable of generating, if you put in the input, an automatic report?
MR JAIN: It could, yes.
CHAIRMAN: But it was not being used to do that?
MR JAIN: It was not being done that way.
CHAIRMAN: Why not?
MR JAIN: I think there are people who are better suited to answer that question.
This "why not" is one question that even I have in my mind why we abandoned that system, which is something that would have benefited immensely to the bus operation in Hong Kong.
CHAIRMAN: Thank you.
MS MAGGIE WONG: I would like to take you to another document. Sorry, there is one more question. In paragraph 8.3.7, where it mentioned:
"As a safety enhancement measure, the company has appointed a professional counseling service provider ... for staff and ... immediate family ... to raise ... problems or difficulties they ... encounter in their daily lives."
I have a question about this.
Is there a system, in perhaps Singapore, for example, to detect drivers that have behavioural

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problems or that have psychological problems that are not suitable for driving? Do you have similar system, or do you have a system?
MR JAIN: Psychological state of a driver is one of the biggest challenges in bus operation around the world at the moment. People are trying for different things, again I will resort to artificial intelligence, where people are looking at your biological data, which is micro-expression analysis, your eye dilation, your eye movement analysis, to generate some kind of intelligence on what state of mind you are in. This is still a work in progress, I must say.
So this Prolearn system in Singapore tends to go in exactly that direction. It looks at a driver's response to real-time traffic situations, and predicts the propensity of this driver to cause an accident. And hence it goes into an intervention mode and retrains the driver.
So it is, in a way, a psychological response where either you became too complacent whilst on the road, or you are going through a certain situation.
But if you had, let's say, an argument with your spouse and you turn up for work, I doubt if there is any system at this moment in the market which can detect your state of mind.

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MS MAGGIE WONG: There is another document that I would like to refer you to. It is in MISC-1 bundle at page 127-5.
It is the letter from the Road Safety Council to this Committee dated 31 May 2018.
MR JAIN: May I know the page number?
MS MAGGIE WONG: Yes, page 127-5. That's the first page of the letter. 127-5. MISC-1.
MR JAIN: I'm on that page.
MS MAGGIE WONG: If I may refer you to one paragraph. It is 127-6. They mentioned about:
"The second system is known as a type of 'telematics' and was installed in vehicles under a pilot scheme to assess the technological interface."
They mentioned RIBAS, which is basically about speeding, idling, harsh braking and harsh acceleration. And the parameters are set for various features, which are considered normal operating limits, and then whatever occurs outside the parameters is flagged automatically by the computer to a supervisor. And then:
"Follow-up action depends very much on management policy but can range from advice, through counseling to retraining and even discipline measures."
So it appears the Road Safety Council is stating that the police is starting to do the system.

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Is this a system similar to what you have in Singapore in terms of the use of telematics?
MR JAIN: As I said, most of the telematics systems do these things. There are many suppliers around the world. The functionalities differ a little bit in each of the models and each of the supplier, but fundamentally they are all trying to do the same thing, they are trying to give you the vehicle health and vehicle performance data on a regular, real-time basis at the back end. That allows you to monitor the performance of the vehicle, the location of the vehicle, and basically, as I say, asset performance in general terms.
CHAIRMAN: Now, LKW Parts and Services Limited is a Hong Kong company, is it not? Are you familiar with it?
MR JAIN: No, never had any dealings with them.
CHAIRMAN: We have.
MS MAGGIE WONG: Another topic I would like to ask you is about black box.
If I may take you to the bundle TD-1, page 393.
This is a letter setting out certain responses to issues raised by this committee. This letter is dated 13 July 2018.
If I may invite you to page 394. The question was this. Inviting the Transport Department to:
"Identify the occasions of such communications in

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respect of the better management of bus drivers, rather than bus operations. In such communications, has TD given any directions to [franchised bus] operators to explore using any specific new applications? If those communications were in writing, please provide copies of the communications to and from the [Transport Department] and [franchised bus] operators. If the communications were made orally, please describe when, by and to whom the communications were made ... [and] the nature of those communications."

CHAIRMAN: I think it would help Mr Jain if you were to take him to the statement in the Transport Department paper which gives rise to this question. Then he would understand the context.

