



PEX

ISSUE #1
WINTER 2014

OPEX, which stands for operations excellence, is the *Meggitt Production System* journal of record.

4 Rejuvenated



6 Sceptic to believer



7 Listening to the women in white coats



^{OTD}
~~80%~~ 98%

ORDER BACKLOG

~~£1,500,000~~

BID LATES

~~10~~

However you slice it, Meggitt Production System is already transforming Meggitt.

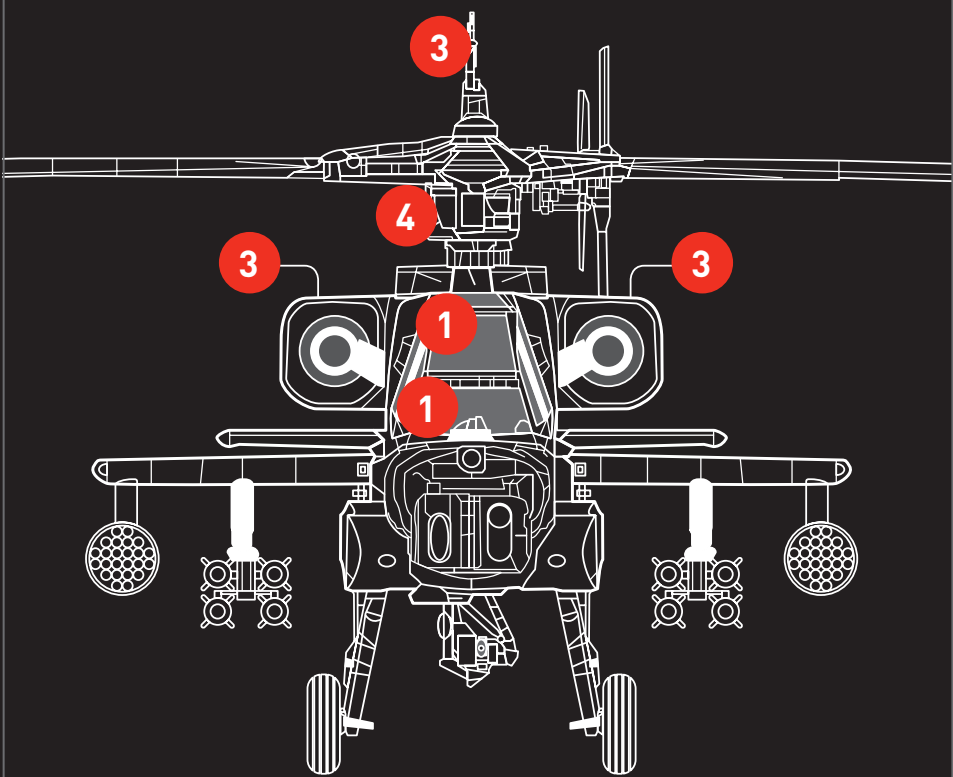
A quarter of all Meggitt locations have already begun their own MPS journey and five sites are preparing to celebrate the successful execution of stage Red—a first step on Meggitt's journey toward operations excellence.

We visited pilot site Meggitt Avionics to talk to people across all functions to hear how they have embraced a leaner, fitter, more responsive way of running their operations.

Neck and neck:
all jostling to exit stage Red first—Meggitt Avionics, MCS Corona, Meggitt Training Systems, Atlanta, Securaplane, MSS Fribourg

MEGGITT

BOEING APACHE AH-64D & AH64E



WHAT MAV MAKES

The history of Meggitt Avionics mirrors the 150-year history of avionics development since our founder, Sig. Negretti, first took his altimeter up in a hot air balloon. Today the company is known for the design and manufacture of high performance cockpit displays, specialist air data products and life support systems.



- 1
- Secondary flight display systems**—lightweight, compact, standby flight display providing all the critical flight data—attitude, altitude, air speed and heading—necessary to fly the aircraft safely in an emergency. More than 6,000 units in service worldwide.



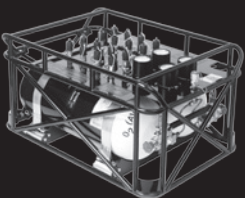
- 2
- Magnetometer heading sensor**—a stand-alone microprocessor-based unit providing digital heading data.



- 3
- Helicopter air data measurement system**—using a unique swivelling pitot probe to measure airspeed across three axes and down to zero knots in the hover.



- 4
- High integration primary air data computer**—robust, service-proven and extremely reliable. More than 5,000 units in service worldwide.



Oxygen systems for high altitude breathing in non-pressurised aircraft.



Welcome to the first edition of OPEX, the Meggitt Production System journal of record. As many of OPEX's readers already know, *gemba* is the Japanese word for 'the real place'. In Lean terminology it means 'where the value is created'. For Meggitt, like all manufacturing companies, that place is the shopfloor, where everything our customers really value about us finds its purest expression.

Meggitt Production System—our single, global approach to the application of Lean tools and practices—is now being rolled out worldwide. Its job is to make sure that everything we do, and everyone who does it, is dedicated to supporting 'the makers'. In a real sense, as Meggitt Avionics Production Manager Lee Barnes affirms on page six, MPS implementation has meant turning Meggitt upside down—managers, team leaders, production supervisors, all now work 'for' the shopfloor. It has meant rebuilding the organisation around what we call Daily Layered Accountability, a structure of interlocking early morning meetings which constantly spotlight the real reason Meggitt exists—to make world-beating products. But most of all it has meant creating a culture that not only *enables* the shopfloor to call the shots, but *encourages* it to.

Like MCS Corona, Meggitt Training Systems, Atlanta, Securaplane and MSS Fribourg, Meggitt Avionics is among the factories already living with MPS. The response there has been extraordinary. People at all levels speak of having been reconnected with the true value of their work; of feeling heard for the first time; of being freed to really care about what they do and how they could do it better. In the coming pages Meggitt Avionics staff and managers explain in their own words what MPS means to them.

Amir Allahverdi
Group Operations Director

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If you understand operations management, you can see how good MPS is

And if you know Mark Crompton, Operations Director at Meggitt Avionics, then you'll know that this is praise indeed. "It's the broad engagement it achieves that makes me confident we really will succeed in inverting the pyramid [that is, putting the rest of the organisation, including senior management, at the service of the makers]. In the past I've seen it tilt and I've seen it wobble. But this time it's going to go."

That's not to say Crompton didn't have his doubts initially. But they didn't last past the first training. "At boot camp [the intensive Meggitt Production System (MPS) training for site leaders] I could see that this had been designed to build on the existing Lean and continuous improvement knowledge of people like me. But things like the Leader Standard Work and the

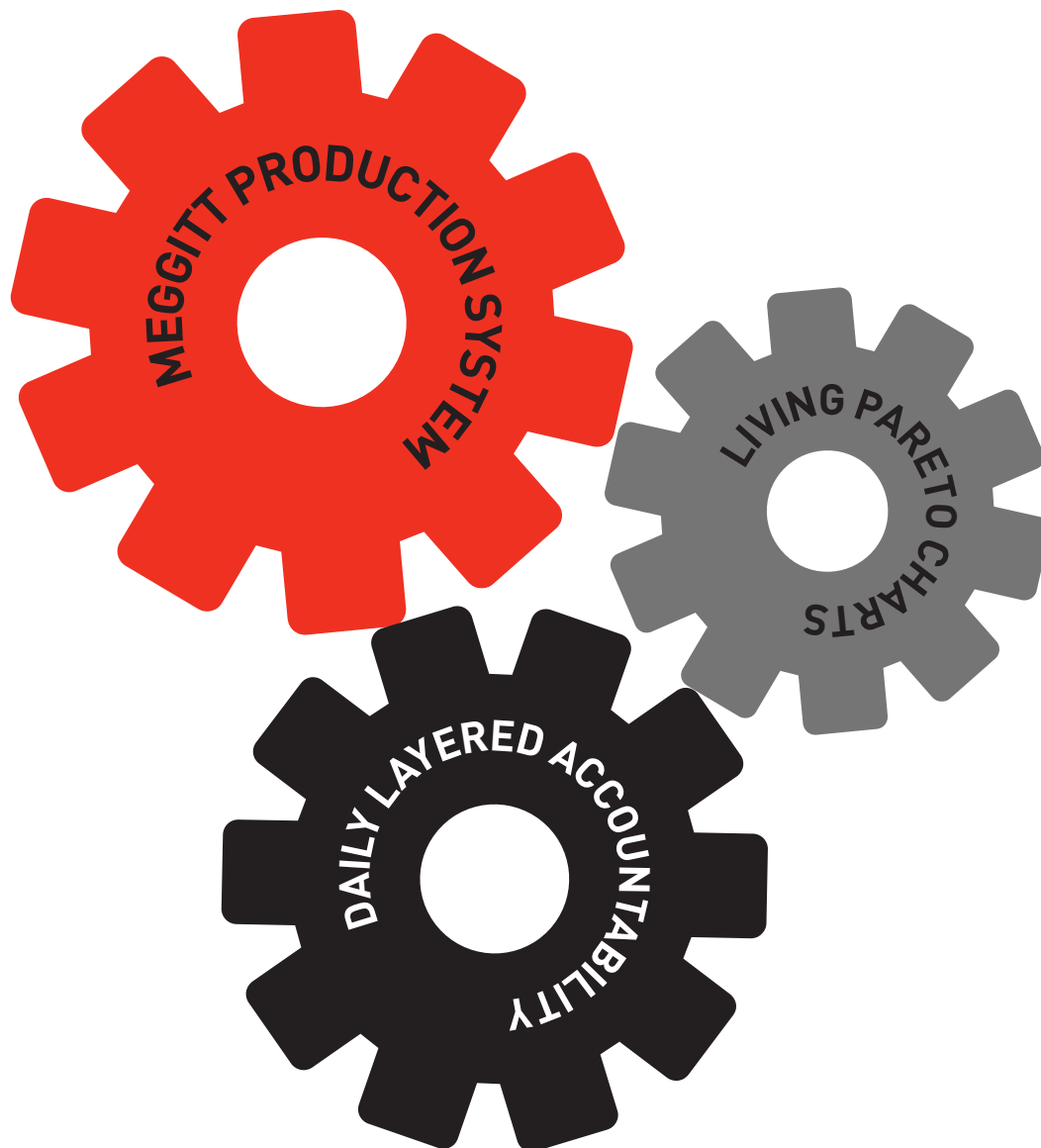
Companies often like to say they do Lean when in reality they do kaizen events or fixes

'no fly zone' idea [which keep the early morning clear of meetings so everyone can attend their Daily Layered Accountability meetings], these are clever ideas and they really work. Amir [Allahverdi], Louis [Chavez], Mike [Haney] and the rest of the MPS team have done a really good job with this. They clearly know exactly what they are doing. MPS is as well-structured a system as I have ever seen."

Taught by the Japanese

And Crompton has seen a few. He spent eleven years at Aerostructures Hamble (now part of GE Aviation), first as operations director and then for eight years as managing director. When they won a large Boeing contract he and the company had the benefit of working with the Japanese Shingijutsu consultancy founded by three of the original Toyota Production System pioneers.

"Companies often like to say they do Lean when in reality they do kaizen events or fixes. That was us really. Boeing used to send lots of people round our plant. We were probably their supplier with the best Lean operation in Europe. But in comparison to MPS,



MPS reminds us that the people who really know how to do a job are the people who do that job. They are first to see a problem and the opportunities to improve

we were nowhere near getting the 'visual' factory up and running and nowhere near getting broad-based engagement in daily operations using something like Daily Layered Accountability."

Off the top of his head, Crompton cannot think of a single person at Meggitt Avionics (MAV) who is not involved in an MPS-related continuous improvement process.

Started on the shopfloor

His early days on the shopfloor and then as a young engineer, living the decline of British manufacturing in the 1980s, have made Crompton almost evangelical about what he calls "full engagement".

"When I started out we had a form of Lean. It was called

'method time and motion' (MTM). Every little detail of a process was standardised, with time stripped out second by second and the ergonomics measured and perfected. The hosiery plants I visited as a young production engineer were the leanest you could imagine. Those women worked unbelievably hard and never stopped."

