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Debate III:
The IoT Will Disrupt Everything - Or Will it?
You Be the Judge

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Panellists:	
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Good afternoon. The good thing is we are near the lunch. So my name is Sandeep Bazaz and I'm an Industry Analyst with Frost and Sullivan and DataCenter and Cloud practice. Today we are going to discuss about whether IoT will disrupt everything or not. Before we start the debate I would like to give you a short introduction about the IoT and the landscape. So I want to start the definition of IoT. So IoT is basically the connection of things to the internet like structure and organisation. In a broad sense it is virtualisation and datafication of everyday objects. Giving specific identities to these objects, interconnecting these objects and interacting with or monitoring them. So this is the whole definition that we define the internet of things.

So in terms of value chain, these are the five steps that we have defined. The first one is objects, these are the physical objects or - we target - you need to be connected to the internet. Examples would be consumer devices and sensing devices. The next

step is the translation. Translation is basically how do we capture the data? How do you store the data and how do you transfer the data between the [unclear]? The third step is the connectivity. In connectivity we talk about these devices of things or objects need to be connected to the internet. So the connectivity comes here. Traditional network, 3G, 4G, broadband, wireless, everything comes in this space.

Fourth is a platform. So this is the place where applications will be developed - the infrastructure platform. The last one is the applications. Applications are the programs that are designed to do specific functions in IoT ecosystem. So this is the whole value chain that we define for the IoT.

In this slide I would like to talk about how the IoT landscape has changed since 1970 and what happened in 1990s, 2010 and 2020s. In 1970s was era of specialised activities. Mainframe - there were millions of mainframes and there were thousands of applications in the market. In 1990s it was era of increased productivity, PC era and there were hundreds of millions of things and devices and tens of thousands of applications. Then came the disruption in 2010 the mobile and Cloud which disturbed the whole IoT landscape. There were billions of things and devices - there were millions of applications in the market. In 2020 we expanded, there will be trillions of things and there will be tens of millions of applications, that's how IoT will evolve.

IoT - the existence of IoT is based on four points we think. First one is low cost sensors, second is mobility, third one is big data, fourth one is Cloud. The low cost sensors are becoming very powerful and they're becoming very compact. They can be fitted into very small devices. Obviously that is helping that option of IoT. The next one is mobility. For enterprises the mobility is becoming very, very important and the concept of everything in an app is coming up and enterprises are forced to develop apps that are - apps that can accessed to any IT enabled device.

Third one is big data. We talk about smart cities, we talk about digitisation. Most of the countries globally are talking about digitisation, getting their economies digitised in Asia and globally. The amount of data that will be produced, it will be - the big data will play a big role in making sense of that data. The last one is Cloud. I think for me Cloud is enabler of IoT. Cloud allows access to contact any device at any location, that's very important.

These are the four things that we think that is important for the existence of IoT or the adoption of IoT. So there are some numbers. I mean 22 billion connected devices by 2020 and there are 10 connected devices for every household by 2020. Five connected devices for every user by 2020 - there will be five billion internet users. There will be 500 devices with a unique ID by 2020.

So here I want to talk about a little bit of Asia Pacific IoT landscape. So we think that by 2015 the market size was around $24 billion and it's going to be around 20 - in 2030 it's going to $79 billion. Logistics transport and manufacturing are the major verticals that are spending on IoT. The scenario will remain the same in 2020 but

transport and manufacturing will increase their spending. The reason why these verticals are spending on the IoT is basically they can see - users can see the ROI cases in these verticals and that's why they are spending money on these verticals.

But we - manufacturing and transport will grow very significantly in 2016 and other verticals will also start to spend money in IoT but that's going to take some time and that's at Frost and Sullivan and I will start the debate with my first question. Let's start a debate with introduction of every panel member - let's start with. I think that is not working.

Ashwin Jaiswal

Hi, this is Ashwin Jaiswal here, I'm Head of IT Business Consulting for Reliance Communications.

Amit Sinha Roy

Hi, this Amit Sinha Roy I'm in Marketing in Tata Communications.

