

Industrial IOT on land and at sea: Agriculture

Inmarsat
Research
Programme
2018


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INTRODUCTION

Humans are consuming more. There are more of us than ever, and we have become accustomed to new technologies and the greater access to information they bring to our lives. For businesses in our major industries – agriculture, energy, maritime, mining and transport – this is having a significant impact. Producers need to optimise their cultivating and harvesting processes, manufacturers need to trace goods from initial extraction to their final destination, and suppliers need to provide more information about the goods that they deliver.

Data, generated by smart technologies like the Industrial Internet of Things (IIoT), is enabling these changes, and for businesses engaged in these industries, it has become the key differentiator to their competitors. Every business needs to collect data effectively in order to create new efficiencies to pass onto customers, before others beat them to it.

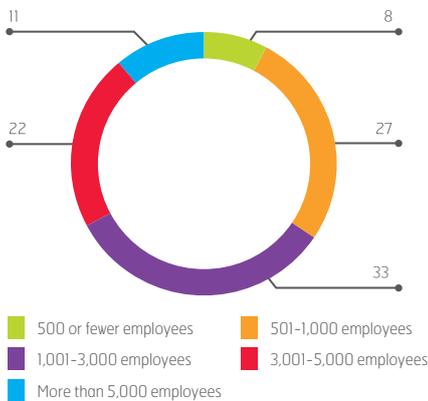
INMARSAT RESEARCH PROGRAMME

The Inmarsat Research Programme is now in its second year. This 2018 research is focused on understanding the ways that the Industrial Internet of Things is affecting the global supply chain and the way in which organisations from the agriculture, energy, maritime, mining and transport sectors operate. In May 2018 Inmarsat commissioned Vanson Bourne, a specialist technology market research company, to interview 750 respondents about their use of, attitude to and predictions for IIoT within their organisation and industry.

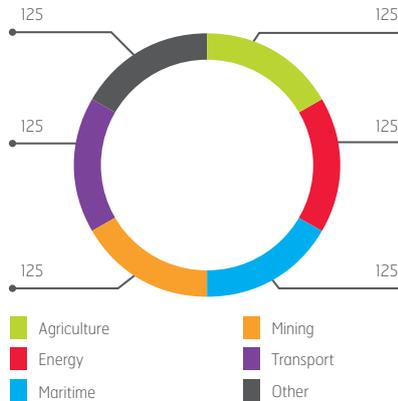
Respondents worked for organisations with at least 500 employees and have either decision-making or influencing responsibilities for IIoT initiatives. However, the profile of maritime respondents is different, in that 46 per cent worked for organisations employing fewer than 500 people.

RESEARCH DEMOGRAPHICS

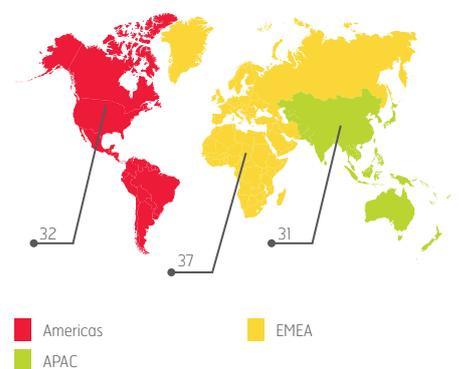
RESPONDENTS BY SIZE OF ORGANISATION (%)



RESPONDENTS BY SECTOR (750)



RESPONDENTS BY REGION (%)

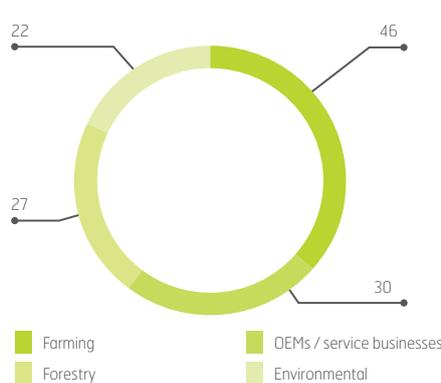


AGRICULTURE DEMOGRAPHICS

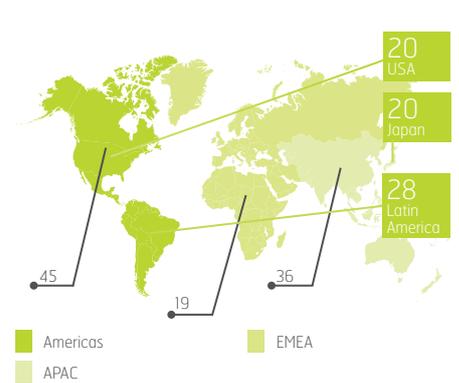
RESPONDENTS BY SIZE OF ORGANISATION (%)



