



“Bosch Investor Meet ”

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Steffen Berns: And with this I would close my presentation and open the floor for discussion. Mr. Karthik wanted to make few remarks before we start and then we are looking forward to your questions.

Karthik: Yes. This information I wanted to say, this presentation is already posted in our website so I mean see, you can just download. Secondly, just a broadly boundary conditions that we believe in are critical and communication to be within the scope of legalities. you can please discuss anything and that is the reason why he is here, but on three important subjects please I would say have a kind conservatism, don't ask us about market share in different product segments, don't ask us the margins in different product segments and also do not ask us for the future values. So this I think definitely we have about 1 hour and 15 minutes, --.

Participant: So globally we have a very good presence in gasoline engine system, so what about how you are focusing direct business in India because currently they are very small and the main focus is on the diesel engines. Can you just throw some light on a strategy on gasoline engines in India?

Steffen Berns: Yes. So actually Bosch has been active in gasoline systems till 1995, and the Indian markets was very much joined by one or two player and at that time we were not able to get shares in this one or two player, so therefore we did not have a kick start, jump start at that time. But we have been continuously working on gasoline systems and by now we have a strong presence and increasing presence in gasoline systems on a number of different assets, one is they are of course on the engine management systems for cars, we are in a large number of applications in the meantime also we're the Indian market leader and different components of course not always the complete systems but also through the Indian players. And I think they are one of most solid example was of Tata Nano which had gasoline system from Bosh where we proved that we can also give low price, also in the present system but we are now in a number of Indian OEMs and of course in the number of global OEMs in India and increasing this we have recently opened a plant in Gangaikondan in south Chennai which is dedicated to gasoline system which also gives you a hint that we mean serious business here. We are working on a number of advanced systems where we save towards fuel economy and also towards low import first step to call advanced fuel injection PFI (port fuel injection) which has been developed in the second direct injection where we are in discussion with several customers, we have some projects

and also some Bosch systems in the volume are an appears here in India. And the last point, around the gasoline systems for example the e-clutch, because gasoline systems in Bosch I always define as powertrain of diesel, so also looking at transmission and methods like e-clutch for example and the last part where we see big growth opportunities on the two wheeler side where we are developing specific systems for Indian markets that introduce engine management systems for competitors and we have some customers already in here for two wheeler systems. So this is compare to diesel small you are right, which is in the nature of our business because the value of the gasoline system is smaller than value of diesel system, saying that's pressure on gasoline system is much smaller so it is somehow competitive to pressure than a diesel system. And then on the other side then also depending on market share which are growing very well.

Participant: How is PFI injection? I understand it is just in a nascent stage.

Steffen Berns: Yes, so it is in developments we have vast majority.

Participant: So we are present there but not in a very big way?

Management: No, we are there in large number with different applications, but totally otherwise compared to diesel as a service.

Participant: On two wheeler side, the leader in the country is working with another ancillary company or the OEM system?

Management: So at the moment two wheeler systems in India are mainly copyright systems, so there we are going to see a system change from carburetor fuel injection in the next years like we think and then we are in discussion with many OEMs

Pulkit Singhal: So is it true that the two wheelers require...

Karthik: Gentlemen, sorry, one minute. It would be useful for us if before you ask your question you introduce yourselves to the audience please. Sorry.

Pulkit Singhal: I am Pulkit Singhal from Motilal Oswal Asset Management. So is it true that on the two wheeler side we are looking for a management system within Rs.500 or for two wheeler, is that what the industry requirement is? And secondly for the gasoline system in the passenger vehicle, is it true that the only way the change will happen is when the entire engine management system is changing for the particular OEM

because of say a change in emission norm. So for instance the same barrier to entry that exist for diesel systems exist for the existing players in the gasoline?

Steffen Berns:

Okay. So first question I will refer to Mr. Karthik said that I cannot give you specific prices, but as long as there is no emission legislation mandating fuel injection systems in the coming fuel injection systems for the two wheelers, of course the price differential has to be small so that you can enter in a large volume. We are having some systems in plain pipes already today but this is not large volumes and therefore we have to reduce the price differential between engine management systems and carburetor systems to make it attractive to large volumes. But, we have benefits on transmission side, on the emission side, on the fuel economy side and additional interest which can be integrated once we have electronics on board, you can introduce start talking for example easily you can connect your smartphone, you can add call recorded, you can add mobilizes, you can tune your bike on to the 4G for mechanism we note or whatever and these are additional features which then also justify certain add on the price and once the first phase are done or are going to use it also as advantage and sales point then I think this can be a relatively fast trend even without emission that it mentioned is mandated. And the second question, entry barriers for gasoline systems are lower when in diesel systems the systems typically are more comparable to each other and gasoline systems development is not that much governed by emission legislation because typically you have your standard three way _ and then you can reach the required emission legislation in gasoline systems and therefore then the question is which engine size will you have and which additional features do you want, optimization of fuel economy which is going to play a bigger and bigger role and with the modern systems and modern functions and these small incremental changes or if you take a bigger step and say downsizing, turbo charging then of course it will change the engine concept and then you can introduce, get some direct injection for example and then anyway with a new engine design you need a new .

