



NW Security Group

Video Analytics Adoption Trends UK Business Study

Market research report from an England-wide study of medium and large-sized businesses running existing CCTV systems commissioned by NW Security Group

November 2021



Foreword

During May 2021, NW Security Group commissioned an in-depth study of over 150 medium and large-sized businesses across England. Only businesses with more than 50 employees and in charge of their own CCTV system(s) were selected for this study.

We wanted to explore the plans and expectations that these businesses had for adoption and usage of a wide range of video analytics tools within their existing CCTV systems.

The study examines 14 types of video analytics tools which have so far seen significant adoption in their existing CCTV systems. We also explored the prospects for further video analytics adoption within the next 12 months.

We explored how existing systems were being managed and maintained today and whether this was having an impact on deployment of video analytics in systems. We also probed user experience by those that had implemented video analytics and the extent to which false positives and negatives were still a problem following implementation of video analytics.

Further, we explored where video analytics is on the Technology Adoption Curve and analysed what dangers might lie ahead for video analytics providers, given that the technology is now being placed into the hands of the so-called 'Late Majority' 'conservative' users. Finally, NW Security offers some best practice tips for those implementing video analytics in the coming months and years.

A good many findings confirmed what our existing customers and prospects have been telling us. However, this report also reveals some genuine surprises which we hope you will find as interesting and enlightening as we did. Happy reading!

Yours sincerely,



Frank Crouwel
Managing Director



Contents

1.	Setting the scene	4
2.	Video analytics adoption levels	6
3.	Underlying drivers for accelerating adoption	11
4.	Dangers of rapid technology adoption	17
5.	Tackling false positive and negatives	20
6.	Is outsourcing growing as video analytics usage becomes widespread?	26
7.	Bringing it all together	31

1. Setting the scene

NW Security Group decided to commission this study to confirm what it anticipated from discussions with existing customers, that businesses running CCTV systems are increasingly being offered video analytics functionality by camera and video management software (VMS) vendors as more and more of them build 'smart' functionality into next generation products.

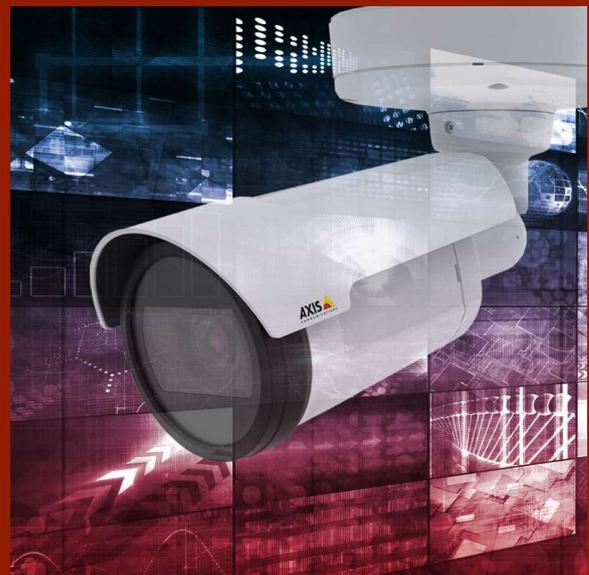
It was also important to find out whether user expectations were being met even as barriers to adoption fall. Was this new technology increasing detection rates? Was it supporting a more proactive or preventative security stance or instead was it precipitating a new set of problems?

Nationally-respected market research firm Opinium executed this survey which was completed by 152 IT, operations and security systems decision makers of firms with more than 50 employees based in England, between 18th and 28th May 2021. Only firms with CCTV systems were invited to complete the survey.

Of this group of 152 questioned, 49 (32 per cent of the whole) respondents claimed not to use any video analytics or were unsure of whether video analytics was in active use in their systems.

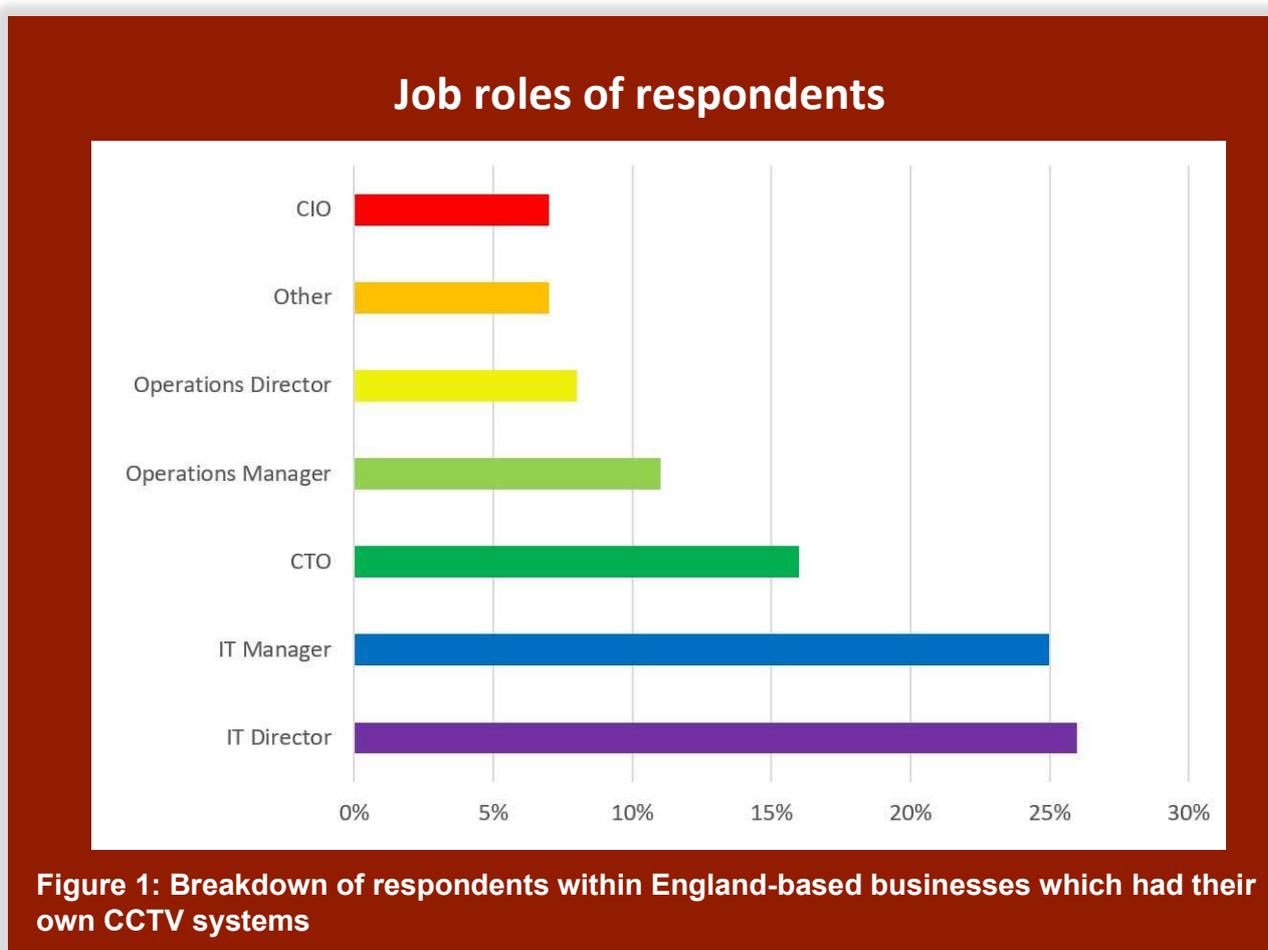
These 'non-analytics users' gave NW Security an opportunity to explore why a third of the existing potential market for video analytics has not yet put it to work and what might yet trigger their adoption.