Panitharn Payackapan

Hi my name is Panitharn Payackapan from UIH, the broadband provider in Thailand.

Haytham Sawalhy

Hi everyone, my name is Haytham I work for Orange Business Services, I'm taking care of Orange application for business in Asia Pacific.

Sandeep Bazaz

So my first question would be to Amit. What are some of the biggest challenges of IoT? We know about security. Do you see any other challenges - I mean security is the biggest challenge right now.

Amit Sinha Roy

I think security of course you know and has been hotly debated in the sessions prior to this.

Sandeep Bazaz

Yes.

Amit Sinha Roy

But if you look at some of the other areas that actually have to be enabled to make IoT real. Firstly of course it's connectivity. The availability for each of these devices be the - there could be two types of devices. Something like a smartphone which is

already enabled to get on to an IoT kind of network. Or it could be strap on, right. It could be something like a refrigerator or microwave or what have you which is not inherently smart in the sense of internet of things connectivity.

So to be able to access that, ubiquitously across - that's the first. The second thing is of course power - battery. That's critical. Because if that device doesn't have the power or the battery to communicate then obviously there's going to be nothing coming in from there, right?

Sandeep Bazaz

Okay.

Amit Sinha Roy

So again for the smart devices which are powered, that's fine. But for other devices or other use cases which we can chat about, that power becomes a big issue. Standards - I think that's another key thing that people are debating now. What are the standards in terms of connectivity, in terms of prioritisation of data? So what happens if my smart television is streaming Netflix? Where - at the same time that my aged person in the house who is - her pacemaker is trying to send out a signal. Which signal gets prioritisation, right?

Sandeep Bazaz

Yes.

Amit Sinha Roy

So that's standards. Then regulation. Regulation becomes a critical issue when you talk about areas like say self-driving cars, right. Who is going to pay the insurance if there's an accident? Is it the person in the car? Is it the manufacturer of the car? Is it the software developer in the car? So things like that. So there are multiple areas which are there - which need to be tackled.

But just quickly from a telecom service provider perspective, we are tackling the access space - we are running a pilot in India right now on the LPWAN service using LoRa technology across three cities, Delhi, Bangalore and Mumbai. We started it off about - almost six months ago. That is - it has taken good shape and we are actually looking at how we can roll this out nationally and then take it globally. So that's an in-house initiative that we started. It was one of the innovative - innovation platforms inside Tata Communications. That's - that roll out is imminent.

Sandeep Bazaz

Haytham, what are your views on the challenges?

Haytham Sawalhy

Yeah, I think to the technology challenges I think the main challenge I can see from the business point of view is the go to market and to add to that - to go to market and building the right business models. I think - I believe the technology is there. IoT is not a revolution, just to demystify everything. The revolution is not in the technology of IoT. The revolution is in the business models that IoT enables. So I feel today that most of the challenges when I talk to my counterparts in telcos is, is the go to market is how can we build business models? Who is going to finance the IoT projects? There should be a way to monetise and earn more out of the cost of the IoT devices and connectivity et cetera, et cetera.

So I think technology wise it's in good shape. Obviously I feel better after hearing silence about the security of end points. It is a concern because if you look at smart building, for example. Someone from your light bulb can go into your system and hide. So it is becoming complicated with the IP world in general, okay, not only in IoT. So, yeah, business models and go to market I see it from the business point of view as a big challenge.

Sandeep Bazaz

Ashwin, my question to you would be what is the place of telco in IoT and how can a telco monetise IoT?

Ashwin Jaiswal

Yeah, I think things are changing from the telco perspective in different parts of the world. Different countries the situations are very, very different. As you can see that in most the IoT landscape which is, what you call developed innovation part of it, they have very limited scope for telcos - very limited functionalities for telcos and very limited responsibilities towards telcos. But if you look at the Western Asian part of it, the core responsibility is being laid on telcos and same thing is happening in India also.

I think IoT will take a - the similar kind of scope and similar kind of landscape that the other industries have taken. It will grow, enhance and it will keep modifying as it comes up. In India as you - as most of us are aware, that there's a smart city initiatives is happening.

