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Today's webinar is entitled past tech trends and material handling presented by Lori Bowen Ayre. Lori is a nationally recognized expert in automated materials handling RFID, an open source library system software. Since 2000 just worked with a wide variety of city and county libraries in the areas of material handling, delivery workflow optimization, RFID, resource sharing and emerging technologies. I'm not happy to introduce Lori Bowen Ayre. Hi everybody and happy Valentines Day what better thing to do on Valentine's Day that but talk about library material handling. That's my thing.

It's not always good is where. Materials handling. If you have a background that looks like the background of this screen, you're probably not going to be very happy. Or maybe this is what your worker looks like. I know librarians think that materials handling means the carts, but I'm here to expand the concept, so hopefully we are going to have some nice options for you today. My goal is to find or to share with you some solutions for materials handling that address small libraries environments. The kind of things we are going to be talking about dirt at the most ASIC, we will not talk about book arts, but we will talk book drops. Briefly. Then I will get into what we typically think of as AMH. Automated check-in's with sorters on the backend side. We will also talk about dispensers and kiosks, which have been the hot -- latest thing. I will also talk briefly about sorters as they pertain to interlibrary delivery and then I am going to give you a little update on what is new and hot. In the materials handling space. But since this thing is called trans, was a quickly about what the trends for materials handling are. Here the big trends.

One, all the AMH stuff, is getting cheaper and cheaper all the time. This is really great news. It is almost like it is half the price it was a few years ago. The prices have just really dramatically come down. That's one of the reasons I wanted to do this webinar is because I wanted to make sure that some of the smaller libraries systems and places with smaller spaces knew that there was an option for you. The other really great friend is that the quality of these products is going up. So a lot of the vendors who were selling products that I considered Tinker toys, then our looking like nicely engineered finished products. That's very good news. We've got a good market out there for materials handling. In the library space. One of the reasons if the prices are going down and the products are going up is because in fact the marketplace is selling out. Some of the vendors that were selling products are not really selling products so much anymore. Another vendor has gobbled up all of the competition, so that leaves fewer competitors out there come and I will give you a list of the players in this market a little bit later. It's a little bit smaller than it used to be. Another trend is the ski asks. These walk up things library a go-go is the one that we of course all know here in California. These are filling a niche. But they aren't quite ready for prime time yet. So we will talk a little bit about that. And I want to share this last one and make it really a strong point. And that is that the automated check-in's are like the new checkout or is it check out yes. Automated check-in are the new checkout. Everybody should have an automated. System at this point. In their library, unless you are a really special kind of place. And I'm even going to say that it's becoming standard that you should also have automated check-in. Though should have three been sorters on the backside of them.

We will talk more about all that, but these are the trends that I see heading our way or we are in the middle of. Let's talk about the most basic materials handling thing. And that is drops. How do you know when you need more book drops? Here's a good picture to give you a clue that maybe you might need more. One of the nice things about using -- book drops his they give you a way to accumulate material when you can't get to it. The problem is your typical book drop is -- you can hold maybe 500 items or so. One of the things that I have

suggested to some libraries in the past that has nothing to do with automation is to simply add a drops around town. One of the first libraries I observed during this was Charlotte Mecklenburg. I know the New York public doesn't also. Why not drop a bunch of book drops a runtime x-ray locations where it's easy for people to return things, and add those book drops to your delivery schedule so they get picked up everyday. This is a great way to reduce the pressure on the people in the library who you really don't want to come in every Monday to a scene like what I shared before. On that picture. That's just the moralizing. If you can use book drops as a way to hold things until you can get to it, that's a really good idea. You can just -- if you don't want to put them around town, but that -- an extra one outside to people can drive up to it. Book drops are in the \$2000 arranged, so this is a pretty low cost solution that really can help make life easier for everybody. Even though there is the hassle ringing the stuff in. They demoralization factor is even more important.