Continuous improvement was embedded in the system of 'piece rate'. Because operators were paid a negotiated rate per unit, they could take all the benefit of any efficiency gains made before the next round of rate negotiations. This created a constant incentive to develop short-cuts and

make special tools, improving the process and shortening production time. And, since operators had to carry the cost of errors, quality was maintained as well. "I worked under that system, building axles," recalls Crompton. "It generated a very high degree of what we now call engagement, I can tell you."

The system broke down under the twin pressures of union power and fierce cost cutting. Out went time and motion but nothing replaced it. This was the era of 'I don't pay you to think!' and 'us and them'. "Very many British factories were culturally bereft back then," Crompton recalls with sadness. "People still wanted to be engaged and wanted to do a good job. But for a long time no-one ever asked."

I've heard it said that DLA is being overplayed in MPS roll-out. I disagree. If anything, it's being underplayed. It is so powerful

Lean on me

All of which explains why the strength of MPS buy-in across MAV hasn't really surprised him. "Of course people want to be involved in improving their own work. Why wouldn't they? MPS reminds us that the people who really know how to do a job are the people who do that job. They are first to see a problem and the opportunities to improve. They often know best what will and won't work. There's a lot of people involved in this business who have been here for a very long time. We've got a guy who's been working on oxygen products for 40 years. [Take a bow Laurence Hawkins.] The right question for management to be asking has always been, how can we bring all that knowledge back to the table? Now, with DLA, we have a system that can do just that."

DLA underplayed

It would seem, then, that DLA has no bigger fan than Mark Crompton. "I've heard it said that DLA is being overplayed in MPS roll-out. I disagree. If anything, it's being underplayed. It is so powerful. Get DLA working right and the other parts of MPS almost fall into place. The Living Pareto charts alone are incredibly powerful, giving you very nearly the whole story."

DLA unleashes a complex mix of factors which can completely transform working culture in a very short time, he says. "For example, DLA has made our failures very visible. So, because we all look at them every day at morning DLA meetings, we are 'living' them, not trying to sweep them under the carpet. At the same time we are all involved in developing and applying solutions, 'countermeasures', and allocating individual responsibilities for chasing them up and seeing them through."

The effect this has had on attitudes is at least as striking as the impact on the KPIs themselves. "Before DLA



Above: Mark Crompton: Customers want suppliers who make life easy for them and when they find them, they stick with them. With MPS, I believe Meggitt can become one of those no-issues suppliers.

deployment, on-time delivery [OTD] was as low as 80% and that was viewed as the norm. Perhaps the mountain felt too big to climb. From 20 ‘lates’ a week we are now down to just one. But more people feel more distraught about that one, than they ever did about the 20.”

Walking the walk

Nor should we underestimate the importance of MPS in changing how MAV is managed and led, says Crompton. “If you don’t lead by example, how are you going to convince people that the MPS

Things are very different now. With the introduction of DLA the senior team is far more visible to the wider workforce. We all make a point of attending the DLA meetings and Annette [MAV’s MD] is at every Focus Factory and as many DLAs as she can manage. So people have started to understand that we are serious about this and that they are being listened to.”

What customers want

Crompton is not the sort of man to get over-excited about what’s been achieved so far. He’s too

more work to do. We’ve just settled into the new factory and we are really only just getting started with defining where the quality and productivity improvement focus needs to be.”

But even he can’t suppress a smile when he talks about what’s possible. “So far we’ve been focusing on

operations. But Annette has already got everyone, right across the functions, looking at how MPS ideas and techniques can be applied to everything MAV does. So we are just starting to understand the real power of MPS and it is very impressive.

“Fundamentally this is about growing the company—by pleasing customers—by giving everyone in the company

what they need to succeed in their work. It’s not easy getting the big aerospace companies to pay premium prices. But in my experience, if you are easy to work with, deliver on time and the bits all fit, then you can. What people like Boeing want is suppliers who make life easy for them. When they find them, they stick with them. With MPS, I believe Meggitt can become one of those ‘no issues’ suppliers.” ■

DLA unleashes a complex mix of factors which can completely transform working culture in a very short time

vision of inverting the pyramid isn’t just hot air? When I arrived here I met staff who said they had been through a time when directors were not seen much.

much of a realist for that. “We’ve made a good start—OTD, DPPM [defect parts per million], these are good—but we’ve really only broken the ice. There’s so much

MARK CROMPTON’S TOP TIP

Don’t forget the 7th ‘S’

Crompton likes to talk about “the 7th S”. It stands for ‘shovelling’ (allegedly) but he has a serious point. He means clearing the decks, creating order, making space. More than 100 tons of redundant kit and materials had to be removed from the new Meggitt Avionics factory before they could start the relocation.



Rejuvenated

Sean Holland is Production Supervisor on the repairs side of the business. If he has one complaint about how things used to be before Meggitt Production System (and he has plenty), it is that nobody seemed to take his problems seriously. Now, he says, the opposite is true.

Do I feel supported? If you'd asked me that a year ago there'd have been a few swear words. People in other departments would say to me, 'Yes, well, we'll help you later on but we're busy at the moment.' I don't think we really had a single focus as a company before. Now, some days, it can even feel like I've got too much support if anything."

a 15- to 20-point increase. A huge achievement by anybody's standards—except, it seems, Holland's. "Sorry. I want 100%," he says with a shrug.

Taking such a huge improvement so lightly makes him sound like a man trying to make up for lost time. "You've got to imagine, for 15 years I'm running round like a loony. Then all of a sudden I've got that support! It's

pet niggle and DLA (Daily Layered Accountability) and the daily reporting of KPIs gets them all out in the open. So you won't be able to solve everything fast enough for everyone. You'll have to chip away at some things and park some others. Bearing in mind you're going to have to coach the rest of your team, remember that some will find that frustrating."

Making a difference

Holland freely admits that he tends to take his work frustrations a bit too personally. So, is he any happier now that he is getting "too much support" rather than too little? Interestingly, 'happy' is not the word he uses. "When I started at this company 16 years ago I was full of ideas about the things we could do better. That's never really gone away for me but I think it had to be suppressed. One of the big things for me is that MPS has allowed me to bring that back

Do I feel supported? If you'd asked me that a year ago there'd have been a few swear words

But that's a good thing? "Oh yeah. Now we get much more support. I see Lee [Barnes, Production Manager] several times a day. And Dean and I have the time to support each other too. [Dean Ridley is the 'new build' Production Supervisor.] And if I don't get the support I need, I know I can move it up to the next level."

100%

In the run up to Meggitt Production System (MPS) implementation Holland's biggest worry was materials supply. "If I don't get supplies in on time, there's no way I can get kit out on time. That was a major headache in November 2012 but we've seen vast improvements since then." Over the last few months, and in spite of a site move for half the business, Meggitt Avionics (MAV) has been regularly hitting 98% on-time delivery (OTD). That's

like, hang on a minute Holland, step back a bit, slow down, you don't need to rush around now. You can focus."

Keep calm, be patient

Taking it steady is Holland's main advice to colleagues starting out on their own MPS journey.

You've got to imagine, for 15 years I'm running round like a loony. Then all of a sudden I've got that support! It's like, hang on a minute Holland, step back a bit, slow down, you don't need to rush around now. You can focus

"One of the key things you need is patience. Don't be like me, expecting everything to be done today. Everyone has got their own

up to the surface again. I wouldn't say I'm happy. But I do feel..." He pauses to find exactly the right word. "... rejuvenated." ■



Above: Focus Factory: when MAV's 20 or so functional leaders gather each day to discuss all issues arising from the morning's Daily Layered Accountability meetings, which start on the shop floor. Attendance is compulsory.

Silo-busting in DLA's no-fly zone

The spinal cord of MPS is DLA, or Daily Layered Accountability. This multi-layered structure of interlocking meetings right at the start of each working day flows fresh, accurate performance and operational information up and down the business. From 8am and for two hours only DLA meetings must take place. This is the so-called 'no-fly zone'. Each meeting follows an agenda structured around safety, quality, delivery, inventory and productivity. Attendance is compulsory.



Above: Sean Holland: Over the last few months, and in spite of a site move, we have been regularly hitting 98% on time delivery.



DLA starts on the factory floor. At 8am production cell teams review the previous day's performance and plan the day ahead. Immediately afterwards, cell leaders and representatives from the functions perform a similar review but at the value stream level. Finally, the whole plant's performance is reviewed by senior management at Focus Factory. OPEX recently visited Meggitt Avionics one morning to watch DLA unfold.

07:59 A cell team is gathering in front of a DLA board positioned prominently in their work area. The whiteboard's graphs and charts provide an at-a-glance summary of everything the cell needs to know about its current performance and problems. Red blocks, bars and lines reveal opportunities to improve. Green says things are 'on track'. Ten or so people watch the clock and wait. Most wear white lab coats or the blue of the engineering shop and have safety glasses perched on their noses.

Because Meggitt Avionics is a self-contained business, all its functions, including sales and marketing, procurement and HR, are simultaneously running similar meetings, using similar tools.

08:00 At 08.00 sharp Sean Holland starts. The events of yesterday are reviewed and the needs of the day(s) ahead considered. Prescription safety glasses are on their way—recently installed benches aren't bright enough—new components have increased rework. Are altered procedures for selecting fasteners hurting overall productivity? Does a casing edge need redesigning to speed assembly? Problems are logged, countermeasures and

responsibilities for them allocated. Anything the cell cannot solve for itself is flowed up to the value stream meeting which will start nearby just minutes after this one ends.

08:11 Finished. The whole meeting lasted barely 10 minutes.

08:20 While everyone else returns to their benches, new-build value stream (VS) attendees begin to assemble. Cell leaders and function representatives from the Production Engineering Department (PED), Procurement, Quality and Continuous Improvement gather in front of an electronic board. This is our first glimpse of the cross-functional, silo-busting power of DLA. Everyone has one eye on the digital clock in the corner of the large interactive whiteboard. A colour-coded, multi-layered spreadsheet fills the rest of the space.

08:30 On the dot of eight-thirty Lee Barnes, standing in for Dean Ridley, takes a deep breath. Safety. Quality. Inventory. Delivery. Productivity. In a blizzard of acronyms and code numbers the meeting marches smartly on. Reports are concise. What's on time, what's delayed? Parts and materials incoming. Product outgoing. Questions are few. Answers are ready. Decisions are taken briskly.

08:42 After just 12 minutes the meeting is over and we are on our way to Focus Factory, the plant-level review.

08:50 The OER (or operations excellence room) is dedicated to the Focus Factory stand-up meeting. Its walls are almost completely covered with graphs and charts, many of them updated early this morning. This is 'the big picture'—the current state of play across the whole operation. The information on these walls is permanently on display and can be viewed by anyone at any time. No one manager 'owns' it. It belongs to everyone. In April many of the graphs and charts carried yellow stickies to highlight problems with the data or the processes that generated them. Six months on there are very few, if any, to be seen.

08:57 Three minutes to kick-off. The twenty or so Focus Factory attendees include: all value stream leaders; site function leaders from HR, Sales, Procurement, Commercial, Finance, Materials, Production, Engineering, Compliance, Production Engineering and Repairs; and the site leadership council led by Annette Hobhouse and Mark Crompton. All are waiting for the off.

09:00 Safety? "It's a green day." Quality? "Green as well—the missing O-ring is due later today—CAA visit—daily quality clinics working—corrective actions overdue?" Delivery? "Shipped close to a million—five-point-five million in plan—approval to ship to customer now letter of credit received—couple of things that could go into arrears—risk on AMOS vessels still—HIADC refresh

delay? Signed contract from customer due this week—ISFD? All done. Tremendous effort, amazing achievement, let's celebrate!" Inventory? "Green!" Productivity? "Key issue is ISFD—root cause—actions—rework—resource limit." Any other business?

09:09 The main meeting ends with Annette Hobhouse's warm thanks for everyone's hard work at last weekend's open day. As people drift away to their desks several micro-meetings break out spontaneously. ■

This is our first glimpse of the cross-functional, silo-busting power of DLA





Sceptic to believer

Production Manager Lee Barnes has had his world turned upside down by Meggitt Production System. And he likes it. Here, in his own words, he talks about the experiences that turned him from sceptic to believer.