Sandeep Bazaz

Yes.

Ashwin Jaiswal

It is one of the very unique approaches that the Government of India has taken. It has [unclear]. It has never been done so in any part of the world at all. It's a very, very

focused, very systematic approach. It will take time and the scope is very, very - huge - it will take time. As regards to business models, I completely disagree with that. There are business models which each business - government departments, private industries, they will generate their own business models. Technology is an enabler for the relevant business model. You can't have a business model first and then think about what IoT devices that you can bring on.

It is the other way round. Technology comes first. How people will use their technology will be completely different than what possibility the inventor has even thought about. So the issue is both things, the technology, the pace that - with which the IoTs are building up. It's amazing, it's beautiful and it's promising. Similarly I mean how many people have ever thought that iPhones would become most important for videos and pictures, transaction and WhatsApp? Nobody has thought about it. So it's how people use their technology. The business model will come up. There will be for the same kind of services there will be different business models. For the same kind of devices there will be different kind of business models and different kinds of usage for the same devices. So it's a free market and people will try and explore that.

So the idea is how do we approach to these businesses and the devices and technology, how you use it. In my perspective the challenge is basically twofold. The telcos - since they are sitting at the core of all connectivity the roll that telcos will play will become more and more aggressive now. Because of their - there are the two connectivities between them. One is the Cloud infrastructure that they're managing and the connectivity and the number of subscribers that they are managing. Because for all of these IoT players and [OTT] players it is going to the connectivity which will be provided by telcos anyway.

So on these fronts I completely see a growing importance and growing role of telcos as we move ahead. So my perspective is it's going to be more and more closer interactions with telcos by IoT manufacturers, device manufacturers and OTT players.

Sandeep Bazaz

Haytham you want to...

Haytham Sawalhy

Yeah.

Sandeep Bazaz

...respond?

Haytham Sawalhy

No, I think - but no - from Orange point of view we have been able - because beyond the IoT fixing, reducing cost on operations and improving customer experience of some areas. At Orange we find an opportunity with IoT and big data to - we brought

a solution in to market called [Freevision] in our domestic market where basically we use our network data to push valuable information to enterprise customers. Not the B2C but B2B in areas like for example tourism where basically we help lots of tourist offices in France - because France is attracting lots of tourists and we want to keep that in Chamonix and south of France, et cetera.

The thing is, is how we help these offices in real time to identify who is going to which area and if it's a foreigner, if it's a resident et cetera. So by doing that dynamically the tourist - the tourism office can deploy operation in a dynamic way to address these foreigners moving in the country. So we are - we have 100 customers using this kind of platform. It's an open platform basically to developers to go in and develop their own applications. This is where interoperability and being open platform is very important. This goes to our strategic program called Datavenue - you can read about it on the web - where we invite all developers - we work with developers, we work with start-ups - to just connect to this data and innovate with Orange.

So co-innovation is something we believe in and it's beyond belief it's also execution and something that we start executing two years ago.

Sandeep Bazaz

Amit I want to - because you're also a telco. So can you respond to the how telcos can monetise IoT?

Amit Sinha Roy

So if you're - so there's the enterprise play and then there is the play which is across all the consumers.

Sandeep Bazaz

Yes.

Amit Sinha Roy

Which is the volume play. Typically I would think that pay per use or transaction based model is something that's prevalent already. That is something that's going to drive this. Because somebody has to actually pay for the cost of the infrastructure, the service as well as...

Sandeep Bazaz

Yes, absolutely.

Amit Sinha Roy

...you know - help monetise that and keep it running.

Sandeep Bazaz

Yes.

Amit Sinha Roy

...profitability I won't talk about because that's something that's very different across different businesses. But then in that case I think the pay per use model or subscription model would typically be the way it works. I see this working for example say in healthcare, right.

Sandeep Bazaz

Okay.

Amit Sinha Roy

So I being a little flippant about the joke on the remote health monitoring. But remote health monitoring services is something the patient will pay for. Actually that cost will be much lower than having a physical inspection or physical check-up being done every day or every other day by a nurse or a doctor.