Let's get right into the automated section of materials handling. The biggest bang for your materials handling buck is in fact automated self checkout. And that is primarily because the items get checked in before even your customer walks through the door. They come off the record, they can start anew, they will not feel compelled to take their big stack of books to the staff station and say please check them in. It's less hassle for your staff. It completely eliminates the check-in process from the staff workload. Which is a huge benefit. I think that they only make sense when you do have sorters on the backend because you are going to do some critical steps for you, but we will talk about that in a minute. Let's talk about some of the variations in an automated check-in. Personal, you can put them any number of places, inside, outside, on the wall, you can replace book drops with automated check-in's, you can put them in foyers, or you can put them in near the service desk. They have a lot of different variations in terms of how they can be accessed. Some you push a button, some you are your library card under the barcode reader, some you have to -- you can just skim a library item. There different ways that you can restrict access or not. You can also make them pretty much open doors. They'll so very in terms of how they conduct items. My favorite is the one at a time induction method, which works with either RFID or barcode. You slide one item in anytime. I don't think that too much work for the patron, and the benefit is each item for sure is verified as check-in and usually the one at a time induction systems also have a receipt option for the patrons, which the patrons love.

If you really have high-volume returns, you can allow people to jump -- dump them in. Some of the vendors provide what they call a D. Schindler, -- is famous for this. You will love the patron to dump their stuff in and then the conveyor separate the items so they can be checked in one by one. Two problems with that. One is the patron, if something doesn't work, they don't necessarily know. And the other thing is that adds about three or 4 feet to the conveyor -- compare size on the backside, so it's not really a good solution for a compact. That's why I like the one at a time feeders. Also on the patron interface, they can be touched when or some of them are -- some of the lower-cost products that are being made available now, they have -- they slide in. So there is no doing anything. It's not quite a whole, but it's just basically telling you if it worked or not. And of course the prices vary based on the number of short discharges or how you're starting it on the backside. And whether it has RFID or barcode or both. Those are some of the key variations in automated check-in. These of them being used in Europe for a very long time, and I know that we like to think that we are so ahead of the game, but in fact we are so behind in the game when it comes to library automation. It's really shocking. I took this picture in Denmark several years ago. You'll see from this picture, it's a beautiful piece of machinery that is the automated check-in and there's a beautiful glass and gressed room -- and closed room where they feature the sort of. The person checks then and you can watch the material being inducted and sorting. That's other than doing it and we are just darting to do it now. In fact if you go to San Francisco public, you'll see a sword are very much like this one with the whole glass behind me -- you can watch the process and keep it very cool. At a minute to miss it so I have uploaded -- and San Francisco public up to YouTube and I provide a link at the end of the presentation. And a bunch of fun videos, what better thing to

do on Valentine's Day. On the internal -- is a couple of an example. Here's a gram I, put yourself in -- that's about as simple as they get. More sophisticated bottom example. Where the admin gets slammed -- you can see the line for the barcode is read and it gets onto a conveyor and it's taken into the sort of. And that screen is there to tell you what's going on. I say question, what's the advantage of auto check-in? Doesn't save time or money and doesn't require less staff? It sure does save time and money, and it requires less staff. Basically, I was going to say this later but I will say about. That is that a three been sorter is approximately equal to 1 1/2 FTE.

You are reducing the number of people that need to be in the backroom, even with a three been sorted. Like I said, if the patrons are checking in their own items, then obviously the staff don't have to do it so they can get on to other more important work with the patrons and their plenty of things that they can do. It saves a lot of time because the items are checked in and immediately. And the patrons don't have to wait for their records to be cleared so they can borrow more stuff. Patrons love automated check-in. And like I said, I think it's becoming a standard that everybody should really be looking for him of how they can introduce automated check-in to thereby read. Here's a nice example of an external check-in. I really like this. These are -- this is a true 24 should/7 automated check-in as you can see, it is lit so you can see what you are doing. It's got a beautiful weather resistant access door and it's really easy to use. It's got a touch screen. You don't see the post it note or taped instructions clearly this thing is going to work well for you. I want to remind you that just like self checkout in the early days we kept forgetting to do handy things like leave a shelf for a country so that people can put their stuff there. This is a picture of my brother acting as shelf when we were touring some local installations, and this one was a new one that lacks that shelf. So the patron was standing there trying to do with all of this stuff and my brother being a gentleman stepped in to help. It would be better if there was just a shelter in the unit. Don't forget that little tidbit.