On day one if you'd asked me, "Do you want to quit this and go back to what you were doing before?" I would probably have gone, "Yeah."

Even after training, I was negative at times. I'd be thinking, 'I've seen this before... I've done this already... this is never gonna work.' But then there'd be a twist that makes the MPS approach slightly different—and suddenly it does work! By the end of day four I was buying into it.

MPS proved me wrong on several occasions

If someone had said to me two years ago, "From half past seven to half past nine you're not going to do any production work, you're just going to attend Daily Layered Accountability (DLA) meetings", I'd have said, "Two hours out of my day! We're not going to achieve anything!" But it has worked.

I couldn't see how the daily performance DLA board could be maintained. I thought it was going to take too long each day. But it doesn't. It just fits in as part of the day.

On numerous occasions I heard that we were going to turn the pyramid upside down. That management, team leaders, production supervisors, all of us, would be working for the guys who actually make things and get them out the door. I thought, 'Yes—this is great. Fantastic words. But it's never going to happen.' Actually it has. I think,



Above: Lee Barnes: Lots of meetings I used to attend don't happen anymore. The DLA process fills the gaps so I can focus on driving improvements for the shop floor.

as a manager, I'm more surprised by that than most other people.

Now my job is making sure the shopfloor can do its job

When I was told that a lot of the things I thought were key to my job were no longer necessary, I thought, 'We're going to fall on our faces here.' We haven't. I thought I was already supporting the shopfloor. But I was probably too busy doing other things, some of it duplications, things already being done by other people. Lots of meetings I used to attend

I'm more focused on driving improvements for the shopfloor and MPS allows me more time to do that.

People aren't second-guessing what I think any more

In the first few days of MPS I was observing a level one DLA meeting, just standing at the back. A guy asked about upgraded computers and it all went quiet. Someone said, "We're not allowed to have them." That seemed odd to me so I asked why. "Because you won't approve

in a couple of weeks.

DLA gives everyone a chance to speak up, ask questions and explain themselves. Now there's

The job I've been doing for years! How dare they criticise me?' But actually they weren't criticising me. It wasn't personal. It was just

MPS gives you a vision of how much more you really can achieve. Getting up to 98% on-time delivery (OTD), for example, is fantastic

no second-guessing what I might think and no misunderstandings about what's really possible.

Everyone learns about a problem at the same time

DLA means certain people and departments have to attend certain meetings. So we get all the right people together pretty much straight away. And if they're not the right people, we've got the people there who know who the right people are. So, instead of someone spending weeks trying to find the right person to tell about their problem, everyone hears about it at the same time.

It's not easy being coached

I'm still learning how to be coached. Initially it felt like criticism. I think we all felt like that

guidance to help me see how some things might be done better.

Nothing is hidden in the 'visual factory'

When I walk around the factory I can look at any DLA board and see immediately if there's something I can resolve quickly for them. Before DLA I might never have known about most of those things. Or else people would have thought I knew when I didn't.

MPS is contagious

It surprised me when departments not involved in MPS at the start quickly began pushing for it. I thought they'd be reluctant. But they were soon saying "We want this too!" They'd already heard it was something good.

Now we have a vision

MPS gives you a vision of how much more you really can achieve. Getting up to 98% on-time delivery (OTD), for example, is fantastic. But we all now believe we can do better—that perfection is achievable. We know it's going to be a long journey, but now we actually believe we can do it. ■

don't happen anymore but the DLA process fills the gaps. Now

them," he said. It was the first I knew of it. They had the computers

at the very beginning. 'Someone is telling me how to do my job!

I thought I was already supporting the shopfloor. But I was probably too busy doing other things, some of it duplications, things already being done by other people

Up close with a Lean MD

Viv Cane normally spends her days working alone, deeply absorbed in organising the many tiny, delicate components that make up a Meggitt Avionics secondary flight display. But during the Meggitt Production

"Working through a problem in a group, talking it out, guiding everybody to a good answer. That's the essence of MPS."

And Cane has some advice for other Meggitt leaders: "I think it would do a lot of good, across

I think it would do a lot of good, across every factory, if the top people got involved like that in workshops on the ground level. Give your people a chance to really see what you are made of. They'll respect you for it

System training she found herself in the same workshop group as her managing director, Annette Hobhouse. The experience gave Cane special insight into what it takes to be a successful MPS leader.

every factory, if the top people got involved like that in workshops on the ground level. Give your people a chance to really see what you are made of. They'll respect you for it." ■



Above: Annette Hobhouse: Success for an MPS manager lies in 'setting up others to win'.



Above: Long-time colleagues. Front: Colleen Durrant agrees with Viv Cane (back): We all have to do this together. We [in the production cells] won't keep progressing if everyone around us isn't wanting to do the same.

Listening to the women in white coats



Viv Cane and Colleen Durrant build three-inch secondary avionics display and sub-assemblies. Each unit takes about three hours of the kind of precise, painstaking and absorbing work in which time stands still.

solving barely existed and work-arounds and make-dos were common. "If your supervisor couldn't sort something out for you, the problem could drag on for ages."

Wasn't that a bit depressing?

"Not depressing. I love the work too much. But it was frustrating and there was a lot of tension sometimes. You needed a dark sense of humour."

Durrant re-joined MAV two years ago. After a particularly rough day, she would sometimes head home thinking 'I don't want to go back there ever again.' "You can't lose your temper at work so you do take the stress home with you," she says.

is being heard. There's a big improvement in how quickly things get sorted out. It's such a relief."

Durrant hasn't forgotten the old frustrations of trying to explain something important when nobody seems to be listening. "It can be very hard when you can't seem to get your point across. Now, once it's written on the DLA board, you know that someone has to try and understand what it is you are getting at."

Both women say Meggitt Production System has been very well-received right across the organisation. Even some notable sceptics have quickly been won-over by the reality. But both women still worry that not everyone is pulling their weight and that some managers might slip back into old ways.

All the strands of the business are interlinked so we all have to be involved for this to work properly

Both women have experience of Daily Layered Accountability-type systems at previous employers—Cane working on marine systems and Durrant building lasers.

Joining Meggitt Avionics (MAV) six years ago felt like travelling back in time for Cane. "It felt a bit like the Dark Ages," she admits. Shopfloor problem-

And what's it like now?

"Oh it's much, much better," says Cane brightly. (The answer was written on her face a good second or two before she spoke). "The frustration is mostly gone. If we bring something to the morning meeting, we know that when it goes on the DLA board it can't be ignored or forgotten. We have a voice now and it

"DLA doesn't suit some people," says Cane. "It requires a certain mind-set. You have to enjoy being more involved and you have to accept that it means more effort. Once you buy into it, you can't be lazy. You've got to get yourself moving."

"Most of us really want to keep pushing the improvements and make things even better," says Durrant. "But we all have to do this together. We [in the production cells] won't keep

progressing if everyone around us isn't wanting to do the same."

Their immediate cell colleagues are not the concern. "We are very lucky. The people we work with are only too willing to help if you have a problem," says Cane. It's more a question

we've got what we need on the shopfloor. That makes a big difference for me."

And what about managers who might be uncertain about what MPS means for them? Cane: "I'd say, make sure you talk to your people on the shopfloor.

We are impatient for change. Once you see what's possible you do get hungry for more

of the support the cell gets from outside. "We do still hear a bit of the old 'that can't be done' and 'that'll take a while'. They're letting the side down really. All the strands of the business are interlinked so we all have to be involved for this to work properly."

And what do they say to the sceptics? "I tell them they should be doing it for themselves. Their day will be easier and they'll get more out of their life at work," says Cane. "We are at work for such a long time. We really should try to get as much satisfaction out of it as we can."

"And it's not like it's change for change's sake," adds Durrant. "It's responsive change—responsive to us making the things we sell, making sure

Their ideas have never got to the surface simply because of where they work. But they are full of good ideas because they do this job hour after hour, week in, week out. DLA can make the most incredible difference. Listen to them."

So is everything in the garden rosy now? Cane and Durrant look at each other with amusement. "Noooo," they chorus. "Some days it still feels like you are banging your head against a brick wall," explains Cane, "but it's different now. Back then it was because nothing ever seemed to change and nobody seemed to listen. Now it's because we are impatient for change. Once you see what's possible you do get hungry for more." ■



Want to know how to cross t

Ten months into Meggitt Production System (MPS) deployment and there's a real buzz at Meggitt Avionics. On-time delivery is pushing 100%. The order backlog has been cut by 99%. Overdue tenders ('bid lates') are becoming a thing of the past. Better still, those key performance indicators tell a deeper story. Talk to anyone and real enthusiasm for the new approach soon bubbles up through the conversation. This is an operation using MPS to transform itself from the bottom up.



Above: Annette Hobhouse: MPS is supported by a huge investment in coaching and skills development because it is understood that this is what it takes to get the culture right company-wide.

MD Annette Hobhouse has had the helm of Meggitt Avionics (MAV) for a year. Understandably, she is quick to sound a note of caution. But she looks and sounds like a woman

at AgustaWestland. "A Lean consultant we hired named Sid Joynson—a great guy—helped me to see that Lean isn't about tools, it's about people. For Lean practices to take root, you have to get the culture right first. If you try to 'do Lean' with

Hobhouse appreciates that the new 'soft' skills may not come naturally to some—perhaps especially after a lifetime of commanding and controlling. But she firmly believes that almost everyone can learn to do it well and, furthermore, that, "It is every manager's duty to think about how best to bring on the next generation."

Hobhouse's favourite coaching mantra is 'Ask questions until good answers emerge'. But the real key to good coaching lies in the kind of questions you ask, she says. "Say you are a tennis coach and your pupil is missing too many balls. 'Are you watching the ball?' you say. The pupil is likely to reply defensively—'Yes, of course I am'—because the question implies that they are doing something wrong. A much better question would have been, 'So, was the ball spinning when it came across the net?'. Now the player has to adopt the desired behaviour to answer the question properly. By simply changing the way you framed the question you have helped the pupil understand the problem, changed his behaviour and improved his play. All without any undertone of blaming, intended or not."

The same is true in the workplace. "If your manager just fixes your problem for you, you are none the wiser. But if she uses questioning to guide you to discover the

Ask questions until good answers emerge

who is enjoying every minute. "People are right to be excited. It's still very early days but we've already seen some very useful gains from MPS."

Lean on me

That "we" is instructive. It is not the royal 'We'. She is referring to everyone. For leaders like Hobhouse the strict hierarchies and big sticks of old-fashioned command and control are gone. Influence is the new power. Success for an MPS manager lies in 'setting others up to win'.

"My day has more in common with a head coach than an old-style MD. I'm frequently out of my office, getting around the operation— supporting, developing, guiding and trying to make sure good work is always recognised and rewarded. Making it easier for people to co-operate and collaborate across the old boundaries is also very important. That means creating common objectives and priorities for the business and

command and control managers who don't believe in it, the benefits never last."

Which is precisely what sets MPS apart. "MPS is being done properly. It's being led by example, right from the top, by people who are fully committed. It's being implemented by Meggitt's own experts, not consultants. And it's all supported by a huge investment in coaching and skills development because it is understood that this is what it takes to get the culture right company-wide."

When Chief Executive Stephen Young decided to earn his Lean Yellow Belt (Meggitt's first), he came to MAV to do it. Young's determination to lead by example now finds its echo throughout MAV. Even though the morning Focus Factory meeting could proceed without Hobhouse, she makes sure it never has to. "It would be wrong," she says firmly. "If senior managers don't lead by example these things soon fall apart. If I miss a meeting people

Lean isn't about tools, it's about people. For Lean practices to take root, you have to get the culture right first. If you try to 'do Lean' with command and control managers who don't believe in it, the benefits never last

then making sure that everyone is lined-up behind them."

Everyone in to bat

With two decades of Lean implementations and consulting behind her, Hobhouse could write a book about what's special in MPS. In fact, she sums it up in a single word: "Culture." Like many managers of her generation, she spent a long time puzzled by why so few Lean benefits seemed to stick. The penny dropped when she was Head of Operations

assume that the things I said were important last week aren't important anymore. And what's true for me is true for every manager and team leader at every level. Jack Welch [CEO of GE, 1981-2001] was a great hero of mine. He used to say, 'To succeed you need everyone in to bat'."

