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I'm,I'm too fat.no呵呵唉，it's not true嗯no but we we don't have i didn't eat too much today。um,it is. it's OK ii I'm not,I'm not unhappy with my situation at the moment young.啊OK。OK.呃。good afternoon,miss wei hello.hi,so we start with the factory planning.OK.嗯。嗯。okay,let's go on. we talked last time about.the different types of factories and er here we were talking about er. let's say the.the so called a cooperative factory,all we can also say the.a breathing factory,and this is exactly what has been said before,so where a factory which can be adjusted to the.let's say to the demand,to the orders er. that's the,and this is,the style of this cup,factory over here.where we have er,let's say er the diff and shift modules and have developed also of a very,very logistics oriented er.concept where we have such a cross which it allows er suppliers to enter into the building with simple access.and of course,we have. we integrate it into the,into the.let's say this is the body shop. body steel shop,the paint shop,the assembly and the finally the transport.um,so from that point of view,these are kind of modern factories.where we do not produce er for the for a war car war,we produce.forum according to the demander which of course saves money,but on the other side brings us a very volatile.a shift model and a very volatile um.situation in the in the factory,we don't know at which time are how many er people need it. let's say,and so this is reflected here.er,when we look into the ya,into the demand or of the on the different days,and here we see how many shifts we are operating in the different days.好的，那我呀，那我们呃这上一节课呢，也给大家讲了一个就是嗯。呃，我们这个视频里面上一次也给大家看到了这个嗯，就是smart belly在这个法国的对吧？嗯，它是十字形的这个构造，那它的整个。的功能对吧？那它有两个呃名称一个呢？我们把它称为呃这个所谓的cooperative factory对吧？它是一个合作型的公司，因为它周围呢？也是遍布了。这个呃，供应商对吧？然后它中心的区域呢？呃呃，这个十字的这个形状四根手指头呢？每个手指头都有它的功能，对吧？那呃，包括呢？它跟呃。这边的供应商呢，也是结合的非常紧密，它有很多的这个供应商，这边的产品呢，它也是直接能够呃送到它的这个装配线上，所以说我们把它一一方面呢。称作这个cooperative factory啊，包括它的整个交通运输线对吧？跟铁轨连接，那第二块呢是在它的这个呃。呃，根据我们的不同的需求，我们把它称为bracing factory，是因为它的整个的嗯。呃，它的production planning对吧？它的整个生产计划都是按照我的这个呃客户，他的这个需求量的高低对吧？跟他来起起伏伏，所以就像在呼吸一样，一起一伏对吧？根据它的啊，不同的需求来排它的这个production planning，然后呢呃来给出相应的这个排班对吧？那我比如说找中晚班是怎么来排？如果。哎，货多的话，那我可能就是要多加一班，如果说是订单少的话，那我可能就嗯，每天只排两班嗯，那我们在这一块呢，又把它称为叫bracing victory。嗯。then we went through different types of buildings,especially looking into different. let's say scenarios for.em special yeah,special requirements like here paint shops,where paint shop has to be adopted to this er.er to this new requirements of er green building and what we see as well is that er the investment is.er mostly done in how how we can save energy.a hander he wither er always there,the idea to reduce the reduction of.energy consumption that's always the the the key element.and then we look into the different areas like structures of the building,the heating air conditioning er.e hand in in the end the eh energy supply even.the more efficient machines for providing the energy.发了比较多的篇章呢，来给大家讲这个green factory对吧，然后这个绿色呢，也是以后的一个方向，然后包括我们的整个的这个。嗯，它的这个建筑嗯，它的这个结构啊，包括它的这个制冷制热冷热交换通风系统，包括它的这个嗯，能源供应系统等等方面对吧，多方面来实现它的这个绿色。I saw the the green factory has several,it's not a green factory right from the beginning,it is the.er general planning,which is er to do something with building planning where we already have to look for the green.than the structural framework than the electricity than the building servicing systems,and then the outer facilities they are needed.and of course,later also the optimization of processes in production logistics organization tried to avoid.ya waste waste in terms of ererlost time er poor efficiency,let's say.and then of course,a resource efficient manufacturing a green building,green logistics and green production from an operational point of view.I say,OK,we are er producing er during shifts and in the rest of the time we switch off the lights I saw.so indiana,by summing summing up the system a great factory is having all these elements,and it is finally a sustainable.a enterprise and it offers an environmental conscious image,so it is a good image.for the city,for the people working there and for the for the customers of these companies who feel good when they are.and knowing that they are caring about green production.好的呃，那我们所谓的这个绿色工厂呢？它呃最初的时候也不是说是一猝而就的呃，那要从它的规划这个阶段开始。一直到它的整个的呃组织啊，包括生产啊，然后包括它包括它的这个呃流程的优化，然后呢，再加上它的整个的。嗯，能源对吧？应用，然后包括它的生产啊，等等的各个方面都要做到呃，这个内部和外部都要做到所谓的节能，还有这个呃，减排green等等的。那他呢嗯。做到了这所有的这个这些以后呢，能够被称为叫呃，这个所谓的可持续发展的一个企业，或者说是呃。树立一个比较正面的，这个环保的形象，那让他的这个提供的服务也好，产品也好呢呃，更能被客户和这个市场接受。yeah,we went through them. these examples here,and we ended somehow with this example of white miller.accompanied who is trying to dis to reduce,let's say.transportation costs,among others,but here they also tried to reduce eh so two emissions by transportation costs,reducing RET er pit transportation costs.and we have seen this is a factory which has also built in China,or it is has also a factory built in China.in sojourn嗯，好的，那我们后面呢？也给大家举了几个这个呃，关于绿色工厂的backs practice的例子对吧？最呃，这个几个案例？那呃，包括呢？有的是从这个。呃肉偿改造对吧？这个从内部开始做啊，方方面面的，包括呃也有新建的，对吧？这个呃从从头开始设计的那种呃用的材料啊，包括它的整个的整数也好。那像这个v呃white mule呢？它是从呃分析自己的产品，然后是从供应链端去做优化，对吧？然后呢？可以呃。做做好了这个供应链管理呢，包括它的整个运输线路以及它的仓库呢，进行重新的调配呃呃，使它的整个network对吧，整个供应链呢都能够。呃，减少二氧化碳排放那呃，我们也可以看到啊，在这个不同的例子里面呢，它有从它的这个绿色工厂的建造，也有这个呃，从。呃，这种新案例对吧？从头开始做的。也有也有那种改造的，也有就是呃改造内部的有改造外部的这个transportation的对吧？那呃像v这个呢？他们家是呃做的是在这个供应链端和运输端的这个优化。啊，那包括他们家现在也已经在中国的这个苏州工业园设厂了嗯。