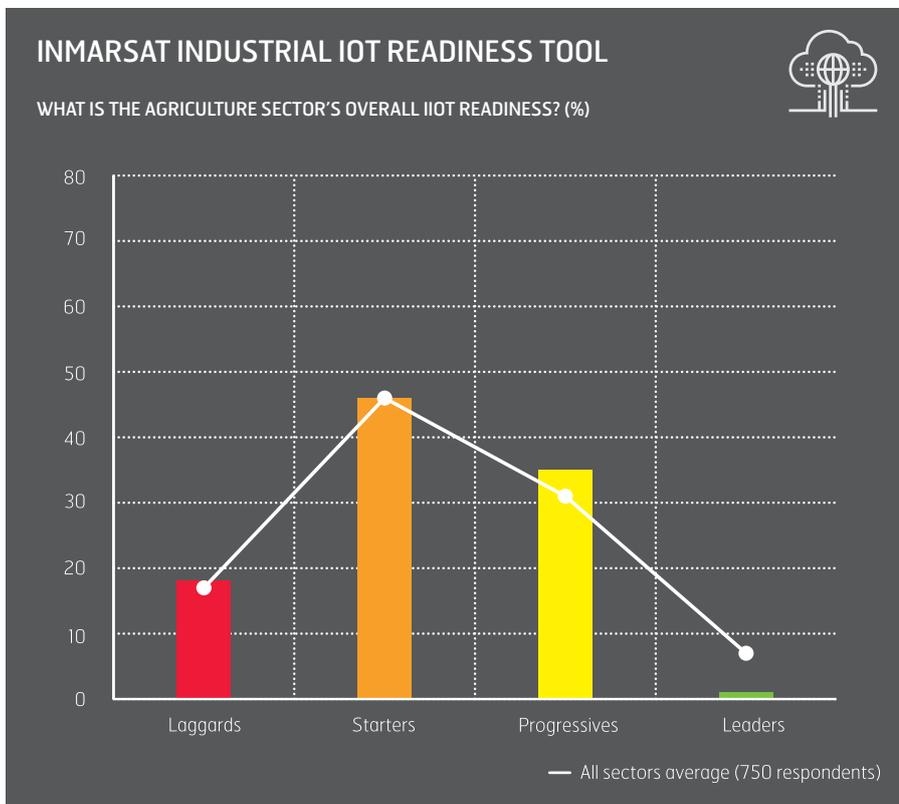
RESPONDENTS BY SUB-SECTOR (%)



RESPONDENTS BY REGION (%)



AGRICULTURE



The world population is expected to reach almost 10 billion by 2050¹, meaning that we will have over two billion extra mouths to feed. Agriculture must therefore improve its ability to deliver the organic products needed for food, clothing, medicine and a raft of other products, while simultaneously mitigating the effects of climate change.

Encouragingly, the sector is rising to the challenge and is starting to leverage new technologies, such as IIoT, to help it meet the challenges ahead. The overall IIoT readiness scores being reported in agriculture are broadly in line with those seen in the entire research sample. While it is notable that only a handful of respondents have yet earned a position in the leader category (all in the OEM sub-sector), the sector is laying the foundations of a smarter and more connected future.

However, the industry represents a broad number of different segments, from large-scale farming (both crop production and livestock) and forestry, to the OEM and service industries that furnish the sector with consultancy services, seeds and machinery, and organisations charged with protecting the delicate balance between humanity and nature. Each of these

groups have distinct reasons that are driving their use of IIoT and each face their own unique barriers to successful adoption, which we will unpack over the following pages.

Within the agriculture sector the enthusiasm for IIoT, and other next generation technologies, is undeniable, not least for their ability to protect often-slim margins by reducing operational costs (44 per cent), deploying resources like fertiliser and water more efficiently (38 per cent), and enabling businesses to become more sustainable (50 per cent). IIoT-based precision farming techniques, sometimes called variable farming, are much improved through IIoT. No two plots of land will be the same – soil types vary enormously, nutrient levels change and previous crop harvests alter the nature of the ground – meaning that IIoT can play a significant role in collecting data on the changing nature of the land. This information is hugely significant for farmers to understand the real time needs of their estates and increase crop yields.

Although it is still relatively early days, IIoT projects in the sector are already starting to deliver their intended results and respondents are reporting improvements in their operational sustainability,

productivity and asset utilisation, and it is IIoT data that sits at the heart of this transformation.

However, like every sector, skills and security challenges exist. Indeed, agriculture is an industry that appears to be struggling with security more than most, indicating that the sector is having a difficult time adapting to its new digital dependencies and vulnerabilities.

Connectivity is another challenge that must be resolved and the results indicate that many respondents, particularly those from Latin America, are struggling to access the connectivity they need to fully exploit IIoT. Given the remoteness of agricultural operations, connectivity is always going to be something to be navigated, though it is clear respondents that depend the most heavily on satellite are having the most success addressing the issue and reporting the most success from their IIoT initiatives.