Ashish Naik:

I am Ashish Naik from Axis Mutual Fund. On e-clutches versus the other advancements that are also happening in terms of the aim that is also used in various models in the country, how do you think between these two technologies over a period of time the market will evolve?

Steffen Berns:

I think the approach is slightly different and the future expandability is also very different, and on the other side are available already and e-clutch is not yet in the market. So the question is when will we see the first launches, big advantage of e-clutch is that you can use it as an add-on to the existing menu transmission relatively

easily but for driving it is very intuitive and you will see the benefit right away when you drive these vehicles and the add-on cost is lower than for the --. But it is still manual transmission to that is right now so in probably long-term scope in can give you numbers but I think that's for India specially clutch is very interesting concept.

Bhavesh:

Bhavesh from HDFC. Sir as you mentioned in the beginning of the presentation that Bosch still views at the conventional powertrain diesel of gasoline will remain whereas the others say Tesla they are taking the view that this systems is still write-off and there are proposition US, so there are two implications for say, what is your view on this, why you think the conventional supply and not Tesla would have thought that it will switch that drastically to date?

Steffen Berns:

We say the future is going to be more electric, so we do not deny and we do not close the price but electric engine is going to come and Bosch actually spends huge amount of money in doing developments and we also have a large number of projects in electric vehicles and in hybrid vehicles because this is going to come. But, looking at the overall system price, looking at number of related challenges for example the reach if you drive pure electric your charging times for recharging the battery and the charging infrastructure, so all this at the moment limits the potential for very fast introduction. And of course Tesla they have proven that in the second place they can be quite successful and we have seen this without vehicles and specially in protected markets where the government said only electric or specific high subsidies per electric then electric vehicles can also increase quite fast. But we have actually had the forecast of 10% electric drive including hybrids now for the last four years, first we were considered as very conservative between we were considered very optimistic sort of closer 2020 gets I think it has been an improvement, it is not completely wrong assumption and there are certain applications also in the future. If you want to go 1000 kilometers, at the moment there is no good solution for doing it with a pure electric vehicle, there are some concepts also with changing stations but lot of unresolved questions. So mainly depends on development of battery technology and there lot of pumps are going in and primarily by very active but we can say it is going to take longer and it is not going to change overnight. And therefore we need further improvements of the conventional combustion engine to reach the intermediate limits for example CO2.

Bhavesh:

So within the combustion engines how do you view the current divide in India, diesel versus petrol? Say in Delhi the Green Tribunal is, there is diesel backlash sort of building up, so what is your view that's essentially in the Europe it is 40%, 50% but in India there is a momentum --

Steffen Berns:

Yes, at the moment the discussion is very emotional and this is very difficult to forecast. Bosch is a very strong believer that you have to renew submissions and that you should not mandate approaches that results meaning, you should not say it must not be a diesel but you should say these are the limits which you have to reach which you are basically doing with products with 4 or 5 or 6 and then you should leave it to the industry to find ways to reach these limits. The today's image of diesel being bad mainly results from old trucks, with a lot of black smoke coming out of the exhaust pipes and the technologies are available to develop and produce very clean diesel engines. So now if you say I prohibit new diesel engines, you still have the problems with the old ones and therefore I think we have to go to dual path, one is defining emission legislation and seeing that it is realistic and this will be introduced in the new vehicles and second is that we have to do something for the old vehicles on road. If you take out the emotions of this discussion and look what is happening in other countries, especially in Europe, there is a diesel of share of 40% of 40% to 50%, it was close to 50%, down few points. In India we have been around 40%, it has been above and primarily last quarter has been below 40% which is mainly due to the price differential between diesel and gasoline, price differential has increased again so therefore we think that the diesel share also is going to increase again, only thing would be emotions for us are --. So, one relevant point the world is complex and we have to look at different parameters and I showed to you in my presentation also we have to look at CO2 our fuel consumption and we have to look at emissions. And if we want to reach good fuel economy values we need the diesel. So we have to make a team and then use it to reach good fuel economy, that is our approach and this is why we think it makes sense to continue to develop and to sell good clean diesel price.

Participant:

Sir I'm singh from Kotak. Sir you mentioned about engine of changes to be key growth driver for you going ahead and past always been your focus must have been incremental as well lot's of north and south taken up what is your view on that? And can you give us some indication as to what is the kind of value added business that could happen?