Managers should coach, not 'fix'

Coaching is the mainspring of that MPS workplace vision in which everyone is 'set up to win'.

answer for yourself—"How often have we seen this? What are the most likely causes? How can you work out the root cause? What containment action is needed? What corrective action? How can we verify that it has worked?"— then you understand the thing better because you have had to think it through, your confidence is higher because it was you who solved it and she has shown you, with her own behaviour, how you might coach others. In MPS, everyone can be a coach and



On the tightrope? Start walking.

everyone should be a coach—just as everyone, at every level, can benefit from coaching.”

Less ‘planning’, more doing

Getting people off the starting blocks more quickly is an important part of coaching. Here too, command and control has a lot to answer for, says Hobhouse. The person who is ‘stuck’ is often nothing of the sort. They are simply waiting for permission to act—permission they probably shouldn’t need. Or they have become bogged down in a ‘planning’ process which was always pointless. There is, she notes, a very fine line between planning and procrastination.

“I remember a management training course in Hong Kong. I was with a group of very senior managers and we all had to walk across a tightrope with a bucket of water. We had half an hour to do it, that’s all. They immediately started ‘planning’ their ‘solution’! I turned to the invigilator and said, “If we fall off, is there a penalty?” “No,” he said. So I said to the guys, “Listen. I know I can walk this tightrope. You follow me. If we fall off we can start again but we are much more likely to get the hang of it if we get on and try.”

know needs doing. It’s about getting on with it. You succeed by experimenting, not by sitting back and waiting.”

An end to conflicting objectives

The much talked about silo-busting power of MPS is a source of particular pleasure to Hobhouse. She secretly dreams of a completely boundary-less organisation: “I don’t believe in boundaries. I believe there are jobs that need doing and a big pool of talented people to do them. We should all muck in and get them done.” But for the time-being she will settle for developing a company that finds it much more natural to co-operate and collaborate internally.

Operational alignment is, then, a very high priority. From simple admin slip-ups to departments barely on speaking terms, many common operational problems are caused by nothing more than clashing priorities, says Hobhouse. “Without operational alignment, one team’s priorities can easily be another’s paralysing resource crisis. What if Commercial is

power to our processes. Then, in everyone who touches that process, at every level, we need to encourage a healthy obsession with improving it.”

The saying ‘accept only good work—do only good work—pass-on only good work.’ (another of Hobhouse’s favourites) sums up what she means. “How often do we receive less than perfect work from a colleague, say nothing and sort it out ourselves? Why aren’t we up-front about the problem? No-one should have to re-do somebody else’s work. And we should be able to support our colleagues with this kind of feedback. Done properly, this isn’t blaming, it’s coaching.”

Problems are never personal

Talking to Hobhouse at length, her faith in her staff seems unshakable. “99% of our people are great and want to do a good job. If we want them to change and develop, take on new roles, acquire new skills, do things differently, I know they will. We just have to give them the support and encouragement they need.”

Where there are problems, they are almost always the product of bad management or

Spotting the signs of decay

Annette's 'bad factory' checklist

- Too much fire-fighting
- Too many customer escalations
- Lots of planning, not much doing
- Too much “do as I say”—not enough leading by example
- Functional silos obstructing collaboration
- Too many work-arounds
- Lack of “GO, LOOK, SEE” as the start point for investigations
- Persistent shortages of skills, materials or tooling
- Too much waiting for someone else to act
- Lack of goal alignment across departments
- Lots of finger-pointing

Where there are problems, they are almost always the product of bad management or bad processes

An important part of MPS implementation is about breaking down these old instincts for delay and inertia. So, if you are the kind of person who thinks they can’t start a DLA process until your KPI definitions are just so, or a new whiteboard arrives from site services, or your boss gives you permission for your DLA kick-off meeting, then Hobhouse has some succinct advice for you: “Just get on with it!”

Her own fondness for have-a-go problem-solving she puts down to a love of maths. “With maths it doesn’t matter if you don’t get it right first time. You can always go back and start again— you know there will be a solution, it’s just a question of finding it. No part of MPS is about waiting for someone to tell you to do something you already

facing an important tender deadline but Procurement is too busy chasing component shortages to provide prices? The result is a disaster for the business with serious consequences for everyone.”

See the processes, not the functions

In breaking down this kind of old-style, silo-based thinking, DLA is more than living up to its promise. Every morning representatives from all business functions come together to focus on what Hobhouse calls the great end-to-end processes. Things like ‘order capture’ and ‘product realisation’. “These, not the functions, are the real muscles of a business,” she says. “Value stream maps help us understand which activities add

bad processes, she says. “You know, every time something goes wrong you can probably say that the root cause is something we managers have failed to do to enable the process to work properly in the first place. Are the induction, assessment, coaching, training or staff development processes working as they should? Or has a problem with the physical process allowed this thing to happen? The Japanese would say it should have been ‘poka-yoked’—made fool-proof—and it’s our job as managers to ensure that happens.”

Beyond production

MPS will, in time, morph into MBS, the Meggitt Business System. That day can’t come soon enough for MAV. “We looked beyond product realisation

almost from the very start. Processes like business capture and product design and certification are already adapting MPS for their own areas. Daily stand-up meetings, living paretos and many other tools besides are being used all over the business.”

The business logic was inescapable. “If we hadn’t tried to get the same thinking right across the whole organisation, then the cultural change wouldn’t have been broad-based enough for MPS to focus on those big, multi-functional, end-to-end processes. We’d have ended up with Production thinking they were badly supported by Engineering and Commercial simply because they were dancing to different beats. By getting everyone thinking along MPS lines as early as possible, it has made it much easier to get DLA and the Focus Factory process delivering results quickly for everyone.” ■

An adventure in space—and time

Sam Juniper (from Manufacturing Systems Engineering) and Phil Morris (from Continuous Improvement) planned the layout of Meggitt Avionics’ new factory floor. Using the Meggitt Production System tool known as 3P—essentially a kaizen dedicated to workspace planning—it took three days. Nothing unusual about that, you might think. Except the migration project had already been underway for six months with little to show for all their efforts. Then 3P came on the scene.

That first half-year was intensely frustrating for Juniper and Morris as they bounced backwards and forwards between

of kit – ovens and so forth – were being quite literally set in concrete. Another month and there might be little left to plan. As the year passed, the

The breakthrough finally came when one of us asked what the operators would do if they could start from scratch

operators and managers. From a Meggitt Production System (MPS) point-of-view they’d started in exactly the right place, the shopfloor. But at the time there was no MPS. “First we designed a layout with the shopfloor very much in mind. But when we took it to management they would not accept it. So then we went back to the operators—but now they felt disengaged by the managers’ veto,” recalls Juniper. And so it went on.

Breakthrough

Elsewhere, the rest of the migration project was pressing on regardless. Some big bits

group operational excellence team arrived on site to prepare for the launch of Meggitt Production System. They suggested we revisit the layout. To get things moving the Site Leadership Council backed a single, intensive three-day event using the Lean tool called 3P (production preparation process). Juniper and Morris could now make a fresh start co-developing a solution with the shopfloor. And senior sponsorship would presumably make it much easier for any plan to win the support of managers. Would everyone now hop on board? Not yet.

The stone-walling of the previous six months did not evaporate automatically. “The first two days we still struggled with buy-in,” recalls Morris. “There was lots of ‘We’re not changing that!’ and ‘My manager says we are not looking at that’. Most operators just wanted to replicate their old layouts, even though products and processes have changed beyond recognition over the years.”

Hands-on

Both men fell back on their still-fresh MPS training in coaching skills. They patiently questioned, probed, explained and drew on their own experience in production engineering and continuous



Above: Front: Phil Morris. Back: Sam Juniper: part of Meggitt Avionics’ growing body of trained 3P practitioners.

From deadlock to best practice—in three days

BEFORE

Slow, laborious, hierarchical, individualistic, overly-rigid, vulnerable to silo thinking and sudden changes of mind/opinion/personnel.

AFTER

Fast, structured, co-operative, cross-functional, efficient, flexible, best practice.



improvement to generate new ideas. The breakthrough finally came thanks to some blank sheets of paper. “One of us asked what the operators would do if they could start from scratch and do anything—and that was it,” says Morris. “The moment we got them drawing and laying things out on paper they were saying ‘Actually that doesn’t need to go there, let’s swap those, and move those over there’.”

The speed of the shift—from resistance to engagement—taught the pair an important lesson they are keen to share, says Juniper. “Preparation is vital for 3P to succeed. As part of that preparation you need to think about who you are working with—their learning styles, if you like—and what techniques and exercises will help bring out their best. We’d been doing

this wrong for a decade!”, it was time to bring the managers back in. Morris: “On day one we’d just been reporting back. But from outside the room it was hard for them to understand the reasoning behind some of the proposals or the need for so much detailed planning. Day two, with managers more closely involved, worked better.” The remainder of the exercise would see directors and managers dipping in and out continuously.

Paper dolls

For those who needed it the event now moved out onto the shopfloor for a huge ‘paper doll’ exercise. “Some could visualise easily, so we would stay in the room to focus on breaking down their pre-conceptions and opening up their thinking. Others needed a much more gemba-like approach, walking

Be prepared to coach your boss – guide people past their stock answers towards a proper definition

a lot of conceptual stuff in the classroom, talking theoretically about how best to deliver materials or equipment. With hindsight, operators are people whose daily life is very visual, physical, spatial, tactile. We should have got them hands-on from the start.”

Now, with some participants declaring “We’ve been doing

the new and old locations to help them understand things more ‘visually’.”

For Juniper and Morris this was only their second 3P project. The first had been conducted alongside MPS experts from Meggitt at group level. This led them to underestimate the scale of the preparation that underpins

Birds of a feather ...

3P has also been used to re-plan Meggitt Avionics’ office space to encourage and support cross-functional working.

The old way of thinking routinely grouped people according to their functions. It gave little thought to spaces in which people could come together for months or years at a time to work on multi-disciplinary projects. The MPS principle of thinking in terms of silo-busting processes

The old way of thinking routinely grouped people according to their functions

rather than functions has shone a bright light on this failure.

So who does need to sit together? Is it people in the same department? Should they be doing the same job or performing roles adjacent in

the value stream? Or should it be people who share the same customer or work on the same project?

The MPS principle of thinking in terms of silo-busting processes rather than functions has shone a bright light on this failure

It was a 3P exercise that got people talking about such things in a structured way for the first time. Among a number of important innovations that followed are the integrated project rooms in which multi-function teams can now make a semi-permanent home in which to (for example) develop a new bid or design a new product. ■

3 TOP TIPS

Those three Ps could stand for Prepare, Prepare, Prepare. A typical 3P exercise lasts just five days. There’s no time for distractions. So ...

Make sure you understand your audience, their communications needs and learning styles. Some can work through their ideas on a whiteboard. Some will need to walk the talk. Many may have no idea what they need to help them visualise their preferred outcome. (In which case, remember the fourth P—Paper Doll exercises.)

Know what you want to achieve and make sure you know what your manager’s expectations are in terms of your limits and their input. You will probably need to coach them to get to the bottom of their true

intentions. Don’t be fobbed off with quick or easy answers. Don’t be afraid to probe what they really mean.

Avoid following too rigidly the process you used in training. Every situation, every group, will be different.

Don’t forget, you are also facilitating your participants’ ability to sell the solution to their own bosses. Not everyone will be willing or able to do that.

a successful exercise, Morris thinks: “Understanding what people really want—getting their buy-in beforehand—that is decisive. Ask any busy manager and they will tend to answer in generalisations: ‘I want it to be right, I want my team to buy-in to it.’ Then show them the results and they say, ‘but you haven’t done this or that’.”

Coaching the boss

The solution is to guide people past their own platitudes and stock answers, towards a proper definition. And to do that you must be prepared to coach your ‘boss’. Working with 3P in the very early days of MPS implementation made this a stern test for Juniper and Morris. Today’s 3P practitioners shouldn’t find it quite so challenging. “If you’ve got a director or boss who is engaged with you—and we all should be now—then it will be perfectly possible to have that kind of conversation with them. It

should come as no surprise,” says Juniper, who as a new team leader has recently taken on his first managerial responsibilities.