MS MAGGIE WONG: I think it is annex 2. The TD paper is in TD-5 bundle, page 1688.

Mr Jain, this is a paper prepared by the Transport Department, and the heading is "Application of new technologies in franchised bus operation".

And this note set out the:

"...actions taken by the Transport Department in enhancing safety of franchised bus ... operation in recent years by working with the FB operators in applying new technologies."

And in one of the paragraphs, one of the sections,

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if you look at page 1689, it makes reference to black box electronic tachographs. You can see in paragraph 5 it states that:

"Since 1 July 2004, electronic tachographs (commonly known as 'black box ') have been installed on all new [franchised buses] in compliance with the requirements imposed by the [Transport Department] in October 2003. Currently all [franchised buses] are equipped with black boxes."

If you go to paragraph 7 it states:

"While there has been no further formal and written enhanced requirement on the specifications of black boxes from the TD since 2003, during the TD's ongoing contacts with the bus manufacturers and the FB operators, both the TD and the FB operators have been keeping in view the new technological advancement to enhance their existing devices on the buses."

Then they stated at paragraph 8:

"The FB operators have actually started widening the scope of information kept by the black box as early as 2006 such that apart from the basic functions for monitoring the driver behaviour, the black box can also record the operation of braking, opening of doors, the sounding of bells ... to assist the FB operators in managing their fleet."

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Then in paragraph 9, it makes reference to:

"Over the years, the TD has been communicating with the FB operators, requesting them to study and investigate the feasibility of applying new technologies and the information kept by the black box to better manage their bus operation and drivers. For example utilising the global positioning system signal received by the black box, coupled with the enhanced capacity for data transfer, the TD has required the FB operators, as a new franchise commitment, to provide real-time bus arrival information through mobile platform ... to better serve the travelling public in the 2015 franchise negotiation exercises ... and subsequently the 2017 franchise negotiation with the Kowloon Motor Bus ..."

It was in context, given their statement about the ongoing negotiations with the franchised bus operators that there was this follow-up question --

CHAIRMAN: No, it is ongoing communication. That's what was claimed.

MS MAGGIE WONG: Yes, ongoing --

CHAIRMAN: The context is this. In 2003 in November the Transport Department stipulated what had to be in a tachograph, and that had to be on new buses from 1 July onwards. The question is, well, what have you done since then in the ensuing 15 years to update the

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requirements for tachographs or telematic equipment?

That is what led to this response.

You were working in KMB were you not, responsible for this equipment generally?

MR JAIN: But if I can just add something here. What happened in 2003 is not what we are referring to what is happening today.

CHAIRMAN: No, we understand that. We are trying to fill in the dots. 2003 is the last bit we have in writing. So that was the purpose of the questions from the Committee: What have you been doing since then?

MR JAIN: So the biggest change that happened since 2003 -- so tachograph, having bus generate data about vehicle performance, that existed in early 2000, because buses were generating -- using electronic chips to control the bus systems.

So the moment that happened, the data was available. What was not available in 2003 is a reliable means to bring this data backwards, real time. So the communication system was not available.

CHAIRMAN: Mr Jain, what we are trying to find out is what the Transport Department did to mandate the use of this kind of equipment. That's the purpose of these questions.

MR JAIN: Okay.

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CHAIRMAN: And these are the answers that you are now being taken to at TD-1 at page 394.
MS MAGGIE WONG: I think maybe, Mr Jain, should I put it this way, the Transport Department only issued one guideline, it is in 2003. They have not revised the guideline in any written form between 2003 until to date.
And what they are saying is there are ongoing communications between the operators and the Transport Department about adding more functions and technology in relation to this black box.
So we are asking has this happened throughout the years, or is this by your own initiative that the bus operators on their own initiative do this upgrading of the black box?
MR JAIN: I can only speak for KMB what we were doing at that time. A lot of this that was being done at KMB was on its own initiative and it was primarily driven by the commercial reasons. Because if you see KMB's profit and loss accounts in 2012, KMB made a loss, somewhere in the region of $120 million, and the ridership was constantly declining for last 10 or 15 years, since the opening of West Rail line, really, 2002/2003, all the way up to 2012, the ridership was in a constant decline, the company's financial performance was in a constant