Self check-in's are key when they're combined with sword are. I want to just talk to a little bit about pricing so you understand that these things really are very -- I will not say inexpensive but there are a lot less expensive than they used to be. In fact, you can get a three been sorter for the \$30,000. They obviously can go up higher depending on all the pieces. And usually, they are more expensive and has to do with -- you've got a beautiful touch screen, we've got the nice access door, the induction method is March in the sense that it is not going to accept something that is not library material. I call it the stinkbomb test. If it doesn't have a recognizable barcode it will keep rejecting it back to the patron. Also the expandability of the system is a key thing that is going to make a difference in whether it is at the lower end or the higher and out that three been sorter with automated check-in. Interestingly enough, what is not a significant factor is whether RFID or not, these things can run with RFID or barcode and whether you do it one or the other or both, price doesn't really change a whole lot. Here's an example of a nice three been sorter. This is been under \$100,000. In fact it's way under \$100,000. I think it's in the \$65,000. Like I said, according to a study done by three am, they consider a three been sorter equivalent to 1.5 FTE. This is a nice product bite link so, and you'll see that it has three discharges meaning you're going to distort stuff -- shortstop to the big totes or the trolley. The cool thing about this one is you can also take those totes off of the shelf, and turn it into its trolley coach. Three trolley sorter. You have a huge volume of material that can be sorted into this that. For example on the weekend so we don't have that warble seen from the earlier slides. This is one example of a very nice, very simple but very flexible three been sorter.

Cheryl asks how do they handle books belonging to other library systems?

Basically, the different products deployed -- respond differently. You can set it up so that your automated check-in if it does not recognize the barcode as one of yours, it will be rejected and it will be rejected back to the

patron. Automated check-in still do that, they take everything is sorted out to it's called an exception bit. You will have one that will reject unwanted or unrecognized material it will send it back to the patron and usually you get to say how many times it's going to be rejected for it will either -- one option is to say rejected three times and then if it's solar go ahead and bring it in and dump it into the exceptions them. This is one of the things that varies quite a bit. What would happen if an item's barcode was -- scanned but not pushed by the inductor? Smack the place they get and it's front of them there that authority is excepted. So I'm not sure if that would really be a problem.

The number of Texans to gain 1.5 FTE. That's a good question. How much volume do you need to justify 1.5 FTE? And I'm not sure -- I can give a number on that. I do know there's a good study in the place I got this number is on the three am site. They have some case studies. And they specifically talk about the volume of the vibrators that they were talking about. I would recommend checking that out. I can't remember five put a link to it on the sly. Is there a recommended size? I'm not sure what the sizes are. I am just going to keep going, maybe done I you can clarify the question. Benefits of the self check with the three bins sort? I think I talked about this, items are checked in, they can start fresh, chicken is completely eliminated from staff workflow, and the reason I'm a big fan of three bins sorters, I want three bins at least. I want one of the bins basically, that big trolley or whatever discharge unit you are using could cause right back into the shells, nobody to scan them again to see if there -- if the media is there and I'm going to be -- he definitely one study to show a return. The other separator you want is for media. And that's because if you put CDs and DVDs dropping into one big trolley and then you have the books falling on top of them, you will break all the media. Putting them in a separate place is a really good idea. Then there is the other thing. And that is the exceptions bin or the holds bin. The bins or trolley that require staff to do something. You may have to have bins do you have to do something, the exceptions bin but that one ready to shelve returns is going to be ready to go.

