

OLRTPI Witness Interview with Alstom Transport Canada Inc.

Bertrand Bouteloup
on Wednesday, April 13, 2022



77 King Street West, Suite 2020
Toronto, Ontario M5K 1A1

neesonsreporting.com | 416.413.7755

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4 OTTAWA LIGHT RAIL COMMISSION MEETING
5 ALSTOM TRANSPORT CANADA INC.
6 BERTRAND BOUTELOUP
7 APRIL 13, 2022
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13 --- Held via Zoom Videoconferencing, with all
14 participants attending remotely, on the 13th day of
15 April, 2022, 9:00 a.m. to 12:16 p.m.
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1 COMMISSION COUNSEL:

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3 Christine Mainville, Co-Lead Counsel Member

4 Anthony Imbesi, Commission Counsel Member

5 Fraser Harland, Commission Counsel Member

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7 PARTICIPANTS:

8

9 Bertrand Bouteloup,

10 Michael Valo, Esq. & Charles Powell, Esq.

11 Glaholt Bowels LLP - Counsel for Bertrand Bouteloup

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13

14 ALSO PRESENT:

15

16 Carissa Stabbler, Stenographer/Transcriptionist

17 Chandani Joshi, Virtual Technician

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I N D E X

WITNESS: BERTRAND BOUTELOUP

1 -- Upon commencing at 9:00 a.m. --

2 BERTRAND BOUTELOUP: AFFIRMED.

3 CHRISTINE MAINVILLE: Mr. Bouteloup,
4 the purpose of today's interview is to obtain your
5 evidence under oath or solemn declaration for use
6 at the Commission's public hearings.

7 It will be a collaborative interview
8 such that my co-counsel, Mr. Harland, may intervene
9 to ask certain questions. If time permits, your
10 counsel may also ask follow-up questions at the end
11 of the interview.

12 The interview is being transcribed, and
13 the Commission intends to enter the transcript into
14 evidence at the Commission's public hearings,
15 either at the hearing or by way of procedural order
16 before the hearing commences.

17 The transcript will be posted to the
18 Commission's public website, along with any
19 corrections made to it after it is entered into
20 evidence, and the transcript, along with any
21 corrections later made to it, will be shared with
22 the Commission's participants and their counsel on
23 a confidential basis before being entered into
24 evidence.

25 You'll be given the opportunity to

1 review your transcript and correct any typos or
2 other errors before the transcript is shared with
3 the participants or entered into evidence. Any
4 non-typographical corrections made will be appended
5 to the transcript.

6 Finally, pursuant to Section 33(6) of
7 the Ontario Public Inquiries Act, 2009, a witness
8 at an inquiry shall be deemed to have objected to
9 answer any question asked of him or her upon the
10 ground that his or her answer may tend to
11 incriminate the witness or may tend to establish
12 his or her liability to civil proceedings at the
13 instance of the Crown or of any person, and no
14 answer given by a witness at an inquiry shall be
15 used or be receivable in evidence against him or
16 her in any trial or other proceeding against him or
17 her thereafter taking place, other than a
18 prosecution for perjury in giving such evidence.

19 And as required by Section 33(7) of
20 that act, you're advised that you have the right to
21 object to answer any question under Section 5 of
22 the Canada Evidence Act.

23 With that being said, I think we can
24 begin with some questions. First of all, could you
25 explain your role in Stage 1 of Ottawa's LRT

1 project?

2 BERTRAND BOUTELOUP: That's an
3 interesting question. Actually, I started to be
4 involved in Ottawa as a project manager for Alstom
5 starting, if I remember well, end of 2014.

6 Okay. I was leading the project for
7 Alstom, meaning that I have the coordination of the
8 Alstom team and also the relation with OLRTC under
9 my responsibility.

10 Okay. When I say that, it's
11 coordination of all different functions within
12 Alstom, engineering, whatever, in relation with the
13 project were working for me. They were not under
14 my responsibility, but they were working for me.

15 So I was starting in 2014. Then I
16 left -- I was based in Montreal at that time. Then
17 I left Canada in summer 2015, so I had no more
18 action on this project.

19 Even so, I joined the project
20 management in Paris, having an overview of all
21 projects within the world for urban projects,
22 meaning that whatever was inside my portfolio.

23 So I still have some connection but not
24 direct. I was just putting it on a process point
25 of view, and on a monthly basis I knew the progress

1 of what I want.

2 Okay. Then I joined back in Canada in
3 2017, in May 2017, as project director for all
4 rolling stock projects within Canada for Alstom,
5 meaning that I had under my responsibility the
6 project manager for Ottawa.

7 At that time, it was Lacaze when I
8 joined, okay, in 2017, and I had a PM, but I had
9 also other PM in Toronto and Montreal Metro. So
10 other projects.

11 Then as Lacaze resigned end of 2018, I
12 don't remember exactly the day, but end of 2018, I
13 had to take the intervene as project manager until
14 I found Alexandre L'Homme as a project manager
15 joining Alstom in March 2019.

16 Then I took back my role of
17 coordination of all the project in Canada. Even
18 so, as Alex L'Homme was joining Alstom, I was
19 deeply involved, and it was a hectic period I would
20 say in 2018 -- 2019, sorry, having in mind that we
21 have the revenue service date coming.

22 So then I was involved as a project
23 director until I would say March 2020. Then I took
24 over also the overview of the maintenance contract.

25 Still again having a PM, a project

1 manager in place, Richard France (ph), but having
2 so the overview of both Ottawa project, the
3 maintenance side and the rolling stock side.

4 That lasts for a year roughly, until
5 March 2021, when we again split the rolling stock
6 activities and the maintenance activity between the
7 organization, the new Alstom organization.

8 So I had overview on the LRT portfolio,
9 meaning that I was still the overview of the
10 project managers. And at that time, it was -- it
11 is still Arnaud (ph) as a project manager.

12 So meaning I was deeply involved in
13 details in some slot of time. I was also an
14 overview project directors on most of the time.

15 CHRISTINE MAINVILLE: Okay. Thank you.

16 BERTRAND BOUTELOUP: I don't know if
17 that answer your question. I think for now.

18 CHRISTINE MAINVILLE: Yes. Thank you.

19 And could you tell us a bit about your
20 background and experience?

21 BERTRAND BOUTELOUP: I'm starting to
22 have a few years of experience. I'm age 56. Most
23 of my career was in project management, not always
24 in transport.

25 I joined Alstom Transport in 1999,

1 okay, or 2000 I think, just in between. Then I was
2 always involved in project management within all
3 tenders.

4 When I say that, I've been the
5 high-speed train, TGV, in France project manager.
6 Been deputy first, then project manager.

7 I have been also project manager for
8 some of the part of the equipment of the train in
9 some different projects, Sweden, USA and others,
10 like the ACELA, the old one.

11 Then I was also tender for metro
12 project, meaning that I had to answer some of the
13 tenders, and then I joined the Canada by having the
14 responsibility of Alstom portion in the
15 construction of the Montreal metro.

16 So I have a background of urban
17 project, metro project, but also some other
18 projects like high speed and businesses. So I have
19 got more than 20 years within transport projects.

20 CHRISTINE MAINVILLE: And you are an
21 engineer; correct?

22 BERTRAND BOUTELOUP: Yeah, sorry, my
23 background is, yeah.

24 CHRISTINE MAINVILLE: Important.

25 BERTRAND BOUTELOUP: You're correct.

1 And before that, I was mainly commissioning
2 engineers and making some jobs in plants and things
3 like that. I was involved still in technical
4 matters.

5 CHRISTINE MAINVILLE: I understand from
6 your response that Alstom had several other
7 projects in North America, but do I understand that
8 the Ottawa LRT was part of a new development
9 project for Alstom in North America?

10 BERTRAND BOUTELOUP: It's an in-between
11 situation for Ottawa. There was -- there's still a
12 product base from French product. We have TTNG
13 which is the mid between a train getting city to
14 city and entering into the city. So that's the
15 train we have in France. So that's still the base
16 of the product.

17 Now, for Ottawa, we had to adapt and to
18 make some changes for a few reasons. First of all,
19 some of them are technical one for coping with the
20 infrastructure and the requirements of Ottawa, but
21 also as we had to face some different context --
22 when I say that, is the industry organization is --
23 also has to be made for making it possible in
24 Canada and North America, so we had to adapt some
25 of the components, I would say, to that market,

1 yes.

2 CHRISTINE MAINVILLE: And --

3 BERTRAND BOUTELOUP: It's not a full
4 development, as I said. Okay. It's not a full
5 development.

6 CHRISTINE MAINVILLE: Right. Did --
7 first of all, did adapting the train for North
8 American standards -- did that ultimately present
9 some challenges for Alstom?

10 BERTRAND BOUTELOUP: It does represent
11 some -- how some of the changes, meaning that in
12 some of our purchase specification, if we haven't
13 got the equivalent or the capacity to adapt, we can
14 face difficulties to get the part as expected as to
15 our needs.

16 So that the reason -- the easiest one
17 to understand is cabling. It's not maybe a fancy
18 one, but it's still very important because you had
19 to have the capacity to purchase and to build and
20 to manufacture in Canada.

21 And definitely we're not in the same
22 standards as we might do. So, yes, there were some
23 aspect of, let's say, focus on development, yes.

24 CHRISTINE MAINVILLE: And I'll come
25 back to some of the specifics of that, but what

1 were some of the key City requirements that
2 required changes to Alstom's Citadis train?

3 BERTRAND BOUTELOUP: Okay. It's maybe
4 not directly from the City. Sorry, I was not
5 deeply involved in the development phase. As I
6 said, I was six months I would say, eight months
7 maybe, of what we call the critical phase of moving
8 from engineering to install, but I was not deeply
9 involved.

10 Even so, I have seen some challenges to
11 make it buy Canadian one, the 25 percent of
12 Canadian, and nothing is all, but it has forces to
13 have some choices. Okay. When I say "choices,"
14 it's like finding some suppliers and capacity to
15 get it...

16 So we had, for example, doors which I
17 think purchased in Canada. So we had some, let's
18 say, incentive to go there, okay, in some area, so
19 we had some choices that I remember.

20 Now, to specifically say that we had to
21 change two things. It's mainly on integration.
22 When I say "integration," it's either the interface
23 with a system or the interface with some
24 infrastructure.

25 We had to secure interface between the

1 track, between the gauge of the train. We had to
2 look at it. Okay. Again, not major changes on the
3 product but still some adaptation. Definitely
4 there were some adaptations to the project.

5 I could not remember the specificity
6 forcing us to change and generate solution. I know
7 we had to demonstrate a fire -- sorry, how do you
8 call it? To prove it under the North American
9 standards. That has forced us to do some
10 qualification but, again, hasn't changed the full
11 engineering solution. So I cannot pinpoint one
12 like that.

13 CHRISTINE MAINVILLE: So just so I'm
14 clear, when you say changes were needed to -- or
15 some adaptations were required as it relates to the
16 interface -- or, sorry, the integration component
17 of the signalling system and the infrastructure, do
18 you mean given that this was a City of Ottawa
19 project and requirement, or were you talking about
20 the Canadian content requirement?

21 BERTRAND BOUTELOUP: No, sorry, I
22 mean -- yeah. On our side internally, internally
23 meaning Alstom, we had to make some choices for
24 Canadian company. That's one thing. That was
25 known from the start.

1 And it forces -- or it forced some of
2 our suppliers also to have some local base in
3 Canada, or we had also maybe sometimes to find some
4 suppliers in Canada, okay, for little work and
5 other things.

6 When I was calling from -- when I was
7 answering your question regarding is there any City
8 requirements forcing you to change your solution,
9 not directly, but, again, as we have to make the
10 trains operate on an FTG, let's say,
11 infrastructure, a new infrastructure, we had to
12 consider and to make it work with their choice.
13 When I say "their choice," the track.

14 And, again, some of them were quite
15 easy. It's just an input we need to situate, okay,
16 but still it's just something you have to face when
17 you are in a design phase when you have to make
18 choices.

19 So, again, I should segregate these.
20 There is the normal way of, let's say, integration
21 and considering all the infrastructure constraint,
22 but in terms of performances, I could not point one
23 thing which forced us to change our solution.

24 CHRISTINE MAINVILLE: Okay. Did -- I
25 understand there was a requirement for 100 percent

1 low floor vehicle. Was that something unique to
2 this project? No?

3 BERTRAND BOUTELOUP: No, it's something
4 existing already. As I said, TTNG is already the
5 same. It's a need for the train which is usually
6 on -- you know that with VIA Rail. It's something
7 normally you jump into the car.

8 It's a bit -- the solution we have in
9 France, it's also a mix of trains and entering in a
10 City like Ottawa, means that you have the low
11 floor, the full low floor.

12 So the full low floor was not a
13 challenge. We had the solution and the other
14 things. That's a reason why we choose that Citadis
15 Spirit as the base for Ottawa projects.

16 So, no, the low floor was not a
17 constraint. It's a technical constraint but
18 already, let's say, considered in our product.

19 CHRISTINE MAINVILLE: Okay. And there
20 was nothing particular to the City of Ottawa's
21 climate or cold temperatures and winters that
22 needed --

23 BERTRAND BOUTELOUP: That's a good
24 question. Yeah, there were some review of that.
25 Mainly the one I remember -- remember, again, I was

1 not fully in the full engineering development
2 phase.

3 That's why maybe I'm missing some, but
4 I remember that some of them were really attached
5 and focused on the snow and to avoid having snow
6 compact on the roof of the vehicle melting, going
7 to highs and then destroying things.

8 So one of the constraint has been -- on
9 that one I remember has been exported (ph) to OLRTC
10 having the full covered shed in the MSF in Ottawa.
11 The reason why the MSF is fully covered and you
12 have all the trains are stopped during the night
13 under the shed.

14 So that's one of the things we looked
15 at. Okay. And, again, there was some specific
16 analysis, yes, regarding snow removal, regarding
17 capacity to run under certain conditions, yes. We
18 had to look at it.

19 I'm not too sure we had to change
20 climatically the solution, but, yes, we had to
21 adapt and secure the snow removal, secure other
22 things. Yes, we had to do that.

23 CHRISTINE MAINVILLE: Okay. Was there
24 a need to -- for a more complex bogie for this
25 train?

1 BERTRAND BOUTELOUP: The bogie is quite
2 a technical challenge overall. The reason I'm
3 saying that is this train has the capacity to run
4 at 100 kilometre per hour, meaning that it has to
5 be rather stable, but it has also to go through
6 inside a city with some sharp turn. So it's always
7 a compromise.

8 So that one is a nice, let's say,
9 technological challenge but, again, nothing unusual
10 because we had that capacity with the French
11 solution. Yes, we adapted this one with some
12 assembly on the site but nothing -- nothing risky,
13 I would say. Nothing -- we haven't got the
14 solution yet.

15 CHRISTINE MAINVILLE: Okay.

16 BERTRAND BOUTELOUP: To me, the bogies
17 itself is a very critical things, and I know some
18 events occur, but, again, the solution -- it's
19 designed for that solution also.

20 CHRISTINE MAINVILLE: Okay. And on the
21 speed, I understand the -- there was a time
22 guarantee, like a journey time guarantee as between
23 stations. And so there was a requirement for that,
24 which was, as I understand it, a Thales commitment;
25 is that correct?

1 BERTRAND BOUTELOUP: It's not a Thales
2 commitment. It's a result of -- no, it could not
3 be Thales. It could not be Alstom. It's -- it has
4 to be -- I'm sorry to say that. It has to be OLRTC
5 as the designer of the system.

6 The reason for that -- and I will try
7 to explain. The reason I'm saying OLRTC, it's the
8 capacity for the train to brake, the capacity of
9 the train to accelerate for sure, because you are
10 depending on acceleration, deceleration, of course,
11 leaving the station.

12 Yes, all the system is under the
13 control of Thales due to the automatic train
14 control system they have, okay, using the capacity
15 of the train, but you have also some choices.

16 When I say "choices," you have also
17 speed limitation when you enter in a station. You
18 could have speed restriction if you have a sharp
19 curve. You could have the choice of operating
20 time.

21 When I say that, it's the time -- it's
22 really crazy, but the time of opening the doors --
23 sorry, authorizing the door to open, door open,
24 remain the door open, close the door, and authorize
25 the trains to depart from the station. So all

1 that -- the journey time is a result of all that.

2 So saying that it's a full picture is
3 in the -- is under the control of OLRTC,
4 definitely. We know what we have to make on our
5 own was the capacity to brake, to accelerate for
6 sure and also our door system, and then we can look
7 in between the City -- between the train -- the
8 train door operation and the authorization to move.

9 That was under our responsibility, and
10 we had some constraint in our specification for
11 sure, but the journey time is a full result. It's
12 not only one. It's a few items involved,
13 definitely.

14 CHRISTINE MAINVILLE: Would you
15 consider that requirement to have been an
16 aggressive one in terms of the time requirements?