IIoT an essential part of the future of the industry. However successful deployments sit on a foundation of knowledge about how to use data, courage and openness to new innovation, and for the sector to think and act more in-step with other agriculture and supply chain businesses and share insights smoothly between organisations. This will make the agricultural supply chain become more effective. The sector is reaching for these elements, but as our report shows, it does have further to go on its journey before it can realise transformative success in IIoT.

INMARSAT INDUSTRIAL IOT READINESS TOOL



Our tool allows us to benchmark sectors, organisations and industries against each other based on their IIoT readiness.

We asked our 750 respondents a series of questions, with points attached to their responses, scoring their IIoT development in six key areas:

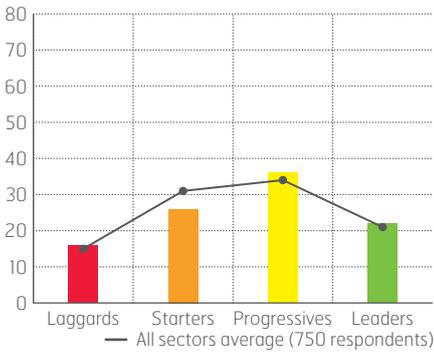
- Adoption
- Security
- Connectivity and IIoT technologies
- Skills
- Data
- Investment and ROI

Using the scores, we divided our respondents into categories indicating their IIoT maturity: laggard, starter, progressive and leader.

¹ www.un.org/development/desa/en/news/population/world-population-prospects-2017.html

ADOPTION

HOW MATURE IS THE AGRICULTURE SECTOR IN RELATION TO IIOT ADOPTION?



Today over half of organisations in the agriculture sector have fully (22 per cent) or partially (31 per cent) deployed IIoT solutions – a figure that, on land, can only be beaten by organisations in the transport sector – and all respondents expect to have IIoT solutions in place by 2020. This uptake of IIoT places well over half of respondents in the progressive or leader categories in our IIoT adoption readiness tool.

Respondents from across the agriculture spectrum are clearly enthusiastic about the potential that IIoT holds for their organisations. 77 per cent of respondents agree or strongly agree that it will revolutionise the industry, while 82 per cent think that IIoT will be essential for their organisation to gain an edge on the competition.

As a sector that is coming under intense pressure to increase production and protect margins, it should come as little surprise that these factors are driving the adoption of IIoT in the sector. Half (50 per cent) reported that environmental monitoring (of soil and weather conditions) was a driver, 44 per cent identified the promise that IIoT holds for reducing operational costs, and 38 per cent sought to improve resource efficiency through the technology.

Smarter IIoT-enabled irrigation systems are just one area where all three of these drivers can be achieved. Just 20 per cent of agricultural land is irrigated today, accounting for 40 per cent of the food produced globally, and while the expansion

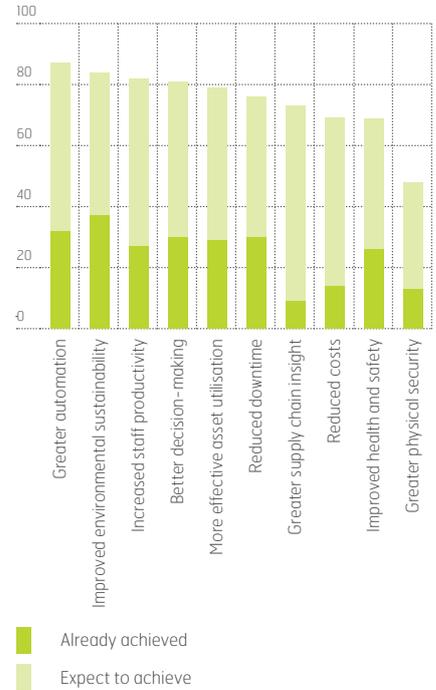
of irrigation systems would see yields increase considerably, current techniques represent a desperate waste of water. Adding an extra layer of intelligence to these solutions with IIoT sensors means that precious water reserves can be maximised, opening up the possibility for more farmers around the world to irrigate their crops and increase yields sustainably.

However, some interesting differences emerge when we break the sample down by respondent type. Those from forestry were most interested in the potential that IIoT holds for opening up new revenue generation opportunities (52 per cent). Farmers were concerned with using IIoT to reduce resource efficiency and to reduce costs (both 46 per cent). OEMs on the other hand, driven by need from other parts of the agricultural sector, are prioritising using IIoT to bolster physical security and health and safety (both 50 per cent).

Importantly, many respondents report that their IIoT projects are already starting to bear fruit and deliver the sort of changes that the sector needs to cope with the macroeconomic challenges it faces. 37 per cent report that IIoT has increased their environmental sustainability, 32 per cent have increased automation within their organisations, which in turn speeds up production and reduces the reliance on manual labour, and 30 per cent have achieved better decision making and less downtime as a consequence.