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decline.
So in 2012, the objective at that time was to either turn around the business or do something drastic with it. Any shareholder's commercial response has to be like that.
So basically, at that time, we started looking at all kinds of parameters, technology, any possible means that could improve performance of the bus operation, performance of the systems, and which can reduce the cost of operation and improve the delivery of operations.
So if you see the data from 2012 to 2015 -- and I think they are available in Traffic and Transport Digest, the bus miles of KMB, I think we managed to reduce something like 22 million miles of bus operation in these two years and we increased the ridership by 3 per cent, so we cut out a lot of unproductive mileage and converted that into productive mileage.
This is the kind of thing that we were doing, telematics was a part and parcel of this whole global initiative we were doing. Because we were not just looking at the bus device, we were looking at route planning, we were looking at driver deployment, scheduling, rostering, all aspects of the bus operation and trying to optimise the bus operation and generate

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efficiencies, which did yield results if you look at KMB's performance from 2013, 2014, 2015. From a loss-making company it slowly changed into a profit-making company.
MS MAGGIE WONG: I would like to ask you a particular answer made here in the TD's response at page 394.
MR JAIN: Yes.
MS MAGGIE WONG: If you look at the last line, it makes reference to the fact that the TD also discussed the same, meaning to step up regular checks on the data recorded by the black box to monitor bus driving, bus captain's driving manner and behaviour with KMB at the regular meeting held on 27 June 2016.
Do you recall there was such a meeting?
MR JAIN: I cannot recall to that extent, exact date, but I can only say by this date KMB's entire fleet was already equipped by telematics devices.
CHAIRMAN: The real question is this. Was the Transport Department involved in urging you, KMB, to use your telematic equipment to step up regular checks on data recorded by the black box to monitor bus captains' driving manner and behaviour?
MR JAIN: They possibly could have, but it was already an intent within KMB to do so.
CHAIRMAN: Right.

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MR JAIN: I mean --
CHAIRMAN: I think to help you --
MR JAIN: I'm afraid I can't go back and recall every statement from the meetings.
CHAIRMAN: I understand that. But to help you, I think it would help if you were shown the documents that show this was in part, perhaps, related to the renewal of the franchise, because there were papers I think from this month that are part of that; am I right, Ms Wong?
MS MAGGIE WONG: I think there was a paper on this.
MR JAIN: There was a whole slew of measures that were being discussed at that time, and I know this part, fairly confidently, that for the first time this requirement of having a real-time reporting device, and estimated time of arrival, was inserted into franchise documents for KMB for the first time in 2016.
CHAIRMAN: The ETA --
MR JAIN: Appeared before that.
CHAIRMAN: Yes. That was a requirement, but we are trying to find some requirement that bus companies should use the data in the black box to monitor driver behaviour, and we can't find that.
MS MAGGIE WONG: If I may take you to the renewal of licence document as to this matter.
First of all, may I take you to SEC-2 bundle,

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page 735. This is a LegCo paper dated 11 January 2016.
It relates to the background brief on the franchise for the bus network of Kowloon Motor Bus.
And if you go to paragraph 11, "Enhancing standard of bus service":
"... members raised concern over the performance of franchised bus service at the panel meetings, special financing committee meetings as well as the council meetings. They urged the Administration to take the opportunity of franchise renewal to require service improvement by bus companies, including provision of real-time bus service information to passengers, provision of priority seats and barrier-free facilities, improvements in bus lost trips as well as bus service frequencies during peak periods."
And then we have the whole section on the provision of real-time bus service information to passengers. That's paragraphs 12 and 13. But none of them relates to the improvements on the black box or any reference to black box.
CHAIRMAN: Well, to the use of black box to monitor drivers.
MS MAGGIE WONG: Yes.
CHAIRMAN: That's the point.
MS MAGGIE WONG: I wouldn't trouble you with the things in the middle. By the time we got to June 2016, that's in