Some of the things to think about when you're choosing that three bin sorter are space requirements. A lot of these three bin sorters swirl it anytime by 10 space, possibly even smaller. 10 x 10 isn't related. Some of the variations I have discussed, does it issue receipts, is that an option that the elaborate can decide upon to Burt maybe they even e-mail receipts. Quiet, is it quiet enough? Depending on where you are going to put you want to make sure that the thing isn't going to drive everybody not. All the systems are getting quieter require as we go along. That's a good thing. Is it UL rated? You already tells you that it is --. I recommend choosing products that are UL rated. And again this market is getting more sophisticated and most of the products are now you all rated. Look for that. Does it require all material RFID tag or can they be barcodes? That will be something that is important to you. If you use EM security, that's another feature you're going to have to look for. Double at some cost. Isn't it expandable? Can you add more sort points if you want? Can you turn corners with the sort? How versatile is the product? These are all things that make a difference. Also make sure you know what their maintenance requirements are. How much work you have to do in between the annual tuneup and how easy is it to access what you need to access? Is it easy? Have a plan ahead for that sort of thing? These are all things that you should check for. And the purchase and annual cost of course. Annual cost to something like 10% to 12% of the purchase price. Doublecheck that. I will look at questions you required.

How big or small, number of checkouts, square footage, and again, I will refer you to the study that three am did, but I don't think it has to do with the square footage. But it certainly has to do with the number of checkouts. It also has to do with how many people you have. You might not need as many checkouts to see a benefit if you have a much smaller staff. I can't really give you a good number. My point here today is that chances are, unless you are a teeny tiny little place, you're going to benefit from a three bin sorter with an automated check-in. CDs and DVDs that have multiple parts, that will be something that gets sorted to either the CD or DVD trolley, bin or the exceptions because you will have to check those like you do now.

What about things like multiple pieces that we check to see they are other? Tells all go to the exceptions bin or the DVD slot. I think I'm caught up on questions. Let's keep going. For some products -- I'm calling them the entry-level three bin sorters. This is an example of one. The reason they are entry-level is because they are taken out things like the touchscreen and the receipt printer and I'm making them expendable. This product shown here is from three am that's only 40,000 that's only \$40,000 including installation one-year warranty and regardless of your volume, this is a great deal. This is cheaper than one FTE. I just can't imagine that this would be useful to any number of libraries. That's what the vendors are trying to do. Come up with affordable entry-level solutions. Here's another one from Bill Leo tech a, they call it theirs March sort 200. That seems to be a screen that jacks up the price. And this is in the \$30,000. You can see the sorter but there is a sorter on the back. As I mentioned I'm not a big fan of the two been product. Here's three examples with them. The Leo tech smarts or 100 is basically being phased out. Legacy product from Bill Leo tech a acquisition of the IDG product. That's going to go away. -- I'm not even sure what they're doing anywhere. The only one that I can think is worth is here's a considering as you want it to been is the MKs sorting book drop but again, I just don't see them as very useful. It does require RFID. It's not expandable. But it is quite. So maybe that's just what you need. I'd rather save my money and go for a three been -- bin

Let's look at some of the small but expandable sorters. The whisper sort because it is so quiet. In fact, it's under 55 dB, which tells me nothing. This is.., With barcode or RFID, doesn't need a huge footprint on the backside and it's quite a scandal. Start here and you can go to any number of sizes. Also has a product line again the blue sorter to you see on the left and their is something that ITG was selling but now -- [Indiscernible] is maintaining. But they are not going to keep that line. The new products are -- the stray items on the right. That's what would they are moving towards. 3M does have an expand -- expandable version of their intelligence -- affects line and these can get quite large. Three and has relationship with -- so that when everything gets too complicated in a sorter, they have -- and let. If it's like a straight line and it doesn't get bigger than 15 or 20 bins, you can buy it pretty cheap from 3M and want to get more complicated they were for you to their partner, who can do pretty much anything you could possibly want in any space. There quite accomplished engineers in this market. Lots of great stuff from there. In fact, the famous King County Library system central sort operation is -- design. And I'm using it as the example of just how -- you go from three been to the sponsor. I also have a video of this up on YouTube if you want to take a peek at it. It's pretty cool. I took this picture and I'm standing on the stand and it was run so fast I get dizzy watching it. This thing has 150 sort destinations with room for another 50 and they sort 54,000 items a day. The important thing is that they are all done without RFID. I just put a little arrow there so you can see the little light shining on the barcode. There's a lot that can be done and you don't need RFID to do this and that is why it's affordable. \$150,000 an automated self checkout +3 been sorters. If you have to spend another \$500,000 to take your collection. It gets on affordable fast. You don't need to do that. I want to make sure that you know that.