now,how is this procedure of the factory planning er done well factory planning is not era task like building a car?er,where we have the pieces put everything together and finally we have a carer factory planning.eris is not building planning,there are so many other aspects we have to consider,so the factory planning is a process.so and it is er not just the process it in by the.definition it is a systematic targeted structure in phases organized and among the AIDS among among eight of methods and pools realized process of designing a production facility.from the first idea until the startup in principle,startup of production.好的，那我们整个的这个factor planning呢？呃，我们说它最最初的时候就跟大家说它是一个系统的工程，对吧？它不像呃，可能生产一件产品，你就把这个产品生产完就行了。那呃factory planning呢？它是一个系统化的工程呃，包括呢？它是有针对性的，包括结构化的和分阶段。组织的啊，包括在不同的方法和工具的帮助下，从我们最初有这个想法开始，对吧？到启动呃，然后呢？到各种的这个规划对吧？然后呢？包括。呃，各种生产车。呃，设施的这个设计，然后呢？到呃，一直到这个最后的实现的过程，对吧？呃，就是呃，工厂投入使用，那所以说呢，它整个是一个系统化的，一个复杂的流程。there exists now guidelines how to set up this process. here is the guideline,the vdi guideline,five thousand two hundred.and this guideline defines these seven steps here and of course a level of project management as well.and a recursion and communication,so there is there is more to do than that just the planning of the steps.and what we see here is the it is,uh,always,uh,let's say check been checked. uh,controlled if you like.er from the project management also and also the documentation which has to be provided May be for this for the municipalities.of the cities.嗯，好的，那我们也看到啊，就是关于这个factory planning呢，也有一个vdi的这个呃，我们的一个这个guideline guideline就是它的一个指导纲要或一个指南。呃，那来看哦，就是我们这个factory planning系统的来怎么来做？它有一个这个呃，这个条款五二零零那呃，这边呢？我们之前在导论的时候也给大家。说过对吧，它有这个大概有七个步骤，从一开始的这个idea开始对吧？设立目标一直到ramp up就是一直到这个实现。那呃，包括呢？它的整个的系统的这个统筹对吧？安排project management和它的这个文件对吧？documentation那呃，要给。呃各个呃不同的，这个审批方包括我们的监管部门等等的，那包括这个呃各种的沟通交流对吧，以及啊申报啊审批啊等等的流程。um,it starts with that er er yeah objective's design ander. this is er.era step where we when we look back into the production of the smart here,these objectives have been er.there's been AA mixture of,let's say.gold some,some,some general objectives,but also some economic objectives and the,the the general objectives has been first to design a car.which is small and which is er affordable for the people er the point of affordability,ability is er.is maybe the car still is at expensive but affordability means also that the costs of the of the production should be low.May beer the how the the price is finally set up in the market is different than the cost of the production.so we have to care about low,low,low production costs,but objectives have been as well the fact that the car.should be able to be produced in two weeks.so at two weeks,em car if you like er or what we have seen also eight hours a car,so production eight hours,but the other steps er.have to be considered as well,so we can produce a car in two weeks and a lot of these criteria now are defined exactly here.which are having an impact on to the complete other processes and to the especially the design.of supply or the integration of suppliers.嗯，那呃，我们在这个呃回顾一下啊，就是在我们的这个factory planning里面我们。就拿smart工厂这个案例来说，那它最终的呃最初的时候，我们所谓的设立目标对吧？objective design。那设立这个目标呢？它呃，比如说有呃，有它的这个诶，我现在要新建一个工厂，对吧？那我要生产什么产品以及它的这个我需要的。它的产量产能是怎么样的？那比如说针对这个smart这个产品呢？那它要求。我的我的这个产线呃，第一个它因为是一个小型车，那呃肯定是要相对来说它的市场售价的，这个定价的范围对吧？我可能不是特别高端的车。那呃，它的受众是什么？然后呢？呃，那我的产线是需要多样化对吧？它的个性化，然后呢？另外一块呢？它的成本是呃，不管是它最后的市场售价是怎么样？但是它的生产成本。我是希望是能够呃，相对来说是能够比较低的，对吧？嗯，因为它并不是豪华车的定位那呃，第二块呢？就是说根据呃，市场的需求，因为它一个是有个性化的定制，一个就是说它的。这个哎，可能我下订单以后，你这个两周内我要交付对吧？呃，我们在视频里面当时也看到他说呃，一个车可能呃进渠道出来呃，八个小时怎么样的对吧？那我怎么能够达到这个？呃，订单两个两周就一定能交付，这个功能对吧？那我的这个工厂设计整个流程规划应该怎么做？um,when we look then into the next step,I mean the objectives er have been worked out in with marketing departments.they have been worked out with economic with,let's say,controlling with the departments which are trying to.figure out how we can get an economic setup of this factory and they try to produce.er round round about one hundred and eighty thousand cars a year,so this is the yearly um.the the yearly production,production capacity as a maximum capacity.andor yeah,it was. I think one hundred and eighty thousand to two hundred thousand,and this maximum capacity has been then.a very important figure for their contracts with the suppliers because the suppliers have to provide in the best case.er,this hundred eighty thousand carves or engines or seats,or whatever is er behind that?so this is AA base,which is then a database,which is then a.used in the next step er because with this we knower and the structure of the car.we have a list of components and the.these components have to be produced and then later assembled and,as in the case of smart.er,it was er,i don't remember exactly must have been drowned about seven hundred or thousand pieces.but the smart company,which was called mcc at the time,did not have to cape the power sufficient power.er for selecting all these different suppliers,and so what they finally did is they have defined.key suppliers and one key supplier was a company,eisenman,who was responsible also for the.paint shop,but also for some some er related products er vdo,which was irresponsible for cockpit.so they these beaks of maid supplier had to contract and to negotiate with the sub suppliers.so here we start with the setting up and hierarchy of suppliers,the very important ones and those who are then.嗯，assigned to嗯。to special companies who have finally high responsibility of making sure that all suppliers.are are for.filling their requirements，嗯，好的，那我们呃，看到啊，在这个呃第一步的时候确定我的这个定位对吧？那他要呃拿这个smart这个工厂来举例的话。那它就是要根据我这个我造的这个新工厂，那我要根据我这个未来产品的市场定位，对吧？我要跟市场部。还有呢，它的这个呃，包括它的这个经济对吧？创收能力就比如说我这个工厂一年要生产多少台车，以及它的这个呃。它的这个呃，这个所谓的盈利性对吧？它的它是不是能够创造呃经济效益那呃一块呢？就是比如说我的这个生产成本要控制在。呃，什么范围内，另外呢，我这个工厂预期的这个每年的产值是多少？呃，那就像那个呃，这个工厂当时的定位是一年大概生产。