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eh da shu beh h hu be ne hhu be NV nee ene ee nee.t.总此hi oec loved helpless n nip common。嗯呀呀。good talk professor naha go to talk doctor r.open dark.hello AH,good AR bent,good evening.啊，who are you today？yeah,more or less,we are fine,but the yesterday was holiday.and.and this is the day between the holidays ersona t's. it's not so good day.OK,it's hard holiday.cool great呃。but don't worry,we we are still in the mood of em acting.OK.呃呃呃，说句话I teach students in the classroom。OK,I see in the distance very small students,you are very far away.but it's always like that. no,don't worry,don't worry,eh? the students tried to be a very far away.um,OK,let's start.now we continue with our factory planning.ander specially now we have. we are involved in the method.ehe special methods we are trying to use this is because in.in factory planning,we needer a variety of methods and one of the most powerful are we have presented here. it is er.the so called.era BC and exquisite analysis er and and related er of course related er er er.er re related ler related ur analyses I tried to.I try to.er entered erin corporate or enter again into the lessons into the slides last time,not from last time,but those which have been.the base for our um calculation over here.好的，那我们呃开始今天的课程啊，就是我们呢呃，这段时间也呃的呃。嗯，不要你发了，是的，是翻译滚。啊，我们这段时间呢，也给大家讲了一些这个啊，关于啊数据的一些分析法啊，就是啊，为什么我们花了这这些时间来给大家讲ABC和xyz的这个analyze的这个方法呢？主要是在我们的factory planning呢，里面呢，我们需要有一个呃好的数据基础，对吧？去啊，做我们后面的这个呃工厂规划作为它的这个分析的基础。啊，那我们前面也跟大家说过，对吧？就是呃，包括ABC xyz，它都可以用在啊，比较多的这个啊，不同的领域里面对吧啊，包括我们的生产也好仓库。仓储也好，我们的甚至这个你对。哎，你的员工或者说你对你的这个呃供应商，或者说是呃你的customer对吧？进行一个分类，我们都可以用啊，类似的方法来进行这个啊，科学的一个评估和分类。啊，好的，那我们这个上一节课呢，我也把这个讲义发给大家了，然后我们也把ABC and analyze的这个练习题给啊讲过了。OK，嗯。yeah,what we did a last time we went through these slides and er. we didn't finish finally the slides.er,but we have shown the ABC analysis as it is we have had advantages and criticisms. er,we then went to the xyz analysis,the xyz analysis is er.a very powerful analysis because it deals with the so called either with the so called um noise levels.i don't know why but we put he always noise level as a and we'd deal with the.um,in the end with the stability of the demand or or of consumption of the different items.and the point is that this is very important when we are looking into the design of.er production and logistic systems because era big.um irregular demand is a disaster for all production systems。嗯，好的，那我们这边呢？呃呃，这个上节课把ABC的部分呃练习已经讲完了，对吧？我们接下来。呢xyz呢呃也作为回家作业，我看大家都做的呃还挺好的，然后呢xyz它的这个分析法呢，主要是用于啊，我们来评估对吧？就是啊，特别是像我们的啊，订单对吧，或者说是。我们的产品呃，它呃出现的这个频率是不是规呃规呃会这个呃常态的出现，或者说是它是有一定的规律的还。还是它是啊，这个啊，没有任何规律的是这个随机的，对吧？它就是嗯，一个是I irregular demand，一个是regular demand就是来分析它的这个需求的啊频率。er,the problem of this eror,let's say the advantage of a regular demand. let's say if we would have a real constant demand all the time the same.this would be beautiful because we do one day the planning and then for all the other days we can repeat.but when we look into systems like this one here below,where we have sometimes high demand,sometimes high,sometimes very low,very,very low.then this is difficult how to manage.嗯，好了，we don't know how many people we need。we don't know。em,we don't know how many people we need. we don't know er how many resources we need in terms of machines and space,so these are the difficult.er,the difficult systems.嗯，好的，那我们看到就是，当然我们是这个作为，不管是呃工厂也好，仓库也好，我当然是愿意看到像呃这个。上面这个图对吧？这个右上角的这个图啊，它永远是有比较规律的需求，对吧？它这个波动，而且也不大，就是嗯，那这样子呢，我的整个规划什么都可以呃，很好的去进行未来的这个。生产规划对吧？或者说是啊，排程等等的那呃最呃不希望的呢？是像这个右下角这个图对吧？有时候唉，这个订单一来这个量就很大，或者说呢，有的时候就是。很长时间都没有呃，任何的订单或者说量非常小，对吧？它那它这个呃也没有任何的规律可循，那这样子的话呢，对我的整个的生产安排，包括我的。呃，整个的这个呃排程什么的都很难去做，因为我不知道或不能不了解或很难预测后面的这个订单，或者说是后面的消费者的行为。ander ya er,we talk about the noise levels here,we should have an l which is the noise level.which is the so called mad mean absolute deviation between a mean and the individual.are the individual value of ase TU divided by the mean so we will.eh sum up in principle all the deviations and divided by the means so and this is important to divided by the mean.because this gives an impression. it's,it's kind of normalizing when we say we have,let's say a mean often then a deviation of two.here is twenty percent if the mean is hundred and we have two,then it's only two percent. so in the end er,this noise level is a in principle is a is a value.which is referenced to the mean and counts the absolute deviation so positive and negative all these deviations are summed up.do.du hats of human desi rt tabular sharp stock no ing marked others and then duhat s not much weaker than that.i've been ambit ian for that eli quiz arch by lit as.呃呃。a stud aynoifulan ish ish ish shit或者it helps anfahonoelectexs。嗯，我要走了。er nine does probably BEC sf.好的，那我们呃，首先呢，在这个x嗯yz and analyze里面呢，我们介绍了这个noise level对吧？我们的所谓的噪声水平，噪音水平呢去？判断啊，我们这个noise level把它简称为nl对吧啊，它是呃，用我们的mad值对吧，它的这个所谓的呃，这个。呃呃，方这个我们的差值，它的中间值去除以我们的平均值对吧？呃，去除以mad去除以我的MU那呃。刚才教授也是说到啊，这个它其实就是来嗯，就确定我们的这个极限值跟我的这个平均值之间的一个。呃，比率对吧？那如果说是我的这个m in就是average呃，它如果是呃呃，有有有100的话，那如果是我的deviation是二的话，那我的偏差就总总体偏差就只有2%，对吧波动？就不大，那如果你的命是十的话，它呃division也是二的话，那我的波动就要到20%，对吧？那呃呃本质上来说呢，就是呃我的。一个deviation和我的这个平均的average呃呃value of demand，它之间的一个呃。整个的差值，然后呢？我去确定啊，它的整个的需求的趋势。OK I um if he fits its in least of the show and it's happy,it's fission al ism to form.嗯。OK,so we came to this,to this values,and here we have an example for this er.er,we have to put always here instead of sper at the noise level,but er here we have a demander in case one twenty forty thirty fifty ten.and in case two twenty forty fifty thirty five and twenty five,and then we compute the corresponding.