68%
of the 152 CCTV
owning businesses
we spoke to are using
video analytics



Working with Opinium, NW Security directed two-thirds of all questions to those that had already adopted video analytics tools as it was keen to explore, in some depth, which video analytics tools had been put to work and with what degree of success to date.

Respondents were heavily-weighted towards senior operations as well as security and IT heads of medium-sized firms (with 50 to 249 staff) and large businesses (with 250 or more staff): 25 per cent were IT managers, 26 per cent IT directors, 16 per cent CTOs and 7 per cent CIOs. 11 per cent were operations managers and 8 per cent operations directors. The balance held different roles but were still physical security systems decision makers.



2. Video analytics adoption levels

Facial Recognition is most widely deployed

Four out of every ten (41 per cent) of all 152 England-based medium and large-sized businesses which are running CCTV systems have already deployed facial recognition video analytics capabilities in their systems to capture human faces and compare images to human face databases, with a view to identifying matches for operational efficiency, access control or public safety purposes.

A further 16 per cent of CCTV system decision makers questioned, admitted to having access to facial recognition capability in their system already, even though they had not yet gone live with it.

The high level of adoption of Facial Recognition – the highest of all 14 types of video analytics this study captured – is surprising given the complexity of implementing Facial Recognition analytics and the data protection and privacy considerations involved in using them.

41%

of businesses surveyed
have already deployed
Facial Recognition video
analytics

Strong demand for event and behavioural recognition

36%

of CCTV system
owners have already
deployed Event or
Behavioural Analytics

Over a third of CCTV system owners (36 per cent) had already deployed some Event or Behavioural Recognition analytics. Examples given included spotting loitering or highlighting abandoned bags (bags with no person in close proximity). A further 22 per cent believed that they had this capability in their systems but had not yet turned it on.

ANPR and VMD are neck and neck

Just over a third (34 per cent) of CCTV system owners questioned had already deployed Automatic Number Plate Recognition (ANPR) to capture number plates at perimeter barriers for example. The same number of system owners (34 per cent) had deployed Video Motion Detection (VMD) to help reduce their systems' video storage requirements by only recording when motion is detected in front of a camera.

34%
of businesses have
already deployed ANPR

Auto Tracking sees rapid adoption

Exactly a third (33.33 per cent) of CCTV system owners in England claimed to have deployed Object Tracking - a relatively new capability which enables security teams to track individuals from camera to camera through a large site in 'auto track' mode. A further 22 per cent had access to this facility in their existing CCTV system but had not yet turned it on.

Object Detection aids accuracy of systems

32%
of businesses have
deployed Object Detection
or Object Classification to
help their system
distinguish between
objects such as humans,
vehicles and animals

Nearly a third (32 per cent) had deployed Object Detection or Object Classification to help the system distinguish between humans, vehicles and animals. 23 per cent confirmed that they had this capability in their systems but had not yet turned it on.

Only marginally less (31.6 per cent) claimed to have already deployed Directional Detection analytics to detect which direction an object or person is moving over a line. A further 28 per cent claimed to have this capability at their disposal but have not yet turned it on.

OCR analytics aids goods in transit tracking

Optical Character Recognition (OCR) analytics, heavily used to read the identification codes on parcels and other goods in transit, has been deployed by 31 per cent of England's businesses in NW Security's survey. A further 24 per cent claimed that they already had this capability in their systems but had not yet put it to work.

BI-led analytics gaining ground

Business intelligence-led video analytics was not far behind in terms of adoption. For example, Heat Mapping which is commonly used to detect crowds forming before events or analyse the busiest areas of a shop, has already been deployed by 28 per cent of CCTV system owners. Approximately a quarter (23 per cent) claimed to have this capability at their disposal but had not yet made it live.

People counting boosted by 'COVID Safety'

28 per cent had turned on People Counting analytics on their systems. NW Security discovered some of these people had adopted this capability to monitor room capacity levels for COVID Safety reasons. Nearly as many, 26 per cent, thought they had People Counting analytics available in their system but had not yet made it live.

Over a quarter (27 per cent) recorded that they were using Facial Detection analytics and a further quarter (25 per cent) had deployed Traffic Monitoring analytics in their systems. While 22 per cent of system owners recorded making Crowd Density analytics live on their systems.

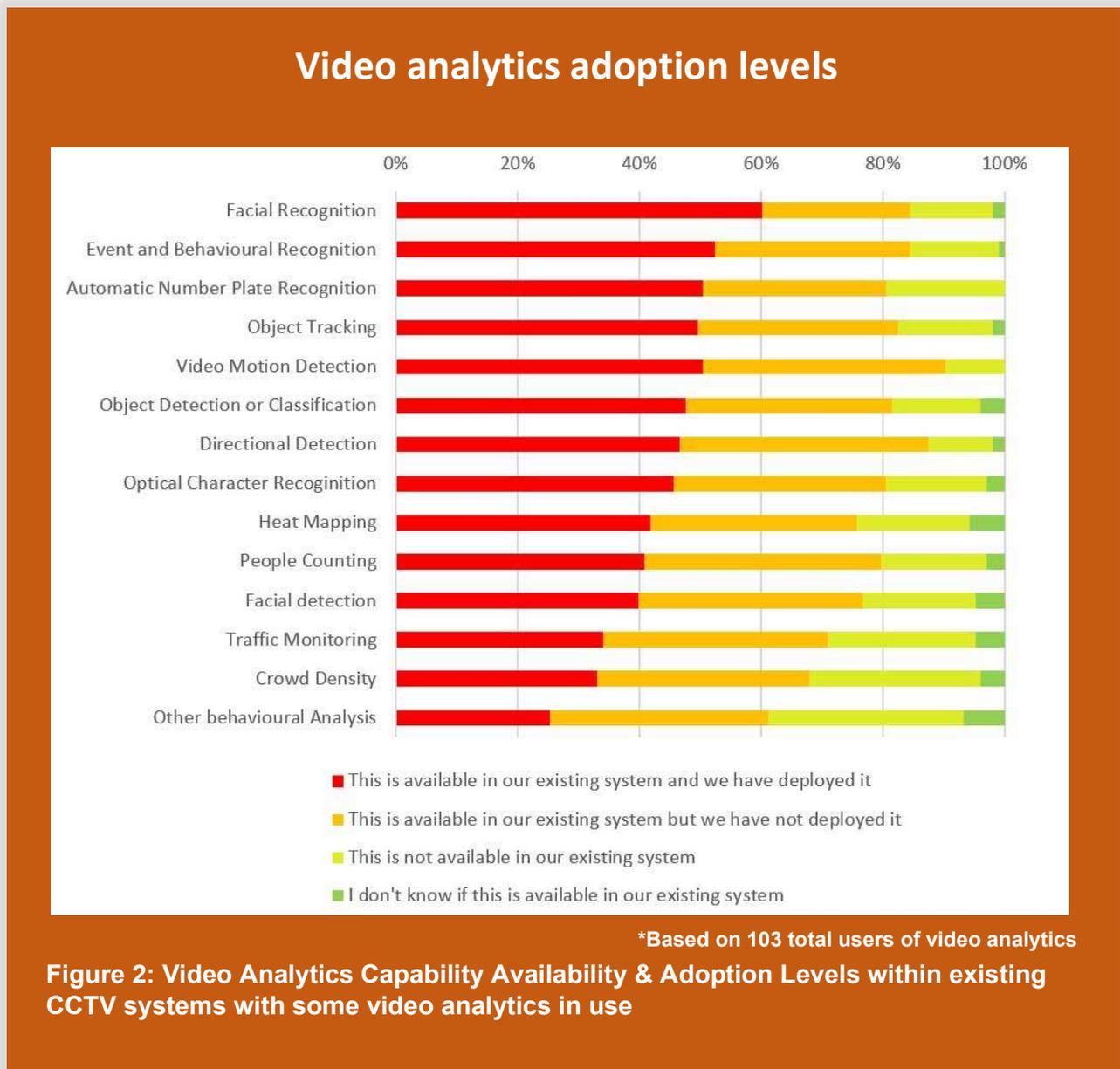
Even higher numbers (24 per cent) confirmed that they had access to Crowd Density measurement analytics in their existing systems but had not yet deployed this functionality.