17 BERTRAND BOUTELOUP: I could not -- I
18 could not judge myself. The reason I could not
19 judge is I know it was a challenge at one point
20 because I remember OLRTC stress this, but I don't
21 know how much it was a challenge.

22 Again, I don't have a benchmark to tell
23 you it should have been blah, blah. No. I knew it
24 was a challenge because I knew they had made some
25 simulation, and they were really worried about it.

1 So they have been quite aggressive.

2 And what I know is the end result.
3 When I say "end result" is they have used
4 intensively -- I choose my words -- intensively the
5 capacity of the train.

6 The reason I know that is we have seen
7 in the first month of operation during the trial
8 run and doing after that, we have seen a lot of
9 events in relation with either overspeed or
10 emergency brake, meaning that they were very close
11 to the limit, saying that they were pushing to the
12 limit the system.

13 So I could imagine they have been
14 facing that, but I could not tell you it was
15 impossible. It was -- no, I could not tell you. I
16 haven't made any study on this.

17 And, again, it's not our role. In this
18 project, our role is mainly to deliver the
19 performance of the train.

20 CHRISTINE MAINVILLE: And in terms of
21 that -- in terms Alstom's role on that piece of it,
22 were there any challenges in terms of meeting what
23 Alstom needed to deliver on that? No?

24 BERTRAND BOUTELOUP: No, we had -- we
25 had the capacity to brake and to accelerate without

1 any problem. We have a -- the -- this train is
2 highly motorized, and there is no major issue.

3 Even the braking system is quite
4 efficient, and we are using most of the electrical
5 brake, so no issue to reach the performance. It
6 was never a question, and we never failed to any of
7 the result of performances.

8 CHRISTINE MAINVILLE: So could you
9 speak to the events that you say occurred as a
10 result of this overspeeding and emergency brakes?

11 BERTRAND BOUTELOUP: Yeah, I could. In
12 the trial run -- and, again, I'm -- it's -- I think
13 it is no more the case today. I'm not in
14 connection on a daily basis with Ottawa anymore,
15 but when I left, it seemed that the operation was
16 smoother overall in the choice of speed profile.

17 But what we have seen when we were --
18 in the early phase of operation, what we have seen
19 is a lot of emergency brake, for example, meaning
20 that the train has to react, saying you're asking
21 too much speed, and the normal braking capacity is
22 not enough to fulfill the speed where you are. So
23 you have been told by the system saying, guys, you
24 have to brake more.

25 It's like you're -- when you are seeing

1 that you are approaching something and you could
2 not -- so we have seen a lot of emergency brakes,
3 and it was -- when I was in 2019, I remember that
4 shows only that our system was not fine-tuned. It
5 doesn't say the system is not capable of. It's
6 just saying the system is not set for a good
7 compromise. That's it.

8 So that's what we have seen on our
9 side. Then overall what we have also seen, we have
10 seen some shaking movement in certain area. The
11 track was -- and that's a challenge. That's a real
12 challenge.

13 Having explained now some of the
14 Canadian projects, it's a huge -- it is a
15 constraint because you have potential minus 30, 40
16 in winter, and you have plus 40 in the summer. And
17 that range of temperature on the rail system and
18 track system is foreseeing a lot of constraint and
19 load within the system, and you have to consider
20 it. And I know that in Ottawa we faced, and
21 there's been since.

22 We have seen some rail movement in the
23 summer because you have too much materials and you
24 can see the snake coming on the track itself, and
25 you have seen also some breakage during the winter.

1 We have three or four rail completely cut just due
2 to the compression.

3 So that's something as a challenge. So
4 when I say that, the reason I'm saying -- I'm
5 mentioning that is we had faced some high level of
6 stress in our bogie because you have the wheel
7 directly in contact with the rail and everything --
8 and it effects on the track. You can see it, and
9 you can feel it in the bogie.

10 As well you have two level of
11 suspension, but the reason I'm saying is we have
12 seen also some movement on that testing.

13 CHRISTINE MAINVILLE: And would it be
14 typical to adjust the speed profile or the journey
15 time requirements based on bad weather?

16 BERTRAND BOUTELOUP: That's something
17 you can do. When you are not able to -- you have
18 two limits mainly. You can have what we call icy
19 condition, and that's very specific because when
20 you have very high speed icy condition, you can
21 have a lot of phenomena on this.

22 But, yes, it is usual to have
23 potentially two or three -- you have two level of
24 braking which authorize some capacity. The reason
25 for that is to avoid having default.

1 Your system is always controlled. If
2 you ask for a sudden acceleration and you don't get
3 it, your system is telling you, hmm, it seems you
4 cannot fulfill it. So you have that fault, and
5 it's the same for braking.

6 So your setting is the way to again
7 optimize the performances and the level of default
8 your train is seeing, so it's just to avoid -- like
9 when you have a wet condition with your car, to
10 avoid having the bad feeling of uncontrolled
11 situation.

12 As your system is fully under control,
13 the computer is telling you take care, take care,
14 and that's not what we want. So that's the reason
15 why you have different setting, the winter one and
16 the summer one. That's mainly to explain you why
17 braking and acceleration has got different
18 settings.

19 CHRISTINE MAINVILLE: But should the
20 winter setting lead to lower speed generally?

21 BERTRAND BOUTELOUP: If not lower
22 speed, at least lower acceleration, and, yes, you
23 give more time. You give more time to your system
24 to react, yes.

25 CHRISTINE MAINVILLE: So would you

1 normally expect to see a different requirement in
2 the contract? At least for climates like in Canada
3 where you would have potentially harsh winters,
4 would you expect to see different requirements on
5 that basis?

6 BERTRAND BOUTELOUP: That could be --
7 yes, that could be a solution. If not -- and I
8 think it was not the case in Ottawa. I'm sorry.
9 I'm not -- maybe I don't have good memory, but I
10 think it was decided during the design really.

11 And, again, it's something I had in
12 mind. Maybe you could ask -- I don't know if you
13 have interview with the direct development team,
14 all the people from my team, but I think it was the
15 solution we propose through the design, which was
16 agreed actually, the two setting, winter and
17 summer, but I'm not so sure it's a requirement
18 within the PA. I'm not so sure.

19 CHRISTINE MAINVILLE: Okay. Do you
20 know what provisions were made for winter testing
21 in terms of the testing and commissioning phase and
22 whether the seasonal conditions were taken into
23 account?

24 BERTRAND BOUTELOUP: It's an
25 interesting question. We had -- okay. You could

1 not only rely on the calendar. So what is
2 happening is we have validation plan developed
3 within Alstom and within engineering phase which
4 force us to go into climatic chamber in some of the
5 major components. Even actually have a train is
6 going through a climatic chamber.

7 Again, what you do there, you do the
8 capacity for heating, for cooling and everything on
9 your train, but you don't do the generic one. It's
10 what I call the static validation of the winter
11 conditions. You do that in climatic chamber.

12 There was a plan which has been made
13 and which a lot of reports on the capacity for
14 again heating and cooling system mainly, but also
15 some of the subsystem like start in cold condition,
16 like electronics. You do that kind of testing in
17 steady conditions. Okay.

18 Then you have the generic part of it.
19 Usually what you do, you have a schedule and
20 planning of -- between commissioning, dry run or
21 dry run phase, you establish the plan with your
22 customer, like OLRTC and City of Ottawa in this
23 case, to secure that you have at least one season
24 you can go through.

25 And it's a good way to make it.

1 It's -- yeah, it's a pretty good way to make it.
2 Maybe you could have a good winter or bad winter, I
3 don't know, but it's a way of forcing, let's say,
4 the system to see how you can operate it in winter
5 conditions.

6 And I think in Ottawa we had a chance
7 to have few trains running on the system, as we
8 have the first -- if I remember well, the first
9 train was in 2017 or even maybe earlier.

10 Maybe not the full representation of
11 the serial configuration, but at least we had
12 trains running in 2017, so meaning that you had the
13 chance to go through at least one winter.

14 When the revenue service was due in May
15 2018, the plan was to go through the winter before.

16 CHRISTINE MAINVILLE: At least in
17 hindsight, do you deem the winter testing to have
18 been sufficient?

19 BERTRAND BOUTELOUP: The static one,
20 yes. The static one I was referring first, yes,
21 definitely enough. Good enough even maybe some --
22 very extensive, so, yeah, I would say yes.

23 Now, on the generic one, certainly not.
24 When I say that is -- but it's not on even winter
25 condition. It's the overall system.

1 We had the full picture available late.
2 When I say that, it's due to various reason. We
3 had capacity to run on some portion of the track
4 but not on the other one.

5 We had the capacity to go through the
6 tunnel very late in that project. And, again, the
7 tunnel is not a minor things because your train is
8 entering a tunnel and then exiting, so you have to
9 look at it also on the behaviour of the whole.

10 But we haven't been able to make
11 enough, I would say, on that global perspective
12 with a full operational system. It was always by
13 bit and pieces.

14 And I'm not so sure we had the full --
15 yeah, I would say that the generic testing has
16 been -- has been extensively, let's say, made on
17 that project.

18 At the end, it was really a challenge
19 for us to get mileage and to get, let's say,
20 representative mileage.

21 CHRISTINE MAINVILLE: What was the main
22 cause of not being able to do more of that dynamic
23 testing?

24 BERTRAND BOUTELOUP: Late availability
25 on the fleet itself, I would say, on our side also,

1 okay, because the trains arrived, and the capacity
2 to have trains was more in 2017 -- sorry, 2018.

3 And even in 2018, we've got to have the
4 full fleet available, but also the fact that the
5 coordination -- and I remember -- and there was
6 really -- I don't know how to call that. Point of
7 change of attitude.

8 Until summer 2018, we were -- on
9 the construction -- on -- we were on the positive
10 side of building a plan with OLRTC. From summer
11 2018, we start to be in a rushing phase, and I put
12 it in brackets, whatever. We were more on running
13 in various direction.

14 You need to finalize that, you need to
15 do that, you need to do that. But overall, the
16 plan was not, let's say, maybe not tackling the
17 real challenge at the end. Painting a station is
18 important, but painting a station could be a result
19 in one or two days. When you have to adapt your
20 signalling system, it takes months.

21 So, again, you have to make choice of
22 activities on-site, and the reason I'm mentioning
23 that -- let's say date, I could not fix a date like
24 that, but I remember that from summer 2018, we were
25 thinking and rushing without proper coordination.

1 Take it with some cautiousness. I'm
2 not criticizing. I'm just saying from that date,
3 the plan was to finalize as early as we can, but
4 maybe not for the benefit of the project.

5 CHRISTINE MAINVILLE: And do you know
6 where that pressure was coming from or the rush to
7 get it done?

8 BERTRAND BOUTELOUP: I do not have any
9 notices, but I would imagine few of them. There
10 was the -- definitely, as you know, the date of
11 revenue service has been already moved from May
12 2018 to November 2018 at that time.

13 When I was -- in the summer, so we knew
14 that the date was moved already. Then we knew that
15 it has moved spring 2019 and then finally to
16 September 2019. So, again, there was the
17 contractual/financial pressure, definitely.

18 We knew that the company RTG has got --
19 facing also some -- as it is a PPP project, were
20 facing some important challenges on that side,
21 definitely.

22 Then there was also some misalignment
23 on what is feasible and what is the target overall,
24 and I remember that because we were really on the
25 proactive and collaborative approach until that

1 summer 2018, and then there was a change also in
2 the team at that time. A lot of movement in the
3 project team at that time.

4 I could imagine a lot of, let's say,
5 external causes for that pressure to influence the
6 project, I would say. The other things at that
7 time was that for the first time, the City -- or
8 let's OC Transpo, not the City, but OC Transpo
9 start to be involved as well.

10 OC Transpo was more on the customer
11 side until the summer, and then they start to be
12 one main stakeholder because they had to be
13 on-site. They had to be also with their operators
14 driving the train.

15 It's also maybe where a lot of things
16 were made in full transparency. Everything you do,
17 the people can see it. And so we start to be maybe
18 fully all the stakeholders inside together in that
19 period of time, so it's also something we have to
20 consider.

21 CHRISTINE MAINVILLE: So are you saying
22 there was more transparency after --

23 BERTRAND BOUTELOUP: You are no more in
24 a presentation mode. You see, when you're in the
25 project, you can present. I've got a nice image.

1 Now we were facing real things all together on the
2 field.

3 When I say that, it's not full
4 transparency. It's we have to cohabitate on the
5 same site so we can see each other directly.

6 CHRISTINE MAINVILLE: Right. People
7 were working on the same -- in the same areas at
8 the same time, is what you're saying?

9 BERTRAND BOUTELOUP: Yes, and you could
10 not present something which was not the real things
11 happening on the site, so then you start to have
12 some mind-set change.

13 And it's always the same project. You
14 have always the phase when you are on the paper
15 phase or PowerPoint or drawing phase. You present
16 things.

17 Then you have the industrial when you
18 can start seeing some material, and as soon as you
19 start the testing, you have proof and you have
20 performances and you have values and data. It's
21 normal forecast. It's something you can prove and
22 you have it, so it's -- we were moving to that
23 phase in 2018 as well.

24 CHRISTINE MAINVILLE: And in terms of
25 the changes to the project teams in 2018, was that

1 as a result of the RSA not being met, that there
2 was a lot of turnover?

3 BERTRAND BOUTELOUP: Yeah. The reason
4 I'm saying that is there was a change in our
5 counterpart in OLRTC. I -- at that time, we had
6 few interfaces, direct interfaces with City of
7 Ottawa, except for design reviews and safety design
8 review with them, but we were more with OLRTC and
9 RTG, okay, which we were responsible for getting
10 everything on time all together.

11 And we have seen faces changed. I
12 remember in 2018 we had -- even I think the three
13 partners within RTG change. They are project
14 directors. So it was a change.

15 We know that on-site they had also
16 additional people coming, which was good, let's
17 say, new people coming, but also a lot of, let's
18 say, uncertainty in who is the counterpart, I would
19 say.

20 And we faced a big loss on our side
21 is -- the technical coordination of OLRTC was
22 really under, let's say, one man and he was
23 really -- and that guy was really constructive
24 really in a positive way, presenting solution,
25 finding solution and coordinating.

1 That was Jacques Bergeron. I don't
2 know if you have him on the book, but for me he
3 really represent the type of people who wants to
4 make it happen. Even defending the company, which
5 is fine, but he wants to construct and to build
6 something.

7 And from that time when we lost him,
8 then it seemed that again the main target was maybe
9 lost somewhere, and it was more, as I say, in a
10 rush, go do it, make it. You had people do that.

11 It's not the way of managing things
12 again, so it's -- there was really a change in
13 2018. Sorry to insist a little bit on that one.

14 CHRISTINE MAINVILLE: So is that when
15 Mr. Holloway came in as -- for OLRTC as project --

16 BERTRAND BOUTELOUP: Contact was
17 already there. Actually he was also involved in
18 that one, and I think he has to -- it's one of the
19 stable things at that time, but they replaced --
20 they replaced their project director. I don't
21 recall the name, but they replaced it.

22 CHRISTINE MAINVILLE: Mr. Creamer --
23 Mr. Creamer --

24 BERTRAND BOUTELOUP: Eugene Creamer
25 left as well, so all that moves, yes, that was our

1 counterpart moving. The only stable one is Sharon
2 Oakley (ph) Still there.

3 CHRISTINE MAINVILLE: Is who, sorry?

4 BERTRAND BOUTELOUP: Sharon Oakley.

5 CHRISTINE MAINVILLE: Oh, yes.

6 BERTRAND BOUTELOUP: She's still there
7 after seven years. Still there managing the
8 contract. But what I remember at that time is a
9 change of people really within the management
10 decision. Rupert Holloway was part of it, but
11 Eugene Creamer was there for few months.

12 We had also a guy -- I don't recall his
13 name -- joining but only for a few months. It was
14 a real change in 2018.

15 CHRISTINE MAINVILLE: So was that --
16 that was disruptive to some extent?

17 BERTRAND BOUTELOUP: That was tough
18 but -- and I'm discussing that with you today in a
19 different manner than I would have done it in that
20 time.

21 At that time, I was saying, okay, they
22 are putting a new team to make the things, let's
23 say, happen and they need new energy coming in, and
24 I could imagine that. But now with all the story
25 now, I just realize that it was more in a reaction

1 mode rather than on the real plan to get it.

2 CHRISTINE MAINVILLE: Mm-hm.

3 BERTRAND BOUTELOUP: Again, I could not
4 judge a company like that, but I'm just telling you
5 that I feel a huge difference of collaboration
6 until that time and after.

7 CHRISTINE MAINVILLE: Okay. And just
8 on changes on Alstom's team, because I understand
9 you said Mr. Lacaze resigned, what was the cause of
10 that?