Steffen Berns:

On whether it is good or bad to introduce fuel engines in the north then in the south, I cannot comment. What is relevant for us is that we have plans, we meet constant information so that we can prepare and preparation means including applications or calibrations and it means investing in new lines, production lines and planning ramp up in same plan of learning and other ones as far as --. And there actually a lot of discussions are going to happen in the different ministries in this phase and we hope that there will be a long-term roadmap which will tell us when will we see your bharat stage VI so that is frequent in Europe and the sooner this is behind and then not

changed on time and again better we can prepare, so this from the overall industry expected but the worse is to change something overnight and help the industry under care for this and this is not Bosch but this is overall and one should not underestimate the effort of the overall industry to go from one emission level to the next and probably for large number of variance and large number of vehicles you also somewhat manage this transition. So that is one point, the specific value per vehicle this also has been a regular question in the quarterly concalls, I cannot tell you because there are different approaches, how to deal with them is not one solution and depends on so many different factors and of course also our share in these different solutions I can only tell you as a tendency it is going to go up and we will see higher turnover but I cannot give you a specific number.

Participant:

So can you help us, what is the cost of increase for a vehicle OEM with respect to that? That would be a No, no I am not saying all these I am not asking what is your contribution to that but overall what is that, I mean obviously you could have a sort of low increase by knowing where you participate in that, but overall can you help us with --

Steffen Berns:

I can tell you some in order to confuse you some when there was a change of gasoline the direct injection and turbocharger, the largest European manufacturers that this change is always is going to change to save money because I don't think this piece of any engine larger volumes and so negotiations and this is going to be economical. So you can mainly not say this is going to be because it depends so much on which path you take but how you calculate and whether we do agree current approach or whether you realign a factory and so many factors but I cannot give you in currency.

Participant:

One argument there is that what is your new mission comes in there will be more global players to be having large economies of scale outside India and they could actually get this technology at a much committed prices and in fact today you have huge advantage in terms of your organization and does that change anything for you in terms of competitive intensity going forward?

Steffen Berns:

We will have to see, I will say we will have to make advancements to continue to make advantage because if such massive change is going to happen we'll need new resources and excellent understanding on the market. One of the challenge is to do the specific applications so it is not that you throw a piece of cock there on to the table and say we put it through the end and then it works but we need specific strategies for example in particular thing. That is one of the reasons why we say it cannot be changed overnight because you have to design the engine if it is required to so

imagine we do not have to do this, you have to put the system on to the engine and then you have to do the calibration typically we need two seasons of summer and winter and and monsoon and whatever tests after recalibration to validate and verify that this is going to happen because in case it is not going we will have to or it is not done properly the best thing which can happen to you and there are other things which you will not like to happen. And therefore the experience and competence and that are quite important, and this is one of very strong points and we do have Bosch's largest R&D center outside Germany in India with all sorts of competencies we would like to have and within Bosch Limited large number of very experience calibration engineers. So therefore we think we are quite --

Sanjay: Sir this is Sanjay from Reliance Mutual Fund. Just a follow-up on the emission norms, with the next level of change in commercial vehicle, do you see a risk of ease of serviceability of products for the existing incumbents in the industry, is that a major risk for them?

Steffen Berns: Sorry, ease of what?

Sanjay: Serviceability of the products. Is the emission norm changes going to impact the serviceability, ease of serviceability of these products because most of the road side mechanics are easily handle current issues.

Steffen Berns: Yes, the systems get more electronic and thus the typical roadside mechanics will not be able to repair them. On the other side you have a lot of addition functionality where vehicles you can store system data in your system, it is easier to detect one specific injector for example it is out of control or other things. But of course these systems running makes sense and will only give results if they are working properly and if they are maintained properly and this has to be done country wide. We have a big network of Bosch service stations which are well equipped to diagnose and repair all these systems so from our perspective it is one of the major roadblock but this can be handled.

Sanjay: And sir my other question is on, Bosch globally is known to work with lot of associates and a good vendor base, so what is the opportunity in India not only for Bosch India but Bosch Globally, is there a good vendor base which we can have given the country dynamics?

Steffen Berns: Our vendor base, we have a very strong global philosophy of how we rain in vendors which is called new entrants to those who are established to prefer and essential, so there is a good standard and this is followed internationally of course with regional --.



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The first point is Bosch believes in local for local worldwide and the localization again is done in a phased manner based on the feasibility of a product going for localization in terms of the differential value when it is best to continue for imports and then go for localization. For these vendors we ensure that they meet the global standards imbed in India which means quality standards, training standards, ability to deliver and so on and so forth. Finally, they not only give for India but when we qualify them as preferred vendors they also qualify for global supply. So I would say if somebody who thinks first we know that compared to others and where Bosch is, the year next to us is a fragmented level in India. And second, Bosch pays massive attention for training technical knowhow which we bring to Bosch standards and these are our USPs in what we deal and just like our OEMs and other customers we have a very strong relationship management with them for the future, but on very clear criteria's in terms of additional business or exit or continuance. So we do this worldwide, we focus on local for local but ability to deliver as I mentioned once they qualify in the top of the pyramid.

Sanjay:

Just to follow-up on that but isn't it true that within the organization you probably have a division that looks at global sourcing requirements and you would possibly use that path even though you may find a cheaper supply in India who may not be fit to supply globally.