嗯，挽留者。and in the case one,it is quite simple. we have to add all of them and divide by five,because we have five values.so indiana average the mean is five or thirty,and then we take the differences that's quite simple. twenty minus thirty forty minus thirty thirty minus thirty fifty minus thirty and ten minus thirty.而等你的意思。ya er,it is in the end the ten ten zero twenty twenty them we are forty fifty sixty.divided by five is ten twelve.and so the noise level is therefore the ner twelve divided by thirty is round about zero point four and that's more than this thirty percent.therefore，its irregular demand，嗯好的，那我们来看这个呃，就是主要来判断我们这边是一个定期的定定期的需求，还是啊，无规则的不定期的需求，对吧那？嗯，它的这个方法也比较简单，首先我们来算这个m对吧？就是我的平均的需求量，那我这边的就把所有的需求。值相加再去除以五对吧，因为我一共有五个period，所以说呢，它的平均值是30，那我们再来算mad mad就是我的每一个周期和我的平均值之间的呃。差值的绝对值对吧啊？那我把这个差值的绝对值啊相加以后呢？再去除以五分呃，再去除以五对吧？那我得到的这个啊，平均的偏偏差mad值是12。然后呢？我再用这个12去mad的，值去比上我的去除以我的MU值对吧？那我就得到了零点四，但因为零点四是大于零点三的，所以说呢，我们这边就判断它是一个irregular。mind,OK?and it case two er,we have here another situation.we have some other values,but we have to sum up and they end up with thirty four compared to.thirty before ander,yeah,we then do again this difference is twenty minus thirty four.always minor thirty four,they are different values and byer,adding them up. we end up with forty six divide by five,we end up with nine point two.er,remember,we have had twelve over here.and then we compute the mad divided by them in at. in the end,we ran our round twenty seven,which is below thirty percent.that this means，therefore，we have a regular demand。好的，那我们这个第二个case two里面呢？它的这个做法还是一样的，对吧？我们先求MI这个平均值是34，然后。然后我们来求mad值，那就是所有的每个周期的值去减去我的平均值呃，然后我们算出它的这个。呃呃，这个偏呃，这个平均的绝对偏差是九点二对吧？如果我们还记得上一个case one里面它的偏差是12对吧？所以说呢，我们这边九点二÷34呢，得到了零点二七那它是？小于零点三的，然后我们之前也是说了对吧呃，30%或零点三的小于零点三的这一档呢，我们把它归为所呃，归为这个呃是有呃。regular demand的，那我们把它归为是x item，也就是说是啊，就是把它分类分到x类的产品，那x类的产品呢？就是。使它的需求是啊，有规律可循的，或者说是啊，是有一呃是我们可以呃常规的定的，对吧？这个就是我们所谓的啊，就是它的频率是比较。能够找到一些规律的OK。I just want to correct as these two slides before,because we have translated this from the German and indeed the German words sometimes are.er for US here in when we are in the english community a little bit confusing,and this is because a noise level and stir figure which is our word over here.e riser sometimes er.yeah,eh,I wouldn't like to say confusing,but you have difficulties to remember these words. therefore we should.eh and it's here we don't know exactly,what does it you don't know exactly what does it mean? so I have no repair.and we go on with this.I think the next topic is er besides the the so called er MID level and the noise level based on the MID.to do the to call it,we call it coefficient of variation. and this is a coefficient of variation is using the.the standard deviation divided by the the mean in the end it is quite similar to the mad.or deviation or difference between the means but.the problem,however,is er that it is squaring er the the differences,of course we take the root of the square.but with this squaring of the differences,we of course on one side get rid of the negative part of the in case we are having.let's say er the mean is,is larger than the the individual value.but we are squaring,and this is a general problem for or or as general difficulty in these systems because.a squares which are high like maybe er when we have a mean of pen and we have a event of one.so then we square nine one mine whose ten is nine and square ten er,and then we have another one where we have mighty difference of one. we square one.so the absolute values would have been in the case of one and ten its nine,but squared its eighty one.and of course,as we'd later take the root out of that,it somehow solves a little bit of problem.but we always have to count wither squared values which er are normally um.uh，bringing the large values，making large values even larger。嗯，好的，那我们呃，前面第一个给大家介绍的是nl对吧？noise level这个方法。那它这边呢？呃，是把呃，我的这个平均的需求值和我的这个每季度的呃，真实的嗯，这个需求进行相减对吧，然后取它的绝对值。那它只是一个这个呃，这个绝对值的，这个平均的绝对值偏差那呃，在我们的第二种方法，我的coefficient of variation呢，就是我的变异系数法里面呢，因为我们看到就是。是呃，相较于呃，前面的这个MU是一样的，对吧？都是呃，都是来算这个呃，平均值就是它的这个命值那。呃呃，之前呢是算了mad值对吧？呃，它就是这个每一个相减，然后。取绝对值再去除以五对吧？再去除以它的这个啊，总共的周期，那我们这边的呃，这边的这个取的是s对吧？standard deviation，也就是说我们的标准方差。那它是首先是要平方一下，对吧？就是我们如果唉我的。平均值如果是十，然后我现在这个季度，我可能只有一个我的需求量，只有一对吧？那我的如果是像前面的这个呃noise level的里面，我只要。呃，算mad，我只要一去减去十，那得到的绝对值是九对吧？它的偏差就是九，但是嗯，那在我们这个standard deviation在我们的标准方差的情况下，我因为先要平方。再去开根号那嗯，它等于说是这个这个偏差九要先开要平方一下就变成81了，对吧？然后呢？我把所有的偏差相加以后的总数，我再开个根号。也就是说呢，在我们的这个。呃，在这个方法下对吧？我们的呃标准方差呢？因为它是呃，它会把这个我们所谓的差异给先扩大了，也就是说呢呃，这个。差值它越大，要经过这个平方放大以后呢？它的差异会更大呃，它有一个所谓的这个放大的这个作用。our in the next er example here.we have er five different articles er and we have the consumption of these articles throughout the.different months of the year.ander,yeah. then we ur also look for the classification er x less than zero point three.or or that more than zero point six and,why in between that a disk defines regular and irregularity?and intermediate er e rya,intermediate patterns of behaviour. and we,we now in the next slide will.analyze all of these different examples。嗯，好的，那我们这边的一个案例是有。五个不同的article对吧？有五个不同的呃物品，然后呢？它的这个从。一年的这个第一月到12月的，它的一个需求量，然后呢，我们这边也是给出呃条件，对吧？如果是它的偏差值是。小于零点三的，那我就把它归到x里面，然后呢？大于零点六的，我把它归到z里面对吧，然后在零点三和零点六之间的呢，我把它归到y里面。now the first is eight hundred seventy five the meaner. this is er,yeah,when we count that not so difficult,I think interesting for US is the article three. then the mean is very simple.is one thousand,one hundred divided by twelve.so we check a three is one thousand,one hundred divided by twelve.