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the same bundle, SEC-2 bundle, page 799. That's in June 2016.
It made reference to the public consultation, and the views it received. And one of the issues they raised at page 803 is the bus safety, section 4, bus safety, 4(a):
"To monitor bus captains' driving behaviour more closely ..."
So this is the view, if you look at the previous page, 802, it was the major comments received during public consultation, and in section 4 it summarised their views in terms of bus safety. It is to monitor bus captains' driving behaviour more closely.
So that's what we have reached.
And by the time of the March 2017 licence, I wouldn't take you to the terms, but I will take you to the document that the TD asked the KMB to undertake to perform. If I may take you to the TD-5.
That would be KMB-9 bundle. Pages 3997.
MR JAIN: Yes.
MS MAGGIE WONG: The only reference here to this franchise operation is in relation to enhanced safety feature in subparagraph 3. That is the electronic data processing device.
Not a single word about using it to monitor bus

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drivers' behaviour more closely.
So it is very loose term saying, oh, there is this enhance safety feature, but how is it going to be used, it is not specific, or not even spelt out.
So by stating that, it appears that the TD's suggestion that there are ongoing communications about having this to specifically monitor drivers' behaviour, doesn't appear to be reflected in all these documents.
Do you agree with that statement?
MR JAIN: On the face of it, when I look at these documents, you are absolutely right, and it goes back to my assertion that the franchise document in Hong Kong is a very loosely written document in the sense that it is a very wide range of things that you can do within that, which makes it subject to manipulation to some extent.
But having said that, in all my interactions with Transport Department, I mean, I can say that the intent was right. Sometimes the knowledge was not available, sometimes the drive was not there. So that is different from intent. I think the intent was not wrong from Transport Department, in any of the meetings that I have attended.
I have never seen them -- they have asked the right questions, they want to improve things, but it may not have been that specific, it may not have been -- or

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that -- I would say prescriptive to bus companies.
MS MAGGIE WONG: Yes.
CHAIRMAN: So not prescriptive and not documented?
MR JAIN: Correct.
CHAIRMAN: Loose?
MR JAIN: Yes. But this is not just this parameter, I can go on, in the whole franchise document, there are a lot of things here which are very loose in that sense.
CHAIRMAN: Just a moment.
But overall you characterise it as not prescriptive, and you acknowledge from what you have been shown, not documented.
MR JAIN: That's correct, yes.
CHAIRMAN: Thank you.
MS MAGGIE WONG: If one considers bus safety is of paramount importance, it would be usual and normal to include it at least in the franchise agreement, would you agree with that statement?
MR JAIN: I think I'll just go back to your statement, if one considers, that should not be part of that conversation. Bus safety is of paramount importance and it should be the top priority both from a regulator perspective as well as operator perspective, because we are here talking about public safety, people's safety, are staff safety, and to me that is uncompromisable.

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CHAIRMAN: And the context in Hong Kong is this, that unfortunately over the years, we have had a series of catastrophic bus accidents. That's the context in which the regulator operates.
MR JAIN: It is extremely unfortunate, but yes, that is the reality, and I think the intent of the entire transport system, we run a very good transport system in Hong Kong, and this is one area which needs to be addressed sooner than later.
MS MAGGIE WONG: Thank you.
That leads me to one specific question I would like me to ask you, the annual report.
I wanted to do certain comparison between two particular years of annual report as to why certain things are missing, or appears in 2016 annual report but missing in 2017. If you look first in KMB-5 bundle, page 1719.
MR JAIN: Counsel, may I know the page you are referring to?
MS MAGGIE WONG: 1719.
CHAIRMAN: This is the annual report for which year?
MS MAGGIE WONG: This is the annual report for 2016.
CHAIRMAN: So published in March 2017?
MS MAGGIE WONG: Should be the end of 2016.
CHAIRMAN: I think you will find that if you find the chairman's letter --

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MR JAIN: Published in March, I think.
MS MAGGIE WONG: In March, yes, I apologise for that.
If we look at this annual report, page 1719, on the right part, it made reference to two features. One is the bus on-board monitoring system, and the second is the operations communication management system:
"BOM records the driving performance of bus captains for analysis by depot and department with the aim of raising driving standards with a particular focus on safety and passenger comfort."
And second:
"The operations communications management system.
OCM streamlines the handling of real-time information on operational incident such as traffic accidents, road congestion as logged by our radio control section, thus improving the speed and accuracy of message dissemination to the depot and departments."
On this page, it also made reference to a personalised Octopus card introduction of a personalised Octopus card for bus drivers as they report for duty.
That's the terminus management system.
My question is this: if you look at 2017, annual report, at page 1926. If you look at both those pages, perhaps, 1925 and 1926, we cannot find similar