In terms of -- I was double way from automated check-in and let's move toward self checkout. I want to bring your attention to some developments and changes in self checkout. Many of you have seen the famous three am serious, and the V. is so you can put the spine of your book and replacement will be sensitized BEM struck. The good news is now if you have 8V series, you want to upgrade the RFID, 3M is now selling a cute little wedge that fits in that V. You can convert to something that works just as well for RFID. They also call that there. Our series. These 3M products are excellent machines, although they're pretty darn pricey. \$15,000 or so. They allow you to do also to things on your account and you can use a find, easy enough sort of thing. One of the earliest companies to really develop the full service station is envision where. They started out with having their printed reservation station and what they have done no and they have made it possible for you to cover your Prince station or reservation station to a full service cell service station. If you don't have a self check machines yet, but you do have an EnvisionWare Prince station, talk to them because you can turn

it into a self checkout machine pretty darn easily and pretty cheaply.

Another variation on self checkout is this thing from Tech logic, the IT, station. What this is is a unit that sits on your service desk, two screens one for the patron and one for the staff, and it's meant to make it easier for staff to help en bloc patrons and do any troubleshooting that is required to ensure that people can do their self checkout without giving curved up. It's a nice idea, it puts you in proximity to your patients was double -- while still encouraging the self checkout. Building on what's going on in Europe, this is an example of the latest product line coming out of --. That is the company that -- they will be known as the Leo tech, there being known as ITG, since they swallowed up by TG. They will go back to the name -- and they're developing a really nice product line, pretty much in every possible RFID and materials handling arena. Keep in mind on them. This product is their smarts or 400. Were you are looking at is not a bunch of iPhone's, but it's actually a bunch of self checkout machines. And they are all RFID-based and so the -- the screen, I think it's a touchscreen, I am not sure. There is the receipt printer and then the box is where you set your stuff. By setting your stuff in that box, it causes the RFID reader to pick everything up. The idea is that if using a flat surface where you are not sure where the RFID signal is, they designed this box or you could put your stuff in there and it reads stuff you need. To checkout. I've got a couple of question. What about damaged items that you would like to have remained on a customer's account? That is all doable. With the sorters. Again, most ILS and sorters can be configured so that you can keep track of the last checkout or something like that. The barcode has to be on the outside, right? On the shorter?

The barcode does have to be on the outside, and if you are using a barcode because it's a visual technology, the barcode has to be seen by that I or that laser beam. Some of the sorters do have the ability to read the barcode either on the top or the bottom. But is so has to be visible one way or the other. Another variation on the self checkout machine is their smarts serve 400, with the attached payment doodad. This doodad connects directly to the machine and it looks very nice. And it accepts credit cards, that regards, and cash and offers change. It's actually a slicker version of something we have seen before. I do think it looks nice and is worth taking a peek at. Here's a brand-new pretty cool thing. From Tech logic. This is their mobile self checkout application. The concept here is that you install on your and her at Blackberry iPhone or Windows mobile smart phone the mobile checkout application. And then you can walk around the library checking out your stuff. And the UC camera on the smart phone to scan the barcode and this allows you to check out the item. It does require you to stop by the security key ask to turn off security. But all that requires is to set the stuff on the shelf. RFID tags are read, and it recognizes them checked out to you, and so off you go. That's the goal. Those -- just debuted -- enroll and so you may not have a chance to. That seems to be gaining traction.