呃，18到20万台车就是最大的啊，最大的这个生产的数量。那呃，那它这边呢？呃，就要满足那我的这个整个呃factory planning的时候呢？我就要去满足它最大产能的这个目标，去做它整个的production也好，它的整个的工厂设计的design。也好，对吧？那另外一块呢？就是呃，因为我们也知道汽车它是有很多的零部件呃，这个装配而成的，那它下面可能呃零零散散会有呃700到1000个不同的供应商。那呃，就smart本身来说呢，它是没有这个能力去完全的去控制这个所有的供应商，对吧？一个个去检验或怎么样的，那所以说呢？他们这个大的车厂一般也会有一个呃比较明确的，这个供应商的分级制度呃，就比如说它这个在它周边的，比如说像呃这个ez慢啊，这个video。这些呢，是它所谓的这个key supplier对吧？这个最主要的呃，这个供应商大供应商或者说一级供应商。那呃，这个一级供应商呢？再去控制我的就是跟这个smart签合同，对吧？他有责任去呃掌控，或者说他有责任去。呃，监督它再下面的这个sub supplier就是再下层的供应商呃的这个，比如说去。呃，指导再下沉的这些供应商，他的供货的呃，质量问题也好，监督他的交货日期也好，所以说呢，那smart本身呢，它只要去直接跟我们的key supplier。沟通完就行了，那呃这一块的，比如说像呃分类的这个。呃，data对吧？这些这个数据啊，包括我的这个怎么去构架？我的这一些供应商的分级呃制度啊，这些的也是要在前期都是要考虑好的。那就要跟供应商之间哎，怎么去呃协调啊？那也会影响到我最后的这个产线设计。then we come in to points like concept planning,a detailed planning,detailed planning is then going deeper into the factory,but I would like to make a step back to the concept planning.and what we have seen here in the concert planning phase er with the smart is er.is not only the planning of the different victories parts like this cross,it is also a planning of the.of the suppliers who are nearby,these suppliers are really from,from a,from a point of view of the distances only a few meters away.but we have to to pro locate them in a certain space because they should their product should be immediately directly to the.to the production line,so what we in embryo nt when we are doing this er conceptual planning,we structure the complete area.and try to to bring the suppliers to the right place and of course also hear this cross,which is.a logistics oriented building which also is a part of the conceptual design,so they have been developed many different concepts and finally this concept has been found out.to suit best because on one side er these aerials are belonging to the smart.but these areas are then have to be rented by the suppliers the same er when we talk about the paint shop.the paint shop was never a factory of smart. it was run by company eisenman n.er,who was in principle responsible for the complete painting,and it was responsible for.er getting raw raw steel bodies from er the magna er before.then they buy the steel bodies and they sell the steel bodies to the next plant and the value added service is to get put out.color onto this steel structure er so in the ender here where a painting company has been.er has been installed as a supplier and which is also part of the concept that we have responsibilities.of the car itself assigned to supply US,so we have the magna for the steel structure and we have the paint for the eisenman n.and they are in principle not a part of the smart factory. they are concepts where independent suppliers.a kind of independent suppliers are em located on the on on on this on this real estate. it's like a like a small city if you like.嗯哼，好的，那我们这个在呃进一步的去规划我的这个呃厂区的呃这个不同的区块应该是怎么去分配对吧？那我们看到这个。呃，十字的这个呃形态呢？它呃周围这这些都是我的不同的供应商，对吧？然后呢？那具体的它要放到什么东西呃？哪个公司要放在哪一块？也是我这个。呃，后面这个到我的这个呃，这个具体规划的时候来看的对吧？那呃可以看到它的。呃，跟我的这个具体的assembly line对吧？最跟我的最终的呃，组装线的是离得非常近，可能就呃相距几米对吧？我们那天在视频里面看到了，像那个deny nobel，它就直接生产完了，就直接这个。传送进去了是吧？那呃，那包括呢？这个这一整块的这个区呃，这个区域它的地产对吧？得像一个城市一样，它一整块的这个规划。那他可能他的供应商呢？都是。还虽然说是呃，也都是在附近，但是每一个地产它的这个所属其实都是属于不同的公司，对吧？它每一块都是呃，可能你每家人要自己再去签合同去租也好，干嘛也好。那呃，但是呢，我们又看它的整个的这个呃形态对吧？它整个的实际上都已经置入到我的这个闪现里面了，就包括我的这个。呃，这个车身的结构是吧？是magna的，然后呢？我的paint shop就是我的油漆车间是ez慢的，也就是说呃。虽然我呃，这个呃，这个就跟很多的传统企业做的不一样，对吧？因为很多传统企业的话，它这个车厂它可能就从百盛开始，就是属于我的，比如说是属于我奔驰的或宝马的。那但是smart他们家呢，实际上本质上在这个呃结构还是白生的时候，它的产权数属于magna的，然后呢，这个供应商magna呢，再把这个。呃，虽然说这是一整条产线啊，它们之间也都是呃无缝链接的，对吧？都是这个传送带无缝链接的，然后这边的厂区也有直接的这个。呃，传送带桥对吧？连到我们后面的这个步骤，但实际上它都是属于不同的公司，然后呢paint shop，它也不是smart的，它是这个either慢家的，就是整个油漆车间。呃，本质上也都是呃外包掉的，对吧？然后呢？再到了我们的这个呃，后面这个油漆完了以后呢？到我的整个copy的去组装的时候呢，又是vdo做的。那这个绿色部分实际上都是partner，那只有在蓝色的这个部分过来呢，才是属于这个smart自己的，也就是说在这个。经济上来说啊是呃，本质上来说这个也是把责任就是说呃下放到供应商这边对吧？因为如果说我出问题了，那其实是magna的。东西对吧？然后呢？magna呃卖给ez慢，然后ez慢去做这个呃，这个车漆的喷涂，然后呢？喷涂完了以后呢？呃，它传送到这个。呃vdo的时候呢，本质上也是再把这个呃喷涂完的，这个车又去卖给了vdo，对吧？也就是说它整个每个步骤实际上都是属于不同的供应商，然后它之间都是有一个。呃，后面都是有一个买卖的，这个呃经济交割的对吧？因为它的产权其实在传递到下一步的时候就是产权交割掉了。那嗯，如果你验收唉，通过了，那这个呃，这个比如说涂装好的车身验收通过的话，进入下一步了，那就说明我的产权也是从is a慢转到vdo了，然后再从vdo转到smart。那实际上前面的这些步骤，本质上的产权都还是属于供应商的，那就跟我们的一般车厂的。这个组装厂的形态其实是很不一样的，这也是我们这边把它称为cooperative的一个点。那在我们工厂规划的时候呃，在这块的话也是要在前期的design的时候都考虑进去啊，他们啊，包括每个供应商，他在供应呃，他在这个内部生产链组装链的。呃，每个不同的位置对吧？然后它们互相之间的关系，然后呢？呃，他们每个的这个布局占位对吧？这都是要考虑的。so we now.嗯。在别克族。to all its light.OK ander,the next of the steps eris then indeed realization of an er.so realization,preparation and the monitoring of the realization because the realization means we are building the the we are building the the the building itself.but we have to make sure that everything is built according to the timelines and according to the righter,according to the right.a sequences and the problem is what happens in case somebody is delayed AH then.this process is an interaction between different building suppliers,so it's not the suppliers of the car. it's the suppliers of the of the construction side of the building.which um is there a lot of companies at the same time on the on the the construction site?an own project management is needed for looking that this construction is done in time.because er everything the production,the production of the car can only start.when the building is ready and and all the elements for the building like the supply of water supply of electricity,the supply of.an air conditioning eventually and air itself for production,production has been made available,so we have here a very strong or very important step.eh,although we might have very good.the ideas but object concept er objectives,concepts er in the end when the realization I ser.is a problem,then we are running out,of course this is er,this happened in many buildings here in Germany that on the realization a lot of errors happened.specially when we consider a safety installations for let's say protection against fire.or other types of harms.