11 BERTRAND BOUTELOUP: Actually, he has a
12 nice position in VIA Rail. He could not -- so he
13 was -- he was quite happy in his role even it was a
14 tough period, and he -- and I have to say that when
15 I -- when I joined back in 2017, I had to -- I had
16 to be involved in Ottawa because huge pressure was
17 rising in that project, as you could imagine.

18 Even on our side, we had also some
19 financial constraint and some exposures with some
20 contractual matters, so it requires some support, I
21 would say.

22 So maybe he was really tired also, but
23 definitely what's create the things and what
24 trigger his resignation is definitely he had a good
25 opportunity in VIA Rail.

1 CHRISTINE MAINVILLE: Okay. In terms
2 of the systems integration piece in particular
3 relating to Thales' signalling system and Alstom's
4 trains, could you speak to -- so you mentioned
5 Mr. Bergeron, who I take it had some involvement in
6 that, but was there -- who -- was there a systems
7 integrator from the outset of the project?

8 BERTRAND BOUTELOUP: He was definitely
9 the one, and I do not find -- he has been replaced.
10 Even so, he has been replaced by the lead engineer,
11 in essence, but the person who replaced him hasn't
12 got the same capacity to make solutions and to
13 define compromise and to go where he has to go.

14 That's where I said the technical
15 competency is one thing, but also on the leading
16 other things, because Jacques Bergeron was involved
17 to present to the City of Ottawa solution and
18 compromise.

19 Jacques Bergeron was also -- he has
20 been through that. He had a lot of experience, and
21 he knew what has to be done. So he was listening
22 and deciding, which is quite nice, let's say,
23 capacity to do, but he was -- he has enough
24 experience to show and tell everybody where he
25 wants to.

1 I was sometimes opposed to him, but,
2 again, he was, again, having a good target and a
3 good goal at the end, so I could accept his
4 decision.

5 So, again, after that, it has been
6 replaced by somebody, but maybe not -- potentially
7 we stick to competencies, but maybe not with the
8 same role of -- or maybe was not instructed to do
9 so, but there were more accusation and finger
10 pointing, let's say, attitude than on behaviour to
11 make it again positive for everybody.

12 So that's something which is really the
13 key change in some area, and we start to be -- at
14 that time, we start also to be potentially in silo.
15 I don't like that term, but it's represent what it
16 says.

17 They were managing Thales on that site
18 with their own schedule, and we were managed by
19 OLRTC with our own schedule, and sometimes the two
20 schedules are not matching each other.

21 And instead of proposing -- allowing
22 people to make good compromise, they were fighting
23 on both side, Thales and us, instead of making them
24 working together. And, again, it makes a huge
25 difference at the end, huge difference.

1 CHRISTINE MAINVILLE: Right. And could
2 that impact the reliability or performance even of
3 the system?

4 BERTRAND BOUTELOUP: It has -- maybe
5 not a full -- it has -- yeah, it led to some
6 difficulties and some real technical issue, one of
7 them being the rear vision.

8 Maybe you have been aware of that
9 because we had to establish a mitigation plan very
10 close to the revenue service date in end of August
11 2019, and we discover in September, October that we
12 were using an input from Thales system, meanings of
13 having the understanding that it was representing a
14 certain value, when we realized that it was not
15 reliable.

16 When I say "reliable," the accuracy of
17 the information was not guaranteed all along with
18 it. So that goes malfunction of the system of the
19 rear vision in some location, and it was an easy
20 one to tackle.

21 It's just because if we knew that there
22 were some change of status of this value, we would
23 have not considered that one as reliable input for
24 us. We would have used the other one. That was
25 clear.

1 So easy to answer, easy to tackle, easy
2 to work around because you use another value of the
3 system and it works.

4 But, again, that -- it has not caused a
5 full reliability of the system, but, again, it's
6 very -- it is a good representation of the bad
7 coordination.

8 Instead of letting us discuss and
9 understand each other, interfaces were not shared,
10 and that's clearly something which was, I would
11 say, stupid because it's easy but it has forced us
12 to view another release after release.

13 So technically, having discussion would
14 have solved it before without an issue.

15 CHRISTINE MAINVILLE: Right. And so
16 just so we're clear, this rear vision issue, first
17 of all, was that resolved prior to the final RSA?

18 BERTRAND BOUTELOUP: No.

19 CHRISTINE MAINVILLE: No?

20 BERTRAND BOUTELOUP: No. It has been
21 resolved in -- sorry, it has been found and clearly
22 stated in October 2019, so after the revenue
23 service, when we analyzed the data. Okay. The
24 reason why I'm mentioning it, because it was there
25 from the start, so we could have done it earlier.

1 Anyway, the other -- the other
2 interfaces which has really impacted us was the
3 senior -- when I say "senior," the system is the
4 numerous things I was mentioning, and I think it
5 has really shaken and forced our system to work to
6 the maximum that we need.

7 So that one has also an impact on us,
8 and we had even seen some, let's say, issues on our
9 bogies in relation to the numbers of accelerations
10 meaning that when you force your system to react,
11 you have some stresses inside your structure on
12 your system. So we found some afterwards.

13 So that critical phase of integration
14 test has been squeezed, meaning that we discover on
15 even easy -- and potentially some of them are not
16 as easy as the other one with the rear vision, but
17 instead of getting that issues earlier and solve
18 it, we discover it by bit and pieces during the
19 start of operation.

20 CHRISTINE MAINVILLE: How did the rear
21 vision issue manifest itself?

22 BERTRAND BOUTELOUP: Okay, the rear
23 vision, what it is, it's -- the system is -- as the
24 rear vision is saying, it's for the driver to
25 ensure that he has no issue on his train before

1 departing the station.

2 So he has on his screen with the camera
3 which were on the platform. He can see the side of
4 the train saying, okay, there is nobody trapped.
5 There is -- all doors are closed, and I can depart
6 from the station.

7 I'm really simplifying it. It's a
8 video feed going from the wayside to the train.
9 Okay. And what happened is to ensure you have a
10 proper camera loading onto the train, you need to
11 have a synchronization of where you are on the
12 station, east, westbound, which station to secure
13 that you have the full cameras which are the one
14 related to your train and not the other one or
15 whatever on the network.

16 So that's where we discover that these
17 interface with Thales with the system was always
18 showing dark screen, because we didn't know that we
19 switch from one track to the other one because we
20 consider one of the value of the things instead of
21 the other one. So it's real coordination, only
22 that. It's nothing -- nothing work at science. I
23 would say that.

24 So it's -- but that rear vision has an
25 impact on the operation because if you don't have

1 that, if you don't have any mirror -- maybe on the
2 metro, you can see on some of the metro you have a
3 mirror where you can see on your back of your
4 train. The driver can see and say, okay, I can
5 look.

6 So we have to have mitigation plan, and
7 we have been forced to put some spotter, what we
8 call spotter on that to replace that system.

9 So that was one of the issue
10 highlighted in the trial run period and in the few
11 days before revenue service. So we had to put in
12 force some spotters.

13 CHRISTINE MAINVILLE: So I think one
14 way to put it is the ICDs from Thales and Alstom
15 were never fully integrated; is that fair to say?

16 BERTRAND BOUTELOUP: Actually, we --
17 somewhere in 2017, 2018, we didn't get proper
18 update of these ICD, yes.

19 CHRISTINE MAINVILLE: And that's why I
20 was asking ultimately about the systems integration
21 role and how -- whether that was sufficiently
22 discharged -- well, let me ask you first. Would
23 that responsibility have fallen on OLRTC to your
24 understanding?

25 BERTRAND BOUTELOUP: That

1 responsibility is fully under OLRTC as a designer
2 of the system. Definitely. There is no doubt.

3 CHRISTINE MAINVILLE: So how would you
4 say they managed that piece of the work?

5 BERTRAND BOUTELOUP: I think they
6 had -- they had enough issues. And, again, I'm not
7 in their shoes, but I remember at that time they
8 had enough issues on all different subsystem. They
9 had also to face some catenary. They had a lot of
10 things to tackle. Okay.

11 So, again, the idea that they can -- by
12 having pressure on separate work stream, they can
13 make it happen quicker and faster.

14 So that's the only explanation I
15 have in my mind because at the end again, as an
16 engineer, they should know that they need to have
17 that coordination, that technical coordination.

18 I'm pretty sure that nobody would
19 contest that. It's technically -- it's in need of.
20 You need to understand each other if you want to
21 work together.

22 So there was no doubt about it. But I
23 think, again, there was momentum at that time that
24 we can rush on that, we can rush on that, and we
25 will make it happen.

1 CHRISTINE MAINVILLE: Did -- sorry.

2 BERTRAND BOUTELOUP: Yeah, sorry, but
3 that's for me the main, let's say, things which
4 happened in 2018.

5 CHRISTINE MAINVILLE: Are you aware of
6 Alstom raising concerns about that?

7 BERTRAND BOUTELOUP: We did, a lot of
8 times. We did technically first. We did
9 technically first. We said -- even myself, I said,
10 and I remember that, guys, you have an ATO, an
11 automatic train operation system. It means that at
12 least -- I didn't know that there was some
13 technical issues at that time.

14 But I say take care, because I've been
15 through that in Montreal metro as well when we had
16 to face some integration with the signalling system
17 anyway.

18 So an ATO is always requesting
19 fine-tuning. When I say "fine-tuning," it's, as I
20 said, the compromise between your speed profile and
21 your acceleration and capacity of the system and
22 the real infrastructure.

23 You always have testing, and you always
24 have to make a set of issues, and that I've never
25 seen. On few times I've said to OLRTC, When are we

1 doing that? And they couldn't answer me.

2 So they were doing it mainly on -- and
3 I know that they were concentrated and focused
4 directly with Thales on proving, as you said, the
5 journey time back and forth.

6 And they were also focusing on getting
7 the obligation of the system, because signalling is
8 also a critical system safety-wise and has to be
9 fully certified.

10 So I know that they had a lot of
11 batteries of tests to run, and they were really
12 focused on that. So I could imagine that there was
13 a third level of priority in their minds.

14 Even so I said, Hey, guys, you need to
15 do it, but they haven't done it. So, yes, I raise
16 my few times that, that that was one of my concern.

17 CHRISTINE MAINVILLE: Sorry, did you
18 say ATO?

19 BERTRAND BOUTELOUP: ATO, yes.

20 CHRISTINE MAINVILLE: What does that
21 stand for?

22 BERTRAND BOUTELOUP: Automatic train
23 operation. You have -- ATC is the overall name,
24 automatic train control, but you have inside the
25 protection, ATP, protection of the train where you

1 secure the distance between trains, and you secure
2 you don't have any people in front of you before
3 you run, blah, blah.

4 So that is protection of the train, but
5 you have also the ATO, meaning that the operation
6 is also managed, meaning that the driver has no
7 choice to make. The system is requesting the
8 speed, controlling everything. So ATO, yes, that's
9 the automatic part of Ottawa system.

10 CHRISTINE MAINVILLE: So you're saying
11 that was not tested?

12 BERTRAND BOUTELOUP: To me, it requires
13 our participation, and we were not involved. That
14 I know. And I said, When are we doing it because
15 we need to be involved, because we have the
16 capacity of resetting and tuning our traction. We
17 can't do some tuning on our traction, on braking
18 system. That's normal way of doing things in other
19 project.

20 So I said, When are we doing it? No
21 answer. I'm sure they have done it on their own
22 side without us involved, yes.

23 CHRISTINE MAINVILLE: And when would
24 this normally take place and as part of what
25 testing?

1 BERTRAND BOUTELOUP: On the normal
2 project, you could not do that at the early stage
3 because the reason for that is you need first to go
4 by steps on testing your subsystem. You test first
5 the safety side, and you test all the wayside
6 communication.

7 And I do understand that the ATO is not
8 the first one you do, but then you have to do it, I
9 would say, at least three months before revenue
10 service. The reason I'm mentioning three months,
11 even if it's only adjustment and settings within
12 software mainly, it requires a new software
13 release, meaning that you need a certain lead time.

14 That's the reason I'm mentioning that
15 ATO three to four months before operating service
16 makes sense. After that, you can always decide to
17 not consider it as mandatory and say that we do it
18 later.

19 You can -- you can always do that, but
20 then you know that you will stress your system,
21 even your passenger by having emergency brake, but
22 you will stress your system for some period of
23 time.

24 So you can make that choice. If you
25 are really in a hurry, you can do it, but usually

1 normal project, you plan it four months, three,
2 four months before revenue service.

3 CHRISTINE MAINVILLE: Is that part of
4 integration testing?

5 BERTRAND BOUTELOUP: Yeah.

6 CHRISTINE MAINVILLE: Okay.

7 BERTRAND BOUTELOUP: Definitely, yeah.

8 CHRISTINE MAINVILLE: And in terms of
9 implications, you mentioned -- of not doing it, you
10 mentioned that it can lead to some stresses on the
11 system. The emergency brake issue might have been
12 something that would have been identified; yes?

13 BERTRAND BOUTELOUP: Mm-hm. Yes.

14 CHRISTINE MAINVILLE: And so beyond
15 that, is it -- not doing it, could that just lead
16 to performance issues, other reliability issues?

17 BERTRAND BOUTELOUP: Exact. You don't
18 take a risk on the safety side because it's -- as I
19 said, it's mainly performances and the life of your
20 system. You're just stressing your system, but you
21 can lead for some months with that.

22 But, again, having make the choice to
23 make it without us, it's automatic to me that they
24 were in a rush of doing things and the bare
25 minimum, let's say, or the minimum of, and they

1 wound up doing another holdback. That's something
2 which is again showing that.

3 Again, I mentioned some of the things
4 they have to take it on the CNE side, and we had
5 also to take some on our side in the same time.
6 And I have to say also at the same time, we had the
7 braking issue and not in relation with their
8 system, also with our system.

9 We had an important retrofit in -- when
10 was it? I think it's in early 2019 when we had to
11 review and check our system. So, again, to make
12 that fine-tuning, ATO fine-tuning, usually you wait
13 for having the stabilized cellular configuration or
14 revenue service configuration.

15 So I, again, understand their choice
16 sometimes, but the fact that they ignore it was
17 just letting me know that they were really in a
18 rush. And, again, I can lead without it. I was --
19 again, we have our internal process for revenue
20 service readiness, and this one is not a blocking
21 point for us. It's only something we do usually,
22 but if they don't want to do it, why not?

23 CHRISTINE MAINVILLE: Okay. Who did
24 you raise this with, you know, when this ATO
25 testing would be conducted?

1 BERTRAND BOUTELOUP: I raise it to
2 mainly two people. First one was the guy replacing
3 Jacques Bergeron who was -- not John. Joseph
4 Manconi. Joseph Manconi, the lead engineer for
5 OLRTC. But also I raise it to the project
6 directors, Matt Slade at that time, our
7 counterpart.

8 CHRISTINE MAINVILLE: And how --

9 BERTRAND BOUTELOUP: Only with OLRTC.
10 Only with OLRTC. I never raise it with the City.

11 CHRISTINE MAINVILLE: Okay. How -- to
12 what extent would you say integration testing was
13 compressed? Can you -- can you help me with that a
14 bit?

15 BERTRAND BOUTELOUP: Yeah. It's always
16 tricky, and we face it also in our project now, in
17 other projects. You can face during your project
18 some delays on engineering, some delays on
19 construction like we face in Ottawa, which was late
20 and pushing everything.

21 You always think that you can squeeze
22 your testing. It's -- on the paperwork, it works.
23 It's only a choice you can make. Now, you have to
24 balance it with again your technical, let's say,
25 maturity and the stress you want to have.

1 When I say squeeze and stretch, when
2 you know the full story, we could have arranged
3 differently, I would say now, but you should have
4 known.

5 But, again, as we have ability to push
6 the date of revenue service by three months, six
7 months, that never gives the possibility for
8 everybody to build a plan of how to tackle
9 everything. And when I say "everything," even the
10 interaction of one system with the other one.
11 Okay.

12 And, again, usually that integration
13 test, I would say, starts -- I don't know if I can
14 throw figures like that, but in my mind, ten months
15 before revenue service, you prefer to have some
16 integration made.

17 When I say "integration," like secure
18 the interface between the catenary and your train,
19 secure interface between the track and your train,
20 which is a heavy one because if you have to correct
21 something, it could be quite important as a
22 notification.

23 Then you can always authorize a few
24 tunings at the end because it requires -- again, if
25 it's a scratch or if it's something, you can make

1 it at the end.

2 Like, we had, for example, a very tiny
3 one on the cab door. You cannot always create and
4 correct it easy, but some of them has -- if you
5 have to change your design, it has some impact on
6 the delay.

7 So that's where the integration plan
8 has to be built on progressive testing to secure
9 you have enough time to react and to correct in
10 case of, and I haven't seen that on this project.

11 CHRISTINE MAINVILLE: Do you recall an
12 original plan for integration testing?

13 BERTRAND BOUTELOUP: We've been
14 involved until beginning of 2018 on that overall
15 plan. Then after that, we have been a little bit
16 blind on that testing. We didn't know what they
17 had.