The 3P exercise achieved in three days what six months of patient diplomacy hadn’t even dented: a shopfloor layout that is home-grown, in place and working well. A real result for all concerned. Like all Lean outcomes, the layout that Morris and Juniper created is ‘provisional’, awaiting its own inevitable improvement. Changing operational needs will certainly require tweaks and probably major revisions. But today the most prestigious contracts typically demand rigorous proof of the bidder’s ability to expand and reconfigure their operations to suit. Meggitt Avionics now has a strong and growing body of trained 3P practitioners as well as a thriving MPS culture. Together these provide precisely that proof. ■



Evolving the DNA of DLA

Steve Favell (Manufacturing Manager) and Jon Bradley (Continuous Improvement Facilitator) have helped lead implementation of Meggitt Production System at Meggitt Avionics. The experience has been a co-operative one for pilot sites and Favell and Bradley are proud to be so closely involved in helping to evolve the DNA of Daily Layered Accountability. Here they share their thoughts on the many changes they've experienced.



Q: How has MPS changed your own roles?

Steve: Twelve months ago I was what you might call a traditional manufacturing manager, focused on turning the handle. Now I oversee continuous improvement

and turns us into a single team with shared objectives.

came down and on-time delivery (OTD) improved. Everyone could see real change and straight away we had them all pulling in the same direction.

Q: How do you explain the speed of the change?

Steve: DLA pulls so many levers simultaneously. The engagement of the shopfloor, support from senior management, coaching. And the discipline of accountability is very important. I think of it as daily layered accountability with a capital A.

Jon: You can see it at our RAIL [rolling action item list] meetings. We used to spend an hour-and-a-half going through a hundred-odd issues. Now we deal only with the top issues—the *Vital Few*—all the time pushing for closure. You see that discipline of DLA transforming everyone's behaviour.

Q: Even at the very top?

Steve: Especially at the very top. At Focus Factory, the site leadership meeting, everyone will be waiting for it to start on time, just like the Level One and Two DLAs on the shopfloor. It's very unusual for directors to arrive late but if they do they will be rushing and a bit embarrassed. And it's rare for people not to be able to answer the questions too. People do their homework now. It's a pride thing. No-one wants to be seen wasting colleagues' time or letting someone else down.

Q: If you took DLA away, do you think the rest of MPS would still work?

Steve: I don't see how it could. Everything hangs off that shared awareness and discipline created by daily communication. And it's also the mechanism that breaks down the old functional divisions

and turns us into a single team with shared objectives.

Jon: We were already doing some MPS-type things. Our Integrated Management Team (IMT) meeting ran for 10 years. It was good and people did their best with it but something was missing. It needed to be plonked in the middle of a structure that supported it from above and fed it with information from the coalface. It's integrated within our Level Two DLA meeting now.

Q: We've heard about how DLA is a 'silo buster'. Can you explain what that means for Meggitt Avionics?

Steve: Rather than trying to make the production process suit all the different functions, DLA forces us all to concentrate on what the functions need to do to support production. The old conflict between diversions, production costs and OTD is a good example. [Diversions are work charged to overhead.] If you said to people, "diversions are bad", they'd book all their time to work-in-progress and suddenly your unit costs were going up. But then when someone said, "We need to get work-in-progress under control to

Jon: The 'rework' story is much the same. Without DLA senior management would see rework rising but have no idea what was causing it. And on the shopfloor we were prioritising OTD and fire-fighting instead of tackling root causes.

Q: So how is it different now?

Steve: The Living Pareto charts on the DLA boards leave nowhere for recurring problems to hide. Something fundamental that can't be solved at the cell level gets to Focus Factory very quickly and directors are soon saying, "We're doing what? Stop! We are going to spend a day to fix this properly." The culture has changed. No-one who touches the process is prepared to accept the same problem appearing over and over again.

Jon: And in some cases the process change or component redesign that comes out of the kaizen won't be the end of it either. The existing RFC [request for change] might prioritise use of existing stock. If you don't pick that up as well it could take a year for a component improvement to enter production. Without the constant reporting and daily reviews of DLA that sort of thing

It's very unusual for directors to arrive late but if they do they will be rushing and a bit embarrassed

and implementation of the MPS system as well as security, safety and site services. But if I was still a manufacturing manager my role would be very different too. It used to be about dealing with what was right in front of you. Now you need a much broader and longer view of production.

Jon: The way my role has changed tells you a lot about how MPS has changed Meggitt Avionics. If there was a problem, a quality issue say, I'd get the right people together to investigate it, identify the problem, find a solution, follow it through and embed the improvement. Now the day-to-day problem-solving behaviour and continuous improvement mind-set have been embedded in the teams themselves. That's a big difference.

Q: Both of you share Mark Crompton's view that MPS is as good as any production system gets. At what point did you realise what you had on your hands?

Steve: When we got the Daily Layered Accountability structure in place, with the three levels aligned. We saw instant results as soon as we had Focus Factory—the daily site-level leadership review—up and running. Arrears

If you are just starting out with your own DLA board, my big tip would be: don't spend too much time in the meeting room. Get the boards up and running quickly and then refine them. That will also get more coaching coming from within the teams themselves

improve our margins", suddenly diversions and overheads would be rising again. So what you had was a knee-jerk reaction, giving the desired effect, but without actually solving the underlying problem, just shifting it somewhere else. We were squeezing the balloon in one place only to have it bulge out somewhere else. That shouldn't happen now because everyone comes together every day to look at the same picture. And if it does happen? The story comes up from the shopfloor and Focus Factory is straight on to it.

could also stay hidden or ignored for ages, saving a few pounds of stock but costing thousands in rework.

Q: Have people taken easily to those DLA boards or is this an area of MPS implementation that needs lots of support?

Steve: We do a lot of coaching work around DLA board design and use. It is an absolutely key part of encouraging the behaviours that make DLA work as a process. Everyone needs to be coached and encouraged to



Above: Back: Jon Bradley. Front: Steve Favell. With MPS, the more we do, the more we realise what we can do.

We were squeezing the balloon in one place only to have it bulge out somewhere else. That shouldn't happen now because everyone comes together every day to look at the same picture. And if it does happen? The story comes up from the shopfloor and Focus Factory is straight on to it

think about how they can go on to embed coaching others into their day job. DLA meetings are great opportunities for coaching because you see people in action every morning and you can respond immediately to something. If you are just starting out with your own meetings, my big tip would be: don't spend too much time in the meeting room. Get the boards up and running quickly and then refine them. That will also get more coaching coming from within the teams themselves.

Jon: We attend a lot of DLA meetings to observe roles, language, behaviour, communications style. We look at technical aspects too. KPI selection and alignment, data presentation and so on. The board should meet the team's particular needs but standards

matter too. They need to be understandable to everyone at a glance.

Steve: We've used the training materials to pull together some reporting sheets covering the key issues. They were meant to record what we were doing, not to score performance. But the cells themselves soon wanted to use them as well.

Q: Do you think there are any functions that wouldn't benefit from using MPS?

Steve: I can't think of any. We've had some great success beyond the shopfloor. For example, we used to get any number of units that didn't ship purely because they were on some kind of 'hold' controlled by Commercial—a credit issue, contract problem or something. Now, a visual

management system called the Shipping Dashboard shows exactly what the commercial team needs to do to avoid delivery delays.

Q: Given your early successes, do you think there is any sense in which Meggitt Avionics has reached a plateau with MPS?

Steve: Not at all. We've started this, it's rolling—but if you ask anybody they'll tell you there's lots more we can do. With MPS the more we do, the more we realise what we can do. And that's how it should be. To get the best out of MPS you can't be the kind of person who sits back and says, "Yes, this is good enough." You've lost any impetus to improve then. Who'd want that? ■

Coach class

Coaching is an absolutely fundamental Meggitt Production System skill. How does it work?

In problem-solving, where managers used to be expected to provide answers, they are now expected to use coaching techniques to help the individual find a solution for themselves. The idea is to develop an individual's skills, insights and self-reliance at the same time as finding good answers.

From supporting a colleague working alongside you, to helping a senior manager grasp a complex technical process, everyone can, and everyone should, coach everyone else.

Here are some tips to get you started.

1. Realise that every request for help is an opportunity to coach.
2. The best coaching is delivered as a routine part of the daily round.
3. A quiet word in private is much more effective than a public lecture.
4. Pay special attention to 'how', as well as 'what', you say. A poorly chosen word or inappropriate tone of voice can convey entirely the wrong meaning.
5. Be careful when using humour. Not everyone will get the joke. Humour can help reduce tension and awkwardness. But sometimes it just feels as if we are not being taken seriously.
6. If you think you might have spoken hastily or used the wrong tone, go back and put it right as soon as possible.
7. The key to good coaching is good questioning. Poor coaching questions fail to stimulate deeper thought. They are often 'closed' (ie, yes/no answers) or 'leading' ("Would you say that X needs to be done?"). Good questions encourage self-discovery and critical thinking. They are often 'open' ("How would you ...?"), probing ("Why do you think that?") and systematic.
8. Don't rush in. All good questioning begins with good listening and observation.
9. And try not to give away the answer! ■



If only we'd known ...

Seasoned advice for MPS 'newbies' from Steve Favell, Manufacturing Manager, and Jon Bradley, Continuous Improvement Facilitator, from the Meggitt Avionics MPS implementation team.

You'll wish you'd thought of it

Think of all the things from your own experience that you would want from a production system and MPS is it. There's no miracle stuff. It's common sense. You'll recognise it. But you'll also be amazed at the speed of the results.

If you are half-hearted, you'll miss out

Park your cynicism. Embrace fully the core of MPS. Daily Layered Accountability, the behavioural change, the training, the problem-solving aspects – these are absolutely fundamental and they are what has given us our headline results.

It's not extra work, it's different work

This is not something you do 'as well as', this is something you do 'instead of'. MPS processes like the DLA meetings will replace (and improve on) many of the things you do now.

If you've got good things, keep them

If you've got something that works and people use it, don't scrap it, build around it. You don't have to throw everything away.

Don't be afraid to adapt things

But if some part of MPS doesn't fit your business, don't force it.

Park your cynicism. Embrace fully the core of MPS. Daily Layered Accountability, the behavioural change, the training, the problem-solving aspects

That's the beauty of MPS. It's not one size fits all. It's flexible, scalable, targetable. Successful implementation is about taking the tools, the framework, the methodology and the behaviours and then applying them in the real world scenario of your business in a way that works for it.

Cynics have reasons too

They may be thinking 'we did this five years ago and nothing changed'. They may have a point. You'll never convince them until

they see some things start to change. So, keep at it and let your own actions and behaviours prove your point.

Don't feel guilty

If you think something needs discussing, raise it. No-one is going to get into trouble for waving red flags. They are just opportunities to improve what we do. None of this is personal. It's all about the process.

To understand DLA boards you need to use them

Don't spend ages in a classroom. It's only when teams start to use DLA boards, no matter how imperfect they might still be, that they learn how to get the best out of them. Fine-tuning a board to meet changing needs is normal.

Top-down KPIs are wrong from the start

If you are helping a team implement DLA work closely with them to co-develop a DLA review board that works for them. Coach them in how to develop measures that are important to the business and which provide a clear, unambiguous picture of the things they do.

Problem-solving is everyone's job

Get good problem-solving done at every level within the business. It is the accumulation

of all that 'local' activity that delivers the very big overall improvements.

You'll probably need a new approach to kaizens

Make sure you have a solid kaizen process that focuses on the Vital Few, pulls-in the right people and makes them accountable for delivering results. DLA gives you lots of information to help you select your Vital Few. So, no more guesswork. ■

Safety first

Every morning Steve Favell walks briskly round the plant preparing his report on site safety for the Focus Factory meeting. In 10 minutes he achieves something that was more difficult before Daily Layered Accountability.

I see as many Level One and Two DLA boards as I can. [The boards cover Safety, Quality,

needs doing before there's an accident'. Or they catch me on one of my regular walks round.