嫂子，晚点讲。嗯，好的，May be hopeless is correct，but here we have computed all the means er from the different items。好的，那我们第一步呢？对我们第一步呢，就是把所有的这个缪值和s值先算出来，对吧？缪的话也是呃，这个就算一下啊，每个物品我们一共有五个tickle对吧？它的每一个相加，然后除以12个月，对吧？那呃，我们分别的得出了它每一种article，它的这个平均的呃需求量，那然后呢，我们再用每个月的需求量去减去。它的这个平均值对吧？然后呢？呃，它们的差值先开先平方再相加。然后呢，去除以12个月，然后这个值呢，我们再开根号对吧？那我们呃这个第二行里面呢，也是把五个article它的standard deviation对吧？它的标准方差值都给计算出来了。那我们知道这个VC值是用MU去除以s乘以100%，所以说呢，我们再把这个这两个MU÷s对吧，然后把每一个的VC值都算出来。yeah,and then of course,when we divide this by the mean,we finally get twenty five percent,twenty five percent is from that point of view.a haha fine item I just only want to try to figure out the differences between MID and this one.t.oh,twenty five point eight. well,the dev deviation is the standard deviation is two hundred twenty five or two hundred twenty six rust ly.and the mean was eight hundred seventy five. so here,compared to thousands esa hundred,twenty five er.嗯，人的身体发育方面的。i is too too difficult to do it now in just calculating,but what is important for me is that this value is of course different from the.er from the value of the of the mad and this can be a discussion point when we are judging.嗯now，when we go，yeah，那那我们如果说是这边，我们先因为这边是先平方再除以除以12再开根号对吧？那我们如果感兴趣的同学回家也可以算一下啊这个。我们呃，同样的用这个数据啊，如果说我们这儿这个不是s对吧？我不算standard deviation，而是算mad的话呃，那这一行应该是多少？这一行应该是多少？然后呢啊？它这边出来的这个呃，这个nl是多少对吧？我们可以对比一下，就是呃，我的这个nl法和VC法，它们两者之间的差别对吧？我算出来的这个百分比。它们是差不多呢，还是差很多呢？然后我们什么时候用nl什么时候用mad，我们如果感兴趣，同学回家也可以来算一下OK？well,I think I would like to to to do this short calculation um with an exile and in the exile I just copied er.the values we are having here and I will share immediately the the this is more calculation i do.然后第四。his because I think it's quite interesting to see erthiserto see these differences.帮主。好的，那我们可以快速的来计算一下哦，这个呃，这个五个article它如果是啊，我们用nl法对吧？算它的mad值，我们得出的它的这个偏差是多少？我们看看它这样子用两种方法，它的来做xyz的分类会不会是不一样的结果呢？and now I stopped sharing,and I share a.我要学儿歌。in this case,I shared the excel.if you want to shift x.xx 3号。dis.二次发力。OK,I shared. i put it on the other desktop and ii push it there.so here we see now there excellent.er,what i did is i just have taken this er.this article one over there.yeah,here this article one,and when we sum up er.what we say the the mean.the demean is eight hundred fifty seventy five this was but the value we have got so far and ii will do the calculation over here.so what we did is in the ender take er,in the MID the absolute value of er.this value minus the mean.rand the mean is uh.嗯，原来你费劲。so this is ami call it mad.so it is quite clear what we are doing here.and eh built this and,then we have to to sum up.and divide by.wealth hopefully the result is the same as we have had before.is this the same?嗯，这个。啊。AH,we have had other values here w.now we didn't check that before there we have had a more simple example,but I think you are bored with simple examples. so I.complicated by.enter now have to bring my.hers over here so this is the number of er i put it I limit it to.limited to do.OK,so here we see that's a hundred ninety one is then the MID value.at now,I too do take the er.curve of variation coefficient of a which is a.a principal oh.this values here.WINDOWS this here.so it did therefore we take.哦，对你太客气。no,that's ugly.不要非得失败了over here。which is this one,lose this one?and here we have to do again the same by.嗯，并非短暂。播电影大陆必须听。in order to fix the mean.and of course,we have to do more. we have to empower by two.and now we sum up.or we built,then we sum up.嗯。and divide this by twelve.twelfth,twelfth,twelfth,twelfth,twelfth,twelfth is already good fraction of twelfth.only the one is missing.ern zero point five I take and yet we have to take the route.and now we divide this by.the mean oh we divide this by.拜拜拜。爱的明朗。also be fifty.第二，六十七点六二。yeah,and then of course we.we get here at twenty five point,eight two.mad also.this one mad you should also divide a divided by AB here.t mad,you should also use this one to do.诶，这来就读my base。and we multiply with hundreds in order to go.added comparison,so we see we have in one case twenty one point nine.and in the other one,we have twenty five point,eight one. and this difference is AH due to the.squaring of the values,especially those values which are very high like this one here.er and this has an impact because here the difference between this and the meaner I ser.er quite high and therefore in such in such circumstances also the others are also really high. this hundred five are also very high.although in the MID sense they are also high,but here.they are er quite er,yeah,extremely er stressed and therefore er.our our our values May differ.OK,this was just only two ya felix expressed them.呃，那我们刚才呢也是把呃，这个article one对吧？它12个月的数据呢？我们分别用mad呃和呃，应该说我们分别用noise level和我的这个coefficient。呃，variation对吧？这两种方法呢？呃，我们做了一个比较对吧？如呃，同一同样的数据，我们用两种不同的方法进行了分析，那呃，我们用了这个。呃nl noise level的方法呢？我们算出了它的mad值，然后呃在这个第二种方法里面呢？呃这个嗯。我们算出了它的这个标准差，对吧？呃，它的这个标准呃，标准差是226，然后呢？这个mad值是191，对吧？那它们同样的去比上我的平均值875。我们得到的这个呃，两个不同的，两个不同的值，对吧？一个是二十一点九，一个是二十五点八二，也就是说在分析同一组呃样本数据呢？我们得出的呃，这个最后的偏差值是不一样的，对吧？一个是一个是百分之二十一点九，一个是百分之五十二十五点八二。呃，那它的原因呢？是在于呃，如果我用了这个coefficient of veration，就是我们用的这个CV法。呃变异系数法呢？我们呃这个因为中间有一个平方的过程，所以说呢，像这种呃这个像像这边450个对吧它跟？呃，875就差不多要差到400，像这种偏差大的呢，它就会呃乘平方倍的放大你的差异，所以说呢呃，这个最终的这个呃，虽然说后面还是开根号回来了。但是它的整个它会放大那个我的差异，所以说呢，它这边的值呢，要大于我们在nl法下面做出来的值嗯。哪一个是写作的nl z，你去买的？nl mini noise level nl.biden er does is sting them AD as here you are,clan nin gly.嗯。嗯。哪有几个人？嗯，那我们这个是两种方法，我们做一个小的，简单的这个对比啊，叫做一个小简单对比，那在哪种情况下用哪个方法，或者说这两个方法孰优孰劣？呃，这个也不好说，就是呃，他们呢呃都可以用，都可以用，那这个到时候呃。