Sandeep Bazaz

Yes, that's true.

Amit Sinha Roy

Whatever it is, right. So there are these cases then even for automotive applications. It could be - it's already there in terms of the remote servicing, the remote monitoring that says your car now needs to go in for a replacement of a brake pad or whatever it is. So these kind of solutions I think customers would be ready to pay - pay per use or pay per transaction, depending on the nature of the service. I think that's where the major monetisation is going to come in from.

Sandeep Bazaz

Okay, yeah.

Ashwin Jaiswal

I have - based on the historical approaches and what happened to telcos across the world. As Amit rightly pointed out. I mean why there are 90 per cent users in Asia or in Asia Pac region who are on pre-pay. That tells you why pay per use will work always. Why there's a complete shift from a post pay billing to a pre-paid billing across the world. It's primarily because people - it's not that somebody doesn't want to pay, let's say $25 a month, it's there. They were paying it earlier. But even today also they pay $25 a month but in pieces.

So there is a need for people to accept the situation where they want to make use of it and pay for it, that's it. The amount will be the same but it's a comfort level and it's how they want to use the technology - how they want to use it. That is how - and just quoting one example which happened in Bangalore - the Government of Karnataka which is the State Government of Bangalore anyway - they had an initiative of landscape system. Whereby for each property there will be a printout for them to look at the property, to look at their perimeter and the pricing of that property.

Initially there was so much hesitation as to who will pay for it. It's the complete landscaping of the entire street or city wise. When that installation happened it cost government huge. I mean at one point [unclear] Government said okay, we'll just spend our own money and we'll give it for subscription and let's see what happens. You know in the first month of its launch when kiosks were launched - a limited amount of kiosks were launched for people to take the printouts of their properties. The amount was no - probably 16 pence per page. It was such a small amount to pay for - 10 rupees in that sense. Within a month of that launch the number of printouts which have been taken went beyond 70,000 per day.

[Over speaking]

Sandeep Bazaz

People using, yeah.

From the floor

Yeah, people use. See the purpose of government of launching that service was very different. While the use that happened was completely different. So that's how it will come.

Sandeep Bazaz

My next question will to Panitharn. How much privacy and personal autonomy are you willing to risk to reach IoT potential?

Panitharn Payackapan

Yes, I think I would like to look from the consumer point of view. I want to compare the IoT like a new restaurant in the block. When people say there's a new restaurant just opened in your block, it's good and you're not sure and you want to give it a try. So if you go in, you try and you come out and you don't get sick and the taste was good. It's likely that you will come and visit again. It's the same as IoT from consumer point of view, you know. They don't know the back - as someone said that if you go to restaurant you don't go to the kitchen. So the customer don't - that's - you don't want to see what's going on in the kitchen. That's what the - our guys are doing here, all the security, infrastructure and application and everything.

So from my point of view I think if the experience of the consumer is good then it will become more popular, more - like for myself example. I just got a smart watch here [unclear]. Anyone use a smart watch so far - and when you sign up there's a tick that you - for the terms and condition agreement. Anyone read that? I don't - it doesn't - I just tick and pass it so far. What it does to me, it detects my heart rate, it detects my activities and it keeps it in the Cloud.

I don't know in those agreement they might say, okay you allow us to export to third party I - which I didn't read. But also I might expect that someone sometime in the future my insurance company may call up and hey, Panitharn, I have stalked you for a while, you have been doing well. Your heart is very good. You run every day - actually I do. So we offer to reduce your insurance premium for the next year 10 per cent. That might - there's a business model in - that might - then a good experience.

Sandeep Bazaz

Yes.

Panitharn Payackapan

That it might make the IoT come become more popular.

Sandeep Bazaz

That's true. My next question will be to Haytham. Do you think that AI will become part of the IoT ecosystem?

Haytham Sawalhy

Yeah.

Sandeep Bazaz

What are your views on that?

Haytham Sawalhy

It was - I think it with AI the internet of things will become the intelligence of things.

Sandeep Bazaz

Yes.