嗯，好的，那我们这边也看到啊，就是在我们完成了整个的规呃，这个细节规划以后呢，我们就开始要进行了。呃，这个实操的部分对吧？realization就是要把它这个变为从计划变为现实，那呃，包括它中间的一些准备工作，然后呢，我也要去监督它，对吧？这个项目。呃，进度呃，包括我是不是按照我规划的来的，然后呢，包括它做的达不达到我的要求，对吧？是我的这个当时确定的呃，各种的这个里程碑，或者说是各种的这个时间轴它。是不是也都符合了，然后呢呃，包括各个监管方面的要求，它包括消防啊等等的，对吧？各种标准是不是都呃满足要求了？那如果之后最后要投入到生产使用呢？那整个的包括哎，供水供电供暖，然后呢？这个呃安防对吧？呃消防等等的都要进行这个啊？最终的确认。和监督。the next step is then the ramp up of the production,the production starts let's say with only a few cars.or on a day,let's say five or ten cars,because all the steps,all the production steps have to run through and it has to make sure,make sure.that there is no problem when there is a high volume when there is a high volume,then a lot of cars are.那23。thm at urs are stuck,so they start with the ramp up with eh kind of eh stairs stair concept to say OK,maybe at the beginning we're in the first week we only produce per day five cars.and in the next week,we produce fifty cars,and then we produce hundred cars so that they they try to.but it's not an increase or daily increase. it is a increase where,where is a kind of plan of efficiency plan,but.t they have to make sure that in case they detect some errors,this can be still managed,for instance.what we have seen in some companies is that the conveyor technique for the cars has not considered the lengths of the car correct.so that the conveyors had to be adjusted and the length of the cars,the cars have been longer than the conveyor was allowing to transport.because of a ming about th size of the car,size of the overall size of the car.and then these errors have to be found out very early in this ramp up face in order to be to be solved,and then later when high volumes are.running through the system,this bottlenecks can eventually em.there's play no role or there are imposed regulations er,for instance about the mix of the products.which can run through a within one day.啊，就是我们的ramp up那呃，整个的这个呃，工厂规划完了以后呢？那我们要去看哎，它的这个整个的呃呃。是不是达到了我的设计的这个目标，产能是不是能够完成，对吧？如果说是它产量高了，以后它能不能呃这个呃经受住这个负荷，对吧？整个的这个呃。它的material flow，比如说它的这个物料流啊，包括它的整个的这个呃，企业内部的这个运行啊等等的，那我也要进行一定的监督和监管。嗯。um,the next step is when we go through this is that what are we doing there and in here in the beginning phase.we are doing analysis a lot of types of analysis,so in the following slides I would like to explain this analysis step.嗯嗯，好的，那我们呃，就是这个这个一二三四五六对吧？六到七个步骤，从头到尾我们有的时候是把它呃。就是化为五个步骤，六个步骤，七个步骤，基本上就是这样子来呃，这个几个这个planning的这个过程对吧？然后呢？那我们首先呢？是要对这个项目进行分析。ander,this are the the guy the this er.em,these are the guidelines again,and here at setting the objectives is always a base on enterprise goals and frame conditions trying to fit them and to fix them here.and er,of course,another point which could be very important is definition of work packages,so in order to make sure that our network is working properly.we define work pages and assign deadlines to every work package and the synchronization s.so we are on this phase in a very basic phase,and we start now with this analy SAT ion. I would like to come back to this slight step wise.嗯，好的，那我们啊，这边看到的啊，就是我们的vdi的这个指南五二零零对吧？那前面也给大家说过它的这个。呃，七个步骤它嗯，把它分做了，我们factory planning的这个七个步骤，那在第一个步骤呢，是我们制定目标，那我们这边呢，也具体来给大家来呃，这个拆解一下啊，就是每个步骤里面的。啊，要做的事情，那在第一个呃阶段的时候呢，那它最重要的就是要分析，就像我们刚才说的对吧，就是建smart这个厂，那你的。呃，你的这个factory planning，你现在包括不管是你是新建还是翻翻修，还是这个呃，现在要整顿还是怎么样，对吧？那你的。呃，公司的目标是什么？包括你的这个呃，整个的呃，外部的条件框架条件是什么？对吧？然后呢？呃，那你这个项目为了达成呃，这个。嗯，具体的这个项目目标有什么？因为它其实有两个不同的go，一个是一个是对于哎，你整个公司来说，这个enterprise go对吧？这个然后另外一个呢？是我这个具体这个factory和我的这个。项目的这个目标又是什么？对吧？那呃，另外呢？就是我的不同的嗯，不同的这个呃。呃，指标对吧？这个具体去分析，然后呢？把它分门别类做成不同的work package对吧？项目包那比如说我要呃，这个项目要分大概几个项目包来完成，然后呢？呃，包括它每个步骤的，我们之前也说过，对吧？在这个步骤的时候确定大概的这个项目包和里程碑，那都是在第一阶段，所谓的这个setting of objects。of objectives就是你要确立你主要的唉，你这个到底要干什么？就是整个的大的目标要确定下来。as though she clubbed an humvee,a fast empowered side is hm ahn OK,I'm quite some comment to argent in for you. yeah,then we have seen that it is the vd a.five thousand two hundred is a guideline,but there exists for the arch architects also such planning steps.eh and eh,sometimes it's the discussion who is responsible for a building. is it the architect,or is it a group of em?investors who finally manage the complete setup,so here we have a second suggestion how this.setup can be managed.嗯，好的，那像我们这个当时还有给大家有说过这个建筑师的这个条例，对吧？hoi a lai就是这个呃，它的这个architecture。呃，建筑书的这个条例那啊，这边呢，其实也有一个这个，我们有时候在这个讨论的问题啊，就是对这个项目到底是。前呃，这个特别是前面的这个建筑阶段，到底是我的fact planning的人来去呃，对项目来负责就是我的这个项目负责人来做这个呢，还是我的建筑师要对这个项目的？呃，这个过过程进行这个负责嗯。fuck it，so May make break here right，OK？那我们先休息五分钟，一会儿回来。挨着我们嗯。ye ish fi lov rag on,where here give the esn or kersh hab's garden noc monk cook,cooked it and power pointed thee gip the esn or ke dts for trifling or the fear.um was Mark do the next nasty,why DIN eh eh hab's den powerpoint MM me rehab's noah does?OK.珠海市饭店。t.安如。挨着大三北是哪里的故宫？那你呃哈贝西诺of the mood of the nam呃PDF奥特莱德。him drive my seats.hmm,do minds him in the google drive.给闹应该我拽还是多来，起码抵得佛脸好给懒得动。发这个乱说，不跟你说乱说。比如我一前巴西斯顿迪斯呃。谷歌智能。嗯。twice they taken over his google drive,the hubs twice.soveistafoodshiod shion shion shion shoood.t.be like this in the under lin.嗯。北京美白师。嗯呀twenty three and twenty two high days of gmail。but the h it's mockery is exverted in guns and ordnance d harvey na kh chu hy ho OK l add in.he helped the island gan sen order the saint a zu fon dri if on.放点咖啡出来。I'm I'm I'm i'll do how's it's right or no nal simultaneous fabric planer on't you going to meet I'm parking I'm fuck on't know fabric planer.作文，母亲浪漫故宫400字。嗯嗯，试一下。