18 Again, I don't know if it's a change of
19 people or a change of contractual behaviour
20 against -- between Alstom and OLRTC, but, again, we
21 were not part anymore on the overall view of
22 things. We were only partial view of my being
23 involved.

24 We did do the integration test on this
25 date, okay, fine, but overall we did not know the

1 full plan of the test.

2 CHRISTINE MAINVILLE: Through what,
3 sorry?

4 BERTRAND BOUTELOUP: The full plan of
5 the validation, integration.

6 CHRISTINE MAINVILLE: Who would have
7 prepared the original plan?

8 BERTRAND BOUTELOUP: Definitely -- so,
9 again, I think that one is under RTG because it has
10 to involve also -- you don't only test the material
11 or the design of your material, but you also test
12 also the people in the organization inside that
13 integration.

14 So I think it would have been RTG. It
15 has to go through the maintainer on the operator,
16 OC Transpo.

17 You have to secure that everybody would
18 be ready on. So that integration at the beginning
19 is involving mainly OLRTC as pure technical
20 performances I would say, because they are the
21 designer of the system, but the more you progress,
22 the more you involve stakeholders.

23 When I was mentioning that at summer
24 2018, OC Transpo start to be involved because they
25 start to be taking the driver, taking the people,

1 and they want to have a look, and they know
2 everything.

3 So it's a progressive thing. So the
4 overall plan, I would say, has to be studied by
5 RTG, on my point of view. I don't know if it was
6 the case, but I would say it's RTG.

7 CHRISTINE MAINVILLE: Okay. So when
8 does integration testing in fact start? Is there a
9 point in time when you recall it started?

10 BERTRAND BOUTELOUP: Actually, if you
11 look at the definition of integration, it has
12 started in 2017. As I was mentioning, we start
13 having a train running on the track, means that you
14 start your integration. You start having work
15 coming the catenary, and you run on the track. So
16 you start your integration by that point.

17 But the -- let's say the main phase of
18 integration, as I said, is usually eight to ten
19 months. Now, on this project, I've seen it by --
20 maybe because I was not aware, maybe because we
21 have not been involved, but I've seen it by bit and
22 pieces.

23 Again, I know that we have done a run
24 on the track, and our maximum speed was reaching
25 2017, and we haven't done it anymore. The 90

1 kilometre per hour we have reached on that time was
2 good enough to show that we have the capacity,
3 but...

4 So from 2017 until revenue service,
5 that's where we have done on Ottawa but, again, not
6 on a progressive, normal way of doing things. We
7 had done it on a rushed way by meeting one things.
8 We met an integration test again -- I have to
9 remember. I think it was in 2018.

10 In 2018, we had some integration, but
11 we have to redo it -- redo it on 2019 because few
12 things has changed.

13 So, again, the overall plan for that
14 integration test is key and essential in that type
15 of business because infrastructure was new. The
16 MSF was new. So very, very important, let's say,
17 factor to this.

18 The depot or the way we operate and the
19 way we maintain train was new, so all that has to
20 be tested. All that has to run and to make a dry
21 run. It is not maybe again very public and fancy
22 to show, but even a small tools inside them as --
23 you have to secure that you have it and you have
24 the capacity to make it, and that's integration
25 testing.

1 And so to answer your question, it's a
2 long period of things. And, again, I'm not so sure
3 there was somebody having a good plan.

4 CHRISTINE MAINVILLE: And there was no
5 ability to do a full integration testing in terms
6 of the entire main line until when?

7 BERTRAND BOUTELOUP: That one I think
8 I -- I'll need to find a date. One typical things
9 to show that and to demonstrate it is the fact that
10 we have to run from -- we have to demonstrate the
11 comfort of the train, the behaviour of the train,
12 dynamic behaviour of the train.

13 And we were not authorized to go
14 through the tunnels until -- I need to find a date.
15 I don't know if I've got it like that, but I
16 need -- maybe I got it somewhere. I don't have the
17 answer like that. No, I don't want to waste your
18 time, but --

19 CHRISTINE MAINVILLE: That's fair, but
20 do you recall if it was into 2019 possibly with RSA
21 being -- having been met August 30th, 2019?

22 BERTRAND BOUTELOUP: I think you have
23 the -- I know -- I know I've made the last recalls
24 of the dynamic behaviour myself with the guy during
25 the night. It was in May 2019. That I remember.

1 That date is known to me, in my head, because I was
2 there on-site.

3 To make a full recalls of one hand to
4 the other hands needs a normal speed profile.
5 Okay. That one has been done May 2019. That's for
6 sure. But I don't remember when we had the full
7 access of running train through the tunnel. I
8 don't -- I don't -- no, I don't have the date.

9 CHRISTINE MAINVILLE: And so can you
10 tell me about how the trains were performing into
11 2019 when some of this testing is happening?

12 BERTRAND BOUTELOUP: We were
13 discovering few technical issues on our side. We
14 have to -- some of them were -- let's say needed
15 for revenue service, and clearly share with all
16 parties that we had to cover it.

17 Like, example the -- I remember the
18 HPU. I don't know if you heard about it. It's the
19 high pressure unit for the braking. We had a
20 retrofit, and that retrofit has to be made and
21 fully completed before revenue service.

22 So we had faced some technical issue.
23 We had also some line contacters which was failing,
24 but, again, it's -- it could have affected the
25 service performance as we have to have less power

1 on the train. But, again, it's a degrading
2 load, but that one has to be happen also before.

3 We faced what we discovered as well.
4 We faced or we discovered few technical items on
5 the train itself. I have to recognize and we have
6 to -- we have also to modify, if I remember well,
7 the cab door. There were an issue on the cab door,
8 the door between the passenger area and the driver.
9 We had to make it happen.

10 We had -- so we had some technical
11 issue. We had also the CD (ph) you can see in that
12 summer 2019. Also we have seen it. What we have
13 seen again? There was also the auxiliary power
14 unit. We are facing some failure on that
15 component. And we had also some door behaviour to
16 be corrected, adjustment and thing like that.

17 That's the main technical, but within
18 our process, again, we tackle them and we -- sorry,
19 we capture them, and we define the one which has to
20 be corrected before and the one we can lead with,
21 but it's always with an assessment, a technical
22 assessment behind.

23 There is a process. So we capture all
24 of them, but we had to face some bad news, I would
25 say, bad behaviour about this meeting.

1 CHRISTINE MAINVILLE: Was the City part
2 of those discussions and present for this?

3 BERTRAND BOUTELOUP: Yeah, as I said,
4 they start to be involved on December 2018, and
5 I -- and I think it's a personal touch. I impose
6 to have reliability review to share -- to share the
7 data with all parties.

8 And I know OLRTC at the beginning was
9 not so keen having that, but we put in place, and I
10 think we put it in place in 2018, what we call
11 events or -- I don't remember the acronym on
12 Ottawa.

13 But it's mainly you take the events of
14 the last week, you analyze it, you share, because
15 sometimes it's due to the behaviour of the driver.
16 Sometimes it's due to the bad preparation of the
17 train. Sometimes it's a real technical issue.

18 So we share -- to answer your question,
19 we share that on a weekly basis, all our findings
20 and events.

21 So at the beginning, that meeting is --
22 you have to take care because you have to factor so
23 many allows and faults because you can see a lot of
24 got hold by -- by the train, and some of them are
25 false hold. Some of them are real technical issue,

1 so...

2 But, again, we start putting that into
3 place, I think it's 2018, and that's shared between
4 RTM, OC Transpo for the operator, the maintainer,
5 OLRTC and us.

6 CHRISTINE MAINVILLE: OLRTC and?

7 BERTRAND BOUTELOUP: And us, Alstom.

8 CHRISTINE MAINVILLE: And Alstom.

9 BERTRAND BOUTELOUP: Because it's
10 important to have our system engineers telling
11 them, Take care. We can tackle. Yes, we can
12 correct. No, there is something wrong. We need to
13 analyze. So all that is shared, and it was shared
14 in full transparency from that date.

15 CHRISTINE MAINVILLE: And how is that
16 looking like approaching the August 2019 RSA date?

17 BERTRAND BOUTELOUP: That list has to
18 be integrated on the open items. When I say "open
19 items," I think officially on that contract it's
20 called minor deficiency list. When you do an
21 inspection of the train, there is the official open
22 item list which is called minor deficiency, if I
23 remember well, on Ottawa.

24 So you consider it, and you present as
25 the -- manufacturers and builders, you say, That

1 one has to be tackled. That one, we have the
2 workaround solution, or you can lead with a
3 degraded mode, or we can do that. Or if your
4 driver is -- sorry, I will -- is doing that, you
5 can leave and you can continue. So, okay, the
6 system is maybe not stable, but you can lead with.
7 Okay.

8 So you always classify things and try
9 to put it by categories. And in 2019 -- and to
10 answer your point is in 2019, it starts to be an
11 official list of open items before revenue service
12 open item, after revenue service, or to be defined,
13 because you always have some issues you can't
14 answer straight away.

15 So, yes, we start to have that list
16 which were discussed -- if I remember well, maybe
17 the first one was in April 2019 with OLRTC, and I
18 think in June 2019, we start sharing with the City
19 of Ottawa that list of open item.

20 It's quite late, but I think they knew
21 the topics and the items, but that list was
22 starting to be more and more, let's say,
23 contractual as an open item list and a shared,
24 let's say, referential and configuration we want to
25 reach before revenue service. Okay. So I think it

1 was in April or June 2019.

2 CHRISTINE MAINVILLE: And so I take it
3 Alstom had input into this list. Did they have any
4 authority over it?

5 BERTRAND BOUTELOUP: They do. They do
6 because the minor deficiency list is part of the
7 official acceptance of the train, okay, what we
8 call -- I think on Ottawa -- yeah, it's called
9 final acceptance, I think.

10 There was the provisional acceptance
11 which was -- they were taking the trains for doing
12 the test and doing all the operation and dry run
13 and everything, and there is the final acceptance
14 where the train is considered as rated for revenue
15 service.

16 So that list was part of the final
17 inspection of the trains. That's the reason why it
18 has to be reviewed, and they had to consider it
19 because in -- and it's also -- it's also valid that
20 point in our internal process.

21 When you do a safety assessment and you
22 authorize a train -- and, again, we had an official
23 paper authorizing a train to run, that list has to
24 be reviewed and assessed, because some of them you
25 can leave with. Some of them you say I don't want

1 to take the risk.

2 An easy one I can share is just imagine
3 we were -- we were over the safety braking
4 distance. We would never have authorized the train
5 to run. That open item list is always reviewed
6 technically and safety-wise before you can
7 authorize.

8 And it was also the case in Ottawa with
9 the safety and with the independent certifier of
10 the system. Before accepting the full list, it was
11 also noted and shared, yes.

12 So City of Ottawa, the OLRTC has got
13 review, and they can decide on this one, yes.

14 CHRISTINE MAINVILLE: Did you on behalf
15 of Alstom have concerns about what ultimately was
16 being deferred?

17 BERTRAND BOUTELOUP: Concern is -- no,
18 the -- safety-wise, performance, I knew we -- I
19 knew we were there, so I had no problem at all to
20 say to consider it.

21 Now, I knew that we were exporting some
22 constraint on the maintenance and operation.
23 That's clear. That's clear from the beginning. We
24 knew that the operations and maintenance will not
25 be smooth and easy, to say it.

1 So concern is maybe -- two important
2 terms: I got some concern on Alstom because I'm
3 putting some pressure on the maintenance side, but,
4 again, sharing that usually with a mature
5 operator -- sorry, I -- I'm going in another
6 direction.

7 Another project, when you have a mature
8 operator, the operator knows what he can accept,
9 what he could not accept. So you -- as a builder,
10 you are challenged by it.

11 On Ottawa, what is a little bit strange
12 to me is I'm not so sure we had that exchange
13 overall. Yes, they had some tools in the contract
14 to make that happen, like a minor deficiency list,
15 an independent certifier, City of Ottawa accepting
16 or not accepting new things. Yes, there are tools
17 inside.

18 Now, I'm not so sure in front of us we
19 had a mature maintainer and a mature operator to
20 challenge us on the level of things, so it's always
21 a balance and a compromise on the project.

22 So when you have -- and I will -- I
23 will take a French story, a French example. When
24 you have the Parisian metro, they know what they
25 can handle as a maintainer.

1 And they say, Okay, I know what I can
2 do, so I don't like, but I can accept it. That one
3 I can't. When I say that is in this -- the roles
4 of making that counterpart was not maybe well
5 defined, I would say.

6 CHRISTINE MAINVILLE: That's where I
7 have questions because if -- given that Alstom is
8 also maintaining the train, how did that factor
9 into Alstom's assessment of what ought to be --
10 well, of whether the trains were ready in terms of
11 being able to perform smoothly given that it was
12 going to fall onto Alstom ultimately in many
13 respects, the performance issues?

14 BERTRAND BOUTELOUP: As I said, it's a
15 balance. Again, I was not involved on the
16 maintenance contract. Even I had contact to
17 maintain -- the people in maintenance. I've not
18 seen that, but I was not in charge of the
19 maintenance at that time. I just started to be
20 involved on the maintenance in March 2020.

21 Now, we get people and we had to keep
22 some technical expertise on-site. We had to keep
23 some additional workforce on our side for retrofit
24 of the train because the open item list was still
25 to be tackled by us, by Alstom, train builder, car

1 builder.

2 So all that remaining activities force
3 us to have some competency and capacity on our
4 side. So that's called the rolling stock side.

5 Now, in full transparency, we share
6 that view with the maintainer who's as per
7 maintenance side, and I'm not so sure they were in
8 a position to challenge us in front of so many
9 stakeholders because, as you could imagine, the
10 pressure was there, and you had different
11 stakeholders.

12 You had OLRTC, RTG who wants to have
13 their -- you have City of Ottawa who has some
14 public, let's say, pressure. You have all the
15 valued stakeholders. RTG is the lenders. A lot of
16 different context. I'm not so sure that we're in
17 the position to challenge officially.

18 Now, internally we shared with them
19 that they had to face some inspection. They had to
20 face some degree, and they were part of the weekly
21 meeting I was mentioning for the events.

22 So they knew the maturity of that. But
23 they have in the meantime -- and I remember that.
24 In the meantime, they were under the pressure to
25 accept not only the train from us, but they had

1 also as the maintainer to integrate 15 subsystem.
2 When I say 15, they had also to consider the
3 maintenance of the track, the maintenance of the
4 catenary, the maintenance of the...

5 So they had other areas of concern on
6 their side. So even we throw them, and we shared
7 with them the value -- the list of. I'm not so
8 sure we have been prepared altogether to tackle.
9 And I'm completely honest on that.

10 They were focused also on all other
11 business. The MSF was not ready. The building was
12 not ready. They were still not in the normal
13 operating mode. A lot of things.

14 I don't know if you -- if you -- if you
15 know that, but we were also in September 2018
16 reviewing Stage 2, so we had an occupation in the
17 building to build new trains, so all that was a
18 challenge overall.

19 So they had enough, I would say, on
20 other parts, not maybe on what we call the open
21 item list, and also they have the confidence that
22 we will not let them down. We will have the
23 additional resources, but we were more on the
24 reacting mode that -- on the overall.

25 So I'm making that in full transparency

1 with you. I don't know if somebody wants to raise
2 a question.

3 CHRISTINE MAINVILLE: Well, so in terms
4 of internally, Alstom's position on going into RSA,
5 was there pressure for Alstom to say yes, this is
6 ready despite the performance issues and the
7 pressure that there would be on Alstom's
8 maintenance team?

9 BERTRAND BOUTELOUP: Clearly in 2019,
10 we were in a contractual position with OLRTC. We
11 were always a contractual position also as a
12 maintainer because we were also in the context of
13 all that. So the pressure was also on Alstom.

14 And, again, we had some blocking
15 points, okay, and we had some safety items where --
16 and, again, we've made our own assessments. The
17 good -- the good enough was there. Definitely the
18 good enough were there, and we were confident on
19 fulfilling that.

20 Now, we knew that the operation would
21 be completed. Yes, we had knew that the completion
22 will be there. Yes, we had a pressure to secure
23 that.

24 And I remember some of the meeting
25 including the one end of August 2019 where we were

1 there between City -- we'd been invited, you know,
2 for the revenue service. We were invited partially
3 to some meeting with City of Ottawa, RTG and all
4 the people.

5 And, yes, the electricity and the
6 tension was easy to understand at that time.
7 Really easy to understand. And I remember that so
8 well. Yes, we were also under the pressure to get
9 it.

10 CHRISTINE MAINVILLE: And I would think
11 largely financially because of the delays that had
12 already occurred?

13 BERTRAND BOUTELOUP: Not really on our
14 side because we were not in bankruptcy. The
15 situation was not easy. We were expecting cash
16 from the revenue service, and we were exposed to
17 ideas as well.