那这个nl法肯定是相对来说要更简单一些，对吧？然后呢？这个嗯，这个呃。CV法呢它。还是因为要看先先平方了，再开根号嘛，它在某种这个特定场合下就是会把呃，就是它把这个差距呢或差异呢就更明显的能够表表述出来OK？so then er we go on with this ander,what we see,of course,it's the example which is has been constructed in a way.er where we see that the values are somehow varying er,but what we see here is that this coefficient er is er ya sorted and we see that some items.have a value of of pen and our value,we computed so far was twenty five.forty nine of seventy five and evener that's extreme two hundred six,so these are then the.er quite this variability coefficient er,which can get a considerable range.嗯，好的，那我们呢？就把刚才算出来的VC值对吧？从低到高进行排序嗯，那我们这边来看一下啊，它的这个VC值。呃，就比刚才的nl值的差距要拉的大，对吧？你看它这边从呃，这边是从10%到甚至到206%这个。呃，这么大的一个差异的范围，对吧？呃，那我们呢？同样的呃，这个啊，把它排序排序完了以后呢再来。呃，再来划分它的这个种类。um,this is AA very interesting result,because um when we look into the data er article five,of course we see that article five all the values are very high.and the values the corresponding values are close to two.to to each other,so in principle,we have not a very May be of four thousand six hundred four thousand five hundred is a minimum and the upper limit is four five thousand nine hundred. so that's a small range.while in article three,we are having a very big problem because we have a lot of zeros in between.in principle,this is er something I would like to call it more sporadic. this is far away from.being an article which is has a regular demand,of course we can say every four months. this May be the only regularity.but this is an extreme because it is between zero and one hundred,and so this has the high the highest difference.a article two,I would like to jump to article two.a article two has seventy five,but it's also very high already.AH this also due to the zero s in between AH here we f also is zeros but not only only let's say two.the article for.isis is ranging in between now a article five,has the very low and article one is also very.very low,let's look on to article one. this is this one er,and therefore we can say that er this.is it's this is also below.thirty which we call its and the zit is,of course,two hundred,but I for me. this is also z it because it's more than sixty,and so we have only one item which has cut up.嗯，好的，那我们呃根据这个呃，把它算我VC值算完以后对吧？我们根据我们的划分标准小于零点三的，我们把它分为x。然后大于零点六的呢，把它分为z那这个呃五种物品呢呃，其中五号和一号呢，它的这个偏差是小于30%的，所以我们把它化成x。然后呢？这个二号和三号，它都是大于60%的，所以说我们把它化为z那四号呢？是化为y对吧那嗯。呃出会出爱呃I能否认出轨？呃呃呃，你是does呀呃need do do doc does哦呃，那那那他他白了，可能那我们其实。呃，点too white呀呀stop啊，那我们其实就是呃，单纯的去看这个表格啊，我们如果说是没有呃进行呃，这个呃计算，其实我们就这么看也。可以有一个直观印象，你看像五号的it口，它基本上呃，每个月都有需求对吧，而且它的需求量基本上就是在5000左右，所以说它这个一看就是一个x的，对吧？然后像三号的是最不规律的，对吧？它就是哎，有的时候有订单的时候嘛，就很多，要不然就是零像这种有零的，一般来说都不可能是那种regular的demand，对吧？都应该。基本上就是irregular的，然后我们其中的二号和三号，这两个就是呃印象一看就是啊零很多的那一般来说像这种都。都会是呃，不会是这个x类的产品的，那我们的一号和五号呢？都是会呃，就是都是一直有订单的，对吧？不会出现某一个月是完全没订单的。所以说其实我们直观的去看一眼这个表格，也基本上能够看出点东西，然后呃再呃对它进行精确的计算呢，就是分类的结果，那我们也可以看到就是。呃，有的是很random的对吧？有的是非常的不规律的，我们把它叫做sporadic，就是它随机的会有几个订单OK？AH,yeah,the problem is er when we want to er represent this er er properly.t.it's not representing one hundred percent correct with a small arrow here,but what we see is that er.er this er when we try to represent er er the variation of coefficient,we are not allowed to.to let's say put here the shares of this,it is as every item as individual.er,we have to classify them according to der h to the individual values here on the left side.er and of course eras we sort them in a way they say that on the right side we have the high values it will always look like that and it looks a little bit strange because two hundred six is very,very high compared.to the tin,so there is no,no,no,normalization in between,but what is quite clear is.em that these ranges here are always a big challenge and a long time there was in the mathematician community a discussion.if there it is possible to have a coefficient of variation more than a hundred,if there is any distribution,let's say mathematical distribution.which is yielding a coefficient or a deviation,let's say more than a hundred percent,and it was theoretically.seen as impossible,because the exponential distribution has a mean and a deviation of 100%.so here we see that in in practical this can really happen.t.vodka.yes,was was me,he wondered the habit drive as you own middle of our lord,the hero of commie immense fulchy fertileness.this vague mussi e had smiled er of diner of diner twas me dig a shit.of be hap siphon of the snell and nlf on.t.t.my asa four fif tagger does this and zonta gdo has mean o and resume to work than that.t.yeah,iced aci aur abi HUB for him was too ig gd ly he's my limb for bishop sen AH. it's my young慢,he haps da sa ha PSD as I'm from Beijing. I'm far come up to h hannon with you,ha BB dahab's d'a bit h directed the，I have to be your back.怎个了？he thy stony LV ani AA teal mister scandal nz hin and he had ig dish weathers of all his kind of in caves ion.I will exist here here in the uni margaret miner video saw it when he pinned the dry margaret straight towards fisherman.we come tight at it through the ig lia. who is this wick lish? is this wick lish? needs to fasten igg lich?嗯。但诺呃，但是但但是还是多米尔的magazine的，但若特迪莱森，比如。yeah,it's mister MA zine who he was me. he wondered,is he copier? she yes time for hope it,and he have been fascinating forty chnistsinda salt benny kins,fulcher forty ch nes comrades comrade.软肉吃，但饼一点都没。AH,this too indecent for sadness per hocked it a heart astonishment monsieur s mur.嗯，现在是这个，大家休息几分钟啊，前面前面我也说了，我们先休息几分钟。是的，是这样嗯，对。我刚才可能我忘了，因为我拿我刚才可能拿德语说了，然后我们先休息五分钟，一会回来再讲。