And want to shift gears here to talk about media dispensers. There's really only a couple dispensers I am going to talk to about. One is the smart sensor 200 as you have noticed perhaps, the theme is smart this is what that. Smart dispenser 200 is really the disc express product. It holds 500 discs in each tower, and it's expandable quite a bit. In fact, this is the base model. And I think I had a price, the base model is something like \$13,500. But you can expand this puppy quite a bit. Now we are getting closer to the 30,000 already and for this. But each tower holds 500 discs. That's a lot of discs there. The nice thing about this is it handles multipart sets very nicely. In fact, if you for example want to check out a book on DVD, it will actually spin out five discs at a time so you don't have to do the transaction five different times. It will work on pulling all the right discs out for you. The idea here is that you have the case out in the library on display and then you come here to do your checkout. And adjust issues them for you, and you put them in your case. On the staff side, you can put these units on the service desk, and these are designed to be dispensed by the staff. This before that we are looking at holds 600 discs. And you can daisychain those together. Up to three stacks can be daisychain together for a total of 1800 discs. This deck of for that I'm looking at, that is the base unit,

about \$5000. I am not so sold on that kind of thing, but I wanted you to know about it.

I think this is the LAT products that is being resold through --. Katie mentions that I didn't mention -- what about them? TV soup is out there. They have good sorters and automated check in. They don't have a big presence in the US yet. So I guess for my money, I would be looking at some of the other vendors, like I said, the link so, invention where, Tech logic, but Leo tech a, and a richer that there's a good reason to go with somebody who is just trying to get their foot in the door of your when there is so many other good products. And companies that are to have representatives in the area. Either energy costs? I don't have an answer to that question. Is one of those things where it's not nearly as big a cost or energy hit as it used to be, because of the technology and how much it is improving. But I don't have any specific information about that. Let's talk about kiosks. For the price range for these kiosks is 135 \$135,000 to 230 -- \$200,000. We have a few in California. One of the first ones that I know of is the Millbrae art station, and this is from MK sorting. This thing holds 500 books. And comes in a couple different models. This one here has the two screen model. The advantage of having two screens as you can see, one says selection and the other one says pick up and return. You can have two people using it, when browsing in one getting the thing they want. It also has a lot of versatility. It allows you to access the OPEC. You can use it in a more full-featured way. If you want to. But that is flexible. The other one that is here in California is at the Alameda free library. As they hold 420 As they hold 422 500 items. It depends on what you're putting in it if you're putting in more CDs or DVDs, then it will hold more items. In terms of books, it is somewhere around 500. They use it as a walk-up service only. They found that it was too confusing for patrons to have the two screens, so basically you walk up to this thing and you can browse what is in the box, and then check out what is in the box. That is how they are using it.

There is another question. What DVDs that you returned, how is that do with? DVDs that you returned with the DVD inside, you still have to check media outlets the sorters. There is no getting around it. If you are a library that checks media at check in, you will still have to check them with a shorter and it's just a matter of routing the things that need additional handling to the right sorts location. So they can be separated from the things that can just the put read up on the shelf. And in terms of checking media for these things, on these kiosks, I guess the way these work is some of him will accept returns for items that were not dispensed here. For example, if I took out a CD from the San Mateo -- County Library or whatever and then I returned it to the kiosk, I probably can't decide if it is accepted or not. But obviously if you do that they don't have the opportunity to check the DVD. That might be one reason that you would or would not choose to use media in these kiosks because there is no way to check the media. That is a configurable option for you. Whether you allow it to accept items that were not originally from the kiosk. Another product along the same line is the branch anywhere. Thurn on in California I know of, or first customer just went live last month. It doesn't hold as many books. It is a 24/7. It is MK sorting system and this one are both RFID required. This is one situation where RFID really is required. And this one is more -- has a few less options. They are really servicing the walk-up customer only. It's more like the red box style. They are not providing you with the ability to browse all of the library material. There just expecting you to come up about look at what's in the box and take something. And then return them to the same box. I have to say that I talked to the customer that has recently gone live with this product, and they are in love with it. If you're looking at kiosks, Dylan the glut to check these folks, because at least from a customer service perspective, they are getting high marks. Vocal on is another product that is why a company called this deck.