t.um,it must m then be those phones so near while he's the billings and ordinal ho cl add on.嗯，你儿子呢？在哪里？is is the dream to be here?呀。你呀。为什么要这样问答？是哪个给的回答？the idle ig gregation by the Emma o troubling mart ish.it's beginning to up when I'm gonna meet the fuck.我也是白痴。你不晓得呃，算不晓得我为啥子？所以就没事的，一般都法西斯反正都要满足你说。then Edward and cried AH o OK lit.明天去哪里喝？可以通热血重生。t.luh ostia lets this muzzle and film gets liked.iPhone smart.不赢不赢。说的用花呗是东哥刷的的yeah AH OK hahaha to ask thine and smart film gets like yeah。um,that's why the hesitant is a film what a smart button.he happened lyhowlk andr ou le ta bille,and by suddenly hopped the skin out a glide. his ya didi has smart villa.the skinned image film smart va bind US tric image film ya OK OK ok't git asked me no't dry and dry y,who as well?但它的。不行了啊，一下呃把一下呃一什么一什么什么？hmmm,yes,yes,yes,is deeds,yes?t.你亚百度还是要先给咱们的普鲁斯大呢？王子的事。什么时候买钱系屋的啊？哦，别别这些。阿拉斯加的黑客人呃呃哈特耶兹。你发的麦弄啊，要仔细。要继续要读书。had there,there's hoke lo nd in ordinal d'oc DIN. had there averagely to matron as we say,he uninvited in ordinal.ers can si ned the station up erro chu lon is complete.嗯。the highest red light ever cheat on me,too.rabi shal I strand the thought of the video ss yeah,yeah,har bish fasc in zan,yeah.videos.video.you come to your side.詹姆斯都after liz ing。那还毋是搁近。附近的阿里商务。嗯啊，一些也只有按我那比较小OK，谢谢谢。would they have these think shine bar?as a does has the folial aunt videos alleg he rent to the APT ionate uh uh uh.knu ll dry n null dry yeah the cyst er sis ain't packet e me m I'm first do.t give this off your foot. int'll give this off.six four.四分多是四分english。一个西施喜爱密集满足爱呢扎克迪麦克马克特。也并没想到，这些日子我会按过跟呵呵阿文。呀OK，马上约到买的。好的，那我们继续这个嗯，继续我们的这个呃，七个阶段啊，就是a尔巴斯planning的七个阶段的讲解。now the principle er are always the same iteration means we are planning,then we are doing next step. then we see that there is a problem.then we jump back into the first in the previous planning step. then we continue with this and so on and so on,so it's always an iterative process we cannot.er design right from the beginning,everything correct,and then do the next step er such big er projects are always iterative projects.er,because not everything is always er clear to everybody,and we cannot fail a factory because er one supplier is late or is he didn't understand the task.this iteration,as has also been done when we have done this um,the airport of Frankfurt when the airport of Frankfurt was built.there was a documentation for the er for the suppliers er,and they had to look which part of this airport they have to offer.make a tender or make their offers,and it was quite clear that in such a big project there are all the time changes.changes in the design changes about the requirements and so on and the authority of airport of Frankfurt has.decided that the responsibility for getting the the correct data or the correct requirement.is on the supplier side,so what the authority off,what has done has put all the actual.um contractor elements onto a database and the suppliers have to check very regular.em,if there is a change respect to their,let's say to their work area or workplace.please,and this is some visit this database which has to be checked regularly. this iteration was.set up.嗯，好的，那我们呃看到啊，就是我们这个在七个步骤呢，它们呃，包括我们的这个呃，整个的。呃，factor planning的呃，这么多的呃，工作对吧？包括呢呃，从规划开始一直到最后的实行很多的这个事情呢，并不是说哎，我一开始怎么规划的就怎么做，对吧？它很多的是这个迭代的一个过程，也就是说我们也就把它叫做这个iterative或iteration的这么一个过程。呃，就是它是在呃，有的时候是边做哎边迭代对吧？不断的更新，不断的迭代，因为它在这个中间也会发现新的问题，然后呢，再去呃，把我的这个。规划对吧？做的呃更呃更好，或者说是让它更优化，然后呢呃更符合实际的需求，然后刚刚教授也讲了举了一个例子，对吧？在法兰克福机场的这个项目里面呢，也是这样子，就是根据这个，甚至在项目进行的时候呢，也会有各种因为根据呃项目的进度，包括客户的需求来对我们的项目来更进行一个迭代。another principle is the so called parallelization. this means all works packages,all tasks are defined in small work packages.and there are investigated which activity can be done or which project step or workplace can be done in parallel to others.um,and with this,they tried to reduce the risk of the of the timelines and uh. finally,they defined something like a critical path.like the longest duration element and supervise,only the critical past this is a very er efficient way of managing big projects.嗯，好的，那另外呢？就是我第二个principle，第二条原则呢？就是它的这个并行性啊，因为有很多的这个项目步骤呢它。它呃，虽然说有一定的前后顺序，但是有些步骤它其实是并行的呃，那就是几个，比如说同时进行，然后呃，甚至是这个有的呢，就是比如说有一些步骤完成完以后呢在。再去做前面一个步骤，或者说它们的互相之间是有一个联动和并行的，这个关系的。也在大项目里，特别是这样子，要这个并行去完成这些不同的活动。so the important principle is always a feedback to the steps before um. let's say working kind of teamwork here.simultaneous work working means working at the same time a comparable solutions is a.looking how solutions can elaborate it and in case it is not possible to have something which is comparable.and decentralization and participation,it means there is not a big boss deciding everything.there are teams and they have decentralized teams and they have to collaborate in a participative way.嗯，好了，那另外的一些这个呃重要的原则呢，就是我们同呃要反馈对吧？要及时反馈这个之前的呃步骤，包括做过的一些步骤。那呃，包括我们的各个不同部门呢，要进行这个协同，对吧？这个同时去工作，协同工作，那呃，另外呢？呃，要。呃，这个解决方案呢？要进行一个比较，然后呃做一个类比工作啊，包括我们很多的这个呃。呃，这个就所谓的整个的项目呢，是没有一个呃，这个所谓的big boss去呃，管到方方面面，所以说呢，他这个权利呢，是要下放对吧，要decentralized。就是要这个去中心化，然后呢？每大家呢？都要来参与进来就是呃每一个的项目方都要呃这个有很好的这个参与度。and when we look into this,eh into this,uh,complete processes. we see that the.factory planning is only one step in to the so called business planning,so the business planning is.the t he very much more important point,because we have to make sure that er the car.ours are sold to the customer US in time and we have to look also for impact system like the products like the technology like the organization.the staff we have to recruit a lot of people and finance. we have to talk to the banks in order to get the money.so here these,these are additional. let's say business planning s which are.only eh eh,which are even more than the pure eh factory planning.