Steffen Berns:

It is not cheaper, we look at the word optimal, we never look at the word cheaper in any of our processes. So first of all the philosophy is global, secondly the philosophy is a planned localization program with very clear boundary conditions and step wise that we do, and third when we develop a vendor and this we have done if you take a granted example of going from conventional products where our localizations are in the levels of high 80s or even 90s in terms of percentages to new generation products where it is just explained to you that the volumes for common grate direct injections have gone up massively and we have done major localizations there but in a very thoughtful way. So we do this in a planned way, they deliver refined quantities and if and when they are needed to give for certain parts to the world, they are okay. So it is not that we try to look for cheaper and not cheaper, because we have to holistically look at the cost quality that way, the price point per say is not only --. For example we have done a lot of development on steel, but steel takes years, you cannot say that steel in India is cheap so let's just go, we don't do it, we work closely with them in their shop floor.

Management: And of course there is difference between steel and steel, so for high pressure pumps you have very specific requirements and you cannot trust that's not working, then it takes years to develop some specialty.

Sanjay: So one more question from my side, as of today across automotive segments, the focus on safety is very low in India but I believe that should change in the next three, five, seven years. So what are the products that we can offer which are not yet well accepted or not required as per today's norms and is there a large part which is outside of the listed entity in that segment, the safety part?

Steffen Berns: Yes, the safety is part of our chassis systems division which is also a Bosch Limited so chassis systems control is which is originating from the growth business and there the two first essential functions of breaking systems and the stability program or control system where if you break and say some control or you are seeing some and also there is some extent you have to turn and make it under control. So these functions are available with local production here in India and the installation rate of India is very much legal in India and inquisitive parts and it's name is also going to happen but you will see the second this is very important for us as and we don't reduce the FX but the controller to control the FX and then there is a huge array of traditional functions, you have also seen in the medium with cruise control which is standard in other countries, in mid-segment markets where the system is measuring the systems through the systems through the one of you and then you just turn and select cruise control and keep the distance so you set it 100 or 120 and when you apply breaks you can also break which is also until it's final stop. Now when you hear the functioning of automatic emergency breaking, if there is child jumping on the road or some animal or whatever, the sensors of the vehicle will activate and they start to hit the brakes with maximum force and speed much faster than any person can do it, so that is really impressive and we are anticipating that with some breaks that something in front of you and then there is a function I could continue. So a huge array of such functions and they are available and also available in India but the question is the market in India ready to accept this especially when you have the mass market there this from the sales and marketing point this is a challenge because as long as you do not wear a helmet on a two wheeler and do not wear a seatbelt in a car and no seatbelt at the back of the car these things cannot see functions are --. So there I think overall the awareness is increasing as the insulation rate is clearly challenge but it is still long way to go. So I am sorry, there is a strong trend towards automated driving for autonomous driving in all these versions which I listed actually are on the path towards fully automated driving and we may know that Bosch is one of the leaders in this and we do have vehicles on the road in journey in United States which



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are driving autonomously and we are working on automated parking actually it is also very nice function because we are preparing for this and this is one of the worldwide big trends and the question then is how this is going to be introduced in India is quite interesting.

Ashvini:

My name is Ashvini from Reliance Mutual Fund, I had a question. How much of the sales you are losing still let's say to the unorganized segment in the spares and service business and what are you doing to really hit that part of the sales? That is one. Second, who are the OEMs who are still continuing to import the engines for which basically engine comes from abroad so you do not have the possibility of supplying a fuel injection pump, can that be a big opportunity? And number three, in the coming years what do you see changing as part of our fuel injection pump is one key component, what are the other components which will undergo a major change in the next stage of emission norms for upgrading the engines.

Steffen Berns:

So on the unorganized sector, there are the small enterprises doing some business and they are the superior parts where the some unorganized business is putting Bosch sticker under the parts which they produce which is highly damaging and of course which is more important because lot more parts are very critical and if you use superior parts and put them into engine and they are not functioning this also has lot of implications towards the safety of fuel using these --. There is one approach getting through for example it manufactures where they have committees we have to reduce this, we have to do a lot of on the legislation point and especially on the possible legislation and we also are directly engaging through detectors and then we have to stop this business. So there is a substantial part in business and this is huge dent in the economy to us and also potential safety hazard. So one part which needs a lot of focus and we have a two more questions. Importing engines hardly anybody does, so most of the engines are at least and sometime complete kits are imported and then they maybe Bosch inside but not supplied by Bosch Limited but this is using more and more from some big announcements know that more and more vehicle manufacturers who are in the 1% to 2% market range they are now looking to producing engines because this is a substantial part of value add and needs to be done if you want to be cost pressure. And major changes in of course on diesel side emission legislation go from distribute particulate perhaps in some cases going to be and it is a major step. The other one is condition of exhaust gas systems, on the emission side something is going to happen, something major is going to happen so the next step would be larger penetration of turbochargers so going from turbocharged systems and on the gasoline side going to the gasoline direct injection which is from the point of view direct injection some connect half way to the diesel engine probably fuel injection

perspective, not pressure on the overall set up of the system. So these are worldwide trends which we have been seeing in the last decades and to some extent this is also going to be replicated in...

