Keep them flying:
Find your Winning Position in the MRO Game
 Moderator: Al Henderson
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Al Henderson: Hello. I’m Al Henderson and I’m a consultant with IBM’s Institute for Business Value and I’m here today with Ralph Carpenter to tell you about a recent study that Ralph and I completed about the MRO business for commercial aircraft.

In case you don’t know, MRO stands for Maintenance, Repair and Overhaul and it’s the service side of the commercial aircraft business.

Ralph is a supply chain expert and one of the leaders in IBM’s aerospace and defense worldwide consulting team. Ralph, I’m glad you’re here with me today.

Ralph Carpenter: I’m glad to be here. Thank you, Allen.

Al Henderson: Ralph, how about if you start us off. Can you explain to our listeners what MRO is and how the business dynamics are changing today?

Ralph Carpenter: Sure. MRO in this context involve sets of processes that airlines use to keep their airlines flying. Often times they perform those set of services, but the market’s changing such that others are starting to play a role in that process as well. We see six primary dynamics that are changing in the marketplace and are having a big impact on our customers. I want to talk to you about those for a moment and give you a sense for the dynamics in the marketplace.

The first area that we see changes is the outsourcing of the MRO processes. Airlines, which have historically performed these services for themselves, now looking at them as a non-value added service or a service that’s not part of their core competency and in many cases, they’re looking at outsourcing at other company, either companies that do service activities themselves or to other players who are looking to get into that activity.

The second change was to use the entry of equipment manufacturers into the MRO market place. Historically, the people who made aircraft and aircraft engines have been involved in making the products, but haven’t been particularly involved in the MRO activities other than supplying spare parts.

But they’re starting to see there’s an opportunity to for themselves to create additional revenue and to get more involved because of some of the activities they bring to the marketplace so they’re looking to get more involved in the market as well.

The third dynamic we see is globalization and that really affects the market in two different ways. The first is that planes are now being used in more and more parts of the world so where they’ve historically been primarily focused in North America, Europe and Asia and
the large cities in Asia now being spread across Africa, Latin America into India and that’s had a big impact on how planes are serviced in the field.

The second is that we’re seeing people provide service in MRO activities or going around the world to find low cost capability so they’re moving the refurbishment processes to places like India and China to take advantage of low cost labor.

A fourth area we see a lot of changes happening is in parts being provided for non-equipment manufacturers so companies that don’t make the original products that go into planes are now starting to provide products as replacement parts and that’s having an impact because a lot of the revenue that the manufacturers have seen historically has come out of selling spare parts and if those parts are now being provided by other players, that’s creating a little bit of an issue in terms of their revenue so it’s creating some dynamic changes in the marketplace.

The fifth area, and this is one that we find to be particularly interesting, is that there’s an increased emphasis on prognostics and health management. What we mean by that is the manufacturers of planes and aircraft engines are putting sensing devices on their products so that it can understand better how the products are performing in the field and have been able to take the data from that set of activities, flow it back through the supply chain and use that to better understand how the engines and aircraft are performing and use that to schedule maintenance and make sure that planes are taking off of service proactively rather than after products fail, and that’s usually on the ground. They take them out of service and that causes some of the delays that you see in airline traffic.

And finally we are seeing a dynamic change in the marketplace is the introduction of new technologies. We see that in the emphasis on green engine so more of a focus now on reducing the amount of fuel consumption, reducing noise and being able to have less pollution, so all of those have a big impact.

We’re also seeing changes in technology of aircraft, airframe manufacture so instead of metal and aluminum as the primary components in an aircraft fuselage, we’re now starting to see composites and all those changes change the dynamics of how MRO is performed.

**Al Henderson:** With all that change happening it really seems that there’s more of an opportunity for companies to be doing new and different things and in our study we took a look at how companies were changing their roles. With the changes happening, some of the companies who had been in the game are changing the way they’re doing things, changing their roles and, of course, new players are coming in.

So, we identified four different roles. The first one is the aircraft manufacturer or the engine manufacturer and this is someone like a Boeing or a Rolls Royce who makes the original product.

The second role is the spare parts manufacturer and these are the manufacturers who make the components originally for the equipment manufacturer, but also will supply spare parts later on. So they’re the manufacturer of spare parts.