18 Now, we don't have the same pressure
19 like others. When I say that is, as you know, the
20 PPP contract is made with some business that time,
21 and that is definitely under the stress.

22 Now, the full Alstom company, yes, we
23 don't like the situation where -- we don't like it,
24 for sure. But, again, overall, it has no huge --
25 it has an impact on cash. It has an impact on

1 things, but at the end of the day, we knew we had
2 good arguments, and we are really first of all car
3 builders. We want to make solution and transport.

4 So the pressure on the economic side
5 has never influenced from our side our capacity to
6 understand and to tackle issues. We have never put
7 an issue on the side saying, We don't have the
8 money so we don't do it. Never.

9 Again, the pressure was coming, for
10 sure. Contractual obligation to be overall met as
11 well, but not to an extent of making wrong decision
12 at that time.

13 So we knew -- with full transparency,
14 we've made our assessment, and we were confident
15 again to have the (indiscernible). Now we knew
16 that we were facing a difficult time of recovering
17 and retrofitting and tackling all the issue.

18 We knew the level of obligation still
19 to be made on the train. Yes, we knew. I don't
20 know if I answered your question, but --

21 CHRISTINE MAINVILLE: Yes. Well, I
22 guess I just want to be clear on what the ultimate
23 driver for Alstom -- the driver of the pressure is.
24 It's the contractual undertaking? It's the
25 relationships or reputation?

1 I'm just -- in terms of, you know, why
2 Alstom wouldn't say, There's going to be
3 performance issues, so why can't we push it back
4 one more month to be fully ready? You know, what
5 is driving the --

6 BERTRAND BOUTELOUP: Okay. You're
7 right. There are some, again, technical point.
8 Easy to say go fight. It's basic. You know, like
9 I said, the safety systems, braking capacity.
10 That's one. If we know we don't fulfill our
11 requirements, it's a no-go. You don't go.

12 CHRISTINE MAINVILLE: Yes.

13 BERTRAND BOUTELOUP: We know we have
14 it. That's the normal process of design. On the
15 quality side, we have also the insurance. We have
16 been through all our assessment correctly. Our
17 manufacturing has been done under the process of.
18 We know the open items. All that, we review it.
19 And, again, as a metro company, we can say oui,
20 oui.

21 So what we propose to our management --
22 I was part of that decision, because my project
23 manager is the one who is with the team preparing
24 the file. He's engineering. He's all the
25 manufacturing. And I was the one also presenting

1 to my management with -- as part of the decision.

2 So we knew. And, again, there was no
3 financial, political pressure forcing us to take a
4 wrong technical decision. None, never.

5 Now, having said that, it's not that
6 everything was perfect on our side. We knew, and,
7 again, we knew that we had some judge too.

8 So, again, at that time, we even --
9 well, sorry, not at that time, sorry. I should --
10 I put my -- I take my words.

11 From early 2018, and I remember a
12 meeting in 2018 with head of SNC-Lavalin in
13 Montreal with our top management of North America,
14 and we propose to say why not go in by progressive
15 revenue service instead of making it a rush.

16 That ideas last for maybe one or two
17 months maximum, and for contractual reason, for
18 whatever, I don't know. I do not know. I was not
19 part of. But we have been said by OLRTC, Forget
20 about it. This will never happen. It will be
21 either the full service or no service.

22 We propose them because to stress --
23 and as I said, you have the materials, you have
24 infra, but you have also the people, and it's
25 always easier to do by random and to make it

1 progressive. So we tell them, Why not starting by?
2 They were annoyed.

3 So at that time, if I remember well, as
4 a consequence of the trial run, they relieve a
5 certain level of pressure by changing the service
6 they want and removing in the peak hours the
7 numbers of trains.

8 So that was a relief on the operation
9 of the site. The system was there but, okay, let
10 them the time to go and progress.

11 So I would have been more, let's say,
12 progressive on the way we have been doing it
13 knowing the maturity of the --

14 CHRISTINE MAINVILLE: What was the time
15 frame for when that was raised?

16 BERTRAND BOUTELOUP: Sorry, we -- our
17 proposal?

18 CHRISTINE MAINVILLE: The progressive
19 start, yes.

20 BERTRAND BOUTELOUP: We proposed it in
21 January 2018 to OLRTC and management of RTG and the
22 three companies, and to me, the only way -- or the
23 only time we have heard about it is when they
24 present us end of August 2019 the so-called term
25 sheet or revised term sheet associated to revenue

1 service readiness.

2 So that's where RTG, City or whatever
3 has revised their, let's say, trial run period, and
4 they have made a change of requesting, I think if I
5 remember well, 13 multiple unit instead of 15
6 multiple unit at peak hours.

7 So that's the first time we've heard
8 about it was when we received the term sheet on the
9 maintenance and on the train builder contract. We
10 received it in August 2019.

11 CHRISTINE MAINVILLE: And so when it's
12 raised by Alstom in January 2018, that is -- and
13 it's shut down, the idea is shut down, that is in
14 respect of what is, at that point in time -- and
15 correct me if I'm wrong -- a November 2018 RSA
16 start date; is that --

17 BERTRAND BOUTELOUP: It's when --
18 it's -- you're right. It's when it has been
19 announced in February, March 2018 that they will
20 revise the revenue service. They move it to
21 November, yes. That was in the same time, yes.

22 CHRISTINE MAINVILLE: But it was known
23 that the May 2018 date was not going to be met --
24 going to be met already? I think -- I think that
25 was clear.

1 BERTRAND BOUTELOUP: Everybody knows
2 that May was not -- was not achievable. They
3 didn't want to recognize because they want to --
4 they want to keep pressure on the system, so
5 everybody knows it was not achievable at that time
6 in January 2018, but even so, they had a plan, and
7 they present us a plan, a very squeezed one, where
8 it would be ready by May 2018.

9 But anyway, that's where we said, Hey,
10 guys, to give more time, you have to think about
11 potential progressive ramp-up.

12 The reason we presented as well is
13 based on our benchmark, first of all, but also on
14 the fact that we knew and that we still have a lot
15 of activities and the numbers of trains. We knew
16 that been able to launch every morning would not be
17 there.

18 CHRISTINE MAINVILLE: In terms of when
19 you said we knew that the operations and
20 maintenance will be smooth going into RSA, well, I
21 have a question about what the City's understanding
22 of that would have been. Would that have been
23 clear to them?

24 BERTRAND BOUTELOUP: I'm not sure. I'm
25 not sure because to me, City of Ottawa is -- City

1 of Ottawa is the contract, let's say management is
2 one side, but then there is also the operator side,
3 OC Transpo, and the one we informed is definitely
4 OC Transpo, the one doing the operation with us,
5 because they had to know that we rephrase the --
6 they had to rephrase that. So that be where of
7 where we inform them.

8 Now, in terms of contractual matters
9 with the City of Ottawa, the City of Ottawa have
10 not been involved in this kind of discussion,
11 never. You know there is the operational side of
12 City of Ottawa, the Troy Charter teams and teams
13 under John Manconi was responsible for the
14 operation. And there was also the contractual side
15 of it. Mike Morgan and his team were aware of the
16 contract.

17 And, again, they were not reacting the
18 same. They were not always aligned of things, and
19 the one I was informing was definitely the
20 operator.

21 And due to the contractual, let's say,
22 context overall, I raise it to OLRTC as a project,
23 but I never commission try to pass -- bypass and go
24 directly to OLRTC.

25 CHRISTINE MAINVILLE: Mm-hm. So you're

1 saying you raised it directly with John Manconi and
2 perhaps Troy Charter?

3 BERTRAND BOUTELOUP: Yeah, more Troy
4 Charter. Later on Matt Pieters. The people who
5 will operate the train, yes.

6 CHRISTINE MAINVILLE: And would that be
7 reflected anywhere or even in terms of them being
8 aware of the reliability reviews approaching RSA in
9 2019? Would that --

10 BERTRAND BOUTELOUP: Yeah, okay, as I
11 said, in a weekly meeting, we were discussing last
12 week or the week before, blah, blah, to explain
13 where we stand on some technical issues, where we
14 stand in our corrective action plan, where we stand
15 on things.

16 So, again, for me, it's the good
17 communication factor to give the operator the right
18 temperature of the system, where we stand on things
19 like that. So they had the reliability.

20 Again, with mature operator, the
21 consequence of it is noted. If you face some
22 things, you know what -- okay, so they learn or so
23 on that perspective. Since May 2018, they learn --
24 at the beginning, maybe they were not familiar with
25 what we call events, system development.

1 At the end, I would say that in 2019,
2 they were aware of the behaviour, of the danger.
3 The behaviour and the risk of things they were
4 aware of.

5 Nothing was not known actually, and
6 maybe we face other issues after, but, again,
7 everything we knew at that time, yeah, we share
8 with them. We share the data. We share the
9 events. We know even the numbers of events during
10 trial run. Everything has been analyzed, yes.

11 FRASER HARLAND: I'm wondering if I can
12 just go back. You've said a few times -- you've
13 mentioned that you never had any concern about the
14 safety of the vehicles within the RSA and that, you
15 know, the trains were good enough, but that it
16 would put stress on maintenance and stress on the
17 system.

18 So I'm just wondering, isn't that kind
19 of stress in -- over a time period, doesn't that
20 also create safety issues if there's that kind of
21 stress on the system and on the maintainer?

22 BERTRAND BOUTELOUP: So it's a -- it's
23 a good question. When I say stress on, it's
24 additional inspection, additional checkup or survey
25 we had to perform.

1 So some of them were still in our
2 hands. When I say "our," the car builder. We had
3 engineers to take care of some of the issue, but
4 I -- again, like, you are right. It requires
5 manpower at the end.

6 You can have all the engineering
7 support. At the end of the day, if you are to make
8 the trains running, you have to inspect. You have
9 to secure the train is in correct functionality to
10 go out there.

11 So, yes, we have put some stress on the
12 organization of the maintenance. And, again, at
13 that time -- again, I'm talking about 2019. At
14 that time, the stress was definitely more coming
15 from the capacity of running inside the MSF.

16 I don't know if you've been in that MSF
17 area, but it's a -- it was a crowded area at that
18 time, and mixing activities was more complicated,
19 and especially you have some bottleneck inside that
20 one. It's a yaw (ph), and you have some
21 bottleneck.

22 So to answer your question, yes, it put
23 some challenges on the organization, other things.
24 You have to prepare the train. You have to secure
25 the train you want to inspect is the correct one

1 ready to be there, because it's a crowded place in
2 the MSF. And at that time in 2019, it was even
3 more complicated as we were doing this on the -- of
4 the train.

5 So the specific location where we can
6 do that inspection was completely full and booked
7 at that time. So the stress I was calling is yes,
8 there is a stress on manpower, but there is also a
9 stress on the system, on infrastructure, of
10 capacity of the site, okay, and that's one which
11 was really, really a concern at that time. It was
12 really a concern at that time.

13 Do we have a full capacity, and we know
14 that we are faced on failure also on the infra of
15 the maintenance tool. I know we had the crisis of
16 the wheel flat. The wheel flat was one example
17 where it's easy. In the OCB, blah, blah, blah, but
18 it's easy to correct if you have the capacity to
19 turn the wheels and to make it happen. But just to
20 correct that took three weeks because we have
21 limited capacity in the site.

22 So, again, the pressure was not all the
23 time on the people. In that case, it was more on
24 the time occupation of the infrastructure or the
25 capacity of the -- of the -- of the maintenance

1 side.

2 So that's really in 2019 the concern
3 was there, because we had, again, all our people
4 available if we had to support the team of the
5 maintenance, and we did -- we did at the beginning.

6 CHRISTINE MAINVILLE: Could you speak
7 about the trial running period --

8 BERTRAND BOUTELOUP: Mm-hm.

9 CHRISTINE MAINVILLE: -- and issues
10 that arose there and how the trains were
11 performing?

12 BERTRAND BOUTELOUP: Mm-hm. So I
13 had -- I had -- in all honesty, I had to go back in
14 some of the files because I don't remember all the
15 figures, so I -- the figures were -- I'm sure
16 because I opened it yesterday.

17 During the trial run, we made roughly
18 1,000 -- sorry, 100,000 kilometres overall during
19 that two weeks period, 12, 14 days if I remember.
20 Even it's 14 days.

21 So that has been made. Some of the
22 issue were known and were clearly explained as a
23 development, and we had the answer before revenue
24 service, some of it.

25 So we made that analysis, and if I

1 remember well, we had, in that period of time, 60
2 event which could have impacted the services. When
3 I say "impacted," it's delaying the train or
4 degrading mode. Okay. We had 250 events on the
5 train. 250 was the overall numbers of, let's say,
6 faults we capture. And we had 16 back-up units.

7 So out of it, we looked at the category
8 of it to see if it would have an impact, a bad
9 impact on it. So most of them were associated to
10 the rear vision we were discussing earlier where we
11 had to put a mitigation plan, the spotter plan.

12 I think 40 of them were part of the
13 system, and all the other one were either under
14 control, under retrofit, or manageable.

15 When I say "manageable," it is -- if it
16 fails, you had a redundancy on the car. You can
17 let the car running. You capture it. At the end
18 of the night, you replace the parts, and you can
19 run it the day after.

20 So that analysis has been made of that
21 trial run, making let's say the capture and the
22 analysis on our side of this period. So we've made
23 it.

24 Now, on the overall, I know that the
25 trial running criteria was not only on events. It

1 was on our capacity to make numbers of kilometres
2 or revenue service stable on that one.

3 That one I don't have the value, and I
4 don't -- I have not been aware on the important
5 data. But we've made our own analysis on the train
6 we had. I remember.

7 CHRISTINE MAINVILLE: And so in terms
8 of the events --

9 BERTRAND BOUTELOUP: Yeah.

10 CHRISTINE MAINVILLE: -- do you have or
11 did you have any insight into how those were
12 classified, how they were analyzed in terms of
13 knowing how the system scored on any given day?

14 BERTRAND BOUTELOUP: The mathematics of
15 the system score, I -- again, I was not involved,
16 so I could not say.

17 I remember -- because at that time, we
18 had daily call with the management of RTG, so I
19 remember that we -- that's strange how the memory
20 of the people is done, but I remember 86 percent.
21 I don't know why. But at the early days of the
22 trial running, I know that we had 86 one day.
23 That's it. That's the only thing I know.

24 We have not been involved in that
25 process, so I don't have more than that. So sorry

1 I could not give you the mathematics, what has been
2 analyzed and shared between the RTG and the City of
3 Ottawa.

4 Now, again, we were focused on --
5 because at that time, I was really the LRV contract
6 only. We have been focused to analyze our system,
7 meaning the train, how it behaves. So that one has
8 been analyzed.

9 But, again, on the overall system
10 score, I could not make any judgment or anything.
11 I don't know. Everything I know is the outcome was
12 the things, term sheet I was mentioning by reducing
13 the service to 13 multiple unit and with some
14 conditions which has been rejected on our side.

15 But I remember that City and RTG ends
16 up at the end of this trial running by having
17 revised target of running 13 multiple units.
18 That's the only thing I know.

19 CHRISTINE MAINVILLE: And so Alstom
20 didn't have input into the term sheet?

21 BERTRAND BOUTELOUP: No. It has been
22 discussed by the City first -- between City and
23 RTG. We only have the outcome of it, and the
24 contractual obligation they want us to sign, and we
25 refused.

1 CHRISTINE MAINVILLE: Why was that?
2 What was the concern?

3 BERTRAND BOUTELOUP: The concern was
4 quite easy. They were putting everything on us in
5 terms of responsibility, in terms of -- there was
6 an action plan behind, meaning that we have to
7 recover four trains by blah, blah, blah December
8 twenty -- I don't remember. 2019.

9 There was a lot of condition associated
10 which were not acceptable by us so that at that
11 time we rejected it.

12 CHRISTINE MAINVILLE: And what was --

13 BERTRAND BOUTELOUP: It was -- it
14 was -- sorry, not a penalty. It was a retention
15 of, if I remember well, 8 million per unit, so two
16 times, so 16 million. That kind of things we did
17 not accept.

18 CHRISTINE MAINVILLE: Well, what was --
19 what is the implication of Alstom refusing? What
20 happened?

21 BERTRAND BOUTELOUP: It -- I think
22 it -- what OLRTC was trying was to pass the
23 pressure on us or some of it at least to take some
24 back-to-back things. And we said we don't want to
25 recognize.

1 Again, we were not in a position to --
2 as I said earlier, to say we are in a hurry, and we
3 need to make it happen. Yes, I'm always supporting
4 them, but contractually, why should we have to sign
5 it? To recognize things to be penalized
6 financially?

7 I -- at that time, our management --
8 and I was really part of the decision. We say
9 clearly there is no reason for us to accept it.

10 So OLRTC has been forced with RTG to
11 sign it with City of Ottawa, but they were not able
12 to pass it through to us. That's it. That was the
13 consequence of our rejection.

