Abacus Automation is on top of its game

Abacus Automation is one of the top Siemens system integrators in this country. Instrumentation & Control's editor caught up with sales manager and director, Nico Erasmus to find out more about the company's ventures. Firstly, here's some background to what Abacus has achieved.

With expertise in chemical reactor plants, motion control drive applications, GPRS telemetry and OEM solutions. Abacus completes about 50 projects a year both locally and internationally. These vary in size from micro PLC applications to multimillion-Rand projects involving large drives, multiple PLCs, scada, and automation components.

As a member of the Siemens global solution partner programme, the company has been involved in dozens of joint venture projects with Siemens. It has received many accolades from Siemens, including awards for the best project and the most innovative project for four years running. These awards are presented annually by Siemens South Africa and take into account hundreds of projects done by over 40 system integrators, including the Siemens Project Division. The company is the first Siemens Motion Control Cranes solution partner in Africa, adding to its existing solution partner portfolio of Automation System Simatic, Human Machine Interface Simatic HMI, Micro Automation, and Drives and Motion.

With a reputation for innovative software and creative use of automation hardware, Abacus is going from strength to strength. Erasmus shares his thoughts on the system integrator scene in this country.

The current situation
There have been a lot of shake-ups in the industry after the upheavals in recent years, and industry is having a harder time in the comeback than the commercial sector. Abacus used to do a lot of work competing against OEMs from Europe to bring in a new machine and work with local manufacturers. Where that used to be two thirds of our business, this is now less than a third. We are more involved with helping customers extend the life of their machines by upgrading their control systems; and if they buy a new machine they are more likely to replace two old machines with one new one operating at twice the speed, and thus save on labour in that way.

Getting into cranes
We didn't see this coming back in 2012, when Siemens approached us to consider moving away from micro PLCs into motion control and cranes. At the time we were very competitive in that area because they were so cheap compared to the big PLCs. It took us several years to become fully certified for Siemens crane automation solutions, but now that's what's keeping us afloat. We're doing jobs on cranes in harbours in Eritrea, Djibuti and Kenya. This has become half our business because the local economy just isn't strong enough for all the players in the market. Our competitors out there are doing the same. This is what's keeping a lot of solution partners going at the moment. It's not the business within the country, but the business outside our borders.

Going down this path has opened up opportunities that we didn't see were going to be so key in the post-COVID environment. I think one of the biggest things that helped us was the general advocacy for SIs. We have been a sole Siemens system integrator since 1998, so haven't been using any other controller manufacturers. This is what allowed us to step into the crane market. We were the only ones fully certified by Siemens as a crane partner, and customers up in Africa had two choices: they could either go to Europe, or Siemens South Africa would pass them on to us.

Growing our staff
This has really taken a lot of pressure off us, and has allowed us to invest in growing our people. Despite the fact that the economy is in a really tough spot, we're at the point where we're actually short staffed. Our biggest challenge is not to find people who are looking for a job, they are easy to find. What's difficult is to find somebody who is passionate about this type of engineering.

There's a huge disconnect between the needs of big industries, and SIs and solution partners, with respect to the people we require. Big industries have the resources to lobby for the type of graduates they want, but their needs are more for a maintenance environment. System integrators have a smaller voice and aren't getting as much of a say in what they need. We find that there's a stream of students finishing their studies, but big industry can't take them up. Smaller companies have the capacity to take them up, but the students aren't geared to meet the needs of the solution partners and system integrators.

We are now looking at schools close to us, and getting involved in community projects. We have realised that if we can get closer to the schools, we can find kids where there's a passion starting to shine through, and we can catch them before they move into tertiary studies and industry. We can help grow that interest, and nurture them into the type of engineer that system integrators really need.

We're now approaching things from a completely different angle. Our strategy now is to put someone into a sales role, to get them used to the industry and get to know what customers need, and then grow them into a technical role. We're taking kids with no experience into a sales support role, so they can start getting to know how the technical field works, and we then slowly develop them and migrate them across. For example, we had

a student from the Congo studying here who did his practicals with us. He stayed on an extra two years with us to work with the engineering team, and we built him up to be a salesperson. We've now got an Abacus representative in the Congo.