28%

turned on People Counting analytics, with some adopting it to monitor room capacity levels for COVID safety reasons

Bundled 'at the edge' analytics accelerating

It is clear from these adoption figures that a wide array of video analytics capabilities are being bundled with a great many new cameras already in use. The availability of so much video analytics functionality 'at the edge' has undoubtedly served to boost video analytics adoption considerably in the last few years so that today seven different types of analytics have already seen over 30 per cent adoption across the total base of over 152 CCTV system owners of medium and large-sized businesses across England in this study.



It is perhaps no surprise then that video surveillance market research company Novaira Insights, in its *'World Market for Video Surveillance Hardware and Software'* 2021 market report, found that 43 per cent of all professional grade network security cameras shipped worldwide in 2020 featured these advanced video analytics capabilities.

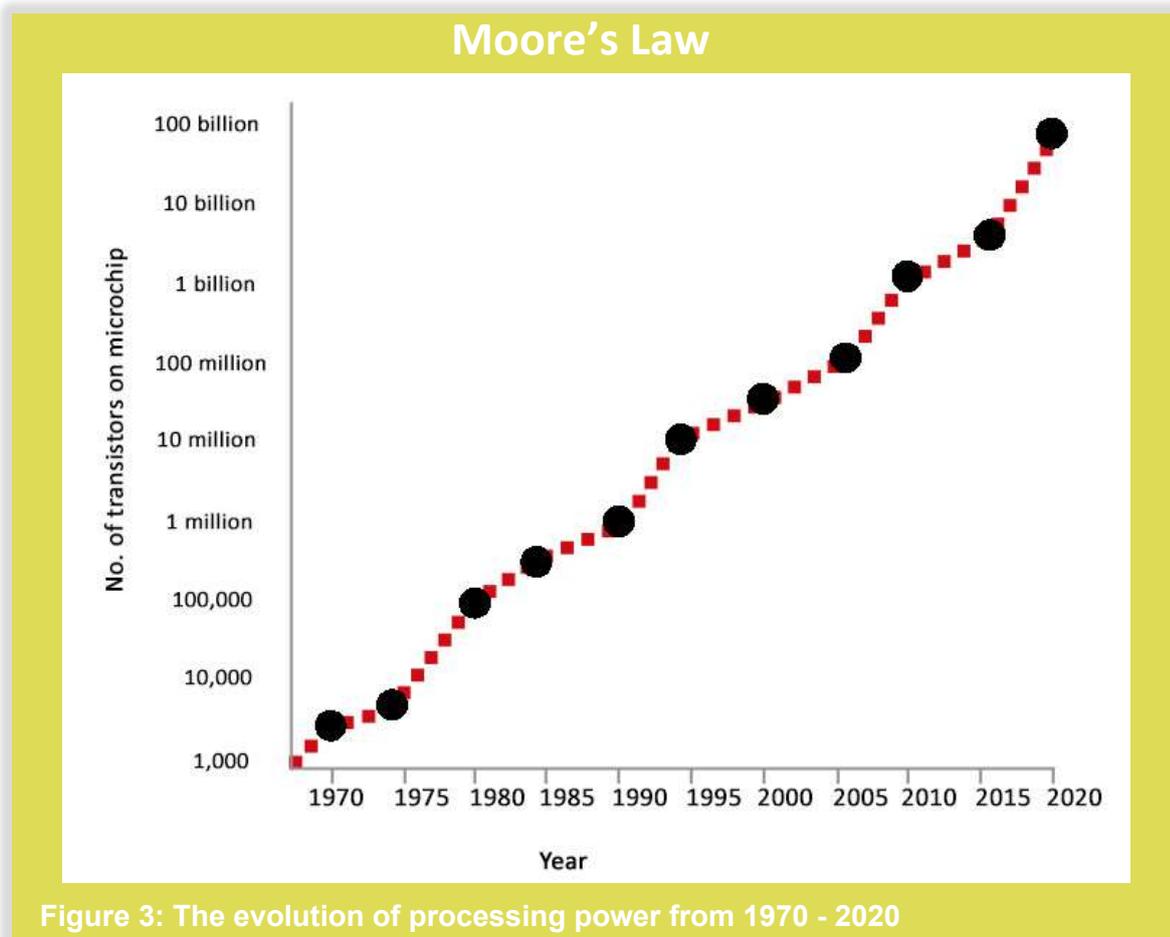
The market research house also predicted the percentage of new cameras shipped with advanced video analytics capabilities inside would rise to 81 per cent within the next four years – making these capabilities ubiquitously available to all those upgrading or extending existing video security systems by 2025.

3. Underlying drivers for accelerating adoption

Moore's law has made smart cameras widely available

Moore's law is the observation that the number of transistors in a dense integrated circuit doubles about every two years. Gordon Moore, the co-founder of Fairchild Semiconductor and Intel, made his prophetic forecast which promised more and more processing capability could be packed onto smaller and smaller devices in 1975 and it's proved to be accurate ever since.

Moore's law has essentially done its stuff for network cameras which have been able to accommodate increasingly sophisticated and advanced video analytics 'at the edge' and in progressively smaller format security cameras.



Demand for proactive security rising

As well as the technology market dynamics driving advanced analytics adoption, what else is going on which is likely to accelerate that adoption? There is clear demand out there to improve the accuracy of CCTV monitoring and enable early and more proactive identification of potential security breaches, incidents or crimes.

Human-only monitoring constraints

There is also clear recognition, based on in-field studies over the last 20 years or more, that human-only monitoring is exposed to multiple variables. Training of operatives is one clear issue so that they know what incidents to look out for and where to focus monitoring activity. Not giving operatives too many cameras to monitor is also important, as is the set-up and layout of control rooms which can support, or detract from, the concentration of operatives.

Many studies, including one entitled **'See no evil: Cognitive challenges of security surveillance and monitoring'**, put together by the Department of Applied Psychology, Cardiff Metropolitan University working in collaboration with École de psychologie, Université Laval, Québec in Canada, summarise the difficulties of human operatives consistently spotting incidents by monitoring live surveillance images.

Video analytics can support control room operatives by helping them spot anticipated scenarios which tend to be precursors to security incidents

It is clear that video analytics can support control room operatives by helping those running and monitoring systems to spot anticipated scenarios which tend to be precursors to security incidents: whether that includes types of behaviour, types of objects or visual data logging and matching, as is likely to be the case with Facial Recognition, ANPR or OCR analytics.

CCTV systems extended to support COVID requirements

There also has been widespread deployment of video analytics in existing video security systems to help keep high street retail shops and business premises 'COVID Safe,' for example. Video analytics has been deployed to monitor room occupancy numbers in offices' meeting rooms as they have started to refill post-lockdown.