Haytham Sawalhy

The way we look at IoT today is mainly on the most common users of IT where you have sensor deployed...

Sandeep Bazaz

Yes.

Haytham Sawalhy

Measuring, capturing, uploading the data somewhere about factories, environment, health, toilets. [Laughs] Other et cetera. But I think IoT is not only about data. It's also the possibility from IoT - in disconnected devices should be able - also can execute an action. This is where in fact AI can play a role in that aspect. This is where in fact IoT will become even more embedded in the real world basically. So definitely AI is going to be a good add on into becoming more intelligent devices basically.

Sandeep Bazaz

Anyone else like to comment on AI?

From the floor

I was just thinking of traffic management for example. Build the algorithms and then we know we have cars which are all smart. You can have [unclear]…

From the floor

But there should be a limit on - I mean how smart they will become. If they control our lives - more people are talking about [unclear] ... AI is a very dangerous alternate sometimes.

From the floor

So that concept of AI actually comes from Ray Kurzweil of Singularity University, right?

From the floor

Yes.

From the floor

Where he talks about the singularity of 2045 I think when computers have become smart enough to download the entire...

Male

Yes.

From the floor

...consciousness of one human being and five years after that the entire population of the world, right. Then that debate comes up who's alive...

From the floor

Yes.

From the floor

...who's human, who's not, right. But I think we're a few years away from that thing.

Sandeep Bazaz

So my next question will be to Panitharn again. Do you think our network is ready to handle the IoT? I mean it's - we talk about so many devices...

Panitharn Payackapan

Yeah.

Sandeep Bazaz

... for each person connect - I mean...

Panitharn Payackapan

For the - from where I come from in Thailand infrastructure wise I think we are ready. Just - we have other competitors or providers for the broadband provider which now all the way to your house, it's FTTX almost everywhere. The government now it have been programmed the issue of the fibre all the way to very sub-level of villages now. So soon where I come from the connectivity will become very - there. It's just a matter of the provider and with the business case that Haytham just mentioned that to plug on top of it. Then it will be we have an end to end IoT solution. But we talk about this morning right and Haytham has some view on top of that, yes.

Sandeep Bazaz

Your views.

Haytham Sawalhy

I think my counterpart here mentioned I think there are different ways of connecting devices. There is the 3G, 4G and 5G to come. There is the LoRa network or SIGFOX or - at Orange we chose to go with LoRa so we're deploying LoRa in 18 cities in France. There is the Wi-Fi, the Bluetooth so there are different ways of connecting devices to the network. So it's all about the use cases and it's all about the usage basically to choose the right - but I feel that a network like LoRa is probably becoming very important to offload basically the load from the 3G, 4G which would be a good - I mean hybrid type of model to go with IoT plus...

From the floor

So LoRa would have their own network you are saying?

Haytham Sawalhy

So I mean every telco will have its own strategy to deploy the LoRa network in the right cities and the right areas where they feel they have the right go to market to service IoT projects, IoT solutions et cetera.

Sandeep Bazaz

Amit I have one more question for you. What kind of role the government can play to [expedite] the option of IoT?

Amit Sinha Roy

I think I alluded to it earlier. Regulations. Without throttling it and killing it, right.

Sandeep Bazaz

Yeah.

Amit Sinha Roy

... and standardisation. These are two areas where every statutory body can play and governments of course will play a role in making sure that whatever the services are being rolled out, there is a structured way and [methodology] in terms of rolling out these. So we know who does what and who is responsible and who is accountable, right. Privacy is one of the issues but I did talk about the other example of a simple road accident in a smart car, right.

Or perhaps there could be a challenge or an issue with a health service which is failing and then possibly having injury or in a worse case death of a patient and who is responsible? So I think clearly having those rules and regulations and also be able to drive some standardisation. So that if somebody is travelling across different regions that just the way our phones today pretty much work everywhere. You would have similar sort of capability of being able to use the same service across different geographies. So again that requires standardisation and again for that I guess different governments will have to speak to each other, right. It's to make sure...

From the floor

It's a daunting task I mean different governments....

Amit Sinha Roy

It is a daunting task but you know it's been done before for telecom. It's been done before.