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information in the 2017 annual report.
Maybe if you can comment on, first of all, the 2016 annual report, the BOM system. Is this one of the systems that your company at that time was considering implementing as the real-time alerts to drivers, or is this something else?
MR JAIN: In my opinion, this is not referring to any real-time system. This is something -- it is part of this bus operation management which was collecting the data and then using for driver feedback. That is BOM.
MS MAGGIE WONG: But we can't find similar reference in the 2017 annual report. Even though they have a more generalised statement at page 1940, for completeness, 1940.
MR JAIN: Is does mention on-board monitoring system, BOM, but of course the level of detail is much less.
MS MAGGIE WONG: Yes.
CHAIRMAN: This was after you left KMB, was it not?
MR JAIN: That's correct.
CHAIRMAN: Both of these reports?
MR JAIN: Both of the reports were published after I left KMB. 2017 annual report, as a general observation, I would say the level of detail with respect to KMB and Long Win were much less than compared to previous years in annual report.

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As an external party, I look at annual reports and try to analyse data and performance for my own satisfaction. And 2017, I did find that a lot of information was not available that was available in previous years. That is a general observation.
MS MAGGIE WONG: Thank you.
Mr Chairman, I have concluded my questions.
QUESTIONS FROM THE COMMITTEE
MEMBER AUYEUNG: Thank you, Chairman.
I have one quick question for you, Mr Jain. First of all, thank you very much for coming to share your views.
We spent a lot of time this afternoon talking about all the technology and all the advances which can improve or enhance bus safety. But one topic I would like to hear your views is on resources.
From your experience, with all this technology and everything we are talking about, from a resource perspective, whether it is monetary or human resources, what is your view? Can we get your sort of assessment on how expensive it is? Do we have the right people in Hong Kong to implement all those technologies that we discussed earlier?
Thank you.
MR JAIN: It is a very interesting question.

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This is something that I always talk about. You know, the first time I went to KMB, Long Service Award Dinner, there were roughly 300 people who were getting an award for serving the company for more than 30 years. I had never seen anything like that in my life.

So there was a significant number of people who gave their entire lives to this company.

I'm sure there was something in the company that fostered that loyalty in these people.

So to me that was a fantastic part of the cultural learning for me.

Why now people don't want to join KMB? Now that is the question.

Has it tarnished its image? Is it not providing the same level of family welfare that it used to provide? There could be many factors there which needs to be addressed.

That's the human aspect of it which I think is addressable, if -- I mean, KMB I'm using because I'm familiar with KMB, but when I say KMB it goes all across the bus industry in Hong Kong. And I think there are means and mechanisms whereby you can generate enough conduciveness and attractiveness in the driving, bus driving. I have met a great number of people who are fans of buses, who are dedicated to the bus industry,

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they really feel for it from their heart. But they go out and they are criticising the bus companies, if you look at the mood and sentiments, these are die-hard fans and they are still criticising. We need to ask how we can bring them on board and make them part of the process.

That's the human side.

On the technological side we are still stuck with very old style of technological management where we give a key to the driver in the morning and he drives the bus the whole day, literally on the same route up and down, and kind of does not more than that.

There are some bits of interlining and intertiming is being done, but nothing beyond that at the moment.

If you think about it, a driver needs a rest, a vehicle does not need a rest.

If we can optimise in such a way -- if we can separate three layers of resources. So your human resource, vehicle resource and infrastructure resource, and if we can optimise across these three levels, which we are not doing at the moment, or we are doing very little in Hong Kong, but if we can optimise at three levels through modern tools, I personally feel we can do more with less.

My back-of-the-envelope calculation, I think KMB

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system can be delivered, the whole system, the existing routes, exactly the same way, can be delivered with about 2 to 3 per cent less buses and less drivers, which would completely solve the manpower problem.

MEMBER AUYEUNG: Thank you.

MEMBER LO: I just have one question. Thank you for sharing your thoughts on technology especially.