Offices and hotels are also using facial recognition analytics to provide contactless access to guests and staff alike to reduce risk of viral transmission on access control devices. Our research showed 60 per cent of respondents use Facial Recognition for the purpose of COVID Safe access control.

Some in retail are using access to video systems for visual merchandising purposes – remotely reviewing new store layouts, observing and directing adjustments to goods being displayed in stores to make it easier for customers to move around their stores and view more items.

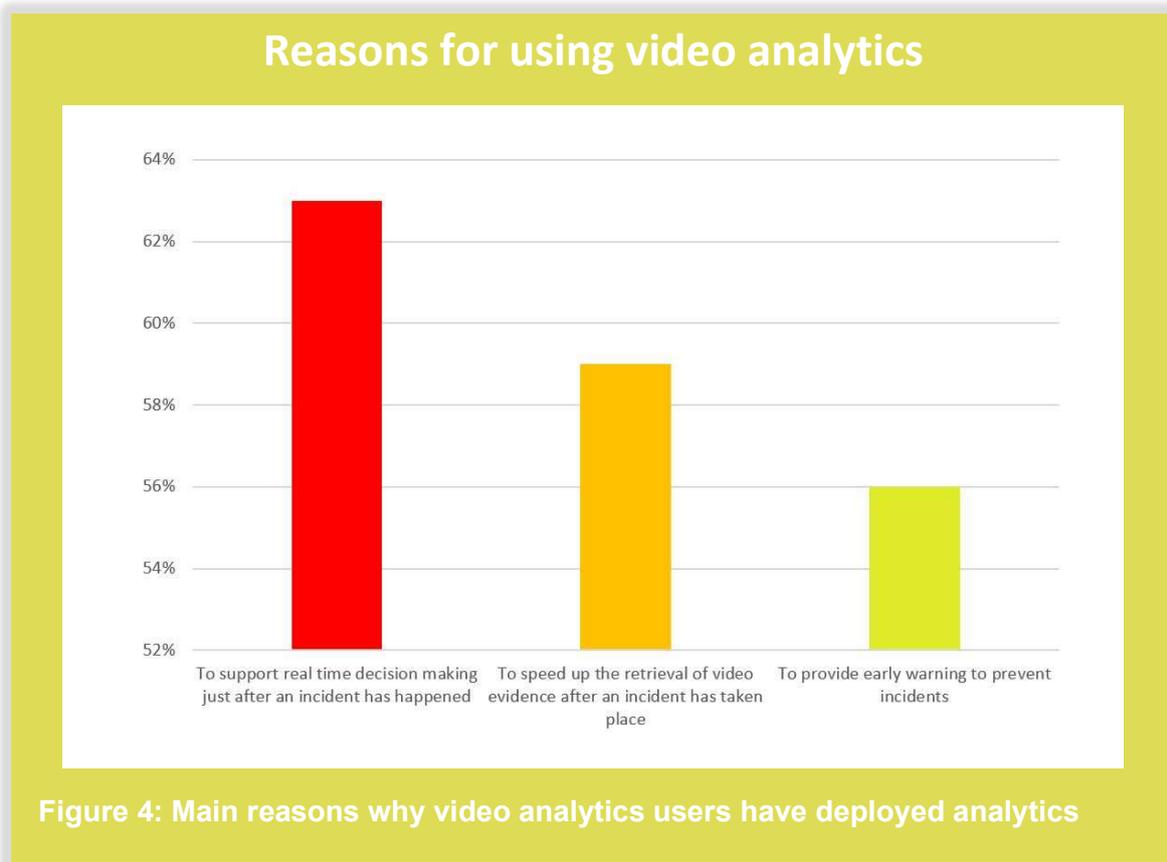
The key point is that CCTV systems need to be seen now as a route to 'visual big data' gathering and analysis for whatever business benefit can be derived from this process. Of course, all this data needs to be collected, used and managed within legal as well as moral constraints associated with all systems which are gathering and using personal, identifiable data.

CCTV systems need to be seen now as a route to 'visual big data' gathering and analysis for whatever business benefit can be derived from this process



Benefits of video analytics uncovered

Exploring in more detail the benefits users were deriving from video analytics adoption where they had made capabilities live, it became clear that a powerful mix of benefits were at work including: responding faster to security incidents, deterring target crimes, and supporting operational or productivity increases. These three factors were key for the majority of CCTV system decision makers which had already deployed video analytics.



Perhaps, just as revealing was the fact that only 30 per cent found that video analytics which they had already deployed was helping them to reduce false positives and negatives. Is this because 70 per cent of video analytics users were simply not seeing that benefit at all or because they were realising more eye-catching benefits associated with operational efficiencies or the ability to respond to security incidents faster?

Key Benefits of video analytics

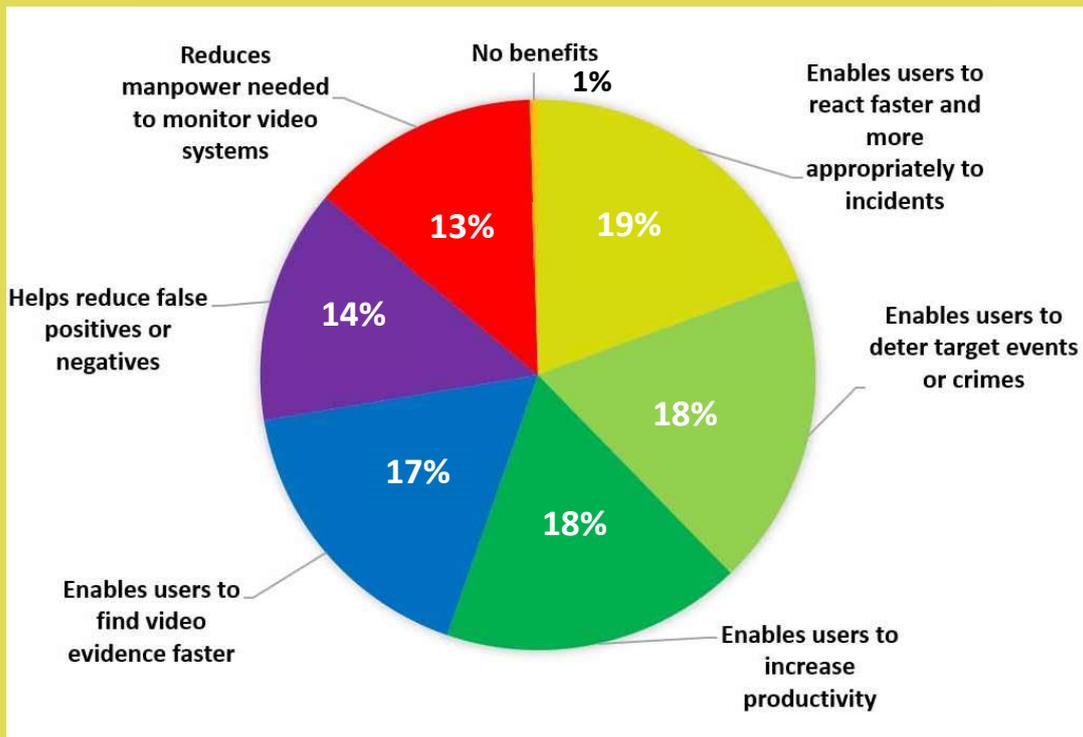


Figure 5: Benefits of video analytics amongst users which have deployed video analytics

We decided to go deeper - asking those that had already deployed video analytics tools whether they were capable of improving the accuracy and reducing false alarms being generated by their CCTV systems.