However, it's worth noting that respondents aren't yet reporting universal success rates in realising their objectives. Just 9 per cent state that they've achieved their objective of securing greater insight into their supply chains, while 64 per cent believe they will achieve this in the future. This is notable as the biggest disparity between what has been achieved so far and what agricultural respondents predict in the future. There is clearly momentum toward IIoT driving better supply chain insight in the agricultural sector, and with the right strategies and investment this prediction will revolutionise the industry.

HOW WOULD YOU SCORE YOUR ORGANISATION'S ACHIEVEMENT OF EXPECTED BENEFITS OF IIOT-BASED SOLUTIONS? (%)



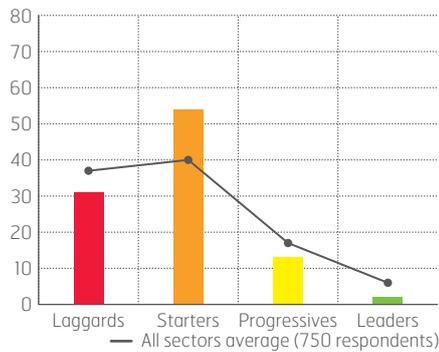
9%

have achieved greater insight into their supply chains to date, while 64 per cent believe this will happen in the future

IIoT projects are starting to bear fruit and deliver the sort of changes that the sector needs to cope with the macroeconomic challenges it faces

SKILLS

DOES THE AGRICULTURE SECTOR HAVE THE SKILLS IT NEEDS FOR IIOT? (%)



While skills are in short supply across all sectors and at all levels, they are most acute in the agriculture sector when it comes to keeping IIoT solutions up and running after deployment. Only 6 per cent stated that they had all the skills they needed in this area, with 92 per cent stating they would benefit from additional skills to augment those that they do have in this area. Evidently there is an opportunity for managed services companies to better support agricultural organisations with their IIoT deployments, after initial deployment, in order to deliver agreed productivity objectives.

Moreover, a lack of in-house skills emerged as the single biggest barrier to the adoption of IIoT solutions within agriculture, selected by 46 per cent of respondents, indicating that many are finding it difficult to adapt to an increasingly digital future.

The skills shortages being reported are particularly acute amongst OEMs, where over half (56 per cent) identified skills shortages as one of their biggest barriers to the development

of IIoT solutions within their organisation. This is not surprising considering their position at the sharp-end of the market developing IIoT-based solutions, and their greater understanding of its possibilities.

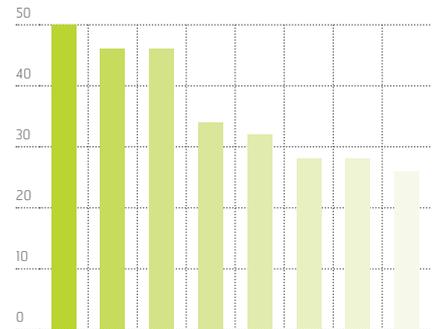
Looking at the specific skills needed, 50 per cent identified a shortfall in data science skills, making it harder for the industry to take meaning from the information they are collecting from their IIoT solutions. 46 per cent, meanwhile, believed that they lacked the necessary technical support and security skills for their IIoT initiatives.

These factors combined are putting a break on IIoT innovation within the sector. Furthermore, challenges in getting the right in-house skills means that it is likely costs will be higher in the development phase as organisations explore options to get their deployments right.

As the industry matures, and more off-the-shelf IIoT solutions become available (the current absence of which was identified by three in ten respondents as a barrier to IIoT adoption), the lack of in-house skills should become less of an issue. However, the sector must focus its efforts on upskilling and reskilling their existing workforce and technology education needs to be seen to be part of what it means to work in agriculture.

The future of agriculture depends on not only understanding how to produce organic materials, but also how technology sits at the centre of all aspects of the industry. The answer lies in greater collaboration in the sector and to work more closely with partners who can share their skills and experience to smooth out the process.

WHAT ADDITIONAL SPECIFIC SKILLS DO YOU THINK YOUR ORGANISATION NEEDS TO DELIVER IIOT-BASED SOLUTIONS? (%)



- Data science skills
- Technical support skills
- Security skills
- Database management skills
- Planning skills
- Management skills
- Customer service skills
- Decision-making skills

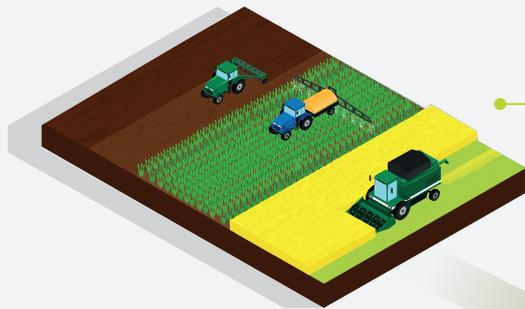
50%

lack the data analysis skills they require for IIoT

Skills shortages, particularly amongst OEMs, are putting a break on IIoT innovation within the agriculture sector

SUGAR CANE HARVESTING

The agricultural sector is adopting IIoT at a rapid pace, reaping the benefits of smart risk prevention, optimised harvesting and growing conditions. The growth and harvesting of sugar cane shows how connected sensors and data analytics platforms can optimise and accelerate food production.