I'm just thinking about how come Hong Kong is so slow in adopting new technology for improving safety. Perhaps our technology readiness is something that could sound good on paper but doesn't deliver in practice? Maybe incentive for companies to invest, they don't see value? Maybe regulations not requiring them? I just want to get your thought on what are the major barriers, and how should we go about making Hong Kong more receptive to adopting new technology for safety improvement in our public transport system, as an insider, you worked for KMB and MTR for a long time.

MR JAIN: It is a basket of reasons. I think the biggest reason is the environment we are operating on. I think one way innovation is encouraged in most of the world is where you are allowed to fail. You have to accept failure, and our tolerance in Hong Kong has become extremely low for failure. Innovation only thrives when you allow that kind of environment.

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So that is a big environmental issue, it could be a cultural issue, can whatever you want to call it. That is a major reason.

And proven technology that was our mantra until a decade or so, which we very successfully adopted in our public transport systems, unfortunately that worked really well when technology was working slow. Now the technological innovation and adoption is moving at such a rapid pace that by the time you wait for proven technology it is outdated.

So you are always waiting for something new because the proven one has really something that has become historical reference, in a way.

So there is a cost of adoption which then as a company you would say if there is new coming why don't I wait for something new. And that also hinders innovation.

If you look at what China has done, they have taken this leap of faith, they have gone ahead, they have implemented a lot of stuff, they have allowed their companies to fail, if you look at electric bus adoption, every possible configuration of battery and the battery charging that is possible around the world has been experimented.

Now they know what works and what does not, and they

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have become global leaders in electric bus manufacturing and operations. This is the kind of environment we need in Hong Kong.

We have been, I think, if you ask me, I would rate the technological know-how for Hong Kong engineers, Hong Kong operators, at really at the top end of the curve. We have been extremely good. So our operational performance within those parameters has been exemplary to the world. But our technological adoption has been pathetic, for want of a better word. It has just been so slow. We have been left behind in many aspects, the data availability that I see is happening in third world countries, is not happening in Hong Kong.

So what can be done? I think we need to create an environment where we have to allow -- we need to incentivise people to innovate and apply these technologies. There are a lot of partnership and collaborate models. There are a lot of Hong Kong start-ups who are doing experimentation in China, Taiwan, in other countries, we should allow these people to come and do experiment and create that partnership model with local companies.

We do hackathons here and all these, I have been part of multiple hackathons as a judge, as an observer, as just an audience, and I see there is no dearth of

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knowledge in Hong Kong, there is no dearth of zeal, the entrepreneurship in Hong Kong. What is lacking is an environment to foster them. And that is where these big operators need to create an environment, adopt some of these, create some incubation units, incubation labs, where they come in and they work in their depots, MTR depots, KMB depots, and create new kind of systems altogether. That's where I think we would have something to offer to the rest of the world.

CHAIRMAN: A little while ago you mentioned the need for bus drivers to rest.

Now you worked with KMB for about four years, did you not?

MR JAIN: Yes, I did.

CHAIRMAN: Are you in a position to help us understand better the facilities made available by KMB to allow its drivers to rest, in particular we have in mind the drivers who are doing special shifts and working 14 hours, and allowed to have three hours break in the middle. Are you in a position to help us as to how adequate or otherwise the rest facilities are?

MR JAIN: One is a physical facility for rest, which to me is very easy, you can do lot of driver surveys and ask them whether they are adequate, comfortable, whether they see any improvement areas.

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But then there is a second area for resting, and this is one area which I in fact see completely lacking in Hong Kong.

It is that every person is not the same, their fatigue levels, their response to things, their psychological level is not exactly the same. So instead of saying 14 hours is too much, we should reduce it to 10 hours, we need to create statistical framework and look at the reality indicators where what point the driver fatigue becomes an issue, we can use a lot of data points.

In fact if you do an accident analysis, look at the data, look at the drivers, you can create a reasonably good history for each driver and create a parameter that this driver is usually very good for three-hour duty, short routes, not good for long routes, not good for long duties, not good for night duties, and you can then customise your duties that you allocate to the driver, which would then make the duties more palatable to the driver because they think this is something they will do.

Today what happens, you put them in a morning shift this month, next month they go to the evening shift, next month they go to the night shift, and it is an irregular pattern in the name of creating an equitable

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framework.