嗯，好的，那我们呃，首先呢，是要有一个这个所谓的嗯，整体的一个这个战略性的规划，对吧？就包括前面说的这个。哎，我的目标是什么？我的整个的公司的战略方针是什么啊？我的这个呃，这个工这个工厂新建了以后对我的呃经济意义。社会目的，或者说是我的整个的这个呃市场规划是什么？对吧？这个那这个production planning呃product就包括我的这个嗯。本身的这个产品对吧？那我的opted design呢？是要呃比我的本身的这个工厂的规划要更高一层级，它是一个战略层面的一个目标。嗯。these questions are more for your,for your let's say um,for your checking if you have really understood.eh,what I seh has been discussed in this in this light she described the reasons for the factory planning project.maybe with this er,with this er questions here,you can go through the slides and try to answer them on your own.e rander here are the same questions for er and what we see also is here are the answers erin,the slides er mostly.er,when you go through,but er you should first try to answer these questions on your own by checking the slides so far.ander later,when you found the corresponding slides and give answers to these questions by using the slides,then you get a feeling that you have understood the topic and eventually.it is better not to learn alone er more,you should learn in teams two,three,four people eventually shoulder put the question,so somebody puts the question,somebody answers.or the other,the team agrees to the answers this would be very important.嗯，好的，那我们呃这一章呢？呃，就是这一大章呢？我们也呃，今天也给大家讲完了啊，然后呢？呃，这个章节的每一章节的最后呢？我们也会附附上一些问。问题对吧？这个questions那呃来让大家对这个章节呃进行一个梳理，对吧？就是我们这章讲了一些什么内容，然后呢？呃，包括我们最后。呃，这个着手复习的时候，大家也可以来梳理一下，对吧？就是你能不能呃不看讲义对吧？来回答这些问题，然后呢？呃，那个后面呢？也有附上答案啊，但是我们自己可以先。这个看着问题试着解答一下，那这边呢？也是对这一章的一个小的总结，对吧？就是你在学完这章以后应该了解一些什么，或者说是我们这一章大概讲了一些什么，对吧？那刚才教授也是建议啊，就是嗯呃，大家也不用这个，自己在家这个一个人看着闭门造车啊，可以比如说两三个人，三四个人组成一个学习小组，对吧？然后互相问一下这个问题，然后呢，看看是不是唉，这个我们是不是能够知道这章，比如说我们这这门课在讲些什么，然后这一章又讲了些什么？好吧，那我们这边到时候这个呃，一会儿课后呢，我就把这一章的整整个的完整的讲义，包括我们这个questions和answer都会发给大家。OK,so wen ower jump to the next er chapter our next chapter,and this is then.umm,our chapter three,where we are talking now about?嗯。work steps and methods we are now explaining more which type of methods we are.嗯。using here,but we start with basics,of course.嗯的。嗯。为什啊？40。60度六十点四。啊对。now work steps and methods a well designed objectives,a data determination. these are the very important steps which have to be which we are considered here in this.um in this fraction of the lesson um,so we can come back to these design objectives.we have the factory as a total system and we have to look on to,let's say from all from a global point of view of the design of this.factory minimum in the beginnings phases,and here we are now dealing with design objectives and the analysis.好的，那我们呃，刚才前面也是给大家说了，对吧？这个第二章呢？我们呃，这个fundamentals of factory planning这一章呢？结束了，那我们现在要开始这个。第三章第三章呢？我们主要是来给大家来讲，就是呃，我们factory planning的一些基本的一些，这个呃步骤对吧？呃，work steps和一些这个。呃，methods就是一些基本的步骤和方法，那呃，前面呢？呃，这个呃vdi的定义里面大家也看到了啊，就是我们一般的factory planning呢，有这么？呃，七个阶段，然后呢？它们互相之间的一些准则对吧？有的是这个呃呃并行的，包括它是迭代的，对吧？然后呢？呃，互相之间的一个关系嗯，它有不同的planning levels。and so we start with this target planning and the factory goals,but we have to consider,in fact,that there are a lot of regulations which have to be clear.and these are laws. these are standards laws,because we have to,we have to make sure that the factory planning is done according to the laws.laws can be maybe about how to erect,how to how to deal with the.the real estate show to care about water protection and and many other things,so there are a there are a lot of laws which are violated or which are relevant.when we are talking about the factory planning and there are standards,the standards are important because in case something goes wrong.er,the lawyers or the the people check have been did the standards have been considered or not.standards can be part of it. let's say in safety,i can be standards in safety,May be a point.er also,when there is equipment,er suddenly broken,then the question is,who is responsible have the standards been considered?so these are,let's say,things which have to be in the in the back. so in big projects like factory planning,we always need kind of lawyer who knows the standards.a who knows the laws and where noticed,that's a kind of technical. a lawyer who knows the standards.嗯，好的，那我们前面其实也给大家讲到啊，就第一步呢，就是我们要设立这个大的，这个目标对吧？然后呢？我们有一个企业的这个总体的目标以及。呃，以及它的这个战略方针，这一个层面上对吧？然后呢？呃，我们也要知道这个，我们具体的这个factory对吧？这个我要规划的这个工厂的一个目标。那中间呢，就需要我们有专家去专门去看，哎，我整个的整呃，这个就像一个建筑一样的，对吧？我这个骨架要怎么来搭？那中间呢，要满足哪些条件哎包括？呃，这个呃，我要符合哪些的法律法规啊？包括我要呃，符合哪些的这个标准对吧？包括一些比如说建筑标准啊，防火标准啊，安全标准啊，或者说当地可能是一些。这个环保的一些呃，这个呃地段对吧？这些呃，这个各种各样的一些呃呃条例呀等等的，那我就要。就是找到专家去呃，专门去咨询和知道我这个是不是能够呃能能行对吧？能不能建这个工厂？那是不是呃我这个目标能够达成的这么一个？股价对吧？这个framework能不能搭起来？um,yeah,what are? let's say a kind of aspects,let's start with location. the location means at which place do we erect such a factory.at the beginning when a factory is set up,a lot of cities are competing against each other in order to show.that it is good to have the factory on their city side,we do not know we don't er,we do not have to consider this in.uh,in case of factories,we have also made experience that even train terminals or ors when there are different investments.the cities compete like like crazy May be in order to get this investment because such an investment uh uh.which is defined by the location,such an investment creates a lot of jobs and income for the region for the people in the region of the city.so the location is a is a very highly political decision making process where um.were on one side the the the city the the the manager of the city.vogamized at the uh,the uh,where,where were in principle even from the local regions regional uh uh?t.ervent fighting for the city er,this process of getting the location in Germany locked looked probably two years or more time.before a factory is built because er a lot of further conditions are have to be checked for instance subsidies.eh some some regions can offer more and better subsidies than other regions嗯。