If I see red, I stop to find out more. If it's all green, I move on. If the board hasn't been filled in yet, I'll pause to find out why. Ten or fifteen minutes later I'm reporting my findings at Focus Factory

Delivery, Inventory, Productivity/Cost.] Every board's format is the same, so I can take it in at a glance. If I see red, I stop to find out more. If it's all green, I move on. If the board hasn't been filled in yet, I'll pause to find out why. Ten or fifteen minutes later I'm reporting my findings at Focus Factory [the Level Three meeting at which value stream leaders, function leaders and the site leadership council review the whole plant's current performance].

"This routine is well-embedded now. If I'm not there someone automatically does it in my place. Everyone can see that these things are now being taken very seriously, so they don't wait for me to do my rounds. Stuff gets put on the board throughout the day. They phone me and say 'we've got a hazard here, this

"I can't think how I would have done the same thing, in such depth, before DLA. There just wasn't the mechanism to gather the data quickly. Tracking down the right people and explaining what I was trying to do would

I can't think how I would have done the same thing, in such depth, before DLA

have taken days. The shopfloor wasn't so engaged either, so we tended to hear about a thing only after it was already a potential problem. And that might not be for three months, at the quarterly health and safety review." ■



PLMPS

Engineering has £12-15 million of live programmes. Some have life-cycles that will span decades. Isn't this exactly what the cradle-to-grave Programme Lifecycle Management model was developed for? So what does Meggitt Production System bring to the party? Steve Free (Head of Engineering and Projects) and John Anderson (Design Services Team Leader) explain.

Engineering is an area of the business in which it is not immediately obvious how Meggitt Production System will fit. Programme Lifecycle Management (PLM)—with its flexibly-timed 'gate' reviews and seven separate phases, many of which might last for a year or more—was designed specifically to govern programmes lasting 20 or 30 years from proposal to final withdrawal. But Engineering's role is not only about the (very) long view. It provides hour-

to be a matter of things not being given the right priority. Being able to escalate to Focus Factory is a useful way of pulling those contributions forward, bringing everybody along, so we can stay on schedule."

That said, Free is keen to bypass Focus Factory where he can, instead using peer-to-peer links between departmental DLA meetings at the same level. DLA is fundamentally about getting fast solutions to problems, so why not go straight to the people who can help you? "Focus Factory needs to



Above: Back: John Anderson. Front: Steve Free: DLA has an X-ray-like ability to reveal previously concealed issues, while simultaneously energising the whole organisation to seek them out.

Engineering's six integrated project teams (IPT) each 'owns' a product or product family. They already had well-established daily stand-up meetings, so these are now being converted to DLA-type reviews

by-hour support for the daily drumbeat of production. And at all times it remains the company's guardian of technical certification and compliance.

Clearly, then, this is not a matter of 'MPS versus PLM'. It is not a question of either/or.

Valuable connectivity

Free and Anderson both value the connectivity and discipline Daily Layered Accountability (DLA) creates throughout the business. Says Free, "In just two, twenty-minute meetings each day we pick up many more issues. That means more work for us now but really we are pre-empting issues. We would, in any case, have been reacting to the same things a week, a month or a quarter down the line."

Focus Factory feels like a place where Engineering is more likely to give than to receive. But the discipline it creates imposes more realistic timeframes on shared workflows and that is a very welcome development. "The main way other functions can help us is to understand how time-critical their workflow contributions are when we are trying to get a bid, offer or solution to a customer on time. It's not that they don't understand all the things we have to do. But among the various DLA tier meetings there is still quite a range of levels of maturity, so it's more likely

be kept punchy and focused on the main issues. If a problem falls short of being business critical we encourage our people to take it straight to the MSE [manufacturing systems engineering] DLA meeting." Are there no objections? "It's working so far. I'm sure they'll tell us if it's no longer welcome."

Fallout from OTD

DLA has proved so good at winking out production issues that Free sees the experience of Meggitt Avionics (MAV) as a cautionary tale for other engineering functions about to implement MPS. Meeting or beating that new 98% on-time delivery benchmark can require lots of momentary changes to processes, products or parts. The alternative would be to stop production for a root-cause fix. But that would delay deliveries.

"We've done a fabulous job improving on-time delivery and quality to the customer," he says. "But it has meant many more requests for change. These can be anything from a label error to a major product design change. Because we are the gatekeepers of product certification every one of them must flow through here and be approved by us." This "backwash" (as Free calls it) is the result of DLA's X-ray-like ability to reveal previously concealed issues while

simultaneously energising the whole organisation to seek them out.

Anderson is at present analysing MAV's deviation data in close detail, looking for ways to reduce deviations at source. What's he expecting to find? "For example, we do find that certain parts of certain processes can often fall just slightly out of tolerance.

A DLA board to suit every need

The DLA structure in Engineering is still evolving. But here's a current snapshot.

- Engineering's six integrated project teams (IPT) each 'owns' a product or product family. They already had well-established daily stand-up meetings, so these are now

It is designed to support continuous improvement in adherence to the function's own internal standards.

With so many applications of the DLA tool in play it is no wonder that Free is keen to offer design advice to newbies. He warns against getting carried away by the huge potential for improvement: "Or else,

In just two, twenty-minute meetings each day we pick up many more issues. That means more work for us now but really we are pre-empting issues

More analysis and investigation might reveal that there is no technically significant reason why that tolerance needs to be quite so tight. In which case, would we be able to make it a little bit wider and so stop the deviation being raised at all?"

Under MPS striking that balance between deviations that maintain OTD and delivery delays that enable root causes to be tackled is always going to be a ticklish matter.

being converted to DLA-type reviews. Each IPT feeds into a combined 'programmes' review supporting a weekly Level Four meeting with Annette Hobhouse.

- An 'order fulfilment' review, run by Anderson, reports straight into Focus Factory. Free calls this the "How We Serve The Business DLA".
- And thirdly, there is an inward-facing 'capabilities' review.

if you are not very careful, what starts off as the Vital Few, ends up being everything".

Half the trick, says Anderson, whose own DLA structure is the most mature in the department, is to try not to be too prescriptive. "Our programmes board, for example, doesn't have an I or D in it. But it does have a C, for cost—costs are very important in development programmes if the thing is ever going to make a profit." ■



Leading—the way

Sam Juniper is an experienced engineer who recently became a team leader, his first management role. Here he explains how Leader Standard Work, the MPS method for supporting managers, is helping him grow his skills and his confidence.



When Manufacturing Systems Engineering Team Leader

Sam Juniper completed his masters degree in aerospace engineering his mum gave him a beautiful orange stone. He tells the story to illustrate how his own quiet love of hard science has always been a little out of place in a family of extroverts.

engineering, of course. But as a technically-minded person the leadership part of the job feels more art than science. The Leader Standard Work model doesn't spoon-feed you but it does give you a nice support structure for developing your soft skills for the 'people' parts of the job."

Leader Standard Work helps make the business more robust and flexible because it separates the role from the

He was working long hours and weekends managing a team of experienced Meggitt electrical contractors relocating test equipment to the new factory. "The Leader Standard Work approach definitely helped me to not just manage the team but lead it," he says.

The migration was performed in two phases and the first was not a great success: "We did a lot of work in a very

Leader Standard Work methods helped Juniper reflect on the shortcomings of the first phase. "I put a lot of effort into thinking about what the team needed to know and how I was going to communicate it. I developed a much cleaner communication style which got the key messages across—what needed to be moved, and when, to optimise the recommissioning. And I was much more mindful in the second phase of using praise and recognition to keep spirits up. The regular Fish and Chip suppers didn't do any harm either."

Phase two went much more smoothly. Juniper wrote to the contractor thanking everyone involved for the quality of their work during all those late nights and weekends. If he had ever been in any doubt about the power of a simple thank you, the response he received said it all. "They told me it was the first time they'd ever been thanked." ■



Above: Sam Juniper: From managing to mindfully leading with Leader Standard Work.

As a team leader, I am 'doing' and 'managing'. I am very comfortable with the engineering, of course. But as a technically-minded person the leadership part of the job feels more art than science

Now, as a new manager in a technical discipline, he finds himself negotiating similar ground. "As a team leader, I am doing and managing. I am very comfortable with the

person. But there are big benefits for individuals too, especially if they find themselves in unfamiliar or high-pressure situations, as new managers often do. One such came for Juniper earlier this year.

short time but the end result was messy. Lots of little timing issues meant that, even with most of the job done, no single piece of kit was ready to be tested and commissioned."

I developed a much cleaner communication style which got the key messages across—what needed to be moved, and when, to optimise the recommissioning

Pass on

only good words

A guiding theme of Meggitt Production System is neatly summed up in the maxim: 'Accept only good work —Do only good work—Pass on only good

The power of Daily Layered Accountability to solve problems rapidly depends crucially on the quality of the information that flows into and through it. The problem statement, formal or otherwise, is where it all begins. Get those initial information inputs right and everything else becomes possible. So what are the dos and don'ts of great problem statements? Manufacturing Systems Engineering Team Leader Sam Juniper says:

Don't worry too much about the how

Initially a problem statement can be in writing, a conversation or a diagram — even all three. At first the

form of communication is not as important as the quality of the information. The team can work together later to capture the problem statement in a properly-documented way.

Don't pass on your problem without thinking about whether you can describe it adequately

Like all bad communication, a bad problem statement may save its author a little time and effort—but only at the expense of making life harder for the person who receives it. Everyone is the poorer for that.

Do pay close attention to what is happening

All good problem statements begin with, and can only begin

Do use the tools

Good questioning of what you are experiencing will be vital when it comes to describing it to someone else. Don't forget your 'Five Whys' and the other problem-solving tools.

Don't think "I haven't got time for this."

It's your manager's job to help you make time – to set you up to win.

Don't worry that you haven't been given permission to get involved in solving problems. You have

MPS grants you that permission by right. When managers think otherwise, they are mistaken.

Do get engaged

When you experience a problem you are the eyes (and ears)

All good problem statements begin with, and can only begin with, good observation and attention to detail

work'. As we've heard, it's one of Managing Director Annette Hobhouse's favourites.

But not every piece of good work is carved from metal or held together by screws. Even in a company like Meggitt—a company that makes real things—it is very often a matter of 'good information'.

Good questioning of what you are experiencing will be vital when it comes to describing it to someone else

with, good observation and attention to detail. Can you provide a careful and considered description of your issues?

of the whole business. You are vital. Only you can keep the things you do running sweetly and working well. ■

Never too late

Some distance from the factory floor, Meggitt Production System has been working its magic on an altogether different kind of on-time delivery problem. ‘Bid lates’ are contract quotations submitted after the customer’s deadline. For years they have hovered around the 20 to 30 mark, stubbornly resisting every effort to reduce their number. Today there are just two. We asked Richard Johnson, Bids and Proposals Manager, to explain how it was done.

Richard Johnson and his colleagues had tried pretty much everything to improve on-time delivery of bids. Everything short of threats in a darkened alley. Nothing produced a sustainable

rolling seven-day window of activity. Notionally a Level Two meeting, it isn’t formally tied into the three-tier DLA structure but it is linked to the various morning DLAs held in contributing departments. The attendance list properly reflects the path of the workstream: all Commercial

coming seven days. Finally we go over any that are about to go out of validity. This is our trigger for a relationship-building follow-up call to the customer.”

A new realism

None of this sounds like rocket science but the results speak for themselves. The web of behavioural and attitudinal changes spun by the new approach is far-reaching and extraordinary.

Johnson credits some of the turnaround to increased personal responsibility: “Once someone commits themselves publically to a particular date, it becomes their date and they do their best to meet it or better it.” This sense of control has, in turn, stimulated a new confidence and realism in dealing with customers. Realistic deadlines and milestones are much more likely to be set right from the start: “As soon as we know that a certain date might become a problem we can call the customer and talk it through. Usually, eight out of ten are fine about it. In fact they are pleased to see us on top of things.”

A new, tougher attitude towards problem ‘prospects’ has also emerged from the daily sharing of insights and reviewing of good data: “We can now see where we’ve been bidding regularly for years with no success, or where promising activity is really only

Bid preparation is another process which must transcend the old functional barriers before it can succeed on its own terms. The silo is its enemy. DLA’s cross-functional daily stand-up meeting had once again provided the magic bullet

improvement. The sheer complexity of the bid chain, each link with its own departmental priorities and demands, seemed to defeat them every time.