this is missy.大家现在德语学的怎么样啊？下学期的课又我们可以用德语上不？哈哈哈。诶。for a habit had sickly ended in fatigue ness shun di rich tigger,the ring had had seen when he could see him.OK,are I for it ye it's ye ho lo shi? it's the altar while he he had,followed you.找贝克兔子一起去兔子。OK.however,the yg like he g hii sten ED up in a nunu nd anted sadness this big big four hidden guns fudged privileged.嗯。罗地安法斯特维希斯都都看少点。ta fauna havished yeah,d by the tabella when thus is shun a blow fiber on the honour,did the com mitch's?abi don't done is's shown deny with you,it's justin know I wouldn't it. that's it's deny with you.t.da foyer give this to the comm ish screen tabella in in the store. DAS has picked her US creech osk norma no mandan has the.the english text I'm up deck on fede dodge text da fon adi da da dah abi shell is not of eyes to eyes.t.g market does past feel on the fo dia master for you rsd the commission's grandfather.yes,it's your feel feel better yes,yes,the harb is h ro ga office had good cost advice to asthma direct in the power and.t.by do this ter system，DAS er often Tyler aina is zmbishing don't blow onto an a would zmbishing heads would bish ing呃打呃。好那种呃，但是是english。t.ya ya ya da habit haha BI tha habit haha bit haha BI tha habit habit habit habit habit hingofluudeg MA cit habit habit habit habit hams habit hams habit hams habit ham sham sham tha BI tha m.copier in the exert the h calculi art om dah ha bish not my aunt TU ans eh eh TU work as de text co pian TU work TU dit het abela.AH foye nia,it's come ED US good for say help,how feel as though he experimented through a marked utah's a feed side follower as a tog luck canny. we feed sideman by an amati on of a yet no ambit ian rumsfeld慢.和恩的d the goddes ig graphy卡片效果and not my white处理XP si lon CHA de。but to god for him,the child.那你是记得给你你你是记得给你干次干次行头不爱他。哪个翻译的？哪个翻译的？对。that is where here is SP does habit. he also understand it.巴斯蒂休丹尼西亚耶斯蒂夫里总学院亚黑亚黑影影影。the clinging of the eiltonshines folly and de da pedro rami ya,the pedro hazel yep hing a clucked eras of heer ya on de thebes h Bill di haziozobexact the sics nod dih no zig zig fatal on.t.yh haps dis fig end yeh thy foiling a marked by the esso m foiling habit is has pish beautifully a tickle ions.t.anti the US correction ate AH deh at congression ate the heaven,whereby lets him follow him go March. these gant edits vital following as thought to zag on de luzon and the arson is a splash beil ferdi.article in on o happy so a plant that dso hockey,dso hockey.你of home by dear e second is her she shes her she she she she shes hindi she she she sh ing he shine e she me esh esh esh esh inge she me she shinde she shine he she she she me es hem eee she me I shem。I thought that's what it was like.t.there there had been an agnes for sten's fun dese and poplar bein ish be in ish,be in ish,be in ish finders d's can't d's too cotton.I'm yeah,if if I fast inner sare'm bavenished.AH to it was as they took out the fine h vanished lex ta va zion the eh to him ain't a good a version for swindle tem maya can't stop my stop Sherry marker. it can't steal entitle us by me resists.e choly gillis gillis is mere yo's VI GAR OK inche choly gillis cill is gillis cill ecillecillecilles does niche ves in cho be a,zinc and now i can.when v as war de andrea vas war DAS v asset tei potent is op hal jurag now go now that i sit on this t,that's all ST ou dalian ambition ale bish in a haunted here.this vigilance VAL ish to student in the end,and this is of pity of pit if that i does.顺看普遍没有。nine frowns in oddly hearts May not US.那个酸豆腐怎么喝？t.ya ya ya huh ya were done n IXUS yaw ASS onix US ya and clings y villa des cise resumed.带的是你去买的肥了。that's how they all kind like a suck. how about rs them? isn't I'm teamed than not a steam fielder ha?so semester's curry,get it.yet we still happy.OK.啊是我是处理工科。我们门洞。呀呀呀，快说。once formed,the sixth ink and sly helps.sneaking and sheerness is shown the shirt of his sister.来呀，也只算尽历史。no,I she no is quentin NOR schoen as i'd as wise he shunned. i could OK ya I said to millie,millie meadow,millie meadow,millie meadow.等呃，买好多空车，我们等。迪拜的特斯拉。好的，那我们来看一下哦，就是我们前面的这个呃题，它的结果对吧？我们把它呃这个图再画一下呃，那我们知道对吧？就是x和x是这个。呃拉的线是30%的VC，对吧？因为我们一共是五个it口，所以说呢，它每个的份额是占的20%，对吧？然后呢？呃。呃，阴影呃，然后呢？这个嗯低于30%的这两个article呢？是呃，把它分到x里面对吧？然后呢？呃，大于60%的部分呢？我们把它分作z。对吧，那z的话，它就会有很多这个看你看它这边呃，在这题里面，它甚至可以偏到呃200%多里面，对吧？刚才教授在上一节课的尾巴里面呢，也讲了一个。就是当时我们其实在数学界有一个蛮长期的争论，而就是说我们这个偏差值哦，这个比如说这个VC值的百分比。那它应不应该有超过100%的值出现，因为如果从纯数学的角度来说，我不管是呃，标准差也好，方差也好，按道理来说。我的这个如果说，比如说我是一个正态分布也好，干嘛也好，对吧？我的呃，这个偏差值最多的呃，最多最多就是到100%。最多最多100%对吧啊，但是实际上我们能看到啊，在现实生活中或者在现实领域中，这个超过100%的这种案例是。存在的也是很多的，对吧？呃，所以说呢？嗯，这一块的话，我们也是看到就是像这种呃。偏差很大的，就是它的订单是非常不规律的，对吧？它的整个的。他的这个呃呃。偏差值或它的方差值就会超过100%，这边就是百分之二百零六点二九OK。呀，这个呢？要是我们my comment was that this value is very high and the exponential distribution has a deviation of 100%。so mean and her and dev deviation are always the same,so the CV the correlation of.the coefficient of variation is to is in principle mean divided by a deviation which are the same,so it is 100%and.so mathematicians were thinking if there is a theoretical.uma see a function which is also having more than a hundred percent and indeed it is um.er,it exists its the hypergeometric a ler distribution and there exists real cases where we have this er.pattern and these have been found in traffic systems er when we have at times where we have ona when we are on a traffic light.and we see arrival times of trucks of car of vehicles and sometimes the arrival times are extreme like long time nothing.then a lot then long time nothing,and this is specially when trucks are collecting. let's say at cars which are not able to overhaul on on on lonely streets or on special streets.and this is an extreme. so the extreme values we see here,two hundred six can really happen in reality.er and of course can even can even be worse.