RISK PREVENTION

Agricultural businesses face a number of risks to crop security and safety – primarily fire, floods and pests. Sensors monitoring crop and environmental conditions can provide early risk warnings risk and avoid huge disruption to crop production.

Reduction in crop disruption. More stable production. Improved RoI on land usage.

GROWING CONDITIONS

Mills need data to manage their sugarcane crops over the lifespan of 10 years. Sensors can provide detailed nutrient data to give farm owners visibility on growing conditions, including phosphate status for flocculation of sugar, and potash level to maximise sugar content.

Maximise plants per hectare. Reduce crop compaction. Organise routine operations with improved efficiency.



OPTIMISED HARVESTING

Blanket crop harvesting is inefficient and does not result in maximum yields. Sensors can monitor the sugar content of the cane and therefore readiness to harvest, so that crops are only harvested when they will deliver maximum yield.

Maximise yields. Improve efficiency of harvesting. More productive use of staff time.

PEOPLE POWER

While agriculture has become increasingly mechanised, manual labour is still a crucial part of one of the world's most dangerous industries. Connected, wearable technology can play a vital role in keeping workers safe while monitoring productivity.

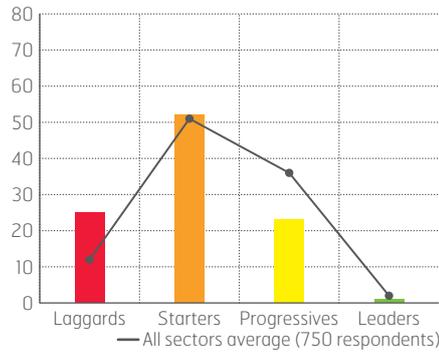
Improved health and safety. Improved staff productivity. Improved efficiency of operations.





SECURITY

HOW MATURE IS THE AGRICULTURE SECTOR'S APPROACH TO IIOT SECURITY? (%)



Industry experts are coming to terms with the idea that, while the industry is not going to come under the same concerted attacks that finance houses are, there's a growing need to protect agricultural set-ups. But despite this recognition, security is still an area that much of the sector is struggling with, with the clear majority of respondents ranking in the laggard or starter categories when it comes to IIoT security.

By its nature, the agricultural sector has traditionally been well insulated from cyber-attacks, so the limited progress in this area is somewhat expected. However, as farms integrate evermore internet-enabled technologies into their operations that is rapidly changing. Such attacks could have devastating consequences, and a well-targeted hack of a smart irrigation system or harvesting machinery could well do irreparable damage to a supply chain or wreak havoc in the commodity market.

While it is encouraging that just 19 per cent stated that security was a barrier to adoption – significantly lower than the figure reported in some other sectors – six in ten respondents admitted that their processes to combat cyber-

security and protect against data mishandling could be improved. Moreover, 98 per cent said that they had IIoT security concerns of some sort.

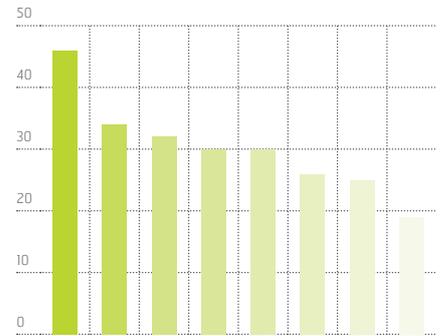
However, despite their recognition of the potential security risks, the steps agriculture respondents have taken to address these vulnerabilities indicates that they are not yet properly confronting the issue. While around half have instigated initiatives to train employees on IIoT (46 per cent), only around 34 per cent have moved to improve the security of physical assets such as sensor nodes and just 25 per cent have invested in new security technologies.

The low level of activity being reported to improve the security surrounding IIoT solutions may owe to the relatively limited involvement of Chief Information Security Officers (CISOs) in IIoT deployments in the sector. Almost four in ten (38 per cent) respondents state that their CISOs are not involved in IIoT deployments, but should be, and a further 18 per cent didn't see a need for their involvement at all. When we consider the skills shortages and challenges being reported with regard to security in all segments of the agriculture sector, this is surprising.