14 CHRISTINE MAINVILLE: Going back to the
15 events and scoring, Alstom wasn't involved in the
16 discussions around the application of the criteria,
17 but I understand you received the scores at the end
18 of the day whether it was a pass, fail?

19 BERTRAND BOUTELOUP: No, they didn't
20 share that. Again, once -- I remember when I was
21 there on-site, I capture the famous 86 percent I
22 can remember, but that was one day. I don't
23 know -- I don't know which one. The third day, I
24 don't know. But, again, we were not part of --

25 CHRISTINE MAINVILLE: Were you able --

1 BERTRAND BOUTELOUP: What we were able
2 to capture is our recalls. When I say "our
3 recalls," the events on the trains, yes.

4 CHRISTINE MAINVILLE: All right. Were
5 you able to infer, then, whether a particular day
6 ended up being a pass as opposed to a fail?

7 BERTRAND BOUTELOUP: No, we didn't make
8 that exercise, no.

9 CHRISTINE MAINVILLE: Okay. So you
10 don't know whether or how the criteria was
11 achieved, was met?

12 BERTRAND BOUTELOUP: No.

13 CHRISTINE MAINVILLE: Do you -- yes?

14 BERTRAND BOUTELOUP: The only thing I
15 know is with the numbers of events, you have to
16 categorize them, okay, by it's a failure or
17 something.

18 I don't know -- I really don't know
19 what the mechanism they had to analyze and
20 categorize. I don't -- I really don't know, so
21 that's the reason I...

22 The only thing I know is technically,
23 the system was behaving in a certain way that it
24 was, again, for us important to capture what we
25 have to.

1 When I say "we," Alstom on our side.
2 And we were really focused on that. So all the
3 exercise of the things, yes, we hear that, but we
4 are not involved -- we are not really involved in
5 that.

6 CHRISTINE MAINVILLE: Did you have an
7 understanding of what the criteria was going into
8 trial running?

9 BERTRAND BOUTELOUP: Yes, yes, because
10 we have -- we have an obligation to support it. We
11 are not -- we are a -- we are a contributor of the
12 result, of the end result.

13 So, yes, we have the criteria, but,
14 again, we didn't make the calculation mathematical
15 at that time to make any forecast or guess or
16 whatever.

17 CHRISTINE MAINVILLE: Having the
18 criteria and just based on the data you had from
19 Alstom, were you -- would you say you were
20 surprised that the criteria was met?

21 BERTRAND BOUTELOUP: And I will take a
22 personal position. Sorry to say that. Surprise,
23 maybe not. Technically, it was not obvious that it
24 would be best. I would say it like that. Sorry to
25 be -- I'm cautious on that.

1 Again, what I know is the result of it.
2 I know that at the end of this period, they have
3 been proposed the term sheet, which is a revised
4 timetable, which is already a recognition of the
5 system is not there to make the peak hours at 15
6 multiple unit. That's the -- that's the only thing
7 I would say.

8 Again, I have not been involved. I'm
9 not going to accept one figures. I got it when I
10 cross somebody in the corridors, but, again, I'm
11 not in the exercise itself.

12 But the maturity of the overall system,
13 yeah, I've got some doubts. I've got some doubts
14 about the end result, but I could not be sure.

15 CHRISTINE MAINVILLE: And did Alstom
16 have any say -- at the end of trial running, did it
17 have any say at that point about whether the system
18 was ready for operations or not?

19 BERTRAND BOUTELOUP: Not really. I
20 don't see, and we were, again, focused on our issue
21 to be tackled, to be resolved, because we still had
22 some. Again, we had the doors. We had the HPU,
23 the cab doors I was mentioning. We had -- we had
24 things, and we were focused on that one rather than
25 especially on the other one.

1 Now, overall, I always segregate in my
2 mind as a project manager the collaborative
3 approach and things which is the technical context.

4 As I said earlier, sharing -- securing
5 the people of maintenance and operation know these
6 things, and in the meantime, the contractual and
7 the relations, and we have to segregate this.

8 I understand the overall pictures is
9 there, but, again, at that time, it was a tough
10 situation. On -- everybody on our side, we were
11 really, really, really focused on getting our
12 system the best we can. That's really our focus
13 and our concern at that time.

14 So, yeah, you can make some strategy
15 and things like that, but we have not been --
16 again, in that period, again, clearly we were not
17 there. We were really tackling our own scope.

18 CHRISTINE MAINVILLE: Everybody was
19 incentivized to get to RSA; right?

20 BERTRAND BOUTELOUP: Sure.

21 CHRISTINE MAINVILLE: And given the
22 issues that ended up arising, would you say in
23 hindsight that the trains shouldn't -- weren't
24 ready or shouldn't have gone into -- let me -- let
25 me rephrase.

1 Should there have been a hand-over of
2 the trains to the City at that point in time?

3 BERTRAND BOUTELOUP: I do not see why
4 it should not have happened, the hand-over of the
5 train. Again, I was focused on the train -- on the
6 train itself.

7 That doesn't mean that it would be an
8 easy way to have the full-service schedule every
9 day. It just says the trains is delivering what it
10 has to, with incidents (ph) definitely. It's not
11 perfect.

12 We have, as I said, additional
13 activities in place to secure the normal operation,
14 but there was, again, no blocking point, and we
15 haven't been twisting our processes for revenue
16 service on our side on the -- on the design and
17 manufacture of the train.

18 Even with the open item list, we can
19 tick in the box, yes, the train is -- I'm sorry
20 again to use it -- safe to operate. And that's our
21 criteria that now -- I understand your question
22 overall, but we are one of the system contributing
23 to the operation of the service.

24 So, again, our obligation is definitely
25 to be transparent and let them know what they will

1 face, but to decide, it's not in our hands again.

2 So I can have my own opinion as a
3 trained professional for so many years, but I could
4 not make myself as a decision-maker in that case.
5 Definitely not.

6 CHRISTINE MAINVILLE: Correct. And I
7 was asking as the train manufacturer as opposed to
8 the ultimate decision-maker on that decision, the
9 hand-over decision.

10 BERTRAND BOUTELOUP: I am still in the
11 impression that we shared everything we had to
12 share for them to decide. I will just summarize
13 like that.

14 So we have not been hiding things
15 leading to other issues later, no. Everything we
16 knew, everything we have been, we shared for more
17 than a year. Again, not maybe in full site
18 configuration.

19 In 2018 and 2019, the trains, the
20 system was not in the same configuration for many
21 reason, software, retrofit, change in catenary. A
22 lot of things, okay, is that we had issues in the
23 yard which has been sorted.

24 So all that experience were shared, and
25 our expertise was also shared with them. So I do

1 not feel let's say -- I feel really comfortable on
2 making our obligation.

3 CHRISTINE MAINVILLE: And you didn't
4 go -- you didn't move to the maintenance piece
5 until -- it wasn't overnight; right? It wasn't
6 immediately after RSA?

7 BERTRAND BOUTELOUP: No, it was in --
8 what happened is as we stress a little bit the
9 system on our side, and we still have the pressure
10 to make it happen in terms of operational side and
11 also due to internal reason, organization between
12 USA and Canada.

13 I took over in March 2020. Actually,
14 what we did -- and I think you met Alexander.
15 Alexander is the PM for Rolling Stock from March
16 2019 to December 2020, if I remember well.

17 But in the spring 2020, we would like
18 to have a seniority of the team on-site, so under
19 the responsibility of Jean-Francois Nadeau, VP
20 operation for Canada for us, and myself for
21 projects, both of us were empowered, let's say, to
22 make it smooth between maintenance and rolling
23 stock project and between maintenance and rolling
24 stock manpower on-site.

25 That's the reason why Alex move from

1 the project position to a managerial site position
2 in summer 2020, and then I had to recruit another
3 PM for Stage 2.

4 But Alex was there and was leading the
5 operational side. And we were, Jean-Francois and
6 myself, situate maintenance and rolling stock are
7 working together for the interest of -- yes.

8 CHRISTINE MAINVILLE: So would you have
9 been aware around trial running perhaps into RSA of
10 the City's pressure -- the City putting pressure on
11 the maintenance system?

12 BERTRAND BOUTELOUP: Yeah, yeah, I was
13 aware. Yeah, I was fully aware because I was part
14 of some of the management call with RTG, so we were
15 discussing maintenance and LRV contract all
16 together as we have to secure both.

17 We have to secure the correct key
18 action plan or the -- from our side, but also the
19 maintenance of things. So things were mixed all
20 together.

21 So I've been aware of that and -- but
22 what I do not understand is overall, from day one
23 on maintenance, RTG -- or maybe not all, but part
24 of RTG was thinking and making publicly known that
25 its boots on the ground is the solution. Having

1 people, having manpower was the only solution.

2 That's not correct. That's definitely
3 not correct. You do not overcome technical issues
4 only by having people. Yes, sometimes it is the
5 solution, but not overall. So I know and I've been
6 aware of the pressure that are being put on that,
7 on numbers of people.

8 But, again, they never wanted to
9 recognize technical maturity of the system,
10 technical maturity of the people. When I say
11 "people," it's including maintenance operation and
12 all the people running on-site and also the limited
13 capacity of the MSF.

14 Again, I know it doesn't make big news,
15 but the MSF was a tiny place to operate these
16 things. Busy, busy, busy, busy and not fit for
17 purpose. Even we didn't have huge activities
18 through from our remaining open items to them, but
19 there were still a lot of things happening in that
20 MSF which could not fit with all the things, and
21 that's clear.

22 And what some of the people realized at
23 that time is the time schedule of Ottawa is, in
24 fact, almost very close to a 24 hours operation.

25 When I say that, the last train is

1 leaving the track at 1, 1 a.m., something like
2 that, and the first train is leaving the yard at
3 4:35 in the morning.

4 But the time of using the fleet overall
5 is very strong. If you don't sequence it
6 correctly, it is making the system almost a 24
7 hours. So we should have consider it as almost a
8 24 hours operation rather than having potentially
9 the night shift to work.

10 So that's a lot of times to realize
11 that they have to schedule activities differently
12 as they have done on the maintenance side.

13 So to your point, yes, I knew the
14 pressure we were there, but instead of facing and
15 building a plan until we receive the notice of the
16 14 March 2020, the only complaint I've heard is
17 boots on the ground, boots on the ground, put
18 people, put people.

19 No, that's not the -- that's not always
20 the answer. So, yes, I was aware to answer your
21 point.

22 CHRISTINE MAINVILLE: But in terms of
23 having sufficient people, was that -- did that
24 prove to be a challenge for Alstom?

25 BERTRAND BOUTELOUP: Yes, it was a

1 challenge. No, it was a challenge overall to
2 secure people and competencies because it's a
3 system overall which has to be maintained.

4 So you need not only numbers of people,
5 but you need also good organization. And when I
6 say that, it's -- everything is including the
7 maturity of our maintenance instruction, and that
8 covers -- for the trains, it was quite easy for us
9 because we are Alstom, and we can give them
10 everything they want in terms of documentation.

11 But in some system and some area of the
12 subsystem, the structure and the infrastructure, it
13 was a little bit more difficult as a learning phase
14 for the maintenance team. And I know they had a
15 lot of difficulties to get that up and to learn
16 things.

17 So the pressure was quite huge on them,
18 not only, again, on numbers of people, recruitment,
19 but also competencies and knowledge.

20 The hand-over for us was quite natural
21 because it's between Alstom and Alstom, so we can
22 share the data, but, again, on the other one, it
23 was quite the challenge also to scramble and to
24 make sure that the team has got the competencies to
25 maintain everything. The hand-over was quite

1 perfect.

2 CHRISTINE MAINVILLE: So while you're
3 saying the focus shouldn't have been solely on
4 having more people on deck, there were certainly
5 some challenges in terms of finding the resources?

6 BERTRAND BOUTELOUP: Yes. Correct.

7 CHRISTINE MAINVILLE: And in terms of
8 the City's pressure on maintenance, I was also
9 referencing a program where the City went and
10 tested the system, work orders being placed.

11 BERTRAND BOUTELOUP: At that point was
12 interesting, yeah.

13 CHRISTINE MAINVILLE: Could you speak
14 to that?

15 BERTRAND BOUTELOUP: To me, and as I
16 have not been deeply involved -- again, I start off
17 revenue service, but I know the issue and I know
18 how we handled it afterwards.

19 But what you have to take care of this
20 is the tool is always used to support and help you
21 rather than, let's say, and to analyze data,
22 something like that, and the way it has been used
23 was more on the what I call contractual way of
24 securing the activities instead of -- because I
25 know there was a discrepancy between the closure of

1 the work orders and all the events.

2 I know the difficulties we had at the
3 beginning is the -- not secure, let's say,
4 communication between the two systems. But,
5 again, if the end goal is to transport people, you
6 have to use it as a tool to secure the activities
7 you need to instead of making and throwing figures.

8 I remember at the beginning it was more
9 used for throwing figures in between parties rather
10 than securing and tackling the real issue behind.

11 So the reason I'm mentioning it is --
12 and I was saying that at the beginning. If you
13 have a mature manager and a mature operator, you
14 know what the system and what the two
15 (indiscernible). When you don't know at the
16 beginning, you can use it, interpret it, and not on
17 the right way.

18 So the battle was not there. The
19 battle was more on the maturity issue. The reason
20 I was mentioning the notice of default in March
21 2020, that in some way put back into perspective
22 some real challenges and issues on the system.

23 But at the beginning, it was more
24 throwing figures than recognizing all the
25 challenges we were facing.

1 When I say "we," it's all of us. In
2 that case, I'm putting everybody there, and that
3 everybody make, let's say, reassessment after the
4 notice of default received in March 2020.

5 CHRISTINE MAINVILLE: And given what
6 you're saying, I -- do you have a view about why --
7 I mean, you can't speak for the City, but was it
8 unwise to put pressure and stress on the
9 maintenance system if the City knew that there was
10 already going to be stress on the maintenance
11 system?

12 BERTRAND BOUTELOUP: Okay, and I
13 understand. I don't know, but maybe you're aware
14 of the City of Ottawa has been using some
15 consultant for the engineering phase, has been
16 using some consultant for the revenue services as
17 well, and they have even changed consultant
18 afterwards.

19 But they have been using external
20 stakeholders, and some of them were a lot of
21 experience and good maturity, other things, but he
22 didn't be part of the decision-making process.

23 Because when you do a project -- and I
24 don't want to make it too large, but when you do a
25 project, you start to make decision, and each party

1 has to consider the consequence of the decision.

2 When I was mentioning compromise in
3 design review for the speed profile, all that,
4 that's another way of doing it, but it's taking
5 their own responsibility and consequences of this.

6 Now, saying that, the reason I'm
7 mentioning it is at that time, some newcomers and
8 some other outsider was just throwing ideas,
9 pressure, but not on the correct way.

10 When I say "not on the correct way,"
11 not on the way to resolve issues. It was really --
12 the pattern was more important than the topic, to
13 be honest. That's my feeling. But, again, I was
14 not in the deep inside of all the different
15 activities.

16 But, again, when you face things and
17 what I know from technical matters and from all my
18 experience is when technical issue is there, you
19 can't hide it. It's exist. You can present it.
20 You can whatever. It's exist.

21 And I realize that very few people were
22 with that target I would say, with that objective
23 at the end to tackle. But, again, inside all
24 organization, I discover that -- and, again, I was
25 mentioning the March 2020 when -- and I think March

1 2020 is also the time of the court date also, which
2 remove a little bit the public pressure on the
3 system. And when I say, the expectation of the
4 transport system.

5 And also that's where people have been
6 attacking the real topics in some instance. Like,
7 we agree we had real issues to face, and we have
8 been covering them up.

9 So, again, all that first month of
10 operation was quite hectic, and I'm not so sure we
11 put the right energy. We put a lot of energy,
12 let's say, on the contractual positioning and
13 others rather than on the operational side.

14 CHRISTINE MAINVILLE: I might move back
15 in time a little bit --

16 BERTRAND BOUTELOUP: Sure.

17 CHRISTINE MAINVILLE: -- and talk a bit
18 about validation testing. And I understand that
19 was delayed in terms of what the original plan was.

20 First of all, just at a high level, can
21 you talk about what kind of impact that would have
22 had -- let me rephrase.

23 Could that have contributed ultimately
24 to some of the performance issues and other issues
25 that were encountered ultimately down the road?

1 BERTRAND BOUTELOUP: And I will not
2 come back to the integration phase. I will come
3 back to the validation of the train itself.

4 The validation of the train itself, the
5 major impact we had is instead of correcting issues
6 at earlier stage, we have been building the 30,
7 30-something LRVs in a configuration which requires
8 modification and changes. That is one.

9 When you do -- normally, when you do
10 your validation plan, you always try to remove and
11 mitigate risk on a timely manner, and the best is
12 to have a first prototype. Take all the return of
13 experience, then you restart. It's -- that's a
14 dream, but that doesn't exist.