Our philosophy

Our philosophy is that a customer needs to deal with you because he wants to deal with you, not because you painted him into a corner and he has to deal with you. Sometimes we just don't have anyone who can help a customer get a plant running, so then we will call a competitor. But we know that the customer will come back to us because of our passion. We don't have a sales force. Everything we do, and the opportunities we get, come from word of mouth.

Grey imports

Grey imports is another issue. I think there are two views on it, and both are probably valid. One side is fighting to get an opportunity, and the other is fighting to retain the opportunity. I think grey imports are here to stay, because we're sitting in a global market which is open to everyone. But it's important to realise that there is a space for both in the market, and everybody just needs to realise where their place is.

From our point of view, it doesn't make sense to use grey channels to bring in product for a project. If I do have a problem with an item, I need to know that I've got local backing to get replacements straight away. If you're looking at it from a maintenance point of view and you're just going to keep product on the shelf for stores, then it makes sense. That's where the balance is between the two. I think the most important thing is that the supplier needs to be honest with the buyer and say there is no backup if a product fails.

A couple of years ago people we were battling to get components because of the logistics problems worldwide, and that compounded the pressure of the grey channel on normal channels. Since then it's got back into balance, and the grey market has gone quieter.

We did get caught out once during the COVID era when, out of desperation, we brought in what we believed was a grey product – it turned out the supplier couldn't even spell the manufacturer's name correctly. So, that is a major concern, and a risk buyers need to be conscious of because there are fakes out there and everyone needs to be cautious.

Loadshedding

To an extent, loadshedding has helped the local market from a solution partner point of view. Older equipment can't tolerate a frequent off-on environment, and this is forcing many customers into doing upgrades because their equipment is failing, not only because of the loadshedding, but also because the electronics are already old and manufacturers need to keep their plant working. One of the things that's been keeping us busy in the local market is putting in 24-volt UPSs to keep PLCs and other equipment powered during loadshedding.

The specific challenges of a SI

The challenges of the SI differ from those of a straight manufacturer. Apart from needing passionate staff, we are smaller, have to be much more adaptable, and offer a higher level of service. We have to be constantly on top of our game.

In other industries you'll have a competitor that has a competing product. But as a system integrator there are two levels. You've got a competitor that competes with you on the same product because they're both Siemens system integrators, for example. But at the same time, you're also competing with another system integrator that does, for example, Allen Bradley or Omron. So you've got two levels of

competition to deal with that I think most other industries don't always have.

We need to push the boundaries here because we need to be more innovative than our competitors to be able to win the jobs.

The opportunities

The drive for innovation means that you need to look at how you can take an existing piece of equipment for a customer and make it as close to efficient as a new one would be. So you're not just ripping out the old controller and putting in a new one. You're also looking at how to use the opportunity to generate more income for your customer, get more production out of the production line, and get back to optimising it. We're also finding that some customers have become so reliant on system integrators from that point of view, that their own maintenance is starting to degrade. I think it's because they have inexperienced staff who may not realise the long-term impact of maintenance.

Our core business

We're primarily a project house, so we don't officially have a service division. We work by word of mouth. For example you get a phone call, you go to the plant, you have a look, and you say: "Okay, we're going to

need to upgrade this, but I can understand that you can't afford for your plant to stand until we can upgrade. Let's just get the line running." So you help them with some maintenance just to get them going again. And then you start negotiating about how much you charge them versus how much they are able to keep in hand to do an upgrade. You say: "Yes, I had to supply you with R100 000 of equipment. You can buy it now, or I can give it to you on loan for two months, because then we'll be ready to do the project, but on provision that I have the project order by the end of the month." You need to negotiate, because they're also on a tight budget. There are no more straight deals saying "there's the tender, here's my price".