The results offered no ringing endorsement for existing video analytics amongst users. Indeed, over a quarter (26 per cent) confirmed that very few video analytics offerings 'will improve accuracy or reduce false positives or negatives' and only a quarter believed they were all capable of improving accuracy and reducing false positives or negatives.

26%

agreed with the statement
'very few video analytics offerings
will improve accuracy or reduce
false positives or negatives'

How many of the latest generation analytics are capable of improving accuracy?

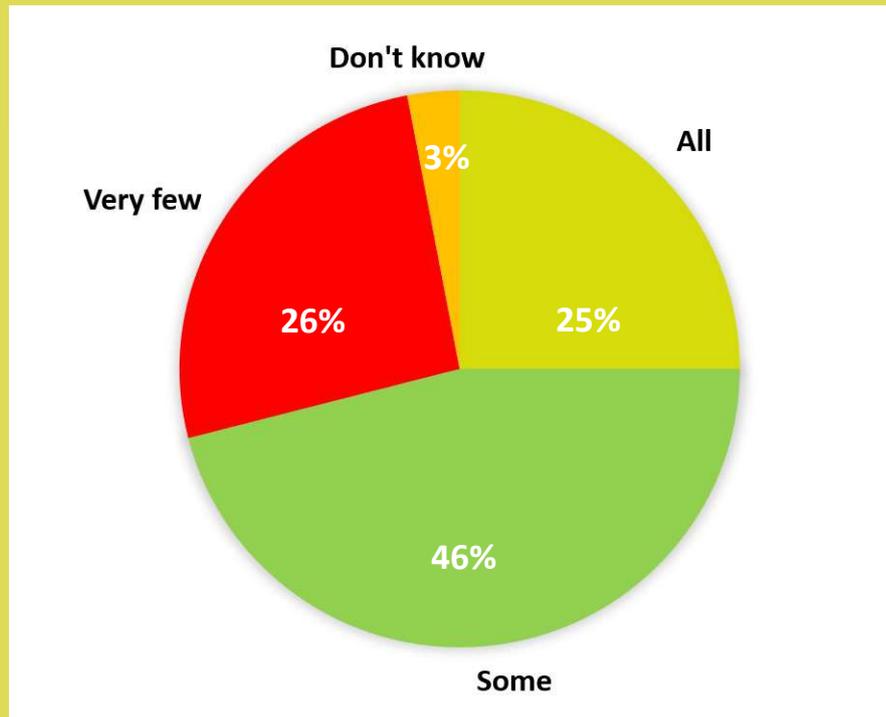


Figure 6: Only a quarter confirmed that existing video analytics are capable of improving accuracy and reducing false alerts consistently today

NW Security also discovered that 41 per cent of all existing video analytics users were not prepared to go it alone with video analytics upgrades, preferring instead to *'only deploy the video analytics upgrades offered by my existing camera or video management software vendor'*. Only a third (32 per cent) were planning to upgrade their video analytics capabilities themselves.

41%

of all existing video analytics users were not prepared to go it alone with video analytics upgrades

4. Dangers of such rapid technology adoption

The 'Top 7' most highly adopted video analytics in live systems today with more than 30 per cent adoption levels: Facial Recognition, Behaviour or Event-based analytics, ANPR, Video Motion Detection (VMD), Object Tracking, Object Detection and Classification, Directional Detection and OCR (Optical Character Recognition). Several other types of analytics recorded adoption levels only marginally below 30 per cent.

Video analytics claim more than 50% market penetration

However, when you include security system decision-makers which knew they had certain video analytics capabilities at their disposal in their systems but had not yet switched them on; it was striking that 11 of the 14 different types of video analytics captured by this study were already present in more than 50 per cent of the systems run by the 152 video security system owners we questioned. In many cases, the level of adoption of specific types of analytics was set to double just as soon as those running these systems decide to turn these capabilities on!

It's important to recognise that most of these types of analytics must be classified as advanced video analytics. In fact, only basic VMD could be excluded from that categorisation. This means that, for nearly all of these video analytics capabilities to work efficiently to reduce false alarms and deliver consistent efficiencies for CCTV system users, they require some tuning and configuration by a security systems expert.

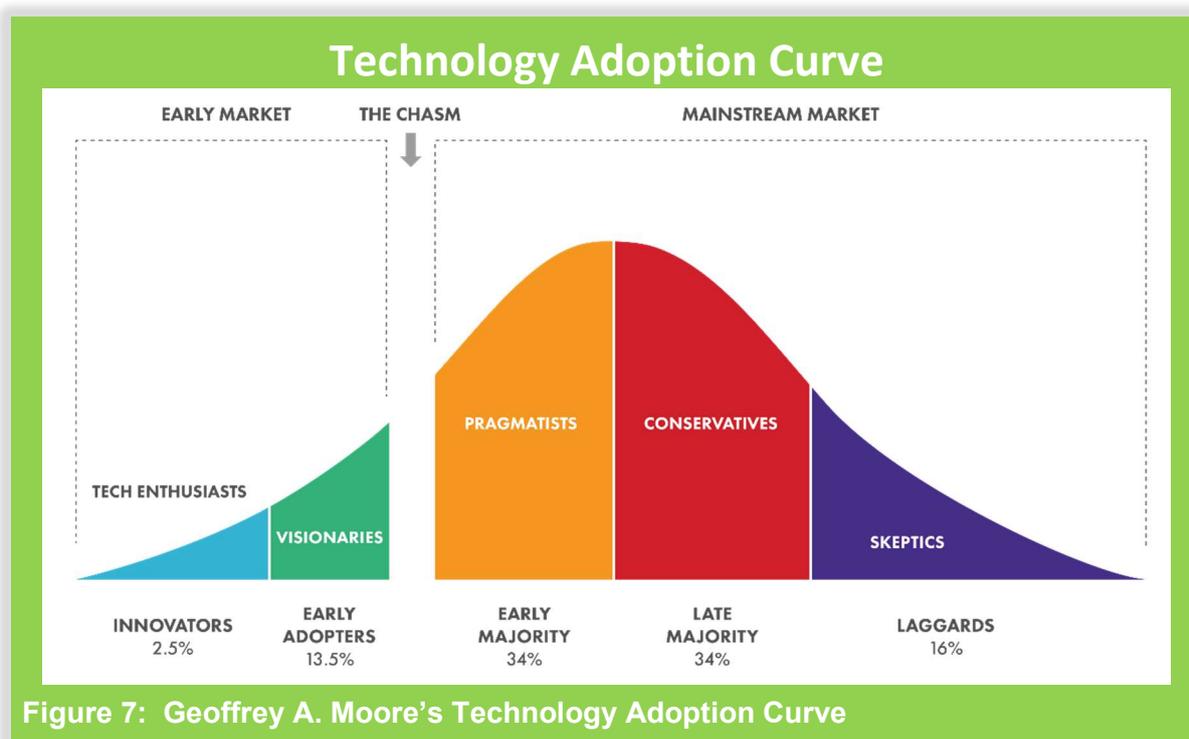


Figure 7: Geoffrey A. Moore's Technology Adoption Curve

This level of adoption means that many advanced video analytics are imminently dropping into the hands of 'late majority' buyers, described in the above illustration as 'Conservative' users in this adaptation of the famous Technology Adoption Curve which was first described in Geoffrey A. Moore's seminal book entitled 'Crossing the Chasm' more than 10 years ago.

This group is categorised by Moore as being those that tend not to adapt technology until long after it has proved its worth in multiple successful 'use cases' from Early Adopter and Early Majority users. The Late Majority are also highly intolerant of technology which is hard to set up and operate. The ultimate risk is that these Late Majority adopters, over a third of the potential market, will turn off this advanced video analytics just as quickly as they turn it on.