Then, at Annette Hobhouse’s encouragement, they picked up the MPS toolset. “Annette believed that we could crack this if we applied Daily Layered Accountability principles—visual, consistent, the right metrics, the right participation, a daily drumbeat—through a stand-up meeting dedicated to the task,” explains Johnson. And she was right.

Bid for freedom

The Meggitt Avionics Enquiry Management System DLA (a bit of a mouthful, so MAVEMS DLA for short) now brings together all the many people, roles and functions involved in creating, pricing and approving a bid. It first met in June and within six weeks the transformation we see now had been achieved. Bid preparation is another process which must transcend the old functional barriers before it can succeed on its own terms. The silo is its enemy. DLA’s cross-functional daily stand-up meeting had once again provided the magic bullet.

The 15-minute MAVEMS DLA runs at half past nine, four mornings a week. (On Wednesday everyone takes a step back to check on the slow-moving bids quietly travelling through the system.) Participants view a

Officers (they run the bids), the Sales and Marketing team, representatives from Production Engineering and Procurement, and (frequently) senior management.

Months of work

Johnson runs through a typical agenda: “We start with a snapshot of all the bids on our database that look like they are running a bit late. There’s a quick run through anything new which has arisen since the last meeting. Anything that requires a proper strategy is flagged up

We start with a snapshot of all the bids on our database that look like they are running a bit late. There’s a quick run through anything new which has arisen since the last meeting. Anything that requires a proper strategy is flagged up there and then

there and then: the bid to design a new assembly for Boeing or BAE Systems, with thousands of components and complex contract terms and export controls, can take several months to prepare. We then review all the bids and prospects active over the

an aftermarket supplier filling up its web catalogue.” Because accounts are distributed across several commercial offices, spreading the workload, trends like these used to be hard to detect. Now a managed response is possible. The sharing of

information each morning also highlights duplications of effort, enabling resources to be pooled and problem buds nipped.

Harmony and understanding

The new discipline of four meetings a week has worked wonders. “Even weekly meetings left plenty of time for people

DLA meeting out across the departments and through the management layers. “We used to pick up the feeling that somehow bids weren’t part of the day job – perhaps because they are concerned with the future rather than the clamouring of the here-and-now,” says Johnson. “That’s much less of a problem now. Generally, workload management

There is a much better understanding of how we must all work together if Meggitt Avionics is to deliver its bids on time

to forget or to have other priorities pressed upon them,” says Johnson. But the bigger impact has come from a deeper understanding of both the process and the demands it places on individuals, spreading from the

for people involved in servicing the bid process is more sensitive. And there is a much better understanding of how we must all work together if Meggitt Avionics is to deliver its bids on time.” ■



Above: Richard Johnson: Increased personal responsibility leads to a sense of control that stimulates a new confidence and realism in dealing with customers.





Empowered

Commercial Officer Craig Roberts has seen his day-to-day work transformed by three new tools—the MAvEMS DLA meeting, Shipping Dashboard and Credit Warning List—all introduced as part of MPS implementation.

The new Enquiry Management System (MAvEMS) DLA meeting helps commercial officers like Craig Roberts shepherd bids for new contracts through a complicated construction, pricing and approval process. In just six weeks the DLA process helped cut the number of bids that miss the customer's submission deadline from 30 to just two.

"MAvEMS itself is a mature system," explains Roberts. "Each day we load all the new leads and enquiries. Then the system

Shipping Dashboard is a visual management system which uses live graphics to show the status of everything due to ship today, tomorrow and within the next seven days. "In the commercial team we can now see at a glance which units have a red flag against them, a sign that there is a problem with compliance or the contract review, which we need to tackle if the delivery is to go ahead on time."

A similar logic—early warnings to smooth on-time delivery—lies behind Credit Warning List. "Three levels

In the commercial team we can now see at a glance which units have a red flag against them, a sign that there is a problem with compliance or the contract review, which we need to tackle if the delivery is to go ahead on time

sends the bid requirements to the various functions. After that, it's down to us. For the bid to meet its deadline we often have to do quite a bit of progress chasing. If people don't see the bid process as a priority, even that might not be enough. The daily DLA process makes a big difference. It keeps everyone in the picture about what we are doing and what we need to do to keep the bid on track. And if something does go wrong, it gives us a forum each morning in which we can solve the problem quickly."

The new Shipping Dashboard and Credit Warning List tools were the fruits of a kaizen to tackle another long-standing source of frustration. Shipment delays were being caused not by production hold-ups but by eleventh-hour administrative issues. "Things would look fine right up to the last minute. You couldn't see if there was any kind of problem with the customer until you hit the button to finalise the transaction," says Roberts. "If you did that at 12 o'clock on a Friday at the end of month, that was it. You'd missed your delivery slot."

of alert—red, orange, yellow—indicate the urgency with which customer payments on account are needed if shipments are to proceed on time. Red means urgent action is needed by Commercial and Finance," explains Roberts.

Both tools, Shipping Dashboard and Credit Warning List, are reviewed at each morning's Level Two Commercial DLA meeting, enabling urgent issues to be referred up to Focus Factory immediately. ■



Above: Craig Roberts: DLA cut late bids from 30 on average to two in just six weeks.



Above: Rita Tobin: from the moment we escalate a problem from our KPI board, we can be certain of a response within a week. It is an amazing transformation.

Say goodbye to silos

Purchasing Manager Rita Tobin is impressed by Daily Layered Accountability because it makes it hard for people not to get involved. But most of all she values Focus Factory. This is the Level Three Daily Layered Accountability meeting each morning at which site leaders, function heads and value stream leaders review the performance of the whole site. She tells us why.

If a supplier tells us a drawing is out of date, say, or a certain material is now obsolete, we can't complete the order without

the business. No-one thinks we are crying wolf any more. Having everyone in the room makes it very easy to escalate things. If someone is out of the

consecutive meetings. At the end, when we break up, people often go into huddles of twos and threes. This is when lots of problems get solved very quickly.

Everyone was focusing so hard on their own priorities it was hard for any of us to see the bigger picture

help from Engineering. In the past we could wait a very long time for that support. Everyone was focusing so hard on their own priorities it was hard for any of us to see the bigger picture. There's also been a lot of changes in operations leadership in my time at Meggitt Avionics. Oddly, the uncertainty that created seemed to exaggerate the silo effect, making it even harder to get support from other parts of the business. Now, the moment we escalate something from our own DLA board, we can be certain of a response within a week. It's an amazing transformation.

"That's why Focus Factory is so valuable to us. It has driven out all that silo stuff. We all have the same priorities now. Each morning Focus Factory makes sure we are all pulling in the same direction. Problems are discussed openly and everyone can see their true impact on

office a lot, Focus Factory is the place to catch them. If something needs doing, it is made the responsibility of a named individual—who is likely to get on with it promptly if only to avoid having to answer the same questions at two

Something that might take a week to deal with by email can be sorted out there and then in a few minutes.

"I wouldn't say nobody cared before DLA and Focus Factory, but now people do go out of their way to support each other." ■

Focus Factory makes sure we are all pulling in the same direction. Problems are discussed openly and everyone can see their true impact on the business



Two Ps in Procurement?

For Rita’s purchasing team, deciding on what their DLA key performance indicators should be was quite a challenge. But once they had some ‘base settings’, refining and adapting the board proved relatively simple. Here’s Rita’s advice for ‘getting it done, rather than getting it perfect’.

1. Don’t get hung up on the five categories: safety, quality, delivery, inventory, productivity/cost.

Perhaps start by using only some of the letters. We had three at first. Now we have six. Our board features two Ps!

2. Don’t worry if your first KPIs don’t work very well.

Try something else. Enjoy experimenting with them. They will soon fall into place once you begin looking at them every morning.

3. Pick your KPI levels carefully and don’t be afraid to adjust them.

If you set your targets too aggressively you could end up with a sea of red flags which can be a bit demotivating, especially at the start.

4. Remember to choose or design KPIs that make the daily gathering of data quick and easy.

5. It can take time to get everybody thinking about what they do on a daily cycle, so be patient.

We were used to weekly and monthly working, so it took us two or three months to adjust. Persevere. It is worth it. You’ll be surprised the difference a daily drum beat makes.

6. Love your Living Pareto chart.

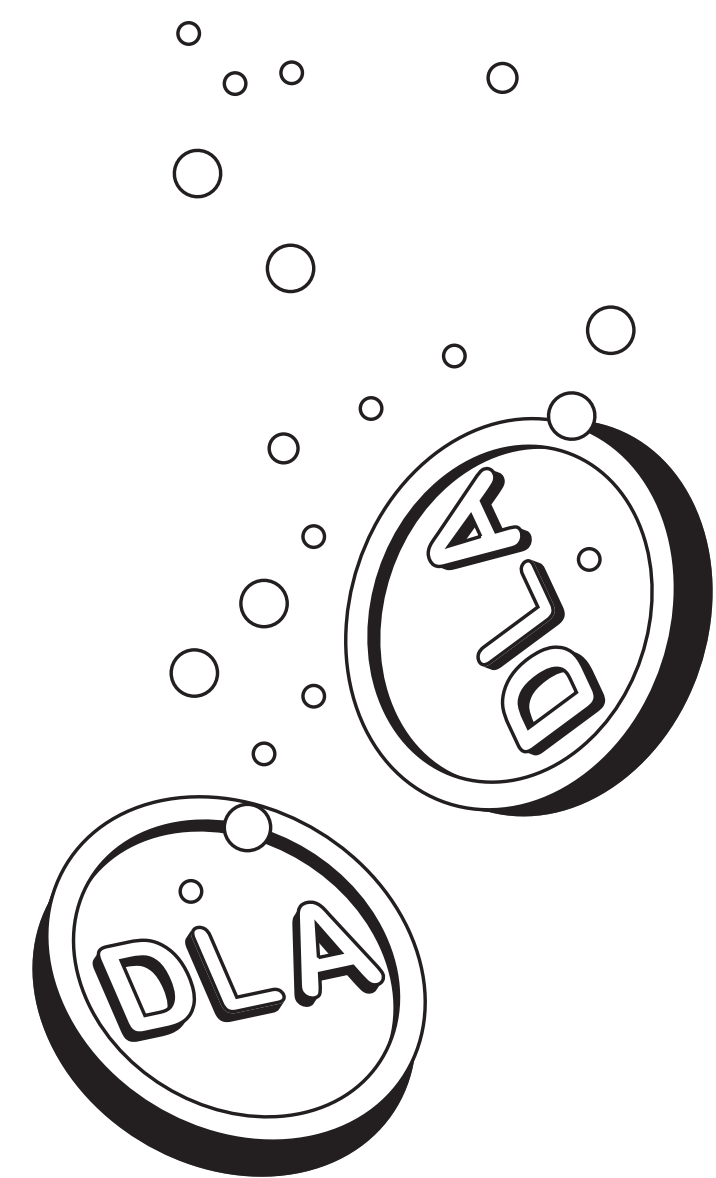
You will be so surprised at how it cuts through your assumptions and preconceptions about a process and shows you what’s really causing your problems. Then you can focus on your ‘Vital Few’. ■

Rapid relief from LTA headache



Above: Jamie Baxter: DLA works fast when it comes to producing a senior management response.

Jamie Baxter (Strategic Buyer) joined Meggitt Avionics six years ago to work in strategic sourcing. He arrived full of enthusiasm but slowly had to accept that when he needed the support of someone outside his department—which he did five or six times a week—he would have to wait weeks for a response. “That was the ‘norm,’” he says. “They were busy trying to satisfy their own departmental priorities.” Then came Meggitt Production System.