Then there’s the service supplier. These are the people who, as we were saying, turn the wrenches. They’re the ones that provide the service on the spot.
And the fourth role are the airlines themselves, which had traditionally done a lot of the MRO services themselves, but are now starting to outsource a lot of it, so the aircraft engine manufacturers, the spare parts manufacturers, the service suppliers and the airlines are four roles. Some companies will be able to do one or more of those roles and the whole dynamic is up for change.

Now, with those roles, a key part of our study was we looked into the future and saw some of the likely scenarios for the future.

Ralph, let me turn it back to you. Can you comment on the scenarios we found?

Ralph Carpenter: Sure. What we find to be interesting is that those roles are changing and the companies that perform those roles sometimes just perform just a single one so they may just be a spare parts manufacturer or just a service supplier, but in many cases, companies perform multiple roles and the dynamic we’re seeing currently in the marketplace is some of the people who have historically performed single roles are now starting to change in trying to look at taking over additional roles.

So, let me describe six scenarios to you that represent what we see happening in the marketplace and some of those changes on the ground.

The first is we see equipment manufacturers are starting to take over the spare parts distribution and looking to outsource service to service suppliers so the guys who have actually made the manufacturer of the planes are looking to control the distribution of the spare parts that originally went into the product. They see the revenue stream that comes from those and want to be able to take advantage of it, but they’re probably not very interested in doing the actual service. It’s a different skill set than they’ve performed historically. They don’t have as part of their core confidence and so they’ll manage the spare parts flow and the distribution channels, but will turn over service to a service supplier.

The second scenario is that service suppliers are starting to look at taking over the spare parts end use suppliers to feed into that. And so they’re playing a role where they’re starting to manage the spare parts flow into the supply chain as opposed to just doing the service themselves.

The third scenario we’re seeing is that OEMs are looking at service activity and deciding that, perhaps, they can do it themselves. They can start to perform that service and they’re going to leave the service suppliers out. Again, that’s one of the dislocations in the marketplace that’s going to have a potential impact on multiple players.

Now, the fourth scenario we see is that the airlines recognize that they’ve done this activity historically and are looking at not only doing it more for themselves, they’re going to go ahead and hold on to that activity internally, but are going to look to perform that service for others and we see airlines like American Airlines or Lufthansa making a big emphasis on this and performing that service for other airlines as well.

The sixth scenario we see is a mixed model where the aircraft manufacturers and the service suppliers each play a role. They find a balance between that and each perform
their various core competencies and they perform their sets of services, but they find a balance between their roles and the marketplace so they don’t really look to crowd the other one out.

And the final scenario that we see is that the service suppliers provide the onsite support for the airlines so they perform that set of activities and then the airlines, based on their capabilities because they’re the manufacturers of the plane, play a role in putting sense and respond capabilities into the aircraft, use that knowledge of the performance of the aircraft to help plan service activities and do preventative maintenance and then control all of the material flow up to the service suppliers.

So you find a balance – a different kind of balance – but a balance in that scenario as well. So, any of these can happen when it finally happens in public, they’re be a mix of these, but there the kind of scenarios that we see happening in the marketplace.

**Al Henderson:** So, do any of those seem more likely than the others?

**Ralph Carpenter:** The way the market seems to be going at the moment is leaning towards the last two I described: where the service suppliers and the OEMs each trying to go into this marketplace. They each have a role to play. Different airlines will reach out to one or the other to perform this and you’ll see some cases or companies like Lufthansa or American providing that set of activities. Certainly, to their own airlines, but to others as well and in different circumstances where airlines may see those as competitors, they may turn to the equipment manufacturers and look to them to help manage the supply chain and provide this service.

So, that’s one that looks like it’s a very likely scenario and the other is that you find a different kind of balance to one we described before where the service suppliers look towards the aircraft manufacturers to help manage the material component of the supply chain and the service suppliers focus on the service activity, the actual turning of the wrenches and providing performance based logistic activities where the airlines can go to them and look for guarantees that the planes in the air a certain percentage of the time and, again, the service suppliers with the OEMs will help make that happen.