15 Now, on delaying things, you are just
16 maximizing the numbers of hours, numbers of
17 retrofit, and that has been clearly highlighted.
18 That's the first, let's say, very straightforward
19 impact.

20 The second one is technical discovery.
21 If you -- if you discover something again two
22 months in advance, you can have solution. If you
23 discover something two weeks in advance, you don't
24 have any more solution. You have only -- you are
25 defending your position. You found mitigation but

1 not the proper way.

2 And, again, overall what I want to
3 mention as a second and part of my answer is it has
4 delayed some solution or it has forced us to spend
5 energy on quick and fast correction rather than
6 resolving issues.

7 Meaning that for example -- and even on
8 our side, we took wrong decision, and nobody
9 invited us. We took wrong decision by having that
10 as a replacement, and we know that we had to redo
11 it afterwards. So we support the cause, we support
12 everything, but it's not good actually if you don't
13 take your time.

14 So the validation delay has also an
15 impact on the way to try to mitigate or try to
16 correct. If you don't have time any more to
17 correct, you do, let's say, an intermediate
18 solution. Okay. So that's also the second impact
19 of delay validation.

20 CHRISTINE MAINVILLE: So it would have
21 contributed to the compressed schedule leading
22 also -- or feeding into the compressed integration
23 testing phase. It's kind of all bundled up
24 together; is that fair?

25 BERTRAND BOUTELOUP: No, that's fair.

1 It's -- but to answer your first point is delay is,
2 first of all, forcing us to have more retrofit,
3 more activities to retrofit, because trains was
4 already built, and yet on the other hand, it
5 doesn't allow you to clearly investigate, find a
6 solution and implement a solution.

7 So you go fast. You always run for the
8 times when you said, Okay, I do that. It's cover
9 maybe 80 percent of your case, your issue, but it
10 doesn't cover the full thing, so you know you will
11 have to come back. And that is energy also to all
12 the teams on all the things.

13 So that's, for me, the main two things.
14 When you delay validation, you go -- first of all,
15 major impact on your retrofit schedule, but also
16 sometimes you find not the best-in-class solution,
17 and you find solutions which is the one you can
18 make. That's really part of it.

19 CHRISTINE MAINVILLE: And in terms of
20 this -- and in this particular case, the late
21 retrofits would have compounded the issues at the
22 MSF; is that fair?

23 BERTRAND BOUTELOUP: More, yeah. We
24 had the thousand of hours to earn and to make this,
25 and even we have not been able -- you know we have

1 the contractual obligation to complete it by six
2 months. The minor deficiencies has to be completed
3 by six months. We have not been able even to do
4 that in two years, so yes.

5 CHRISTINE MAINVILLE: So what
6 mitigation strategies were put in place? You said,
7 you know, you're not finding the -- or applying the
8 best-in-class solutions in some cases, and so what
9 did Alstom do to mitigate these issues, if they
10 could?

11 BERTRAND BOUTELOUP: I -- what sort of
12 temporary solution? I have to find some example
13 for you. We found some temporary solution before
14 we can do and implement the final, let's say,
15 configuration. I'm trying to find an example like
16 that, what sort of --

17 CHRISTINE MAINVILLE: Well, let me ask
18 you this: Do you think ultimately some of this may
19 have contributed to the breakdowns or the
20 derailments that we saw in the system?

21 BERTRAND BOUTELOUP: Not directly. No,
22 I don't see that. I don't see a direct link to the
23 derailment. That link doesn't exist, no.

24 Again, it has more of an impact on the
25 overall, let's say, behaviour of the system, but it

1 has not been the root cause of the meat of the
2 issue.

3 We have been facing the derailment.
4 The derailment is -- on the first one, it is an
5 easy -- let's say it's technical matters. It's
6 known now and analyzed, and the second one is
7 really different.

8 So, no, I could not make a link
9 directly between late validation and the
10 derailment.

11 CHRISTINE MAINVILLE: Given that -- I
12 take it the fact that the retrofits aren't
13 completed, the minor deficiencies haven't been
14 corrected is why there's been no final certificate
15 issued of completeness?

16 BERTRAND BOUTELOUP: I -- the final
17 acceptance, if I remember well, has been
18 pronounced, you know, just 2019.

19 CHRISTINE MAINVILLE: Sorry, yes, on
20 the trains. I guess I'm talking about the broader
21 project, but maybe that's not a question for you.

22 BERTRAND BOUTELOUP: That's --
23 that's -- I do not know. I have been -- yeah, I've
24 been involved in one or two meeting where they were
25 going through the full system, but very rare. I've

1 been twice, I think, where they presented the full
2 system.

3 So I do not know what was behind. I
4 don't know. I know they had some technical proof
5 to make, and they had some occupancy of the
6 station, but I -- no, I do not know the details.

7 CHRISTINE MAINVILLE: Has there been
8 some consideration given to delaying the Stage 2
9 train assembly given the pressure on the MSF and
10 work?

11 BERTRAND BOUTELOUP: You're correct.
12 Actually, it was an internal decision. If we have
13 listen to OLRTC, we would not have make it, but
14 anyway, when we -- we had to -- we were facing two
15 things: The readiness -- okay, before launching
16 the Stage 2, supposedly the Stage 2 was in serial
17 production. We were continuing after Stage 1. We
18 should have completed.

19 We took a decision to remove for two
20 reason internally: The first one is the
21 configuration setup. Exactly the point I was
22 mentioning earlier, we didn't have time to capture
23 everything and secure the proper baseline for
24 technical reason to implement a new configuration
25 for Stage 2.

1 When I say "new," it's all the data on
2 the technical issues you found during your
3 validation. All the things there, we would like to
4 capture, correct it, and implement it directly in
5 serial condition.

6 So that was one of the reason because
7 in April 2018, we were not able to have that
8 design, let's say, setup.

9 And the second reason is the capacity
10 to phase retrofit, maintenance, and serial
11 manufacture. We were -- we were not able to face
12 all this amount of hours in 2018.

13 So that the reason why we delay the
14 start of Stage 2 in MSF, I think if I remember
15 well, from April 2018 to September, October 2018,
16 so during four months, yeah, four months, we were
17 fully focused on Stage 1 completeness. That's a
18 choice we've made.

19 Since then, OLRTC challenged us and
20 said, You should not have done it, and you put a
21 lot of pressure. And that's something I do not
22 understand because we all knew at that time that
23 Stage 2 vehicles might be needed for services, but
24 in terms of the global centralization of the Stage
25 2 and the Stage 2 extension was not set. We know

1 that the decision for Stage 2 was later.

2 If I remember well, the decision has
3 been made in March, early -- I don't know. When it
4 has been announced by the Government of Ontario, I
5 think it was in early 2019, and we knew that the
6 vehicles were needed in 2024 or something like
7 that.

8 So the need of the vehicle was not
9 under the pressure, but everybody put the pressure.
10 The contract put pressure to build the Stage 2
11 vehicle. Even we knew that the real operational
12 need of these vehicles were not there.

13 So that's the reason why we delay a
14 little bit the start-up of Stage 2 vehicle. I
15 don't know if I answer your question, but the
16 decision was, first of all, an internal one.

17 CHRISTINE MAINVILLE: Going back to the
18 validation testing, I take it the delay was a
19 result of relocating the manufacturing of LRVs 1
20 and 2 at least -- let me rephrase that.

21 If we track what the original plan was,
22 first of all, can you speak to that original plan
23 and the subsequent decisions that were made?

24 BERTRAND BOUTELOUP: You're right. On
25 day one of the Stage 1, we were supposedly having

1 two vehicles. In essence, that's what you're
2 calling it. Okay.

3 That vehicles, we had to change our
4 plan for two or three reasons: The first one is
5 the transfer of -- between Europe and North America
6 and also to MSF for the manufacturing, but there
7 was also the design freeze.

8 We have been facing some engineering
9 delays, but also we have been facing some late
10 design input or late decision.

11 Within the process I was mentioning,
12 design review, you decide, you make compromise,
13 okay, that's where I want to go. All that were a
14 little bit delayed as well on this. This has an
15 impact also on some of our delays in manufacturing.

16 So, again, we had to review our plan
17 for LRV1 and LRV2, and what has been decided in --
18 when I was joining actually, when I was joining in
19 2014, there was one LRV plan to be assembled in
20 Hornell, like a prototype train. And then after
21 that, all the -- all the other one were brought in
22 to be assembled in Ottawa.

23 That had impact on the manufacturing
24 schedule, but it has impacted, as you said, on the
25 capacity to have two trains to operate. But that I

1 was not deeply involved in before, so I did not
2 know all the plan at that time, but it has changed
3 the picture. Yes, definitely has.

4 CHRISTINE MAINVILLE: So at one point
5 in time when at least the first LRV was to be built
6 in Hornell, I believe the validation testing for
7 that train was going to be in Pueblo, Colorado?

8 BERTRAND BOUTELOUP: Pueblo. Pueblo.
9 Pueblo.

10 CHRISTINE MAINVILLE: And eventually,
11 the decision was made to do the validation testing
12 in Ottawa instead; correct?

13 BERTRAND BOUTELOUP: Yeah.

14 CHRISTINE MAINVILLE: Whenabouts was
15 that decision made to move the validation testing
16 to Ottawa?

17 BERTRAND BOUTELOUP: I was not
18 involved, so I don't know. Sorry, I really don't
19 know on my side. I don't if the decision has been
20 made -- I don't know. I don't -- I was not
21 involved in the Pueblo/Ottawa move. I was not. I
22 don't know if it happened before -- anyway, I
23 wouldn't know.

24 CHRISTINE MAINVILLE: So let me ask you
25 this --

1 BERTRAND BOUTELOUP: I think it's maybe
2 when I was in France because Pueblo was still in
3 the picture when I was there in 2015 --

4 CHRISTINE MAINVILLE: Right.

5 BERTRAND BOUTELOUP: -- and it was no
6 more there when I rejoined in 2017. So I would say
7 it's in between, but I don't know when.

8 CHRISTINE MAINVILLE: And the
9 validation testing, in the original plan, am I
10 right that it would have been completed before
11 2015?

12 BERTRAND BOUTELOUP: The original
13 plan --

14 CHRISTINE MAINVILLE: Given that
15 it's -- yeah.

16 BERTRAND BOUTELOUP: It was in 2015
17 that a train would have been in Pueblo and
18 potentially completed by 2016, something like that,
19 yes. I would say yes, something like that in the
20 original plan.

21 CHRISTINE MAINVILLE: So if that had
22 occurred, would that have allowed for the serial
23 manufacturing to occur after the validation
24 testing?

25 BERTRAND BOUTELOUP: It could have been

1 better synchronized. To my point earlier made,
2 yes, it would have been earlier. Now, the only
3 thing on the technical, and I don't know the
4 capacity for -- but I've been in Pueblo sometimes
5 for other projects.

6 It's better because you do your generic
7 testing, but what we have -- what you have to take
8 care is the -- again, the interface. You do your
9 performance capacity. The train is able to move.
10 The train is shaking, is not shaking. You can do
11 that. The train itself, the performance.

12 But in this project, the performance
13 itself, again, has not been an issue. We had the
14 capacity for power. We had enough power,
15 definitely. It's on the setting so, yes, it would
16 have helped on setting.

17 I'm not so sure it would have -- Pueblo
18 would have completely removed, tackle, or highlight
19 every technical issue we have been facing after,
20 but potentially, it would have helped, yes.

21 Definitely you're right.

22 CHRISTINE MAINVILLE: And do you recall
23 when validation testing ended up occurring on the
24 Ottawa project?

25 BERTRAND BOUTELOUP: To me -- to me, we

1 did validation up to the last day, so 2019. I
2 remember the generic testing in May 2019, but I
3 know we done still some test afterwards.

4 So we were asking to make another test.
5 I think it was May or June. I think we ended up in
6 2019, I would say.

7 CHRISTINE MAINVILLE: When did it
8 commence?

9 BERTRAND BOUTELOUP: Oh, train was
10 running and testing -- it's always difficult,
11 sorry. The validation itself starts far in advance
12 because we do test, as I said, by test chamber --

13 CHRISTINE MAINVILLE: Right.

14 BERTRAND BOUTELOUP: -- but the train
15 itself starts in end of 2016, early 2017, I think.

16 CHRISTINE MAINVILLE: And even though
17 you weren't involved in the decision to move the
18 validation testing to Ottawa, did you understand
19 that in the -- in the original plan, when it was
20 decided to move to Ottawa, the validation testing
21 would have been performed earlier in terms of the
22 train --

23 BERTRAND BOUTELOUP: Correct. You're
24 right. In terms of, again, the performance of the
25 train itself, you're right. We could have been in

1 Pueblo. If we have build a train before, we could
2 have been able to do testing.

3 But the train itself has not -- again,
4 at that time -- and, again, I was not involved, but
5 I would say that the challenges we were facing and
6 the area of concern, the risk we had in front of
7 us, we were confident enough in our capacity to
8 deliver a traction system and our capacity to
9 deliver a braking system.

10 And, again, we don't know when you
11 start from design, but we were confident enough in
12 these system. And it's normally the strength, that
13 backbone which is the centre of the train. We know
14 and we are confident on our side.

15 So, again, the challenges were not
16 there in Ottawa. Maybe that's driven them for,
17 okay, I can make it in Ottawa. I -- again, I was
18 not involved in the detail of it, but I would
19 imagine that their challenge at that time was --
20 the risk assessment was at that time more focused
21 on other areas than on traction. That's what I
22 would have made. I don't know.

23 CHRISTINE MAINVILLE: In terms of
24 completing validation testing, though, are you able
25 to say, was that delayed because the track wasn't

1 ready or because the Thales integration wasn't
2 complete? Like, what ended up impacting that the
3 most?

4 BERTRAND BOUTELOUP: What has been more
5 disrupting is definitely the access. When I say
6 "access" is the conjunction of activities on-site.
7 We have been mainly authorized to run trains on the
8 portion of the track, which is 1.5, 2 kilometres on
9 the south side of it. That's where we were.

10 And, again, that makes -- that makes
11 roughly the Pueblo capacity of testing the train
12 running on traction, but it doesn't prove that you
13 have all the interface going everywhere.

14 So that one was at the beginning. Then
15 what was really disrupting, I think, is to be
16 authorized gradually and partially to go through
17 some other areas and to validate.

18 So at the beginning, the train itself,
19 we had enough. With that kilometres, we can run
20 back and forth for us to mature our train. That's
21 what we did. But then after that, it was very
22 impacting that we could not have access to some of
23 the areas. That's the real disruption we were
24 facing.

25 On Thales and signalling, what has been

1 again more impacting on the end result is the lack
2 of communication starting in 2018. That has
3 been impacting, but not the readiness itself.

4 I understand that both systems are
5 evolving. That I could accept, and we have been
6 facing that in so many project, but what has been
7 very, very impacting is the lack of communication.
8 That is really tough.

9 CHRISTINE MAINVILLE: Lack of
10 communication?

11 BERTRAND BOUTELOUP: We were
12 discussing, you know, the ICD, coordination, all
13 that, that has been impacting more than the fact
14 that they were not able to deliver things.

15 I know they had all these strategy plan
16 for delivering software from Thales. We understand
17 it, and we learned when they were asking the train
18 to make this, but that's not fair. They should
19 have -- we should have been part of that
20 progressive, let's say, maturity of the system.

21 That has been more impacting than the
22 availability of the system itself. It seems to me
23 that Thales has done what they can do in terms of
24 installation and commissioning.

25 And, again, the progressive

1 commissioning is not an issue. What has
2 been really, really, really impacting is the fact
3 that we could not be part of it. That was more
4 than the maturity of the system.

5 CHRISTINE MAINVILLE: Would you say
6 there was at some point in time a breakdown in
7 your -- in Alstom's working relationship with
8 OLRTC?

9 BERTRAND BOUTELOUP: Oh, yes. Oh, yes.

10 CHRISTINE MAINVILLE: When would that
11 have --

12 BERTRAND BOUTELOUP: I don't know if
13 it's people related, if it's context, if it's both.
14 I would imagine it's both, the context and
15 everything.

16 Summer 2018. It's a change in
17 behaviour, yes. Summer 2018. I don't know if it's
18 June, July, whatever, but it's somewhere there.
19 Definitely I got the impression, and I really get
20 it now, that it is the change in the way of doing
21 things.

22 CHRISTINE MAINVILLE: And who was your
23 counterpart mainly in OLRTC and at that point in
24 time?

25 BERTRAND BOUTELOUP: So in that point

1 in time, again, we were using the technical link
2 because what we -- what we do when we have a
3 project like that, you have contract to contract or
4 project to project, but you have also technical to
5 technical, because both technicals were hands to
6 hands to present things to the City.

7 So, again, there was using -- I mention
8 Jacques Bergeron as one of the main -- he was
9 really influencing on the solution itself, on the
10 way of doing things.