好的，那我们在这个第一步的这个target planning呢？那我们刚才也说了对吧？首先我要熟知这些呃，我的法律法规啊，各种的不同的这个条款等等，作为我的一个框架，对吧？然后呢？那我具体来看呃，哪些是我的这个支柱对吧？那首先呢，就是我要面临的第一个问题就是一个选址的问题，对吧？刚才教授也是跟我们说了选址的问题，它其实是一个。呃，非常复杂的一个事情，对吧？一块是嗯，我自己的工厂的一个呃，唉，我要达到一个什么目标，但是另外一层一个层面呢，特别是一些。大的工程对吧？比如说像特斯拉要建厂，那像呃，这个我们国内应该也是同样的情况，很多的城市，它可能都想把这个特斯拉的工厂争取过去，对吧？呃，去招商引资啊呃，因为你这边这个如果说是这种著名企业在我这个地方落地的话，对吧？它可以带来。哎，带动我的这个地方的经济的发展，或者说是可以呃，这个对我当地的这个就业对吧？提高我的就业率，包括也能提高我的城市的形象。呃，包括呢？也是这个纳税对吧？等等的各种方面的考量，那包括像如果要建机场，或者说是这个呃港口这种的大的这种地标性的。呃，项目的话更是它可能有的时候呃，这个几个城市会呃，这个都互相之间去竞争对吧呃，那包括呃，像我们在这边也是经常看到诶，几个市的市长都可能去出面。说唉呃，比如说你这个项目到我这边来啊，我能提供哪些对吧？那它这个前期的选址，它可能在几个城市之间的选择的整个过程。呃，像德国这边，它很一个一个工程，很有可能就要持续两三年，然后呢，包括呃，这个每个的城市它都会拿出自己的这个努力去争取，对吧？然后呢，包括它是一个政治层面，很多时候也是一个政治层面的一个博弈嗯。嗯。o well for the location selection,we can find more details,but I think.it is quite clear that the location is is a very important step for the for the.for the political level to win,let's say to get awarded them the chance to to build their the factory.um,the other points which are here is the ner,for instance the target costs and er.em,something like manufacture penetration,I would like first to address the target cost,the target cost is not that somebody is sitting in a room.and figuring out how many millions er he can spend it is a question where er.eh the sails eh are reflected and and trying to define the profit.and for the smart car,it was a intended to find out how many cars can be sold in a year.throughout the different steps of years,but in the in the in the in the main year.and this was decided by checking how many small cars are sold in this section of the market.嗯，好的，那我们这边呢？呃呃，另外一块就是target呃cost对吧？它的目标成本呃目标成本并不就是对于这个factory planning并不是。像我们拍脑袋想对吧？我现在有200万，然后我的这个我能花200万，然后我就花200万叫这个工厂并不是这样子的啊，就是呃，它的目标成本的确定呢，首先是就比如说拿smart这个案例来说。那我我知道它是一个小型车，对吧？那我就要对这个小型车市场进行一个市场调研，对吧？然后呢？我要确定呃，小型车现在的这个。呃，市场整个的整体的市场份额有多大？然后呢？我要确定我能够呃占的这个小型车市场的份额是多少？呃，然后呢？再来看我这边呃，每年呃制造多少？我能卖掉多少？对吧？那我这个工厂能够创造的这个呃，每年的销售额。对吧，预期是多少？是要根据首先要根据这个呃大的市场环境，然后我要生产这个产品在市场上的占有率，然后呢，再到我这个公司想设计的产能以及。这个呃经营目标去定我的target cost。now with this er volume of parts er,it is er I think they compute der here hundred fifty thousand cars.er because they they they the peak,the peak production was not er is never the target that is responsible for the target er.achievements so when they think about hundred fifty thousand cars,then they and they want to make a ten thousand Europe profit per car.then,with this er,they go down and think OK the price of the car maybe twenty thousand,ten thousand Europe profit.and then the carp can only cost during production and deliveries and and um yeah,and also with these um.er with er the costs incurring by from the from the location side like security and so on this in total are is only allowed to cost in the remaining ten thousand.and this ten thousand is then split up,and we finally come down to the production cost itself,which May be seventy percent of this.ema target post because other costs like the building running the building's security er texas electricity and so on.er,this has to be provided additional,so the target cost is um starting with the sales of the car.er,which has fixed because they want to know er which market they would like to address and then rust ly say fifty percent of the money is is er.his revenue for the shareholders and the rest is then split is as a target cost to the different production or.a service site.嗯，好的，那我们这边呢？一般来说怎么来定这个target cost？那就像呃，刚才smart这个车来说对吧？那我去分析这个小型车市场。然后呢？去看我大概要预期拿到的这个市场占有率呃，然后呢？我这边来看哎，我这个新建的工厂，我想要做到的这个每年的呃。呃，销售额大概是多少？那像那个呃smart villa呢？它当时呃也是一个阶梯性的，对吧？它它大概的目标的这个每年的销售额是在。15万辆呃，这样子的一个程度，所以说呢，它的设计的产能大概是在18到20万辆，那我们这个设计的最高产能呢？它是一个极限产能，但是。呃，一般来说呢？嗯，我的目标的肯定是要比这个目标产能要去高出一些，对吧？有一些余量，那我的目标大概是十五万两每年。那呃，每辆车呢？我大概想要拿到的盈利对吧？我扣七扣八的这个呃，把这个成本都扣掉，那我大概预期每辆车的盈利是这个一万欧元左右。那我就要看说我剩下的这个部分的呃盈利呃是怎么样来分配对吧？一般来说就是呃盈利里面的50%呢是作为这个股东的给股东的回报。另外，剩下的50%呢？那我就可以再来投入到我的生产，对吧？那这个剩余的这个利润部分呢？呃，有70%可能是用于我的这个呃，进一步。步的这个产线也好产品呃，这块的这个呃更新对吧？这就是我的target post，那剩余的这个呃二三十呢？那我再去，比如说哎，我的这个去提升我的service啊，或者是说。维护我的这个各种这个供应商关系啊，等等的就是用呃，剩下的这个钱去做别的，那在这。这个target cost大概是在呃，这个剩余盈利占百分之呃六七十，这样子去这么这么去算出来的。the next step is then the socalled manufacture penetration. this is meaning a which part should be done with the company and which part should be done with suppliers.in our smart example,smart carb factory,we have seen that the steel body was produced by magna and.and the responsibility was,of course,erat magna,though magna had to invest all the production facilities.em for this car,so the smart factor,the owners of smart car,the mcc people.they did not invest there er. the second is the paint shop,it is the penetration is to is given to.e eisenhower,so they never thought about to to to do this business as well,so they have just get rid of that and say.that's not our manufacturing step. that's somebody else the same with the engine,which is then to some group responsibility.the same happened with other pieces like the.like the plastic components which have been awarded to DIN amit nobel,so all of the seer let's as up work has been.picked out of this of the own manufacturing process,of course it has to be done looked onto the target cost because they have to buy these products from.the corresponding suppliers,but what they do is they negotiate with the suppliers their special.what they get is the money and then the suppliers like eisenman NOR magna. they have to do the same calculation for.for their factory,if it's possible to earn money with with with this um result of the negotiation.