Impact of AI technologies

I think AI is already part of the industry. We have automation for predictive maintenance. That's AI in a very basic form. I think the capability of the learning has picked up a lot of speed in the last year, and reached a tipping point, and become affordable. It's always been there, but it was very expensive. Suddenly it's right in front of everybody, as if it's something new.

The biggest challenge we've got with AI is a moral one. Where do you draw the line in doing something new, but shouldn't because it affects a livelihood and the value of a person's life? This has always been a big issue for us at Abacus. If a customer comes to me and says "I need you to automate this machine", the first thing I'll ask is "why do you need to automate the machine?". If the first answer is "I need to cut staff", I'll say, "you're doing it for the wrong reason. You need to do it because you want to improve your product". If we use AI to cut staff, I think we're overstepping a boundary. What makes it difficult with AI is the fact that it's not a line that you can draw in the sand and say that technology is setting the limit. Now it's ethics setting the limit.

Energy efficiency

People are concerned about energy efficiency as long as they're talking about it sitting in an air-conditioned office or around a table with a nice hot coffee. But once you get out on the factory floor, it's production and costs that count.

I think a lot of people are confused about the concepts of energy efficiency and green energy. They are two completely different things. They'll throw solar on the roof and say they're doing something. I say you're just helping to generate more electricity. You haven't changed anything in your factory to make it more energy efficient. You're just getting your power from a different place, and that's helping you bring your costs down. People don't see that if they put some covers on their heating panels and an extra layer of insulation, they'll use less electricity.

Future trends and innovations that will shape the industry

What we are finding is that graduates come out with a qualification on paper, but from a laboratory environment. They know all the equations, but they can't get a plant to run. If we can get that right, I think there'll be a big change in how our industry works together. I don't know how we're going to make it happen on a large scale, but if we can make it work on a smaller scale, we can share our experience.

We are seeing many people getting good qualifications, especially in First World countries. Graduates come out with a massive study debt, and then can't find good jobs because there's an oversupply of high qualifications. The people earning the big money have a trade – the plumbers and the electricians – because nobody can do that work anymore. That's where the skills shortage lies. Everybody likes to sit behind a laptop and write software, but at the end of the day, unless somebody knows where to put in the wire or connect the plugs, nothing's going to run. I think in the next 10 years we're going to see a major shift to the things that AI can't do, the trades. AI can take over some of software writing capabilities, but it can't turn a screwdriver or hit a hammer in the right place.

We've seen it at Abacus. As much as our guys like to get behind a laptop, we need them to understand how a load cell or a valve or a motor works? They must be able to strip it apart and fix it if it's broken. We put a lot of effort into giving our students hands-on skills. This helps them understand the mechanics,

because at the end of the day if you write software, all it does is control the mechanics. If you don't understand the mechanics, how will you know how to write your software correctly?

Our target markets

Cranes have become a big portion of our market, together with bigger motion control machines. We found early on that because we were not physically building cranes, but just working on the control side, it was difficult to convince people that we knew what we were doing. So, in 2014, we built a full seven-axis research and development crane in our workshop. It's running the full Siemens Simocrane solution on the crane management system. At the time, we built it so that we could teach ourselves, but later we realised its value in the African market.

Now, when we do a factory acceptance test, we download the software to the crane and can physically operate it. Customers can come in, sit in the seat, and operate the crane themselves and see what it does. This has suddenly opened up the door to Djibouti, Eritrea and Kenya. We're now also talking to potential customers in the Congo.

Highlights this year

A highlight for us is an upgrade on a Gottwald crane in Eritrea. These are notoriously difficult cranes to upgrade, so much so that Siemens required several technical meetings with us before allowing us to go ahead. This showed that Siemens is willing to trust us to tackle an upgrade like this. We used our in-house crane to get ourselves up to the necessary skill level. I think that's also a show of faith in how high our technical level and capabilities are.

The next five years

I think our biggest focus is to get the rest of Africa to know about us so that we can help refurbish cranes and extend their lifespans. We're all part of the same continent and we need to help each other to get ourselves on the right track.

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