From the floor

Yeah, it will take some time.

Amit Sinha Roy

Yes, I hope...

[Over speaking]

Sandeep Bazaz

If any audience have any questions right now. Otherwise I can ask one more question too. There is one - there are many.

From the floor

Hi, my name is [unclear] from ... I have a question for Haytham. You mentioned about LoRa being deployed in France. I heard about SIGFOX. So how do you see SIGFOX and LoRa really competing? Especially in a market like France where SIGFOX is really very, very strong.

Haytham Sawalhy

Yeah, so Orange made a choice to go ahead with LoRa because we - SIGFOX and LoRa are two different - I'm not going to explain - define the LoRa and SIGFOX - SIGFOX is pretty proprietary network which is pretty closed and LoRa is pretty an open type of network. We chose to go ahead with LoRa network which is aligned basically with our overall go to market in the IoT space. So I think one of the challenges for telco where we don't want to be only is dealing with connectivity. We don't want to be confined and contained and limiting our go to market to connectivity.

So we are going to market where connectivity is one element of our IoT strategy. We have big data, we have IoT platforms et cetera, et cetera. So in that space, in the overall IoT strategy and go to market we have chosen LoRa to be the best fit for us, yeah. So we're not selling LoRa as LoRa or connectivity in LoRa. We are selling our IoT go to market with end to end solution for our customers.

Sandeep Bazaz

Do you have a question?

Camille Mendler, Ovum

Yes, Camille Mendler with a question and comment and I was going to say regarding Orange's strategy actually the LoRa decision was not the first decision that you made. Actually you went for Wave 2M, which was a standard that existed that was - people tried to follow and then it was disbanded. The question that I have is really - to agree with your point, the money is not in the connectivity. But at the same time there are so many different approaches out there. There are already different approaches of industrial process control.

Every industry has something in wireless that could be used for IoT. I see this - what the need is - what we have is sort of a Tower of Babel to me. I feel that we need to have something to manage all of that. What I don't hear is telcos saying they're willing to do that. That seems to be a mistake. Does anyone want to comment on that?

Haytham Sawalhy

I think the Group went to - at a Group level they went through different decisions basically on that. Because it wasn't easy. SIGFOX was a big competitor at the end. They started, they did the first shot in the market. So we came a bit late into the game. There are many - there are cons and pros for LoRa. It's not beautiful all the time. There are - so I think what's good at Orange is that we continue to evaluate, to assess and make sure that whatever - we choose the right connectivity between Wi-Fi, between 3G, 4G, 5G. So we have - we shouldn't forget that Orange has more than 95 coverage in France in terms of 3G, 4G and also Wi-Fi connectivity in the cities. So we have different ways of connecting the device and the sensors to the Cloud platform. Okay, so I don't know if it answers your question but...

Amit Sinha Roy

I think just to add to that...

Haytham Sawalhy

Sorry about that.

Amit Sinha Roy

I touched upon standardisation but Camille there is also the challenge of interoperability. So somebody has to work on this and perhaps many telcos and manufacturers together. Because the point that you bring up in terms of manufacturing, right. Which is using maybe RF in many cases to connect, right? How do you then take that and include that into the internet of things, right? So there has to be a gateway - a some sort of a translator somewhere which is doing that. Because otherwise we won't - it will just work.

So last night we were having this interesting conversation about IPV6 and IPV4 and we said so V6 is all out there. So why doesn't somebody just flip the switch and turn off V4. So we were joking about it. But it's true. Maybe an elevator will stop somewhere because it's on V4 and it doesn't recognise V6. Or you will have a catastrophe because you can't do that. So it's similar, it's not the same thing, it's similar. So there has to be interoperability, there has to be a long period of hand off if there's standardisation and then parallel run and then maybe we'll come to a few standards. I don't think there will ever be one.

Sandeep Bazaz

We are out of time and I would like to thank the panel. Thank you very much for coming today and giving your views on IoT. Thank you.

Manek Dubash

Thank you Sandeep, thanks again to the panel, great discussion.

[End]