They are likely to do just that if these analytics tools prove ineffective in reducing false positives or negatives, identifying threats more consistently and accurately as well as delivering promised operational efficiencies rapidly.

Inaccuracy major problem despite (or because of) analytics

Bear in mind, that this study also discovered that 93 per cent of businesses running video analytics software within their live CCTV systems today are still finding that their systems are generating too many false positives or negatives linked to poor installation, maintenance or configuration.

More worryingly, 27 per cent of all system decision makers reported an excess of false positives or negatives being generated by their systems specifically because of incorrectly specified or configured video analytics software. This finding illustrates the real danger of the latest generation of advanced video analytics (now being put into the hands of mainstream market users) being unplugged.

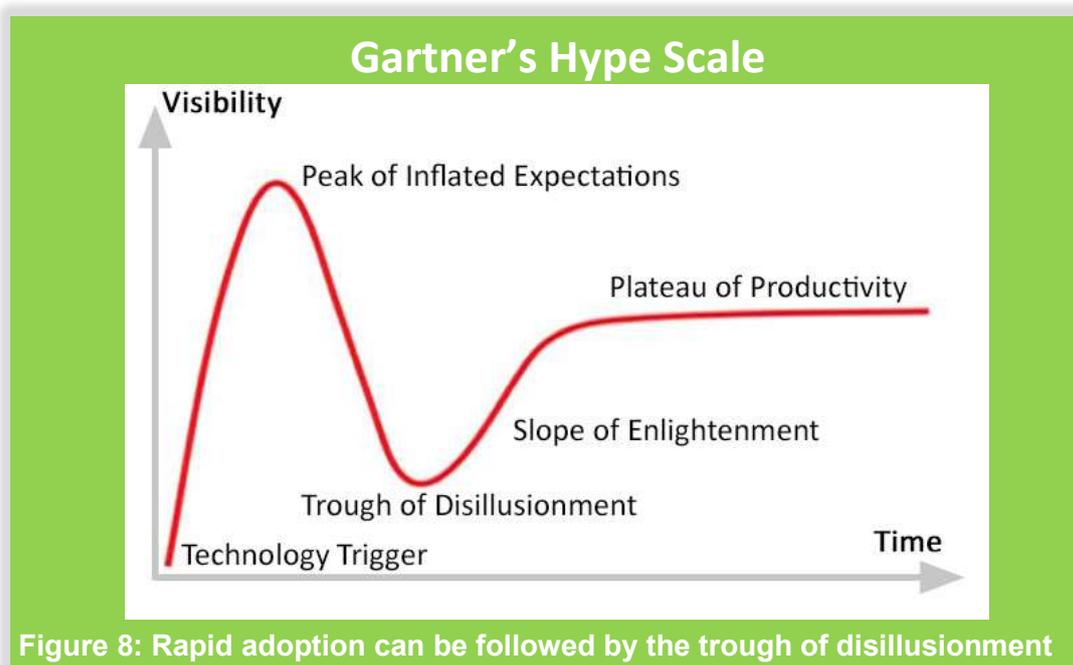


27%
of system decision
makers reported an
excess of false results due
to incorrectly specified or
configured video analytics

Value of expertise to cut false alerts

The fact that nine out of 10 video analytics users are still finding their CCTV systems generating too many false alerts and that nearly a third of this group put these excess false positives and negatives down to incorrectly specified or configured video analytics software speaks for itself. It is clear that many more businesses running CCTV systems with video analytics today really need to be calling in expert security systems integrators like NW Security to help them with this configuration work.

After all, one of the key benefits of video analytics ought to be increasing accuracy and detection rates and reducing the wasted time which comes from responding to false alerts. If you are not realising any of these benefits then there is a real risk of user disillusionment and technology rejection.



Risk of personal data abuses rising

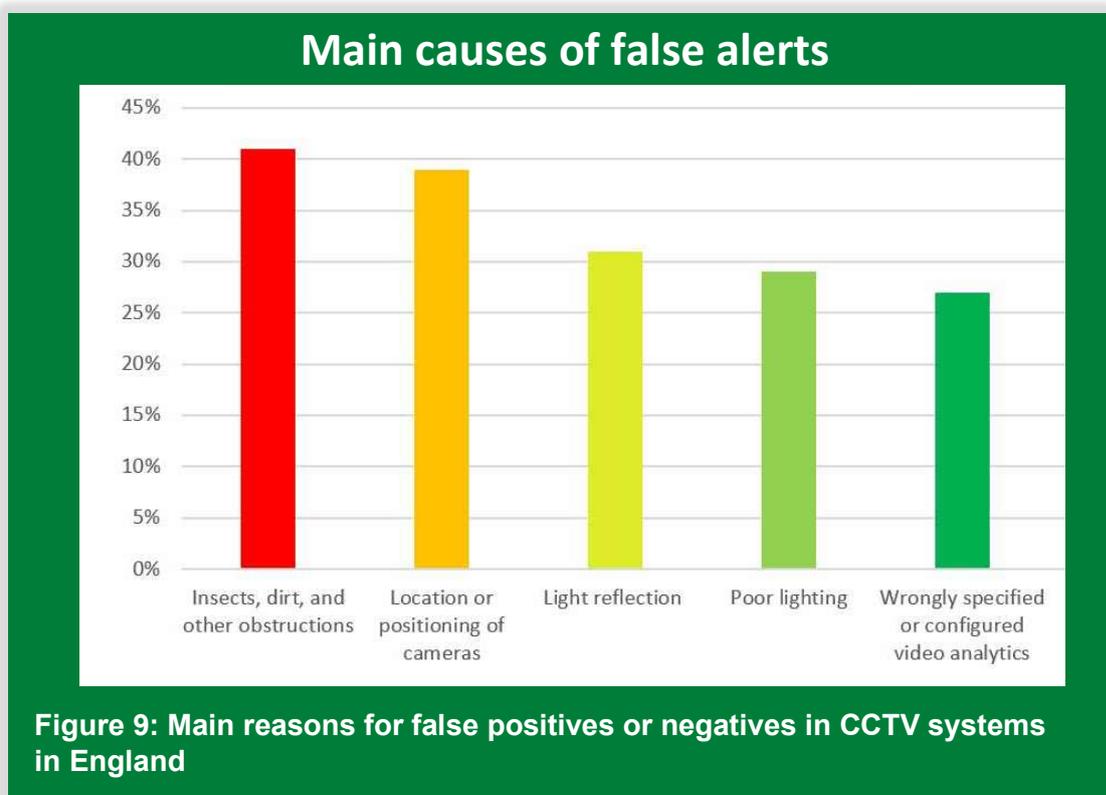
As more sophisticated video analytics is implemented, it is inevitable that personal data usage concerns and sensitivities will rise. The importance of taking the time to complete appropriate communication and gain data subjects' consent for collection and use of data which can identify specific individuals - reminding data subjects of why this data is being collected, in appropriately-located signage and easy to read and understand policies, is now paramount. A failure to conduct this due diligence could lead to complaints and even fines from local authorities and/or the Information Commissioner's Office.

The industry needs to do much better to ensure successful deployment of this new technology. It is not enough just to make the technology more affordable and available if customers cannot unlock the potential security and operational benefits without considerable adoption pain.