They are like MK sorting they're not from the US. Even answer is a US product. MK sorting is not an -- is not. This one you all over me library of gogo. Program. And they have I think at least a couple if not three life. These guys really broke new ground with these products the end we need to send them all a good big

thank you because they really worked out a lot of which is. Along the way. These things hold about 400 items, and they're pretty full-featured. You can -- I think these are ones that you can browse and return items from anywhere. But again, these are all more configurable like the MK sorting product. What Contra Costa was trying to do was reach out to a new customer base, so they put these things in locations where people generally have to go at least 20 miles to get to a library service outlet. The customers love them. So they been a big hit. They've ended up signing up lots of new library cardholders. But I do know that it hasn't been an easy process. Definitely talk to the Contra Costa folks about what to watch for if you are interested in this. In this approach. I do think those things are going to catch on. I don't know what happened to my picture, but the further lending library is basically a candy dispenser. These do not accept returns. I don't know if you saw them, they been at the ALA and midwinter. There also a big hit with the customers, the thing I don't like about them is that since they don't accept returns, that means that you are constantly having to go out there and refill them. They are a bit of a heavy workload for the library. Make sure you put them in a place where you can get someone everyday. Because you need to keep them filled up. So they look interesting and exciting. They are quite bit cheaper. All those other ones are over \$100,000 were lending library is more in the 20,000 or edge. That's a pretty good price. I will answer a few more questions your part of

Are self checkout machines still do not read at least one out of 10 items. How would that affect -- [Indiscernible]? I'm not sure how to answer that. I don't know the -- what people are talking about. Any stats on how popular they are. I'm not sure what they are. And can they return the books and media at these red box type tasks as well to Burt whether you can return something to the red box type you ask is really up to you. I think that the -- one may not allow you to return anything that was not dispensed from the library anywhere or branch anywhere. Where is the sorting and the -- I think those are configurable by the library. Can you have 3M self checks engaged and different from these chickens and walk out to checkout yes? Can come the products be mixed? Yes. You absolutely can ask products and I will talk about that later. There's absolutely no reason that you should have to stick to one product, all these things you should feel free to mix and match. Let's talk about some brand-new stuff. And there are a few things. Somebody wants to know how popular red box type kiosks are. Not really, because they haven't been a lot of. But I do know from the anecdotal evidence that the general feeling is the terms love them when they were. So once they get them working were consistently, I think it's going to be an area that a lot of people are going to be looking at extending the read library out through these things. Maybe sit tight for little or. And see how that shakes out. Here's something that you probably never seen. It is called the Smart 500, another -- an acquisition, pretty sure that in created but it is something they use again in Europe, that we have never seen here that I know of. And if you answered RFID survey, you saw a reference to it. It is the RFID tunnel. And what this is is it's this big RFID reader that allows you to take all of your material that comes in from Baker and Taylor or whomever, and you stick the whole box of that newly acquired material in there, and it reads all your text. So this is a -- something that is looking forward to the day when our material is tagged by our book provider.

Just keep and I out for that. Obviously that is an RFID specific thing. Here's another RFID specific thing that is new and exciting. This is something that is -- fits onto your existing books out. If you imagine there is sure would look self and you take this thing and you fit it over the back shelf, it's an RFID reader and antenna system. All these things that look like glass panes are actually antennas that read better able to pick up the tags that are on the shelf. And each antenna is like an access point in the sense that it's associated with the specific location. You put these on all of your cells and there is a reader at the end of the shelf that actually communicates with your ILS via an ethernet connection. This is all connected to your network. It is powered by ethernet so you don't have to plug it into an all it. And this is a way to help people look for items. You can actually search for an item in the library. They have an interface that looks like that cover flow kind of interface. You can shelf browse. But the really cool thing about this is that it does tell you where the thing

really is. Not where it is supposed to be. This is a game changer. This is something we can start singing libraries, this could really make a difference in one of the huge benefits of RFID. That is something that would not work with a barcode system. Price point at this point, they're looking at something like \$250 per three-foot shelf section. Which includes the reader and all the antennas and the fittings. And all the to connection and all that kind of stuff. Still pretty pricey, but if you were building a new library, I would be looking into it. Something to check. The other thing I want to make sure everybody knows about is what is coming with the RFID standards, this does have an impact on materials handling and it's going to kick off its own set of trends. I talked about it quite a bit in the library open-source and RFID update, and my slides of my notes are available at the euro I have provided there. Also, any presentations I do, I keep uploaded on my website. -- [Indiscernible].