Ashvini: My question here was that besides the fuel injection pump, what will undergo a meaningful change in an engine in the course of next few years?

Steffen Berns: This is what I tried to tell you that it is not changing systems to the gasoline or fuel engine to direct injection for example, via pressure pump that we you also have high pressure injector, also pressure injectors also direction injection is more like a... Sorry, but it is substantially different from old fuel injector so in pressure level it is supposed to design and also that and as I mentioned you have to add a turbocharger if you are on the engine side fuel exhaust gas circulation, it will add many more sensors with increased emission engine regulation also the diagnostic functions increase and typically you need redundant systems so I think it is simple you need two sensors so if one does not work the other does so that's the different and when the light goes on then you can check it because as I said earlier it is not sufficient to produce good system but then you also have to keep it on a high level and find out it is not working.

Management: I will just take a minute because it is a very complex topic but just a minute, having being the chairman for consumer affairs committee for six years, Bosch worked along the ACMA and ACMA produced a book where finally we stated based on lot of research that unless you make this offence cognizable and these two things, like it has been enacted for the transact, we consider to have this.... Currently it is estimated to be between 35% to 40% as high as that and especially we have the highest fatal accidents recorded officially more than 150,000 per year in the world. So coming back to your question on safety, in India you can have the rules but a laws are anticipatory and not enforced so unless laws are being relevant, and this applies for anything, safety, x, y, z. So just to summarize, huge money lost for everyone, companies, government, exchequer, no taxes paid. Second, unless this is post and this will take time, it will happen hopefully or reduce but it will take time but government will have to act on it.

Vipul: I am Vipul from Tata Mutual Fund. Last one or two years you were seeing some problems in some of the plant labor strikes first in Bangalore and then in Jaipur, so what were the reasons how you are dealing with it and how are you with it and how you are ruling that and what is your opinion about that? I mean, in one of the question you said productivity is also very low compared to global standard even Indian standard.

Management:

We would like to clear the air on this because it is a valid question from your side but it is a little complex. Let's take the example, granular example of the Bangalore plant where we had an 85 day strike. Now we at Bosch have always stated that there are four parts in our factory, the management, the officers, the union and our working necessity that means the work, we call them necessities. Now, we deal with our associates like these are workmen in a very fair manner, we have created the top quartile with the industry and at the same time what we have introduced in a very calm and **the** way is also in a firm value. So the 85 days not a single day did any of our OEMs or aftermarket people have a loss internally, not a single day. We did it in a very calm way through our officers, our trainees, and the rest of colleagues whom we could take support of, improve productivity, brought it to levels of what will be worked up on and even higher and partly also through inventory. What did we achieve? Through this we achieved a settlement which allows us to go into international standards of working in terms of study of time, so no productivity was brought but the norm and a new change as a benchmark has been set in to ensure that still our associates would earn very well and be in the top quartile will have to work and at the end of the day. Lastly, this topic on IR is a bit of a taboo topic in India industry, organized labor is between 5% and 7% of total labor and the rest of unorganized, unorganized labor is suppressed and even basic rights are not given, organized labor in many cases sit on top of management. What we have done is very simple, that as a part of the family we have done some course correction and it will take again years because it is a mindset change, to ensure and this one example we come up with to ensure that there is a understanding that there is mutuality and interdependence on a win-win situation within the family to be competitive on the work front. So yes, from the analyst and from outside and the press view is there have been labor unrest, but we are trying to look at the root cause rather than tackle at... and Bangalore was one such example. We shared things openly with you, we shared things very openly with our OEMs, our aftermarket, our suppliers, and we will continue to work on this to ensure that we remain.....

Vipul:

And second question, with this such kind of euro depreciation happening will we see any impact on the localization or indigenization plan?

Management:

On euro or US dollar Bosch has always had a philosophy because we know we are not a debt ridden company that came into things on our own internal accruals, we never do profit planning or hedging or any other instruments.

Vipul:

I am saying the importing from all...

Management:

No, that is what I am saying. First of all, we do not look at exchange rate as a matter – we look at it as a risk mitigation rather than a profit planning. Second, we would be very careful, well defined and I think Mr. Berns mentioned it because for different divisions it is a different philosophy, in ECUs you cannot apply what you do for diesel. So we have a very well-defined game plan on when we do localization and when it mixes and for what. A simple example, a gasket, and a ship, we may import because the cost of it is low but the quality impact is that we may have to recall of the whole vehicle. So we are very careful about localization based on our worldwide knowledge and parameters and second, while we believe strongly in localization and give you a clue our conventional products are in the high 80s and sometimes 90s in terms of percentage, so that is well high localization. On huge emission products like let's say common rail have grown massively over the years and it has not been many-many years ago that we have started. So once we start the SOP we have a planned localization program. How we start SOP is not emotionally. It is done in a very planned way differs from different division to division. The LCO product will have a different localization concept as compared to a diesel or a gasoline or a POB. So and once we do localization our supplier development program is very robust in a small fragmented supply base in India.