5. Tackling false positive and negatives

Most system false alerts from poor configuration

Nine out of 10 (93 per cent) medium and large-sized businesses' running CCTV systems with video analytics capabilities still find they are generating too many false positives or negatives linked to poor installation, maintenance or configuration. Breaking this down - 41 per cent video system decision makers reported obstructions on their CCTV cameras such as dirt or insects was the single most widespread cause of false alarms.



The video analytics itself was also to blame for many false positives or negatives: just seven per cent of those running video monitoring systems with video analytics today reported receiving no significant false alarms from their systems. Nearly four times that number - 27 per cent of system decision makers with video analytics already in use - reported an excess of false positives or negatives being generated by their systems specifically because of incorrectly specified or configured video analytics software.

However, deeper problems reveal themselves when you go into the field to inspect established systems and explore why they are not performing well. As the study revealed, 39 per cent of firms with video analytics experienced false positives or negatives due to the location or positioning of cameras and 29 per cent were as a result of poor lighting of cameras' field of view.

Vendor over-promises

There is also clear evidence that video analytics vendors are sometimes guilty of over-promising and confusing the market with the language that is used in their sales and marketing literature. A third (33 per cent) of system owners found the language vendors use in sales and marketing literature ('such as AI Analytics, Deep Learning, Analytics+ and Smart Motion Detection') confusing.

Nearly one in three (28 per cent) went further to declare vendors' literature 'misleading' and containing 'too much over-promising'.

Just 30 per cent of firms believe that the video analytics software which they use helps to reduce false alarms in their systems – rendering systems more accurate, which is of course one of the most significant promises of video analytics tools.

Credibility gap emerging

The result: only a quarter of users felt that all the latest generation of video analytics solutions are capable of improving accuracy and reducing false positives or negatives. We decided to explore some deeper reasons why the latest generation of video analytics is not seen as delivering security and operational benefits consistently to a higher percentage of system decision-makers today.

There is no doubt that part of the problem is that too many analytics tools are simply switched on as part of a tick box exercise during camera set up. On top of that, there is not sufficient technical know-how or configuration work applied to optimise them.

93%

of respondents find that video analytics produce too many false positives and negatives

Secrets of analytics success

Many of the problems highlighted in our study are likely to be due to system errors or oversights in design, installation and/or configuration. Here are four example areas to consider in order to avoid the major pitfalls:

1. Beware built-in camera lighting

In our study, 4 out of 10 (41 per cent) of video system decision-makers reported obstructions on their CCTV cameras such as dirt or insects causing false positives or negatives – the single most widespread cause of false alarms. A good many of these are likely to be because they are using the built-in lighting which then draws in insects to obstruct the view and trigger video analytics positives or negatives.

Day/night cameras today often have built-in infrared (IR) lighting which can be a problem at night because the heat from the LEDs in these cameras attracts insects which can then obscure the field of view and set off false alarms. It's far better to use IR lighting separate from the cameras, so they provide the right level of lighting for the area you need to cover, and fewer insects are drawn close to the camera.



2. ANPR installs demand focus on angles, lighting, and speed of vehicle

One of the first video analytics software types which we saw being installed right across the country was Automatic Number Plate Recognition (ANPR) or License Plate Recognition (LPR). We saw ANPR being demanded to secure warehouses, depots, schools and workplaces in large numbers. They are generally used to ensure only pre-identified, pre-registered vehicles can get into these perimeter-secured sites.

However, we often found ourselves having to put companies' ANPR installs right following incorrect installation or configuration. As with many video analytics, a camera with ANPR software needs to be installed correctly i.e., at the right height, adjusted to the right angle and placed at the right distance from the entering vehicle - considering the speed of the vehicle when the plate is to be captured, as well as environmental conditions such as rain or snow and camera imaging performance itself in order to deal with bright head lights and reflection of nearby objects.

For example, we have found problems with plate reading accuracy where rain puddles build up between the ANPR camera and the vehicle whose number plate the camera needs to read. If the ANPR camera is not specified, positioned and lit correctly, it might pick up a distorted reflection of number plates in that puddle instead of the direct view of the plate on the front of the vehicle - creating an alarm as the number plate logged by the system often will not match the pre-authorised vehicle plates.

3. Don't expect too much from one camera

One common expectation we see amongst end users is that a camera installed for general purpose security observation of a wide area, is also assumed to be capable of performing a specific function through video analytics. This is often not possible in the field.

More often than not, video analytics in a camera will only work well if the camera is set up for the specific purpose of the video analytic function. For example, going back to the ANPR set up, a camera overlooking a car park will not accurately read number plates entering or exiting a car park all of the time.

A camera with the ANPR application will need to be installed at the car park entrance/exit and focussed specifically on the in and out lanes, positioned exclusively for the purpose of reading all number plates. Therefore, at least two cameras will be needed to achieve the required outcomes and accuracy in this instance. This simple example equally applies to the vast majority of other video analytics.

4. Inaccurate Object Detection, Object Classification & Facial Recognition

The US-based industry analyst and renowned tester of surveillance equipment IPVM, has created a [very detailed report](#) focused on analytics precision. The analyst's definition of the problem of defining precision is instructive:

“Precision represents how well the algorithm finds objects correctly but does not take into account objects that it misses (False Negatives), or correctly ignores (True Negatives). Facial Recognition access control systems require high precision, not granting access to the wrong person, however, missed recognitions (False Negatives) are frustrating and significantly impact users.”

Be careful when selecting Object Detection analytics. You only have to read some video analytics reviews to see how common the incorrect categorisation of objects is. Facial Recognition analytics where faces are being matched to ‘watch lists’ in public spaces or lists of authorised employees inside company buildings, is still inaccurate in many cases. Very careful design and configuration work, ideally set up in highly controlled environments such as in airports, must be completed prior to installation to ensure accuracy reaches acceptable levels.

Heuristic analytics' primary weakness is that they are limited to detecting features or variables that are hard-coded by humans. Heuristic analytics are prone to misclassifications when objects do not meet the pre-set expectations. For example, a person crawling on the ground wearing evenly coloured clothing might be classified as a vehicle or animal instead of a person, given their anomalous aspect ratio and uniform colouring.

With Object Detection and Qualification, it should be quite clear where the limitations of a chosen video analytic product lie (providing the vendor is upfront about this). It is worth asking for detailed information about this prior to purchasing.

6. Is outsourcing growing as video analytics usage becomes widespread?

As CCTV systems become increasingly sophisticated, the potential to do more with them increases. Yet it's also clear that the potential of all this new technology is in danger of not being realised. 93 per cent of all 103 medium and large-sized firms running video monitoring systems supported by video analytics software we contacted for this study, still reported having CCTV systems which generated excessive numbers of false alarms.

Of this group, 41.7 per cent of systems were managed entirely by in-house IT departments. Nearly as many, 37.9 per cent, were managed by either in-house Security or Facilities Management departments. So very nearly four out of every five CCTV systems are managed by the IT, FM or Security Management in-house teams.

Just one in five CCTV system decision makers (20.4 per cent) were either using an external outsourced security service (13.6 per cent) or had an in-house team working with an external CCTV installer/integrator (6.8 per cent).

Who do you rely on for the deployment of video analytics?