Row quickly, a new standard was established by ISO which defines how you organize the data on the RFID tab and how you encode it. The point of this is we can now actually become interoperable. To that -- get back to the question about someone asked about mixing and matching all of these products, it is impossible if you are doing it with RFID. But now that we have the standard, then if we all agreed to go by the ISO recommendation which is likely to be -- not point finally it, but likely to be 28 560 -- two. Once we do that make all of our RFID vendors also comply with 28 560 -- two. Then yes, you can be interoperable. Everybody will be able to use the same communication and encoding method and that means you will be able to mix and match our products, and you won't be tied into a vendor that also means that there is more cool things that you can do with your RFID tags. Such as central sorting. This is something that I think is an area that there's a lot of opportunity to make a huge difference, in your materials handling world. Basically, when you saw her material, in a central sort facility for interlibrary loan type stuff, or just getting it around from branch to branch, one of the things I am saying opportunities for more and more is to completely eliminate the routing slip. And you can do that by having a barcode read at the central sort facility. Thinking back to that picture that we have of the King County gigantic sorter, basically can tell he doesn't put in the running slopes on those 54,000 items a day that are being sorted. They just throw them in a band and that sorter says I recognize were barcode and I see that you are going to this brush to fill a hole. It sorts accordingly.

Anybody can do that and you don't need a big sorter took on Bush it. In fact, you could even do it manually. And there's an article that I was -- one of the authors of -- along with Greg part of it in Massachusetts where they are actually implementing a very cool system that will make it so none of the Massachusetts laboratory needs to put on any running slopes on any of their material that moves all around the state the mayor doing it without a high-speed super equipment intensive sorter. What they're doing is using what's called short to like. They will still be having in the central sort operation, someone will be reading the barcode off each item, but they will be doing it with a handheld scanner that reads a barcode. And what happens is a light displays over a been telling that person with a handheld scanner where to put the item. That's why they call it sort to life. The sorting personnel are actually scanning a barcode and a light shines and that's where they put the item. This is a very low-tech solution that can get running slopes eliminated from your workflow. Which is huge. Take a look at that article. Again, it's available at -- [Indiscernible] were specifically at that URL I provided below. The other way you can eliminate routing slips and utilize the new RFID standards is to use the RFID tag for sorted. If you're on RFID, you can actually work with your vendor so that you instead of putting routing slips on the item, you would just write the location that the item is going to envision other field that you can say this is filling a hold or this is returning to the home library. But pretty soon, I expect to see a lot of sorting happening on the RFID tag without requiring any connection to the ILS. To do it. That's me is a big change coming. And I just have to share with you brand-new product that just got released at midwinter from Tech logic.

It is there may be a surfer. Has come up this is materials handling in this case the material is an iPad. What they've got now is a system that helps you lend iPad's day you preconfigured in whatever way want with whatever content you want, and maybe even they will have some special content that they sell with the product, but the cool thing about this is that when the customer returns it to the media surfer everything gets wiped clean, all the privacy issues are resolved, it gets reset to how the library wanted it set up. They can really use their iPad for themselves however they want, and then safely return them to the library book and then also use them however they want. This is a big step forward for lending portable devices. We will see how it shakes out. But all indicators are promising. That's exciting. And that's it. I told you I would give you the YouTube URL, so here it is. I sold a bunch of YouTube videos together the have to do a topic that talks about today a lot at that URL. You can also get my presentation including this one will be posted at -- [Indiscernible] and feel free to contact me. I'm also happy to talk about material handling. And that's it for today. If you have any questions, I'm happy to stay on a little longer. And I kept to a couple minutes over.

I don't see anything coming in right at the moment. Great presentation, and personally being a tool kind of guy, I think this is really fun. I think we will go ahead and ended, and thank you all for coming.

Thanks everybody. [Event Concluded]