On a more positive note, the agriculture sector is actively looking to plug the gaps in its security capabilities and work with third party specialists to secure their IIoT initiatives. Just 13 per cent of agriculture respondents intend to manage the ongoing security of their IIoT solutions, with the majority expecting to enlist the help of security experts.

When we consider how quickly the threat landscape is evolving, and the security challenges being reported, agriculture's recognition that it can't solve the security issue on its own is encouraging; however, it has much to do to safeguard its future.

WHAT CHANGES TO SECURITY HAS YOUR ORGANISATION MADE, OR DOES IT INTEND TO MAKE, TO ADDRESS IIOT SECURITY CONCERNS? (%)



- Training employees on IIoT
- Securing physical assets such as sensor nodes
- Upgrading existing security technologies
- Partnering with a third party
- Hiring skilled staff
- Communicating to customers on the use of IIoT
- Investing in new security technologies
- Creation of an external IIoT security policy for suppliers and partners

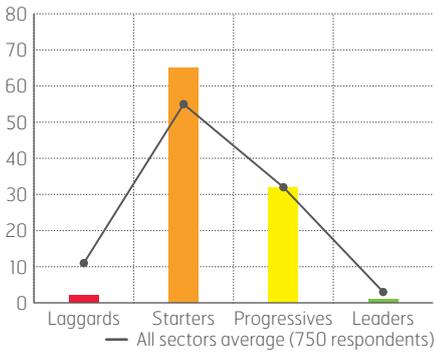
60%

stated that their approaches to cyber-security could be stronger

The agriculture sector is actively looking for support from third party specialists to secure their IIoT initiatives

DATA USAGE

HOW ADVANCED IS THE AGRICULTURE SECTOR'S APPROACH TO IIOT DATA? (%)



The agriculture sector is doing marginally better than others in the way that it harnesses IIoT data, but our research indicates it has some way to go before it can fully leverage it to maximise competitive advantage. While just 2 per cent of respondents registered in the laggard category, a further two-thirds came out as starters, suggesting that much of the data generated by IIoT solutions is left to waste, which is a missed opportunity.

As we touched on earlier, agricultural businesses are beginning to realise some benefits of IIoT within their organisation, but more sophisticated analysis and a view of their wider supply chain is still out of reach.

Respondents clearly recognised the potential that IIoT data holds for enabling them to transform their business and optimise their operations, and businesses are expecting to put the data that is available to them to a number of innovative uses. For example, 81 per cent of businesses involved in forestry hope to use this data to improve environmental sustainability, and 89 per cent in the farming sector expect to use the data to increase staff productivity.

Our research indicated a number of factors that may be hindering agricultural firms in their use of data. Security is of course one of the most pressing issues, with 36 per cent of agriculture businesses reporting that insecure data storage and transmission was one of the reasons they were not able to use their data as effectively as they would like.

38 per cent of respondents identified a lag between data being collected and it being available for analysis as the reason they were struggling to utilise their data, showing how critical it is for businesses to have robust connectivity channels in place to allow real-time monitoring. Equally important is the need for a well architected flow of data, with careful consideration needed regarding what data is processed at 'the edge', by the sensors, vs. the data that is sent to the cloud for aggregation into analytic dashboards. This is an area in which many agriculture respondents fall down.

Without these networks and skillsets in place, agricultural businesses cannot make best use of their data, to provide up-to-the-minute insights on what's going on in the field, in order to inform real-time decision-making. If further evidence was needed that agricultural businesses need to get better at sharing the data gathered by IIoT solutions, internally, of the 125 companies that we surveyed, just 9 per cent said the data was available to everyone within the organisation, with 41 per cent saying it was only available to certain departments involved in that IIoT deployment, making agriculture more siloed than any other industry we reviewed. For businesses to gain the full benefits of IIoT deployment, they must open up access to their data so that the potential for innovation is increased and staff can collaborate.

While the immediate priority will be to share data within organisations, a siloed approach to data will not benefit agricultural companies – particularly due to increased regulation, governmental involvement and the opportunity for tertiary businesses. In time, the manner in which data flows out of the agricultural organisation will become paramount as these third-parties begin to rely on this real-time information to gain insight into the global production and supply chain. Those agricultural businesses who begin to work with their digital partners in this way will benefit from the development of new revenue streams and symbiotic digital eco-systems that afford them significant competitor advantages.

A big issue regarding data sharing is about trust. Many farmers – of all sizes – are very concerned about who owns their data and how it is used. Players in the agricultural supply chain vary

WHAT CHALLENGES DOES YOUR ORGANISATION FACE IN USING DATA EFFECTIVELY AS POSSIBLE? (%)



- It is only available to the IT department and senior management
- It is only available to certain departments involved in the IIoT deployment
- It is available to anyone in the organisation, but access must be granted
- It is available to anyone in the organisation to access and use

enormously in scale. Retailers and distributors can be significantly larger than the farmers they work with and this has been previously used to squeeze sales margins. The idea of sharing valuable data up and down the supply chain therefore causes concern amongst some farmers who feel at greater commercial risk. In time however, those who do not share data reciprocally will find themselves disadvantaged.