Participant:

So just on your cost structure, you have roughly 16.5% EBITDA margins so that means 83% of cost, how much is variable and fixed that is related to volumes and fixed? And secondly, can you talk about your CAPEX and where are you actually investing for the next two to three years, which plants, which products?

Management:

Look, on the cost you get to see our balance sheet and you get to see a numbers, so right now I am not going to go into variables that we are..... But I will tell you philosophy of how we manage it if that is more important. On the fixed elements as you know, there are things like budget, personal and CAPEX. Our CAPEX is very thoughtfully done, you will see that we would be spending 500 crores to 650 crores over the year if you see. So Bosch has a philosophy of doing front-ended CAPEX before the industry has demanded, for example our new high tech what we are bringing in for software as well as our those few who now which are being transformed where we have announced the making it into a tech park so to say and shifting our plant out from there. So all these are thoughtfully done for the future, the CAPEX spend we focus very carefully on a granular way on bank for buck, that means we do not spend the money just for it, there is a very tight procedure on purchase orders, negotiation but we are not shy of spending before in a planned way. Coming to cost, on the cost what we look at it the drivers for the cost, the bank loan as an example was a cost on not buying product but the institutionalizing productivity

at international standards. So we focus on that. You must have seen that we have also had some one-time cost like EBR so we also ensure that where we see that there is a difficulty at certain age to change to standards either physically or more importantly mindset, we also do EBRs where optimized headcount while improving competency for current workforce because the competency management change is very important based on change in our products and services. So it is a combined story line rather than individual silos being tackled. So cost are managed, kept in mind what is lean structure, competency development including for our officers and sometimes even our associates sending people abroad well ahead before the product is introduced. So there is huge amount of colleagues doing onsite-offsite.

Steffen Berns: And on the question on investments, so major investments are currently going on is Abu Dhabi where we are going to shift our Bangalore operations in two phases and first phase moving this year, the second is this tech center so office buildings in Abu Dhabi where we will rent out to the software colleagues. And third is, investments in manufacturing infrastructure mainly deals like so the increased volumes and event also forecasting the new original integration further shift the products so both shipped products and the increasing volumes these are three main parts of.....

Participant: So given the possibility of Bharat Stage IV across the country, are we prepared to state over next let's say one or two years to have a kind of localized according to the requirements?

Management: Yes. So the investments that are going in are also for that.

Pradeep Chaudhary: Hi this is Pradeep Chaudhary. You talked about increase the penetration we are having from the bank acquisition in older plan is catering to and what happens the environment, we have to do a complete overhaul.

Steffen Berns: So the main change which is going to happen is going to be from distributor pumps which is use in trucks and railway systems today and these volumes are going to go down and the tractor market so that is Bangalore but Bangalore also is currently the systems is going to remain and pumps mainly so there you are not going to see a major change with the required emission legislation because this is a primary which is kind of construction degree. Therefore in nine months in the next years we will not see a major change in the distributor pumps and jaguar we will see major change and this we will have to address.....

Management: No, I think you said you brought products which get replaced during the transition and so we BS-IV

Steffen Berns: I think in general there are replacement products from the same segment mainly....

Participant: What are the common parts across the distributor inline in the CRDI?

Steffen Berns: There is no identical part, if you ask inline pumps and distributor pumps then those have injector without pressure so the injectors are similar or in some cases very similar but the pumps are very different and there may be some or whatever which are identical basically, so it's completely different products. But if you say what are similar components where you typically have a plunger for example or from manufacturing side there is a lot of similarity, there is based only the question is your manufacturing equipment should be flexible enough to also produce other parts.

Participant: And sir in a common rail system, let's say if the lifecycle cost if we take, lifecycle revenue for Bosch Limited in a common rail system versus a distributor pump versus an inline pump, is it going to be very different in a common rail versus the two existing products?

Steffen Berns: Well, there is a tendency from inline pump to distributor pump to common rail system.

Participant: The cost goes up?

Management: No.

Participant: I am talking about the lifecycle cost or let's say cost for the user, revenue for Bosch. So what happens to the revenue when you move from...

Steffen Berns: Yes, this was the question earlier. So costs how much exactly I cannot share because it depends on many variables.

Participant: But the degree of sophistication in the product let's say CRDI, more electronics, does that means that that business is less likely to go to the unorganized segment or number of players who can produce parts or cake parts get limited on account of CRDI?

Management: The tribute in this period is that they do not duplicate complete systems but only individual parts and this can also happen in CRDI. The amount of spare parts maybe different, so once you are better fuel, better filters etc, then maybe difference but I would not comment on this but to be honest we have to take effective measures and the government must take effective measures to keep the spare market under control.