But it is completely ignoring an individual's capability to do something, or their personal performance levels. If we do enough analysis we can create this environment. If you look at a management scenario in a business, we do a performance assessment, we say this guy has a bright analytical capability, hence he should be the analyst. This guy is very good with physical work so maybe he should be doing this. That is the same thing we need to do within the driving work force, we need to customise and personalise those mechanisms.

CHAIRMAN: Would you suggest that the data necessary to make that analysis, for example with a driver, be collated from the driver's performance as recorded in real-time automated reports?

MR JAIN: That is one point of reference.

We could also look at a driver's education level, we can look at their physical performance, their medical visits, there are a number of data points.

So this is -- to me, what we are collecting as a part of real-time operation management from this telematics device is one point of reference, which is their actual driving performance, but this can be then correlated to their personal parameters, and you can

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actually create a reasonably decent model for an individual.

And this is a Singapore model, Prolearn that I talked about. They are doing exactly that. The training they give to the driver is not identical to everybody. They customise to that person, because they see his individual performance on certain situations and they customise the training.

This is what needs to be done. The cooky cutter approach is no longer working.

CHAIRMAN: Forgive me if I come back to my question. During the time you were working with KMB can you help us with how adequate or otherwise the facilities were, given that there perhaps was not this analysis that you have described that could happen, how adequate or otherwise the rest facilities were for drivers, particularly those doing split shifts.

Are you in a position to help us?

MR JAIN: Yes, when I joined KMB, I would say these were deplorable facilities at that time.

CHAIRMAN: So 2013?

MR JAIN: At 2013. The facilities were very substandard to any modern work force.

Having said that, there was a concerted effort after that to improve those facilities in many places,

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wherever possible. In fact, I remember we submitted a lot of suggestions to Transport Department on creating kiosks, creating facilities for drivers, but Hong Kong has, again, a very unique framework where land is one of our most expensive resources. And many of these public transport interchanges, they are, although available for operating buses, they are owned by private developers, private entities, or Link Reit, or whatever, and they are not willing to provide that space where a driver's resting facility can be created.

I'm sure KMB would probably be in a better position to give you this, but they receive complaints even for drivers using toilets in shopping malls. To me that is a basic human need, how can anybody complain about use of toilet, a public toilet for that matter?

CHAIRMAN: If the facilities were deplorable in 2013, how would you categorise them in December 2016 when you left KMB?

MR JAIN: There was a significant improvement from that baseline. I won't say that they were impressive in any way. But I think there was a significant improvement that was made. There was a management intent to address that issue.

CHAIRMAN: What is the worst facility as of December 2016?

MR JAIN: There are quite a few.

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I don't know what happened after that, but 2016 there were many places where the drivers were actually resting inside the buses, they were eating inside the buses because they didn't have any place to sit outside.

I think there was one housing estate near Kowloon City, where it is in a private development, and they refused to provide even a kiosk facility.

CHAIRMAN: Is that the Lok Wah Estate?

MR JAIN: Yes. And there are many examples scattered all around the city.

CHAIRMAN: That's the place where KMB built their own structure and were required to remove it?

MR JAIN: Correct.

CHAIRMAN: So problems encountered because of the inability to require those that had power in places where bus termini were located to provide facilities; would that be one way of putting it?

MR JAIN: Correct. And it could be part of the development rights, it could be part of the land leases, I'm not sure what is the right way to do it.

CHAIRMAN: I'm sure there are multiple reasons why it came about, but for one reason or another the facilities could not be provided, were not provided.

MR JAIN: That's correct. Yes. There are many examples like that where there are no adequate facilities for the

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drivers.

CHAIRMAN: Thank you very much for your assistance and your evidence, Mr Jain. We are most grateful to you.

We are also grateful to all those who have been working a long day in transcribing our words, and for those that have been interpreting them. But our hearing is concluded now. We thank you for your attendance, we will have other hearings in due course, and we will give notice in advance of those hearings.

Thank you very much.

MR JAIN: Thank you, Chairman, and my thanks to the whole committee, all the staff, counsel, I think you are up to a great challenge, and I really hope to see something nice coming out of it in the end, and something that transforms our public transport industry.

CHAIRMAN: Thank you.

MR JAIN: Thank you very much.

(5.46 pm)

(The hearing adjourned to a date to be fixed)

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