嗯，好的，那我们呃，这个教授前面也说了，就是我们怎么来看这个值对吧？呃，就是这个206%的这个偏差值，那如果我们完全是按照。呃，指数函数的这个分布对吧？exponential啊distribution那它的呃，如果是从数学的角度去描述它，它的这个呃。呃，平均值和它的这个偏差按道理来说最大应该到应该就是100%，对吧？那数学家呢？也是经过了。呃呃，继续的研究呢，就发现了一个叫什么呃，我刚才呃呃也叫一个新的函数叫hyper什么的，就刚才教授说的它呢，实际上呢，是的确是存在这种超过就偏差值超过100%的，而且呢。那我们在真实生活中呢，也是经常看到这些呃，偏差值很大的，这种案例的啊，就比如说像我们呃。这个交通呃，运用在交通线上啊，就比如说是像我们的啊，红绿灯路口呃，我们去装一个摄像头去进行一个监控对吧，我们就可以经常发现这种偏差值很大的情况。因为有的时候这个呃路口有些时段呢，它的车流量非常非常的密集，对吧？它的arriving是非常多的，那它有的时候呢？它的arrival time，它可能几个小时可能就只有一辆一辆二辆车，对吧？呃，小猫长三只，那它的这个偏差值也会很大，那在现现实生活中呢？这个案例也是存在的，然后我们也找到了啊，这个相应的它的描述方程OK？so why is this so important when we look into? let's say,AH,ABC and xyz analysis,and here we have.er,let's say a combination that this is important for people in companies,because they.they don't need ABC alone. they always need action fields and wither come wit her structuring of er datasets in ax or az.or see ex or seize it. this is indeed a kind of structuring where they can try to optimize the processes in the companies.嗯，so what is that？yeah，sir。嗯呃，那我们在这个公司里面呢？一般来说呢？呃，我们会把ABC的这个分析法和嗯xyz的分析法结合起来，然后呢？做这样的一个matrix呃，那我们呢？呃，有一些产品对吧？经常我们看到哎，有的产品是这个ax的，有的可能是呃az的，对吧？那呃，这些产品它们到底代表是什么？然后呢？我们。分析完以后呢，在其实我们在真的工作中，对吧？我不需要知道哎，它这个产品是az还是b呃BA还是什么东西的？我只要知道我对相应的分类完以后，我应该对它做什么它的。意义是什么？对吧？我应该怎么来处理这类的产品？那这个呢？是我们要呃，这个就要知道的，对吧？它的action field是什么？我要对它呃它，它背后的我分析完了以后，我我把它分类分完了以后我。该做什么？now,what does it mean? axa means it is an item which has a very high.AH throughput or,which is relevant from the throughput point of view and our expectation,is to say okay when we have an a item.then it must be in principle an EX item. this means we have high volume and it is quite clear when we have high volume,then it should be more or less.constant it should be,of course,there could be a small deviation in side,but so what wet hence can say OK ax items are suitable for just in time.because we have a high consumption and we don't need a safety stock,nothing like that. we just deliver exactly as the products are.and we,we finally get the mere rto they a to the customer erin in the so called justin time sequence.just in time it's good to plan,especially when we know that the consumption is quite um.without too many surprises now，我们先来看一下啊，就是说我们这边的呃。呃，先来看这个，什么叫呃ax物品对吧？ax也就是说是在我们的这个啊这个。左上角对吧？这个左上角，那它呢？我们首先知道a对吧a的物品呢？就是呃，首先证明了它是有呃高价值的，对不对啊？我们之前也说了，我们的这个二八法则对吧？它就是。呃，少量的产品可以创造呃，80%的价值对吧？那它是有所谓的high proportion of value那首。首先，所有的A类的产品我们都是有这个high value的，对吧？那呃，如果是又是xx产品呢？就是它的这个需求是regular的，对吧？它的需求是很稳定的，那我们把这个两者加起来对吧？这个。这第一行是A类的产品的呃，这个性特性对吧？然后第二行呢，是我们的这个x产品的特性，那把这两者。加起来也就是说它是具具有呃高价值，然后呢，又是可预期的，因为你的这个need你的需求是很稳定的，对吧？那所以说呢，我们这个呃ax的物品呢？是指的。价值又很高，然后呢，又是它的需求，又是可可预估的，那我们呢？通常对于这种产品在生产中呢，我们就使用just in time的这个生产战略。嗯的。sea EX items,they are also kind of surprising. this means we have a demand which or the consumption is poor or low.but on the other side,we say it's regular er. so what does this mean? well,it means maybe there is a customer ordering every two.month's a small amount of the pieces,which of course is bringing it to a sea level and a small demand. a small demand.but a regular means the customer needs this item frequently or more or less frequently and therefore.er with my expectation when I look into the tables,is that we have a lot of ia high volume of more or less high volume of a items with x.and a very low number of sea items with its.在弄么嗯，在弄么？pattern would be we have sea items and they are z characteristics. this means those items are.the demand is low and because of being low also the characteristic is er irregular but close to sporadic.嗯，好的，因为我们来看到啊，所有的。x产品它都的它的这个需求量都是比较恒定的，对吧？即使我们是cx这类产品呢，我们最终的结论还是它是有一个。一个high什么意思呢？就是嗯，虽然c产品啊，好比说打个比方，我每两个月订一次对吧？然后呢？呃，订的频率其实不不高，对吧？就是我可能要隔一好长一段时间我才。定一次，但是呢，我的需求很稳定，我就是每两个月定一次，然后那它的这个量是少的，对吧？这个呃，这个low value的，但是呢，它的need是。它的需求是很恒定的，那我们同样的呢，也把它称作为呃，这个呃，它有一个high predictive value，也就是说它的这个价值可预期的价值是高的。因为我们比如说可以啊，把这类的物品，比如说像呃AA x和cx结合起来，对吧？做做一个这个订单的调配，那像我们这边呢嗯。相对来说啊，就是右下角的这个嗯，我们叫它这个cz的这个产品对吧？就是这个红色的这个cz的产品呢啊？啊，他是。基本上是我们最不愿意看到的，对吧？它因为它的价值很低，然后呢？它的需求量呢？又是非常的不稳定的。啊，所以说呢，我们这边把它称为叫low predictive呃value，因为它的需求量又不可预测，然后呢，它创造的价值又低。所以说呢，这个呃像这类产品呢，很多的时候呢，我们就要考虑一下是不是就可以把它清掉了嗯？how the other criteria could be to investigate what happens with az.a面子还没有。but as that means totally irregular,very irregular and a low predictive value,all impossible to predict,let's say.and this is a high risk,because on one side we have high volumes,but we don't know er when it is sold or when it is demanded.安装。of my my impression or when I see numbers of items,then i can say az is high.aza axis high.az should be low.aera sea that should be high because mostly the sea lower er.嗯。嗯。they have a low demand,but a very irregular demand,but these are then the other field high,high number of items here and high number of items here.low number of items here,low number of items here. yet that's the the typical expectation I have.but要OK等于不是。呀，好的，那我们再来看一下这个嗯az这类产品，那我们知道A类物品它的价值是很高的。但问题是在于它的这个需求量是非常不稳定的，那我们这个az这种产品呢，我们经常也会说它是非常的危险的，为什么？因为它的物品单价很高，但是呢呃，它这个需求又不稳定，这个就像呃，你比如说你呃进货进了这样类型的产品对吧？放在你的仓库里面。它的这个单品的价值可能很高，它得占用你很多的资金现金对吧？但是呢，你也不知道我的客户下下一单是什么时候定，所以说呢，一般来说我们在仓库的配置的时候啊就是。如果我们做完了这个ABC和xyz的这个。分析以后，那我们一般来说呢，像这个ax的物品，那我们肯定是呃，这个预期来说，它的量呃是比较大的，对吧？那相对来说呢，我们的az的产品。我就要存货存的少呃，因为他这个可能是这个呃，我不知道他订单什么时候来，但是呢，每一单买一个东西，价格又高，对吧？那我不能让他占用我太多的这个资金链在。呃，在它的这个产品上对吧？所以说嗯AA x它这个量多az的量就要少那呃，同样的呢？