Participant: So can you comment upon the productivity, if your new plants in Jaipur versus let's say Bangalore, although they are different products, different age group or age levels, is there a big difference in the productivity?

Management: Look, again you cannot generalize because Bangalore has different demography, we have several sub-sets within a Bangalore right from our conventional products to a new generation product within Bangalore and the subsets of the people who are working there. So we have in Bangalore unified them completely and that is what I meant with that 85 days primarily. In Jaipur, it is a relatively younger plant and we are in a process of sentiment, but again, we have the same philosophy that we have done for all our other three plants we will also apply them generally. So our focus is not just what towards the demographics, our focus is towards bringing uniformity based on international standards on not buying product basically but institutionalizing and thereby linking it to earnings rather than saying I pay you x% and y% or 10% which is a Indian norm, so slight difference.

Participant: This number that you mentioned of one-third of your purchases coming in from the parent, this number in your view will be going up I think...

Management: This one is actual and one-third is from the group.

Management: No, as I said it is... you can see here it was 39, it has come down to 34 and there is going to be a way or I think so once you have introduced major products it is going to up again then you localize it is going to come down, this is what you are seeing here. I didn't know historically exactly, but I assume this relatively larger number is in the beginning when with increase in localization it is quite of increasing volumes you will see that percent has come down. So once there are new systems or new variants which will be introduced but there is no major trend going into one or the other direction.

Steffen Berns: Just because issue I am not sure how much related it is going to be, that also means there is higher growth rating in our this part of our business versus manufacturing and that also has implications on things like on margins which over a five year period or 10 year period has come down slightly. So just wanted to understand whether that should also have implications in our gross understanding and second it's a very valid question but again it echo's from what. Bhattacharyya said, if you carefully look at the last 15-20 years of Bosch and those of us who remember when Scorpio was launched, I am giving a grander example, with common rail first time, we went through training to part manufacturing to wholesale system manufacturing. And a very good example is our Nasik plant which went into common rail for the injectors



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with the Nasik plant of Mahindra which releases the Scorpio. So we partnered to release a product in the market from training to part manufacture to full manufacture, then progressively maturing it into localization. This had been the philosophy for any of our products but these calls are based on different divisions approach on at what stage to go in for local manufacture and at what stage to go for utilization. And these calls are done well in advance before SOP for different divisions at different times, sometime one year before, one and a half years before based on our looking at the market and what the market needs. Maybe we will be off the market because we cannot control the market. So very clear defined calls and it is all interlinked, lastly on trading. As you see here, we have a very-very clear defined MOPC transfer price rule where we create a complete arms' length concept with high levels of transparency of getting the big four to release MOTC margin and xyz and you can even see the small example of royalty and technical fee. On an average in industry people came in here including MNCs have anywhere between three to five and sometimes even five to seven, ours is very without sacrificing either the quality of the inputs from our parent or the support that we get from this huge worldwide international production network or research network. So short point, even for credit we do a very clear arms' length protecting Bosch limited while working very closely. So the whole value chain we look as a story line, not individual as practiced.

Participant:

Sir, in terms of readiness for pickup in volumes, I mean I am just trying to gauge the sense of your localization currently, one quarter we had 20%, 30% spurt in volumes, are you ready for that provided it is the same and there is no Bharat Stage IV implementation?

Steffen Berns:

We have again a very clear mechanism on this in terms of market demand, either spurts in terms of seasonality or overall increase in terms of volume requirement in the market broken again into different segments of ACV and LCV tractor, pass cars whatever. So what we do is we ensure first in our plants we ensure that we bark on full cap of all the ships that we work, so it is a very systemic shift related. Second, we install capacities in a defined way before the market needs, we don't try to do massive so each of our plants we ensure that there is a modular way where we look at the whole balance sheet and we look at the lowest capper which is defining and ensure that this is taken up while working with our colleagues on ships at modular basis with getting the highest productivity, so we do not keep on increasing all the ships and then **it** reduce productivity which does not help. And lastly, we do the same with our suppliers, so I don't want to go into it but we go into, it is really detailed, that is where we do a shift run at 100% where watch are terminated by level to see what real capacity can have as compared to the technical capacity. So then we do a scenario

analysis at 10%, 15%, 20% even 30%. So basically Bosch has a well-defined and well-oiled mechanism both at our I would say partners, I won't call them suppliers as well as ourselves to create a defined capacity in relation to not only seasonal variation more importantly because the market we have seen always has a slight bit of change, in 2010 it was and now again sometime later it will be again and it does not go by European standards of two or three, it goes up by 15, 20 sometimes even 30. So we have a system mechanism of taking care of this market.

Participant: So quite since you would have incurred the required CAPEX so that you can add a third shift or whatever to be able to...

Steffen Berns: Right.

Participant: So how many shifts are you working at currently or something that's...

Steffen Berns: Again, I cannot give you a generic answer, it is totally different from product to product depending on seasonality just look at the simple aspect of what happened to the tractor market, last year we went to 6,50,000 this year 5,00,000 or 5,20,000. But then look the LCV market, we are far below the peak but increased by 25% to 30%. So we for different products, different lines we have different and we try to constantly optimize what has happened, that is the story and we do not look at quarterly results, we create both hardware well in advance so that we don't quit this soon.