11 And at that time, myself, I was in -- I
12 was with Eugene Creamer in beginning of 2018, and
13 then we move to Rupert Holloway and then Matt Slade
14 appears as well.

15 So Matt Slade took over an SNC-Lavalin
16 position within the consortium, and he was
17 responsible for us. He was our counterpart in this
18 case. So Matt Slade, Robert Holloway, and Jim
19 Creamer in that period.

20 CHRISTINE MAINVILLE: What is a dry
21 run? Is that -- is that the integration testing
22 component?

23 BERTRAND BOUTELOUP: Usually the dry
24 run is the end of -- you have all your system to a
25 certain level of configuration, technical

1 configuration, and you consider that now you are
2 testing and stressing and making the overall system
3 in the revenue service configuration.

4 So it is a dry run. The dry run should
5 be something representative to -- at the exception
6 of numbers of passengers on board, it should be a
7 way of ensuring that everything is ready for.

8 CHRISTINE MAINVILLE: So it typically
9 happens right at the end, then, of --

10 BERTRAND BOUTELOUP: It's usually one
11 of the end of the validation and integration test,
12 yes.

13 CHRISTINE MAINVILLE: For final
14 acceptance?

15 BERTRAND BOUTELOUP: That depends on
16 the contracts. Sometimes the acceptance are meet
17 before or after. So that exist on -- I've seen
18 both, but technically this is normally the
19 conclusion and the demonstration that all
20 subsystems are working together.

21 CHRISTINE MAINVILLE: And did this take
22 place on this project?

23 BERTRAND BOUTELOUP: At the exception
24 of the trial run, trial run meaning the official
25 demonstration, no, there was no dry run as such

1 before. No, there was not.

2 CHRISTINE MAINVILLE: Do you link that
3 to the automatic train operation, the ATO testing?

4 BERTRAND BOUTELOUP: Maybe, because I
5 know that they had their final release in June,
6 July, but the -- I'm not even sure because I think
7 so many -- actually, that was the driver.

8 But, again, so many activities running
9 in parallel, we were not -- sorry, RTG was not in a
10 position to make a full dry run because they had so
11 many touch-up and activities in parallel still at
12 that point. They had our vehicles to touch up, but
13 they had also some station things, and they had a
14 lot of track things, and they had...

15 So to make a dry run, what you need is
16 at least some stability, and it was not the case.
17 So the dry run has been squeezed to the minimum
18 potentially also due to the fact that so many
19 things to do in parallel.

20 CHRISTINE MAINVILLE: Could you -- we
21 just have a few more minutes. Could you speak to
22 the supply chain issues that Alstom experienced and
23 explain to what extent they were or were not
24 connected to the need to modify Alstom's regular
25 chain of supply because of where this project was

1 located?

2 BERTRAND BOUTELOUP: Okay. No, no,
3 you're right. Two things actually: The location
4 of the estimate. As it was in Ottawa, we had to
5 establish a supply chain which -- with some
6 warehouse and things like that. So that's
7 something.

8 And mainly what has -- that supply
9 chain has put the pressure on our manufacturing
10 schedule. We were -- we were most of the time
11 impacted on -- that was not stable. Our
12 manufacturing schedule has not been very stable in
13 terms of production here. Definitely that supply
14 chain has an impact on our capacity to assemble
15 trains.

16 Now, in addition to that, as you
17 mention it, we had to make some choice on
18 configuration. So when you have change, you make a
19 choice of either sending that change to your
20 vendors for him to implement, and then you don't
21 have to correct it, or you consider that you prefer
22 to receive the task, you modify it, and then you do
23 it.

24 So it's -- that supply chain overall
25 has, and I can say, not been stable all along

1 Stage 1 and even the first week of Stage 2.

2 It has not been stable until we get the
3 Brampton facility. Then for the Brampton facility,
4 you have more an industrial view and focus on
5 making your -- manufacturing things.

6 So it has had an impact on the capacity
7 to be in trains, yes. Potentially it has had also
8 some retrofit and correction, yeah.

9 CHRISTINE MAINVILLE: And is that
10 because it was a new supply chain for Alstom that
11 you had these issues?

12 BERTRAND BOUTELOUP: The setup.
13 Honestly, it's the setup. It's not a setup which
14 is known. It's warehouse with -- a remote
15 warehouse with an assembly line there.

16 Also with some suppliers to develop and
17 to secure, we had -- maybe as you mentioned or
18 you've been aware of, we had some -- we had to
19 change some of the suppliers in the due course of
20 Stage 1 for some of the parts of the bogie, for
21 example.

22 And also what I was seeing, the product
23 itself was known but to manufacture and purchase it
24 in North America requires a translation.

25 When I say "translation," you have to

1 know how the people could make it. And imposed on
2 me in specification is not good enough. What you
3 have to secure is the fact that your suppliers is
4 able to do it. So that has also caused some
5 trouble.

6 CHRISTINE MAINVILLE: Would the changes
7 in suppliers have -- were they the result of the
8 Canadian content requirement, or would they have
9 been made regardless just because you were building
10 in North America?

11 BERTRAND BOUTELOUP: Mainly the second.
12 It's mainly North America that's preferential in
13 the way of doing things and way of moulding parts,
14 the way it is specified, the thickness of the metal
15 sheet, all that. It's something you have to face
16 as a reality because it's something you have to
17 purchase on the North America thing.

18 Now, some Canadian suppliers' choice
19 has also got an impact on us, yeah. At the
20 learning phase at the beginning, you have to learn
21 how to help with some of the vendors, so -- but
22 less than the first one. The first impact is
23 definitely the way of doing things in North
24 America.

25 CHRISTINE MAINVILLE: Was the bogie

1 supplier a new supplier for Alstom?

2 BERTRAND BOUTELOUP: The one you're
3 referring to is the issue of the bolster. Yes, it
4 was new. Not all our -- our techies were known for
5 the brake system or that. We were always some
6 people we knew. We know how to be direct about it,
7 but the one you mentioned for the bolster, yes.

8 CHRISTINE MAINVILLE: Okay. We're out
9 of time. I wonder if perhaps we can go off record
10 for a second.

11 -- OFF THE RECORD DISCUSSION --

12 CHRISTINE MAINVILLE: Do you see the
13 supply issues as having had any impact ultimately
14 on the performance of the trains post revenue
15 service on operations, on the breakdowns and
16 derailments?

17 BERTRAND BOUTELOUP: It's a bit a large
18 question. It's a large question. Again, making a
19 link between the supply chain and the derailment,
20 not as such. Even so, as you know, potentially 60
21 percent of the value of the train is coming from
22 vendors. So, yes, parts are coming also from
23 vendors, but...

24 Now, the derailment itself -- and I
25 don't want to make the full inquiry there -- it's

1 something in relation with design -- I'm talking
2 about the first derailment. It's something in
3 relation with design and involvement with the
4 suppliers, definitely.

5 But I could not make the link with
6 supply chain issue you were mentioning. Again, the
7 supply chain issue, the setup, the delays has an
8 impact on the manufacturing, on the assembly of the
9 train, not on the performance of the train.

10 Now, to your first part of your
11 question, has it got an impact on the reliability,
12 some of the behaviour of the thing. Yes, we have,
13 because for example, the retrofit -- the latest
14 retrofit we have to do on some of the components
15 were on the open item list I was mentioning. So we
16 knew that some of them were still to be tackled.

17 So, yes, some vendors has got an
18 influence on some of the issue we were facing, but
19 to make the link directly between supply chain
20 issue to derailment, no, I will -- I will not do
21 that, no. It's not any pressure, time pressure,
22 anything like that. It's more technical matters.

23 CHRISTINE MAINVILLE: Were the supply
24 issues the main cause of delay for Alstom?

25 BERTRAND BOUTELOUP: No. The main

1 cause of delays was design choices and interfaces
2 mainly. The interfaces, sorry to say it again, has
3 got not only an impact on the functionality of the
4 train, as I was mentioning the rear vision, but you
5 have to know that in a design process which is
6 almost 18 months in a train roughly, you make
7 choices. And when you make choices, it's also for
8 lead time behind, and one of the biggest lead time
9 is the cable.

10 The cable of a train could be an issue
11 at the end because to make the functionality of
12 your train, yes, you rely on computer, you rely on
13 software, you rely on specific item, but you also
14 rely on the way you manage it, and the way you
15 manage it is what we call train control inside our
16 design.

17 And that's how you handle the way of
18 information. Information is not only made for
19 maintenance, something else. It's also made for
20 interacting and ensure that the system is working
21 well.

22 The late design of some -- or the late
23 input of some of the items has an important impact
24 on the configuration, and that was really one of
25 the other issues. And I'm not speaking about fancy

1 choices, but just normal way of doing interface
2 selection and decision.

3 On this project, we were doing the
4 batch 8, which is the 8th configuration of our
5 harnesses, in 2018 or even late in 2019. That's
6 very late.

7 Normally, after that, you should only
8 make minor things, but you don't change your full
9 functionality. And that's -- that's one of the
10 difficulty in this project, the harnesses and the
11 configuration.

12 CHRISTINE MAINVILLE: Was this delayed
13 on the City's end, or was this --

14 BERTRAND BOUTELOUP: No. Some of them
15 were on -- yes, we had faced some of them on the
16 City. Well, I know the City was involved in the
17 choice for the radio operational mode because they
18 were part of -- they were supplying the bare radio
19 on the system on the train, and we had to make some
20 modification in 2018 due to that radio.

21 So they had a late issue there, but not
22 the City always. Mainly Thales, as you know, the
23 CME, that one has been -- we had two batches of
24 modification, and quite important one in 2018 as
25 well, and that led to some delay in our things. So

1 that one.

2 And after that, it's mainly, I would
3 say, some of the choices and -- but I will not
4 finger point directly one items like that. It's
5 the maturity of the decision or the configuration
6 of our train, I would say.

7 So part of it, Thales definitely, the
8 signalling and the radio, and we had also some
9 configuration late design choices.

10 But, again, one -- if you take only one
11 issue, you can always work around, but the numbers
12 of issues are not frozen. These things was
13 important to manage.

14 If I remember well, when I was joining
15 in 2017 and even in 2018, we were still making
16 choices, and that's difficult. That's always
17 difficult.

18 CHRISTINE MAINVILLE: Was there a
19 specific bogie design required for the Citadis
20 Spirit that was new?

21 BERTRAND BOUTELOUP: The bogie is based
22 on some existing. If you look at the axle beam,
23 all that were exactly the same as on other project
24 like Istanbul, like TTNG, so they are strictly the
25 same inside.

1 The one potentially you're looking at
2 for derailment, they are exactly the same from
3 Citadis Spirit -- sorry, the French things and the
4 one we have been using in Istanbul and in France.

5 But we had, if I remember well,
6 four assembly -- new assembly on this bogie
7 specific to Ottawa, mainly on the suspension, which
8 has no issue or no issue afterwards involving
9 service. We had four different, I think, assembly
10 which were specific to this bogie.

11 But the basic of the bogie, the reset,
12 things like that, they are not new. We use the
13 same wheels on others. We use the same bearings on
14 others. We use the shaft itself on other project,
15 so it's not specific to Ottawa.

16 CHRISTINE MAINVILLE: So would you have
17 considered the Citadis Spirit a proven train design
18 despite all the adaptations, or was it no longer a
19 proven --

20 BERTRAND BOUTELOUP: So solution, it is
21 a design proven. When I say "solution," you take
22 traction. It's something we know -- we know how to
23 make it. Braking, we know how to make it. Wheels.

24 So it is design proven in terms of
25 solution. Now, the assembly of it is specific to

1 Ottawa. Yes, it is.

2 Again some strength within Alstom is
3 the fact that some subsystem are reusing solution
4 from others. So you're really confident in the
5 backbone of the train. It's a well known, let's
6 say, product.

7 So it's always -- it's not easy to say
8 design proven. I know some -- a lot of people
9 would like to say it's copy/paste, and you don't
10 change -- just change your colours. No, it's not
11 like that. Never like that. Never like that.

12 CHRISTINE MAINVILLE: And would that
13 have been the case for other manufacturers too in
14 terms of --

15 BERTRAND BOUTELOUP: It will. It will
16 because a specific case of Ottawa for capacity, for
17 performances, yes. It would have been, yes.

18 CHRISTINE MAINVILLE: It would have had
19 to be custom designed to some extent?

20 BERTRAND BOUTELOUP: Yeah. Sure.

21 CHRISTINE MAINVILLE: The -- and,
22 sorry, is that something that's typical in most
23 projects, or often you are able to just replicate a
24 model?

25 BERTRAND BOUTELOUP: No, no, it's

1 rather typical. We don't like -- we don't like to
2 start from scratch a project normally. We have a
3 status which is ready for tender or ready for
4 order. We like to have at least some confidence we
5 can rely on, and we don't make fancy development on
6 project.

7 So Ottawa is -- in terms of
8 technicality, for me, it's not something very
9 special, specific. It's the same on other project,
10 I would say, and it's not a very challenging thing.

11 What has been challenging is the
12 continuity to organize. The fact that we had, as
13 you said, a design authority there, the
14 manufacturing site in Ottawa, that has been a
15 challenge overall, okay, because it's something
16 which has to be, and doing also the MSF assembly
17 was a challenge, definitely.

18 The reason we move also station is --
19 but in terms of design, I would say Ottawa is in
20 the normal range. It's not high technology
21 development, nothing.

22 CHRISTINE MAINVILLE: And what about
23 integrating Thales' signalling system? I
24 understand -- well, can I ask you this: In the
25 Citadis used in Europe, would -- is Alstom's

1 signalling system used, or it depends?

2 BERTRAND BOUTELOUP: Most of the time,
3 yes, but it is something which is specified by the
4 operator. As we run on specified track outside the
5 city, the system is imposed by the train.

6 What is different in Ottawa, the line
7 was not built. The line was not existing that
8 time, so the development is in parallel of. So
9 that's the difference mainly on Ottawa.

10 But usually you freeze -- usually you
11 freeze your design by, Okay, I allow you that space
12 in my cabin. You can do that. I earn that. Then
13 you give me and I -- yes, I can pass the cable.
14 Yes, you can do that. You do this progressive.
15 Okay.

16 On Ottawa, again, the maturity was
17 going like that up to a point where we were no more
18 connected. That's the real challenge.

19 But to answer your question on others,
20 the maturity, you don't have to discuss. It exist.
21 It's an existing on-the-shelf equipment you have to
22 put on your train. That's it. That's what
23 happened.

24 So there is no choice. There is
25 nothing. You can ask for modification. They're

1 unlikely to happen, but you can ask, but usually
2 you have to use as is. On Thales, it was a little
3 bit different.

4 CHRISTINE MAINVILLE: Last question:
5 Did the fact that Thales is a competitor -- did
6 that have an impact on the project or the
7 relationship?

8 BERTRAND BOUTELOUP: Not to my point.
9 And one example I will take is the GTA LRV. You
10 know that they are building the train also for
11 Finch where Thales is a supplier, okay, and we work
12 well in terms of collaboration. So I don't see an
13 issue, no.

14 Even we had good relation with Thales
15 up to a certain point. Again, it's all
16 different -- it all depends on people as well. The
17 competition exists, but even so, on making a
18 project, it's also you rely on the behaviour of the
19 people, and we had good relation with them, again,
20 without an issue. So, no, I would not say that
21 competition would have been an issue.

22 CHRISTINE MAINVILLE: Okay. And just
23 to be clear, was there any hesitation by Alstom --
24 from Alstom in providing Thales with information,
25 with data?

1 BERTRAND BOUTELOUP: No. No. I
2 think -- I think we know each other, and maybe you
3 will have a better answer with some engineering
4 people, but I haven't seen data issue, no. There
5 is no confidentiality of a role, no.

6 CHRISTINE MAINVILLE: Thank you. Those
7 are my questions. I know we're -- I've kept
8 everybody well past the time. Unless there's any
9 important question that needs to be asked, Michael,
10 or --

11 MICHAEL VALO: None from me.

12 CHRISTINE MAINVILLE: Okay. Thank you
13 so much, Mr. Bouteloup, for your time.

14 BERTRAND BOUTELOUP: You're welcome.
15 It's a pleasure. Take care.

16 CHRISTINE MAINVILLE: Take care. Okay.
17 Thank you, everybody.

18
19 -- Adjourned at 12:16 p.m.

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REPORTER'S CERTIFICATE


I, CARISSA STABBLER, Registered
Professional Reporter, certify;

That the foregoing proceedings were
held remotely via Zoom videoconference at the time
therein set forth, at which time the witness was
put under oath by me;

That the testimony of the witness
and all objections made at the time of the
examination were recorded stenographically by me
and were thereafter transcribed;

That the foregoing is a true and
correct transcript of my shorthand notes so taken.

Dated this 14th day of April 2022.



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PER: CARISSA STABBLER, RPR

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