I have recently been struggling to get one particular supplier to sign a long-term supply agreement [LTA]. They wanted to double the price. The attitude was ‘take it or leave it’. They knew we couldn’t replace them—it would take years and cost millions to re-qualify—so

They wanted to double the price. The attitude was ‘take it or leave it’

they held all the cards. It was delicate because they are also an important customer. We escalated the problem up through

and within a few days Mark and I were sitting down with the supplier. “There and then, Mark was able to discuss the cost changes behind their price rise and to talk about Meggitt Avionics’ future demand for the product in terms of our own customers’ needs. Without DLA to produce a very quick senior management response that sort of exchange would have taken much longer and required several more meetings to get us to the same place. As it was, the whole problem was wrapped up in a few days and we came away with an LTA based on a much better price. Could that have happened in the past? I very much doubt it. Procurement would have been left to sort it out largely on its own,

the whole problem was wrapped up in a few days and we came away with an LTA based on a much better price. Could that have happened in the past? I very much doubt it

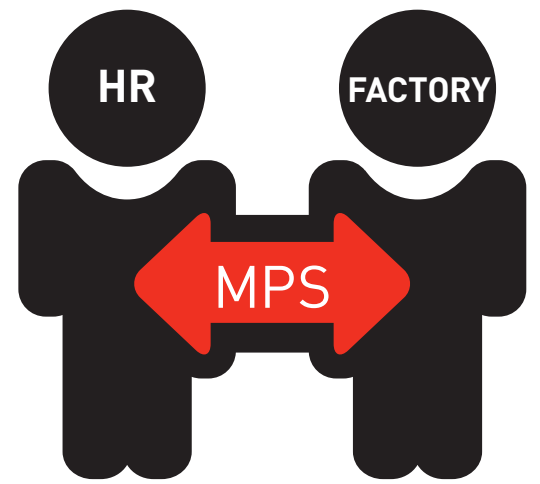
the DLA structure. Annette [Hobhouse, Managing Director] immediately involved Mark [Crompton, Operations Director]

management responses would have been much slower and the negotiations would probably have dragged on for months.” ■



In step with the business

When Human Resources Manager, Linda Sear saw what Meggitt Production System was going to do for the Meggitt Avionics factory, she knew immediately that HR should join in.



Above: Linda Sear: MPS has been invaluable in homing in on obstructions and inefficiencies in the recruitment process and engaging the rest of the business in their removal.

The chance was there for every department", says Sear. "I felt it was a great

performance and growth of any engineering operation. Meggitt Avionics is no exception, says

enabled us to provide that. And once we had defined the problem we were then able

tricky because by necessity we are often very reactive—which can be frustrating. You might

production-style tools in this way, says Sear, citing the reactions of her networking group of HR professionals: "I know a lot of HR people in manufacturing companies who have Lean. And they have got some of these tools. But they certainly don't extend them to the HR team."

If the experience at Meggitt Avionics is anything to go by it's clear that all support teams should be included, says Sear. "At first, just like everyone else,

The HR DLA meeting—now in its second iteration—has been invaluable in homing in on obstructions and inefficiencies in the recruitment process and then engaging the rest of the business in their removal

opportunity to follow closely what the business was doing so we would all speak the same

Sear: "It's usually engineers we are looking for and they are the toughest to recruit."

The HR DLA process—now in its second iteration—has been invaluable in homing in on obstructions and inefficiencies in the recruitment process and then engaging the rest of the business in their removal. "Two main problems emerged. Right at the start we weren't getting quality CVs from our agencies. Then, further down the line, we were taking far too long to make our offers, especially to engineers."

The average interview-to-offer time was two to three weeks. Now it's a maximum of 48 hours. "Engineers want to see appropriate data even if it is an HR process they are looking at. The MPS tools have

to work with Engineering to implement improvements to the process," says Sear.

Working on the interview-to-offer problem underlined the importance of choosing key performance indicators that improve communications with the rest of the business as well as improving HR's own internal processes. As a consequence the DLA board is very much a work-in-progress. "We are using complaints as our 'Quality' measure," explains Sear, as she reviews the board's columns, "and for 'Delivery' we are developing a measure based on CV turnaround times. Our 'Inventory' is, of course, our workforce and so we are developing a KPI based on new starters. 'Productivity' is

be surprised how frequently whole days can be lost under a deluge of ad hoc enquiries

The average interview-to-offer time was two to three weeks. Now it's a maximum of 48 hours

and requests. We want to exercise more control over the day, so the team is running an experiment. At morning DLA each person states one important action they will commit to getting done that day, whatever else happens, and then we track those actions."

It's very rare for an HR department to deploy

we thought 'how are we going to find time to do all this new work?' But it's not extra—it's just a new way of working. Now, every day at ten o'clock we have our DLA. There's no need to gather up the team. Everyone is fully engaged and keen to participate. They are all there—waiting for me, usually—absolutely committed to it. It really works for us." ■

It's usually engineers we are looking for and they are the toughest to recruit

language and understand the same things about how the business is run."

A nationwide shortage of technical and engineering skills puts HR functions at the sharp end of managing the

The ~~AB~~ to ~~Z~~W of MPS

Glossary of terms

Best practice	Standards for given activity or process which are subject to continuous improvement and thus never more than provisional. As with countermeasures , an improved version (i.e., a better best practice) is likely to emerge at any moment.
Better	Superior objective to perfect .
Coaching	Management technique aimed at helping another person get best from themselves. Coachee often found to possess valuable experience and insight but mysteriously lacks confidence to deploy them routinely without guidance. Replaces old-fashioned management technique based on shouting and waving of large sticks. See leading .
Countermeasure	A solution waiting to be improved upon. Term does not mean associated red flag event is done and dusted. An even better countermeasure is likely to be along at any moment.
Diversion	A necessary production activity, the cost of which cannot be charged to the customer so must be diverted to overhead. The best diversions tackle the root cause of a problem. But even sticking plasters have their uses.
DLA	Daily Layered Accountability. Rapid, structured information flows achieved via sequence of meetings focused on production performance. Chairs are sometimes provided but never used. Also: technique for simultaneously empowering participants and demonstrating that what they do each day really does matter. See inverting the pyramid .
Engagement	Personal obsession (healthy) with quality of what is done and how. Not to be confused with immediate pre-nuptial state of being affianced or betrothed.
Gemba	Japanese word which means 'the real place'. Used in Lean terminology to mean 'the place where value is created' or 'where the work is done'.
Green day	Everything is on track, in shape, on time. Green flags on a DLA board of KPIs is good – unless there are too many of them. After all, there's no such thing as perfect .
Inverting the pyramid	What DLA does. Mechanism by which old-fashioned managers are transported to gemba .
Leader Standard Work	Best practice in leading , using people-based focus on processes rather than results , using techniques such as coaching .
Leading	Respectable management technique historically performed impatiently from the front. Now performed patiently, alongside those being led. Modern form relies heavily on coaching .

Living Pareto	Real-time chart showing real cause of problems. Has reputation for shattering comforting illusions.
MPS	Meggitt Production System. Proof that a person has not, after all, 'seen it all before.'
Myth	Something previously thought of as 'a fact' but now dispelled by Living Pareto .
No-fly zone	Segment of time, not airspace, in which only DLA meetings can take place. Normally found at start of working day. Designed to leave no excuse for absence. People who call non-DLA meetings during no-fly zone can experience intense feelings of loneliness.
No one	The person who is responsible for something when 'everyone' is believed responsible for it (© Toyota).
Obsession (healthy)	Simultaneously a consequence and a cause of engagement with what you do and how you do it.
Perfect	Otherwise known as 'the impossible'. Must not be allowed to get in the way of better .
Processes	What you take care of to ensure that results take care of themselves.
Red flag	Key performance indicator (KPI) off target. Nothing to fear – but room to improve. All red flags point to things that need addressing. But the only 'bad' red flags are those without a countermeasure to keep them company.
Results	What you get when you take care of processes .
Solution	Archaic usage. Replaced by countermeasure .
S, the 7 th	'Stuff' or 'shovel'. As in: "You can't do 6S 'til you've shovelled out all the (old) 'stuff' first". © Mark Crompton. NB: usage can be vulgarised.
Vilfredo Pareto	The man who gave us Pareto Principle (80/20 rule) – 80% of effects tend to come from 20% of causes. In 1906 Pareto noted that 20% of people owned 80% of Italian land. Also discovered that one-fifth of all pea pods produce the bulk of all peas. Died 1923. Did not live to see invention of living pareto .
Vital Few	What Vilfredo Pareto has pointed at for more than a century. The few things that cause most problems. Identity of <i>Vital Few</i> changes with time and continuous improvement activity. Concentrating on them is always the best route to biggest gains in shortest time.
Work in progress	Life and all its sub-assemblies (including MPS).

QUALITY

RIGHT FIRST TIME. EVERY TIME

Sounds good, doesn't it? 99.9% conforming product delivered. Except that in certain large organisations that miserable missing 0.1% could equate to 16,000 pieces of lost mail a day, 22,000 wrongly debited/credited cheques per hour, 20,000 incorrect drug prescriptions per year and 12 new-born babies given to the wrong parents every day in the USA. Ian McMurray, Group Quality Director, explains how Meggitt is going to close the gap.

Meggitt is several points away from the 100% quality product average customers are demanding in an era of unprecedented new programme launches—and wins for Meggitt. However, *Corrective Action Preventive Action (CAPA)*, effectively a "Quality Clinic" starter programme, is going to help get us there.

CAPA provides the tools to contain and make decisions on how to address defective product through scrap, rework or customer concessions, underpinned by the requirement to prevent the error—or errors—from creating that defect again. With a mix of basic, structured and advanced problem-solving tools such as the 5 Whys, Cause & Effect, Seven Step and Six Sigma, the institution of Quality Clinics marks the start of a reinvigoration of Quality processes as part of the Meggitt Production System implementation.

Over the next 18 months, every Meggitt business will be exposed to the philosophy of CAPA within two-day introductory courses designed to appeal to the novice and seasoned continuous improvement practitioner, line manager and cell operative in equal measure.

Ian McMurray, Group Quality Director, says: "You've heard it before but it doesn't make it any less true. Quality is everyone's responsibility." He cites recent weld problems

where reworking a product was confused with corrective action. "Actually, the fundamental issues were nothing to do with welding. It was about lighting, training and equipment, requiring a multi-functional response from operations, HR and procurement." However, McMurray also makes clear: "Quality has to be regarded as much of a personal responsibility as a team effort. The person down the line is your customer, to whom only good things should be passed."

So, why CAPA now? As a maturing organisation, Meggitt is in a position to implement the standard processes that enable big levers for change to be identified and continuous improvement techniques applied. CAPA is, of course, just one of many quality processes (Prevention of Counterfeit and Fraudulent Parts, Works Transfer Management, Production Part Approval among them) but CAPA is to Quality what 6S is to a Continuous Improvement function like MPS.

Speaking of MPS, McMurray knows that Quality activity must complement Meggitt's big Lean and continuous improvement initiative. However, he sees the danger of duplication as a relatively short-term risk. Daily Layered Accountability (the multi-layered daily review process

With the launch of the CAPA programme, Meggitt personnel will be exposed progressively to Meggitt's new Quality mark—a combination of the letter Q and a stylised magnifying glass allied to the slogan: "Right First Time Every Time". This is the Quality professional's nirvana, arising from a mind-set that aspires to zero defects. "Of course, to err is human," says McMurray, "so the emphasis must be on error-proofing as much as we can, so our systems tell us that a defect is likely to arise, rather than customers telling us it already has." 'BIQ'—Built-in Quality—is where McMurray and his team of regional and divisional directors—is headed.

McMurray concludes: "Ultimately, we want to raise awareness, so that our people can recognise failure modes instinctively. It is about learning to stand back and really look so you can ask yourself why a document containing instructions is so clean [not much referred to], why valuable components are placed on unsuitable surfaces [causing unnecessary damage]; why components are positioned where they are [not ergonomically] and why almost identical product sits side by side [risking confusion]."

Right First Time Every Time. The Quality professional's nirvana, arising from a mind-set that aspires to zero defects. The emphasis must be on error-proofing as much as we can so our systems tell us that a defect is likely to arise, rather than customers telling us it has

that sees problems rise to the fore in a capillary action to the appropriate decision-makers) will mature. Quality processes too. At this point, McMurray expects operators to be conducting most dispositions at cell level. However, he knows that disposition data will always be needed for trend analysis and the application of holistic corrective action to policies, systems and processes. This points to the requirement, over the long term, for virtual Quality clinics.

McMurray will measure the effectiveness of the CAPA training not only by how rapidly defective product is contained and dispositioned but by the number of error-proofing solutions that arise from the application of structured problem-solving tools and techniques. "That's when quality becomes built-in and you get robust, repeatable, manufacturing processes that employees and customers can really rely on."