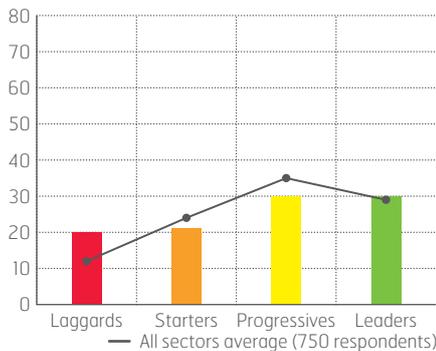
55%

restrict access to IIoT data within their organisation

The majority of agriculture companies expect the data from IIoT solutions to deliver improvements to staff productivity and sustainability

CONNECTIVITY AND IIOT TECHNOLOGIES

HOW WELL IS THE AGRICULTURE SECTOR ADAPTING TO THE CONNECTIVITY REQUIREMENTS OF IIOT? (%)



Overall, the agriculture sector showed a healthy level of connectivity to enable Industrial IoT, with some 60 per cent of respondents ranking in the progressive or leader categories. However, looking into the detail, especially the performance of communication networks, it can be seen that organisations that struggle with reliable connectivity are significantly behind the sector overall, with many having barely begun their journey into IIoT deployment.

When asked whether they ‘struggled with reliable connectivity when it comes to successful IIoT deployment at least some of the time’, 40 per cent of respondents agreed. Whereas overall, 51 per cent of agricultural respondents had fully deployed or were trialling the deployment of IIoT, this figure drops dramatically to just 4 per cent for those saying that they had connectivity issues. The difference is stark in a number of areas – 88 per cent of those that could be classed as ‘connectivity strugglers’ said that it was disrupting their ability to take advantage of the technology (compared to just 10 per cent of the overall sample).

On nearly every measurement, whether it is access to skills and expertise, forecasted cost savings and impact on turnover, or planned investment in digital transformation – those who struggle with connectivity are at a serious disadvantage and can be considered laggards in their IIoT maturity. Getting the right connectivity in place is fundamental to improving business performance and grasping any of the opportunities of the fourth industrial revolution.

Those that do not have the right connectivity in place will soon face a serious competitive challenge from any company with a solid communications network behind it.

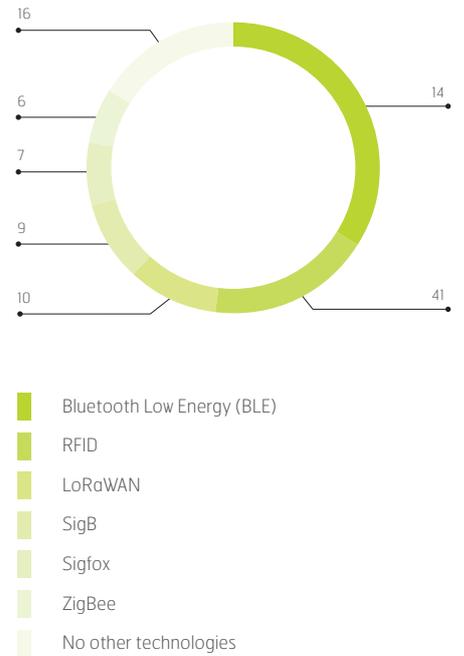
The research also investigated what types of communication network were proving most popular in the sector. The remoteness of certain parts of the agricultural industries lends itself to a greater use of satellite communication networks so it is not surprising that 72 per cent said that they used satellite to some extent, followed by cellular networks (61 per cent) and fibre (49 per cent). Perhaps the most significant finding was the divergence in satellite use being a determinate of whether they experienced connectivity difficulties. 82 per cent of respondents who do have reliable connectivity use satellite to some degree, but the proportion falls to 57 per cent who report connectivity struggles.

Moreover, Latin America stood out from other regions participating in this research on the connectivity issue. More than double (82 per cent) the respondents in Latin America reported struggling to some degree with connectivity, compared to the overall response (40 per cent), giving some indication of why just 4 per cent from the region have IIoT projects in the field. Again, like the rest of respondents who reported connectivity problems, Latin American organisations are behind their global competition when it comes to satellite deployment and on every measurement of IIoT deployment maturity.

It is clear that OEMs are placing their bets on satellite connectivity to help them overcome their connectivity gaps, and more so than the other subsectors that make up the agriculture industry. Almost all of OEMs (94 per cent) believe that satellite is essential for IIoT, primarily because these companies report valuing network coverage above all other attributes. When you consider how the research has shown significance of satellite to reliable connectivity this should not be surprising.