我们的这个呃，在这个斜下角的，我们的cx你这块呢？呃，这个货反而可以多备一点，因为它的单价很低，然后呢，你也不知道它什么时候要，反正你就先扔在那边，对吧？它因为每一个的呃，这个价值每一个的呃，产品它的价格都比较低嘛，对吧？然后呢？它也不知道什么时候要，你就先就存着这个量可以高，然后呢？相应的。这个呃cx呢？cx它的这个数量就要呃相对要低一点，因为为什么它这个需求量是很稳定的呃，那它的价值又不高，那我就呃就是恒定的。呃，就是生产就好了，就不用存太多的东西，那一般来说呢，我的预期是这样子的嗯。er,now what does it mean for the disposition procedures? two of the ordering procedures.while consumption driven mean sum.we,we order every time ten pieces May be,but the consumption per two months is always two pieces.so er after let's say five times ordering,then the the the box is empty and it is ordered again.so we have a consumption which is er,let's say emptying or reducing the inventory level of this item's stepwise.at once,it is below a certain value,May be a stress hold or even zero,we order again,so this is we can call consumption drive the consumption of a certain.level is decreased,these levels and finally when there is zero,we order again hm.好的，那我们来看啊，刚才我们也说到了我的这个cx类的产品呢，它呃，就是比如说刚才我们举例说诶，这个嗯，它每个。呃，每隔两个月订一套对吧？然后呢？呃，要的量呢？不不多，但是它的频率非常的规规规律，对吧？那像这类的产品呢？我们刚才也说了，你不用放太多，对吧？因为。你等到消费者下订单的时候啊，你比如说有设置一一个safety stock的值对吧？然后呢？你等到呃，好比说我现在就是存。存一箱在仓库里面对吧，然后呢，这个消费者每两个月呃订一个，那我大概五个月啊，或者说十个月他可能。才能呃，把我的一箱清掉对吧？可能一箱有五个，那我到时候再进货就行了，所以说呢，我们这个把它称为叫consumption driven，就是我这个。是消费驱动的，那有了订单以后我再去呃，我再去这个进货或我再去相应的做这个生产。the other side are these items here,which are demand driven. what does it mean,demand driven well?demand drive means we only produce this product,although it's an a product when there is a concrete demand,so customer has ordered.and then we produce only then we produce.嗯，好的，那呃，这个呃哦，我刚刚说错了啊，这个是cx呢，它是叫consumption学问，就是消费驱动的，然后呢，我们的az。它是demand driven，也就是说是我的需求驱动的呃，什么意思呢？就是说我一呃这个之前我是不备库存的，然后呢？这个cx我是备着库存的，对吧？就是呃。啊，那我是消费驱动的，我只是啊，它是订单一直啊，就是两个月才来一次，但是我备好就是我放一定的safety stock在那边，但是呢az我这边就不不可能去放很多的这个存货。货在那边，而是一般的情况下，像这种az的产品，因为它的每份的价值都很高，然后呢，它的需求又是不一定的，那我一般都连存货都不会放就是。只有你当订单来了，有demand了，我才去进行进货，或我才进行生产嗯。and I have had one company where or two companies where this has happened,and one was a potato chip's production. so the potato chip's company.it's a very famous company here in Germany. they up,they have own brands in the,in the,in the shops and the supermarkets,and they produce also potato chips for.other companies,but they change the brand name er. it's the brand name of the other supermarkets,so some supermarkets,some special supermarkets or the.their own brand products,and so this other supermarkets also or this general,the specific supermarket has also a big demand.but the disposition,the department of disposition is very coy otic,so sometimes they order a lot.sometimes they order long time nothing,and then they order again a lot ander.for the production people,it is very hard to predict when there will be a new order of this. this specific.supermarket chain and er,so they have decided just only to produce when there is a real order at hand.and then they can produce especially for this er company and this specific brand er,the potato chips.ander I have had a similar er experience with a company producing er.oh,let's say everything dealing with with textiles for wind covering WINDOWS.er foi hanging eh what any kind of a success curtains curtains AH,yes yes I know curtains AH they produce curtains.and they produce high volumes,of course,of textiles because the curtains need a lot of textiles.and the sales manager of er er,the national sales manager,is also kind of chaotic guy.sometimes he asks for a lot of production because of possible demand and sometimes he just is doing nothing but sometimes he is ordering urgently.and this is the same problem we have AA item where,because curtains is really a big volume of pixels.but on the other side,with a coy otic demand and they don't know if they produce the wrong curtains in case nobody asks them to do so.and this is a typical az characteristic,which is hard to predict and of course.which can lead to a very strong error or big error in case of producing the wrong,the wrong product or the wrong demand.what wrong volume?好的啊，那刚才教授也给我们举了两个，他在呃现实的这个生活中，对吧？他们遇到过的一个呃对呃跟公司去给他做咨询的时候遇到过的实例，对吧？呃，这两个案例呢？呃，都出现了，我们这个az的这个产品对吧？呃，那它的整个的呃呃价值呢？很高，但是呢，它又是非常不稳定的，这也是我们经常会碰到的这种情况。那其实az类的产品是呃，风险是很高的啊，因为呃，你一旦碰到一单对吧？然后呢？它的这个呃。这个订单的价值是很高的，但问题是你万一。这个送错货，或者说生产错了，或者说是开下一单，什么时候来你也不知道，你也没法预先的，就就给它准备好，对吧？那教授讲了两个例子，第一个例子呢？是啊，德国的一家。这边的当地的一家生产薯片的企业，对吧？它有自己的自有品牌，然后呢？也有呃，给人家代工的这个品牌，那它呢？给几大的超市的呃，供应商对吧？就是供应超市的这些存货。那像有有一些超市呢，它是会很定期的来订货，但是有一些超市呢，它可能也是每个分店的这个呃，经理不一样啊，有的经理他就是非常的。这个啊，没有这个怎么说呢，做事比较chaotic，我们就说比较乱啊，它有时候可能哎，一下子要进很多很多货，或者说一下呢，又呃大几个月都不进一次货。那像这种情况下呢，就是我们经典的az，就是它如果来了一个单子，它的呃，这个呃value是很高的，对吧？但是呢，它又是很呃很没有。规律性的，那像这种单子呢，他们后面这个经历几次以后呢？这个薯片的公司也是决定就是针对这个超市呃供应的这个牌子呢，我们。每次都是等到他下订单，我们再来生产，就不不拿那个存货，对吧？我每次下单，我再给你发那另外一个例子呢，也是碰到这种az的就是。呃，一家生产这种工业的，这种窗帘的，那它呢？这个呃，每次的订单也是非常不稳定，但是呢呃，它的这个价值又很高。呃，完了以后呢，它的花样有很多对吧？呃，像这种情况下呢？也是就是啊，类似我们说的这个呃，三年不开张，开张吃三年的这种情况对吧？那像这种az类的产品呢？我们一般来说都会说是就叫对吧？当你有这个啊，订单下来的时候，我们再进行生产，那就是呃，所谓的订单驱动，或者说我们的需求驱动嗯。啊，遇遇到这种时候呢，就az的这类产品，我们就要特别去当心一点啊，就是啊，因为它其实是会有很大的风险的，因为万一你预先生产了，或者万一。呃，这个呃，生产完了以后，他这个客户说货不对版或怎么样的？那你一旦一旦这个做了这种事情，你可能一旦损失就会很大。所以说我们说它的危险性就在这儿。