Participant: -- 25% of onshore has gone into in the recent times, just curious, are we in the biggest or passenger?

Steffen Berns: So again, this is not Bosch Limited but Bosch Group and we have a large and we are first to localize, we have a manufacturing facility in Japan and chassis system and other part issues will remain. So eventually even if the volume increases, this will still be put in as a traded part or how that then the emission norms and it is the same as we do it today that if we send a system it consists of all the driven components.

Participant: Sir we have had lot of discussion of automotive, if you can spend some time on non-automotive specially on the packaging systems and energy and building management solutions that we have, what kind of growth this quarter what you are expecting?

Steffen Berns: So potential growth is difficult to say, the last two years or last year if I look at the non-automotive business, we have not been doing incremental because of high liquidity in the market and this is if I take the overall non-automotive business consisting in part what you said also technology and then form recent, more recent

divisions of packaging and energy. And on the packaging it is more project business so more one machine here and one machine there, so it is very different from the automotive. Business in the energy we have three different fields under two entities or actually four fields under two entities, 2.0.2, one is with our turbo technology where we are supplying industry grade boilers, these are industrial more or less industrial applications and partly also for hotels and large scale buildings where we generate steam and hot water, so for example for processing purposes or for garment industry for large scale washing operations for dyeing whatever, then on the small scale business our so called systems that is solar connectors for treating of water from mineral houses up to hotels where we then combine many of these systems and generate large amounts of warm water through solar energy. So these are the two businesses under thermal technology where we especially in later the solar thermal systems, last year subsidies were reduced, we had risked and we had trust them in volumes and then subsidies were reduced and then the volume went down. We are credited channel partners also now recognized by some of the governments and businesses on a low base development. On the other yields we call it Bosch energy and building solutions, so it is the worldwide agency we have energy efficiency projects where we look mainly commercial agents so large office buildings, airports and things like this where there is a huge potential energy saving and we have some systems also where we control the air ventilation and this again is a one-off project business where we go and say which is the building and we want to know about energy saving and we improve the energy optimization and there we have a projects. So we are not producing fellow but we are still in project business and there we are a small player but we are also very generic partner and especially if there are any technological challenges for example we have covered a one is thermal energy from consumer and the other is also having a cooling effect on which is beneficial but these are challenges technologically from project that is more challenging applications. But we have also gone into upto 12 megawatt installations we wonder bigger step toward installation in India Authority Airport recently what we are finally doing. So this is compared to yes, very small business and so far we have not seen.

Participant: Sir can we talk about the heavy truck

Steffen Berns: Well, in cars it is very high, in trucks it is similar but of course when we go to very fast and I don't know whether you have been part of our quarterly con calls, there are questions always and most likely not so it's.

Management: I have a small add-on to what he said, because there could be a little gap here. You asked the question about business, we create a lot of cushion for Indian for Bosch or

other entities, not only if it's Bosch limited but other amongst ourselves. And we along with the parent company, which means everything is arms' length, huge amount of push and pull and in case of we checking here we do massive cushion pull on granular basis from free cash flow to cost to inventory to receivables, that means we are not going to buy from our other legal entity Bosch just by saying that they are competitiveness. Just because you asked this but in a very very much for example VC institutions.

Participant: So while you mentioned local for local, does that cause a problem for outsourcing in general within the Bosch entity, so I mean what is the outsourcing opportunity for someone like Bosch Limited Indian entity for any global?

Steffen Berns: I will start answering, we do always where it makes economical sense, so as we said earlier we are not going to mobilize and once it makes economical sense for us typically also of the vendors and there we do a lot of planning, and we try to get more vendors in also this is partly there is some time gap, it may take a little longer, there is no fundamental problem because of a local strategy to find vendors.

Participant: So take out the outsourcing opportunity?

Steffen Berns: Over and above this matter where we explained that our localizations are very well defined program, we do outsourcing based on looking at whether our processes are standard or post which means by design we keep certain things to ourselves which are proprietary in nature which could change over time, something which is more would become and something which could become also standard. And based on that we develop our partners and within our partners I explained to you we have a supplier pyramid which goes from new to establish to a preferred vendors and the preferred vendors might be they are globally they can be sourced. So it is again a story line and even the outsourcing in the story line within the supplier development program.

Participant: I am talking more from the sale side of it, so what is the potential for Bosch Limited India to sell products to other Bosch entities globally.

Steffen Berns: That's nearly a constraint because it is not our main target to increase sales to other countries of other entities in Bosch but only way it makes sense and then certain thresholds maybe it's not this is why you have also seen the what I showed you the exports or sales to 140 entities is not really developing in any direction. There may be some seasonal or there is a sudden spike last year China for example had a huge demand. But these are then limited periods.



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Management: Thank you.