Over a third of respondents (34 per cent) are using Bluetooth Low Energy to support their IIoT deployments, making it the most commonly-used technology in the sector, followed by RFID (used by 18 per cent). However, a broad range of other IIoT protocols are being used. One in ten (10 per cent) are reliant on LoRaWAN, while 9 per cent report that they are using SigB.

WHAT TECHNOLOGIES ARE YOU USING IN YOUR IIOT-BASED SOLUTIONS DEPLOYMENTS? (%)

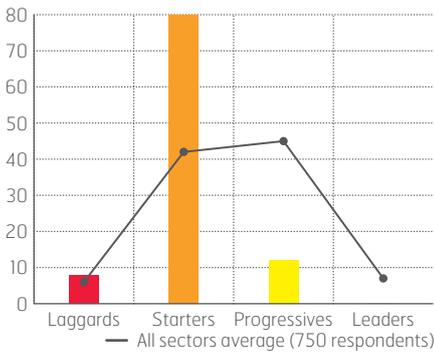


72%
will use satellite technology to support their IIoT projects

OEMs are placing their bets on satellite connectivity to help them overcome their connectivity gaps

INVESTMENT AND ROI

HOW WILL THE AGRICULTURE SECTOR INVEST IN IIOT? (%)



The level of investment in the agricultural sector is significantly lower than the levels seen in the other industries included in this report. With 80 per cent of agriculture businesses ranked as IIoT starters, the industry is clearly at the early stages of its IIoT investment cycle, and if it is to capture the full value of IIoT solutions it must ramp up its level of investment to ensure successful deployments.

However, the picture is more complicated than these figures would suggest and when viewing agriculture's investments in IIoT to date, and those planned in future, as a percentage of overall IT budgets, the sector appears in a better light. Respondents invested 2 per cent of their IT budgets in IIoT over the last three years – a comparable figure to the overall sample – and their planned investment over the next three years surpasses that seen in other sectors. Agriculture respondents will devote 9 per cent (11 per cent in farming) of their IT budgets to IIoT through to 2021, which would indicate that the sector is investing heavily in the technology.

Despite this, the absolute figures reveal a different view. Agriculture businesses reported that they expect to spend on average close to \$1 million on IIoT solutions in the next three years, significantly below the average amount of over \$5 million that respondents across all

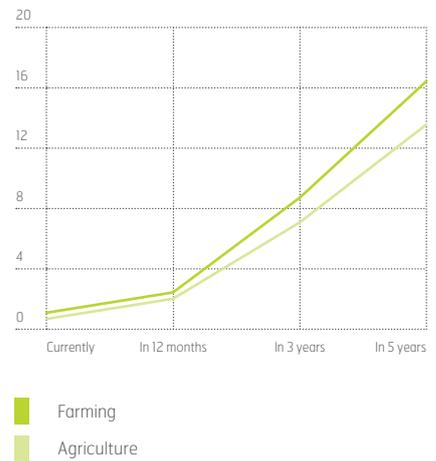
industries expected to invest over the same timeframe. The investment picture also shows significant variation across the different sub-sectors. Those businesses involved in farming and OEMs are showing bullish levels of investment, at well over \$1 million, while the forestry sector languishes behind on just over \$400,000.

These differences owe much to the size of organisations surveyed but also, more importantly, agriculture's relatively low-tech starting point. It of course stands to reason that a farm would spend less on technology than, say, an oil company, though agriculture businesses should reassess the amount they spend on technology as they look to seek the benefits of a more digitally-enabled future.

While sensors can be deployed in fields or on livestock to monitor basic parameters such as soil moisture levels or animal welfare at relatively low cost and to good effect, heavier duty IIoT deployments hold the promise of more substantial rewards. Completely automating heavy machinery, like seed drills or crop harvesting machinery, for example, would reduce the sector's reliance on manual labour, speed up the rate of production and serve to maximise crop yields. These next-level IIoT deployments come with a higher price tag, though the data indicates that a higher spend on IIoT technologies comes with a correspondingly high return on investment.

Large scale farmers' enthusiasm for IIoT, and higher level of investment, is reflected in these organisations' expectations for IIoT's contribution to their turnover and costs. Over the next five years, farming businesses expect IIoT solutions to help grow their turnover by over 16 per cent, well above the agriculture average figure of 14 per cent. In addition, farmers expect IIoT solutions to help them save almost 20 per cent of their costs, ahead of the 18 per cent reported by agriculture respondents overall, reflecting IIoT's potential to help businesses in the sector operate with much greater efficiency.

WHAT TURNOVER INCREASE IS YOUR ORGANISATION LIKELY TO ACHIEVE THROUGH ITS USE OF IIOT? (%)



9%

of IT budgets will be spent on IIoT over the next three years

Over the next five years, farming businesses expect IIoT solutions to help grow their turnover by over 16 per cent



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