there is a last field here which is relevant. this is program and variety adjustment,these are the so called zz articles.e they are low volume or low value. value also an der z consumption z is irregular.er and er here in Germany,we have one company,er,who has wither or one person,who has become.er,very,very rich,exactly with these items. er,it is AA company.who has specialized to the supply of.he said items it is the name is not relevant,but the uhu US maybe he also is in China active. i don't know miss vert.er,he's er one of the richest germans because of the of dealing with the seer items,and these items are a very real problem because.mostly when they have low value and low consumption,everybody who cares and who orders or who checks.er,maybe the items have a price of one center,but everybody who cares for one hour has already spent a fifty year for just only.caring about the ordering of one item um and so he has managed a concept where he can keep the.ordering costs very low for this low price products and they are mostly having in the factories where they care.care about the specified items,a special area where they they have the boxes where these items are in.and let's say once a month one person looks for every box if there are sufficient items.and when they are not when they are some items missing,he orders that and then tuck this person disappears again. so they have cut down considerably the cost.forer the management of these sea set items and therefore they got a lot of orders from a lot of companies.嗯，好的，那我们再来看一下最后一个这个右下角的这个cz的产品对吧？我们前面也说了cz的产品呢？它的这个特性呃，就是因为它第一个呢的，它的这个单价是相对来说或价值是比较低的，但是呢，它的订单又是非常的不规律的，所以说呢，以前就是很少有公司是想去。做这类的产品或去做这类的业务的呃，因为嗯，你说它这个本身的单个价值又不高，对吧？然后呢？它的订单呃，又呃，又少，对吧？或者说又不规律，然后呢？那很多商家已经。比如说去做这类的产品，我可能这个处理订单以及拣货的这个呃成本一个小时，我可能都要大于你货品价值本身那呃德国呢有一个。人啊，他就很聪明呃，他呢，就是专注于去经营，或者说他就专注于呃，去搞这类的产品就是去处理这个cz类的产品那。呃，然后呢？他就是因为做的够专业，然后呢？现在呃，几乎呢？已经他应该是德国top级的top前十的这个富豪里面的一个吧。然后呢呃，这家公司叫我不知道大家有没有听说过，它就是做这种小零件儿啊，这种呃，这种价值比较低的这些东西，但是呢呃，它就是可以把这个运营。的成本啊，包括他自己研发了一套，这个也包括他的这种小盒子啊，或拣货和补货配货的这种方案那有很呃。然后呢，它可以把这个呃，就是可能只有几分钱或几毛钱的这些物品，它的单个订单的处理价格呢，也把它降得很低，所以说呢，它现在就。就有很多客户去找他做这个，去找他订这个这类cz的这个物品，他也是靠专注于做这类的物品发家致富了。n well,these er er concepts are also well known in the iner. the German car industry manufacturing industry.and they are,yeah,this is the same principle,the same representation. but this time we have ABC on the left and xyz on the top.um,and what we see is that er er here with the azax respondent. they say,er,production synchronous delivery of components from inventory buffer to the supplier.er to supply this means er here,we have this just in time concept that's quite clear.eh and here in the a why they say inventory buffer at the production site so.so this is the question how to organize,because we have also sufficient items which are.aite me raha h items and when we are in a common affecting process,we can put these items directly aside to the production line.ander manage er,let's say this. this type,er er er or this. this type of items also very efficient.and erin the,we have also these so called cz but CS also items.the ss is the the value for sporadic.and this means that we should have a kind of a supplier can ban or yes,an organization with a special logistic provider.er,so they'd also handle this sporadic and this rare parts. er,the kind of a outsourcing or a simple convent concept?嗯，我们刚才前面也说了，对吧？我们做完了这个ABC和xyz的这个分析以后呢？对我们的这个呃，主要的呢？把它两个结合起来，以后呢？是要对我的。呃，未来的工作起一定的指导意义，对吧？我到底应该做什么？我后面应该怎么来处理？呃，分完以后对吧？分类完以后呃，对于分门别类的产品，我应该去怎么来进行？呃，这个具体的处理对吧？我的action plan是什么？那这一块呢？呃，包括每家公司啊，就是呃呃，因为行业属性的不同。呃，那有可能也是会会产生一些不同的这个呃处理方案，但是总体的来说呢呃的方向还是类似的，或者说大方向还是类似的，那我们来看一下这个这张这个讲义里。里面呢，我们看到的是呃在呃德国的这个汽车工业里面，他们进行了ABC和xyz的分类，以后呢，他们来是怎么来运用和处理的那呃这张图跟我们上一张图稍微不一样的点就是。它是把呃ABC放在纵轴，然后xyz放在横轴，对吧s就是指spor dic对吧spor dic就是零星的对吧那就是bz。产品还要少的，那我们先来看ax对吧？ax哦，前面我们已经说了这类产品，我们一般是用看这个just intend战略对吧？也就是说呢？呃呃，也就是说呢，我们这个它这边也是说叫production synchronized delivery of competence，也就是说我们从仓库的缓冲区啊，向供应商呢，是同步去交付这呃呃。去同步交付组件的，也就是说它的生产永远就是j对吧呃，那呃相对的呢？我们呃，这个也是A类产品，但是它是没有这么规律的，对吧ay的产品呢？它应该怎么？处理呢，那我们这边呢，它就是说呃这一块呢，就是它的生产现场呢，就需要设置一个缓存缓存的区域，或者说是呃搞一些buffer对吧？inventory buffer at the production side。因为它这儿虽然也是用j，但是因为我们是外产品，所以它呢，没有这么规律，那我们建议呢，是在生产的这个现场的，有一个呃。库存的这个缓存的区域可以放到那边，然后啊，那像呃呃，这个我们的。右下角对吧？它的cz或CS的，这个也就是说价值低，然后呢，又是呃零零星星的才有订单的这类产品呢，我们一般呢，就会跟我的。这个物流服务提供商，或者说我的供应商去商量是不是可以使用所谓的供应商看板，也就是说我这类东西我甚至就可能就外包掉了，就是到时候。呃，我们把这个呃要需要的时候再让供应商过来对吧？或把供应商的看板系统植入进来嗯。AH,there exist,of course,many more different types of classification schemes. one we can call lmn.which is dealing more with the er,let's say with the size of the products volumes about analysis.er,we have also criteria for er classifying the weight of some items. there are other classifications dealing with the dangerousness of the.of the goods we have characterizations dealing with the sensitivity,for instance of a glass,a glass product.um and erin principle,these are ras classifications for groups of products.er,however,the dangerous goods er products are a little bit more complicated to deal because sometimes it's just a spray for.for cosmetics which can be dangerous as for storing as we might have high volumes of these products when there are low volumes,they have no danger if they are high volumes.its danger because of in case of fire,there is explosion danger and we have to be careful with this type of classifications they have always special purposes.e mind is,does his high for loom and minger want for loom and grease? I'm whom small has an.哎呀，好的，那我们除了这个，刚才给大家介绍的ABC和xyz的这个分析法以外呢，那我们其他还有呃很多不同种类的分析法啊，比如说是像LM m。它就是根据这个呃，我们这个物体尺寸的大小对吧？大中小号根据它的体积来进行这个呃，体积和重量的这个分配对吧？那呃，因为我们我们知道在物流里面，就比如说你的。啊，在运输的过程中，或在你的存储的过程中，我要对这个存存储的容量的尺寸，或我的运运输的能力进行优化，那我们就很多时候就需要这个LM m的分析法。那那另外呢，也有一有有有一些的分类是根据你的啊，这个商品的性质对吧？你是不是危险品对吧啊？你是一般的危险品还是啊？这个就比如说h是你是一般的chemical。还是这个嗯，爆炸易燃易爆对吧？那这个危险品的分类就比较复杂了呃，那呃就有很多呃，不同种类的对吧对，根据你的产品有很多不同的分类法。那我们在具体的这个呃实际的操作中呢？根据我们产品的性质和我们的需求来进行不同的分类，然后呢，也可以有些分类法呢，我们互相结合起来使用。你猜的什么？你猜的什么？oh pen,i'd t let some folly. i'd take niche wagon ness. madame be the endeavour of my stag mes tle.好的，那我们今天就先讲到这儿，因为时间呃也到了嗯，好的，那我们就下一次再见，拜拜。拜拜嗯，周末快乐，拜拜拜。yeah,thank you have a Nice night.三。