**Al Henderson:** Thanks. I think that gives us a picture of the industry. So, lets turn from the industry dynamics to the individual companies. The question is about what does an individual company do to prepare themselves for the future if they’re playing in this environment?

So, we identified three questions to really figure out the scope of what a company should be doing. The first is: where to be involved? And that’s should they be in one area of MRO or one segment or into more than one area and MRO really breaks down into several different sub-segments and it’s difficult for one company to be able to play in all the different segments at once, so pick your sub-segment or a couple sub-segments, then how deeply to be involved? Do you do it all with your own resources or should you be partnering with somebody in the supply chain and doing it with shared resources?

And the final question is the whole value proposition question. Should you be thinking of yourself as an integrator or as a supplier should you be providing total solutions? What is the real value proposition?
So, Ralph, continuing that theme, could you talk about the capabilities that an individual company really needs these days to play in this game?

Ralph Carpenter: Sure. In order to be competitive, a supplier has to again think through the questions you just asked, but there are certain capabilities that they are going to have to have to be successful.

The first thing they have to think about is their offering value. What is they’re going to offer in the marketplace? What’s their core competence? How do they differentiate themselves in the marketplace and we’re seeing a couple of different things happen there. Particularly for the system’s integrators, we’re starting to look at them, take a view of being a total provider across the entire spectrum. And so they need to think about how they integrate all of these activities together. They’re providing solutions that they call total care or variations on that where they can go directly to the airline, promise them certain numbers of flight hours or certain amount of availability to the aircraft and be able to promise that and put all the pieces in place to make that happen.

The second area that’s critical these days with the changes and the dynamics is the global scope. Very often airlines now are reaching around the world, certainly, the international airlines, certainly the product that’s being sold is being sold around the world so particularly for a global manufacturer, they need to think about how they’re going to support their products whether they’re used in the United States where Boeing may manufacture their planes or if they’re used in third world countries and be able to provide the capability to keep the plane flying, wherever those might be.

In order to do that, they’re going to have to set up some collaboration and some systems integration activities and have some expertise in that area. They’re going have to be able to capture information on usage of spare parts all around the globe. They’re going to have to have systems to collect that information and interconnect from the point of use all the way through the manufacturer of the subcomponents that might be used as part of the spare parts. They’re going to have to tie in the service people so that those are tied in and so they can schedule maintenance on a reasonable point of view and they need systems to be able to do that.

The fourth area is supply chain and logistics. As you’re starting to distribute parts around the world, it becomes interesting on how you move parts from the point of manufacture out of countries, into countries, how you deal with regulations, with duty issues, how you move the product in such a way that you don’t maintain too much inventory in any particular place, but at the same time you have the right inventory available as the product is needed to keep a plane flying.

So the components of supply chain and logistics become very important on how this whole set of processes come together. And then, of course, in the course of doing all of that you need to figure out how you do that in the most cost effective manner so take the current ways of doing it, reduce the cost, whatever additional capabilities you put in place and additional services you offer, how to do that in the most cost effective manner and then continue to take costs out as time goes forward because all of the competitors are going to be looking for these same spaces and because of the profitability historically at airlines going through certain ways and, at this point, none of the airlines are making a lot of
money, cost is going to be very important as well so how you wrap all of those capabilities together and provide – because you can't do all of those capabilities and you don't provide a full set of solutions to the airlines and they're going to look some place else to be able to get that set of capabilities.

Al Henderson: Thanks, Ralph. I think that really explains it and let me just summarize the overall message from the paper we worked on.

That in a nutshell we found that the MRO market for commercial aircraft is big, it's growing and probably more important, it's changing and that really opens up lots of opportunity for companies to be doing things differently and for doing new types of things.

Ralph, do you want to tell our listeners what the name of the paper is and then I'll tell them how to find it.

Ralph Carpenter: The name of the paper is called, “Keep them flying, Find your Winning Position in the MRO Game,” and it’s really warranted to just that. It’s how companies can start to consider these changes in the marketplace and figure out how they can compete effectively as these changes are happening.

Al Henderson: And it’s available at the IBM Web site so get your Web browser, type in “ibm.com” and then when you get there, type in the words, “Keep them flying” and that’s the first part of the paper’s name and you’ll find it from there.

Thanks, Ralph and thanks to everyone for listening.