嗯，好的，那我们呃，另外呢，想给大家来呃谈一个呃，另外的一个比较呃，重要的点呢，就是这个manufacture。penetration这个词它呢？呃，我们可以把它呃直接翻译成这个制造的渗透率，那它是什么意思呢？呃，就是我们在这个生产制造的过程中有哪一些是我自己？就是我我这个公司来完成的，然后呢另呃有哪一些是我的这个供应商呃完成的，对吧？是外包掉的，或者说是呃这个呃。这个呃事物，它这个呃很多这个责任在这个交割之前呢，就不属于我的，对吧？那像我们smart这个案例里面呢，就非常有意思，对吧？我们可以看到。它的这个白生部分呢，是属于magna的对吧？然后呢？它的这个pinch up油漆车间呢，是属于这个e thm and那呃，包括它的这个一些塑料件对吧？是属于这个呃de no nic nobel的，那它只有在这个组装到就是组装到我车体里面的时候，那它这个产权才交给交割给我的这个。呃，smart的它的这个owner对吧？这个mcc这家公司那等于说呢？它的这个呃，现在呢？其实嗯，也一直在讨论这个问题，就包括我们在全球化的这个过程中，哎，有多少是？要我们自己制造，有多少是外包啊？现在其实是这个呃，这个趋势在回归，因为很多现在呃，包括车厂也好，制造企业也好它。它是更多的想把制造这个环节的更多环节控制在自己手里，但是像20年前，它其实全球化进。它那个时候的这个开放程度其实要比我们现在还要再更更高一点那呃。它就是呃，这一块呢，实际上就是定义了我和这个供应商互相之间的关系，那这个你说这个是。渗透率呃呃，你说是自自己制造部分还是这个外？外包的部分呃，这个孰高孰低对吧？应该怎么去划分？那就要看你每个企业自己的这个是怎么个考虑的对吧？那像你这个呃，把这个。很多的东西，比如说让供应商去做，有也有好处，对吧？你比如说你手里，你就不用积压这么多的成本，对吧？你就不用呃，包括这些呃，这些责任就可以下放到供应商这边嘛，对吧？就是你交割的时候。再给我那我也不用去呃，有这么多的固定资产压在手里面对吧那呃，但是呢，那你说你对供应链可能你的控制度就不一定有自己制造的好。啊，这是这个孰优孰劣呢？就是每个公司要自己去呃，考虑自家的这个战略定位嗯。now the next呃。level is then here labor hours wage systems besides the production schedule,but labor hours and wage systems is.very important because er the wages influence also the target costs a lot er when the wages are too high,then the target costs will fail.and that in humbug,the car for smart was was setup in a in an region.where there is not so much industry where they have low wages in the north of France on the border to Germany and also the German side.eh in this region is poor,eh? so they have right from the beginning looked for a location.which is located in an area where the factory location where the wages are not that much high.嗯，好的，那呃另外一块呢？在我们这个目标设定的时候也要考虑到就是当地的我设厂的这个地方的呃。它的嗯，劳动力成本对吧？包括呢呃，它的这个呃，工作呃，工作的这个呃，劳动力它要呃，工作的时长呀，包括它的这个工资待遇的这个标准啊。那如果它这个当地的人工太贵的话，那可能就会要超过我的target cost，对吧？我的这个目标成本那这边就划不来了，那像呃刚呃smart这个案例里面这个smart villa是在humbug这个城市。是那它是属于在呃这个法国北部，然后在呃德国的这个呃边界对吧？德法边界的这个地方，那它这地方呢？这个法国北部其实是比较穷的，然后呢？呃，德国的这一块区域呢？它的这个呃也是在德国处于这个收入呃程度比较差的一个这块地区。然后呢呃，它是所以说呢，在那块地区呢，它的因为以前也是属于这个阿尔塞斯洛林在往后面的那种老工业区，他那边的人呢？嗯呃，相对来说比较便宜，所以说而且它的劳动力可以来自于德法两边嘛呃，那所以说呢，它这个也是把这块。这个工厂放到那边的一个比较大的考量就是劳动力成本相对比较低。this schedule in this other processing organization is also a very important. it has to do something with how to deal with the.with the salespeople,because the sales people ordered their cars,and then they promised a due date to the customer.t.or the deliveries of the cars and on the other side all the suppliers have to know which type of piece is needed at which time.so er a very detailed planning after an order,a detailed planning happens in order to make sure.that those pieces which are individual are available right at the moment when the car is in a manufacturing process.so it's a question also of organizing the flow of goods with all other suppliers.好的，那我们呢？呃，还有一块比较重要的就是在我们呃，我们所谓的这个订单流程的组织系统，那我们知道订单是我们的这个呃，销售的部门来接的对吧？就是我。在呃，客户的订单这边我拿到了以后，那我就是呃，根据现在的企业基本上就是根据我的订单量，然后去推我的生产那呃，在这个过程中呢，就是你这个企业的生产组织形式。是呃，是怎么样的？对吧？是你的，包括你的流水线，你的组织形式，比如说你是呃，遵循精益生产的，还是遵循这个呃，比如说just in time just in sequence，然后你的这个。哎，好比说你，你的这个marketing或者说是你的这个销售部门，你在接到单子以后，嗯，对于不同的客户，你呃，他的交单的对吧？日期我的deadline是怎么设定的？比如说是。呃哎，是不是两周呃以内就要呃交货的还是怎么样？那根据这个我去组织整个的呃。企业内部的流程对吧？生产流程包括跟供应商的这个流程的衔接，都会根据这一块来呃呃，根据我的订单来进行统一的统筹安排。and on top,on the bottom,there are the so called enterprise goals. these enterprise goals are here because merci e de sis,let's say the owner.the key owner of erd is malt,so they are looking for the maced US goats and one of the maced US goats was.to supply the engine and the engine was produced in a factory near Berlin,so they had to make sure that this enterprise goal of providing also kind of supplier product is there.and what they normally do is also look for other pieces. they can also provide so other pieces which are used in a normal merci e de sori na,small merci e des.they tried to bring them also as an element into this new car,so the enterprise goal is always to establish.that the network the mercedes network and two have this factory as a part of the complete network.嗯，那我们在这个整个的呃呃建筑啊，我们这边的建筑。建筑的顶是我的factory go对吧？我的底部的基座是我的enterprise goes，就是我的整个的呃企业的一个战略目标，那像呃smart呢，当年它是归属于梅赛德斯。奔驰集团下的，那我这边除了考虑到呃在ham bug的这个具体的这个公司呃，这个工厂的一个目标呢，它其实要符合我的整个梅赛德斯的集团的大的目标。对吧，那像呃像这种呃整车厂呢，它基本上的呃零部件都是外包的，前面我们也说到啊，但是它主要呃像他们做的这种整车呃这个组装厂，或者说是这个。最后的整车厂呢，它的呃，本质上呃，最核心的部件就是当发动机，对吧？我们的引擎发动机是要呃自己做的那呃，像smart这种小型车的这个发动机。呃，它可能和呃，这个奔驰的这种小型车的发动机，有的有的型号的都是一样的，对吧？那它呃，本质上来讲。可能呃，它也是要符合我这个啊，奔驰集团的这个小型车的引擎的一个大的一个战略目标，对吧？就是你也是归属于我的集团公司的，就是配给你的这个小型引擎。那呃，这个呢？就是呃，我们所谓的这个集团公司或大这个企业的这个大的目标呃，去配合我这个工厂的具体的小的目标。the production schedule is the final step and is was planned to deliver the cars with train.so the production schedule is then not defined by the production,it is defined by the starting time of the train.and this,the the cars which are produced belong to the same train,and it is not possible to,let's say.produce one day yellow cars,then next day blue garb cars,then red cars,it is just the complete flexibility of the demand which is then linked to a train.and the production has to make sure that all the different types of cars are ready at the moment when the train starts,if the train starts at four o'clock or two o'clock.then，all the cars have to be there，嗯好，那我们最后来看这个production schedule对吧？我们的生产的这个排程，那像我们看到这个smart biller它。其实生产排程一块是根据我们的订单来对吧？另外一块其实它很多的，这个呃，我们的生产呃。要达到的目标时间呢，是根据它最后呃这个运输时间来安排的，我们也看到它最后是呃用。我们的这个呃，包括汽呃大卡车，但是呢，主要是用呃火车运出去的，对吧？那所以说呢，实际上是一个火车时刻表往后面的反推，也就是说我这边。呃，所有的生产流程呢？呃，不管你是这个呃，什么颜色的汽车？或者说是什么呃订单对吧？它都要去呃，用我的这个火车时刻表去反推，比如说我这个火车是。呃，每天下午两点发车，那你必须今天的这个所有的车都要在呃，两点半呃，两点前对吧？都要呃完成，然后要装车。呃，那我才能准点去发车，那它的这个production schedule呢？就是由我们的这个火车时刻表去反推，然后呢？呃，去做这个生。产的规划。up on it,so we see US next time. thank you for being here.好，那我们今天就到这儿嗯。have a good night.好，拜拜，thank you very much，see you next time。t.复制成功