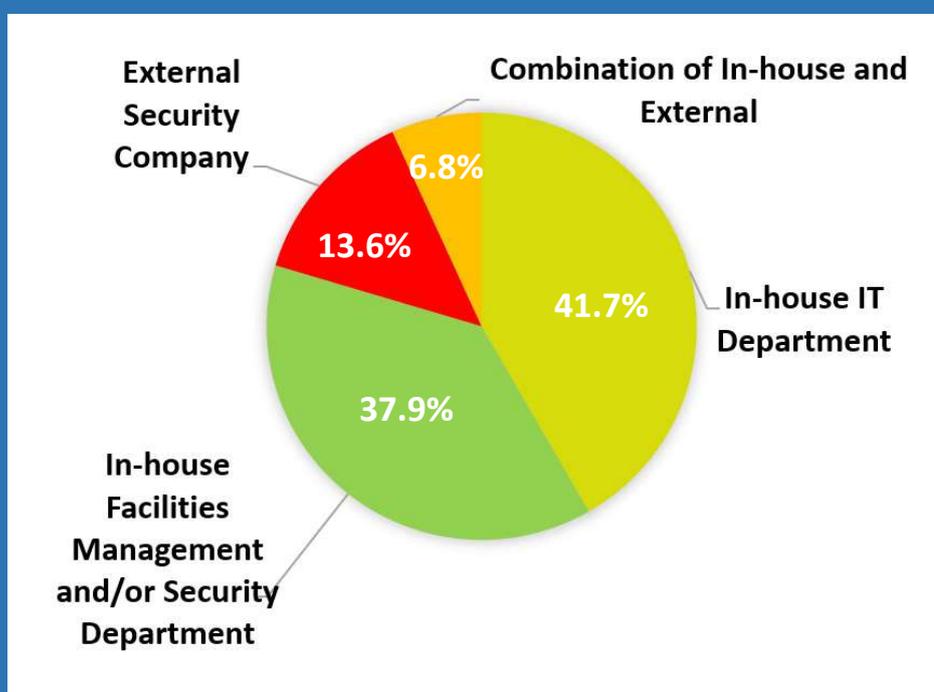


Figure 10: In-house versus outsourced expertise. Security system upgrades still largely controlled in-house

Time for Collaboration?

From our analysis of the findings, there is a growing case for seeking outside expertise to tap into the growing plethora of opportunities to extract operational efficiencies from careful application of next generation video analytics software solutions.

Our analysis of the findings from this study, reveals that teams which have involved a third party expert tend to be the ones adopting some of the more advanced video analytics, more quickly. Let's look at the evidence.

We found a number of key video analytics including ANPR (Automatic Number Plate Recognition), VMD (Video Motion Detection), OCR (Optical Character Recognition) and People Counting was much more heavily installed and deployed in existing systems where an external integrator, installer or third party security services provider was involved.

In some cases, deployment levels were over 20 per cent higher when third party expertise were working with the companies concerned. However, video analytics adoption levels don't reveal the success or otherwise of those analytics implementations per se.

CCTV systems need to be measured on wider array of business benefits

For that, we need to look to what is being achieved by these deployments and explore whether results look more positive where a third party expert is lending a hand in specifying, installing, configuring or even managing systems day in, day out.

We decided to look across at what video security systems decision makers' expectations were for their systems if they were managing entirely in-house, as compared to the expectations of those bringing in outside expertise.

Analysis revealed that where a third party expert is involved, many more firms were using their CCTV systems to extract more than one key business benefit, often going well beyond purely security, to deliver operational benefits such as health & safety or goods tracking capabilities.

Level of deployment by business benefit and in-house versus external resourcing

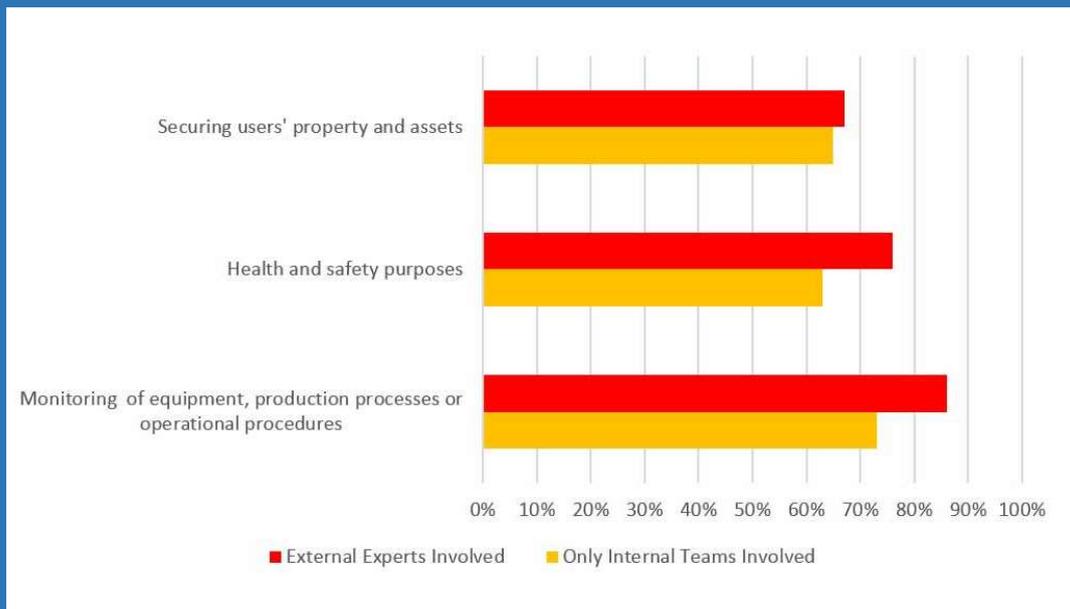


Figure 11: Where business benefit is wider than increasing physical security's operational efficiency, external expertise is more likely to be involved

So, the only percentages which are similar - when comparing in-house only versus using external support - are in the traditional role of CCTV systems in helping to secure businesses' property and assets. However, as we know the latest generation of video analytics, combined with potential integrations with multiple other networked systems, makes it possible to do far more with what was once just a video surveillance system. Involving an external expert provides companies with an opportunity to get much more out of their video system, deeper level analysis of our survey's responses found.

Is your system cyber secure and GDPR compliant?

It was also clear from our market analysis that where board-level concerns such as GDPR compliance, cyber security protection and system resilience were at work, again external security specialists were more likely to be involved in shaping the right solutions for those companies.

Nearly half (43 per cent) of all companies supported by external security specialists had a live 'top priority' project ongoing which was designed to harden all networked systems to combat cyber security threats. Whereas for firms running their CCTV systems in-house, just 35 per cent of them were focused on hardening their physical security systems against cyber-attacks this year.

Over half (52 per cent) of all firms supported by external security specialists had a top priority project running to improve the *'GDPR compliance and data protection procedures surrounding our CCTV system'*. Whereas for firms running their CCTV systems entirely in-house, 45 per cent of them were focused on improving their GDPR compliance capabilities associated with their physical security system by the end of 2021.

'Improvement on the CCTV system's resilience and back-up systems and procedures' was a 2021 top priority for over half (52 per cent) of firms where third party security installers, integrators or alarm receiving service providers were involved. Whereas for firms running their CCTV systems entirely in-house, 48 per cent of them were focused on system resilience, back-up systems and procedures.

CCTV systems management becoming board level concern

Over two thirds (70 per cent) of the chief executives responsible for their physical security systems which we reached in this study, put *'Improvement of the system's resilience and back-up systems and procedures'* as a top priority for 2021 and 62 per cent of proprietors and business owners placed *'Improvement of GDPR compliance/data protection procedures surrounding our CCTV system'* as 2021's 'top priority'.

70%

of chief executives responsible for their physical security systems put *'Improvement of the system's resilience and back-up systems and procedures'* as a top priority

By contrast, the top priorities for CCTV systems improvements, where in-house teams are solely in charge, tend to be more narrowly-focused on physical security systems' functionality improvements such as finding and retrieving required footage of security incidents more easily and rapidly.

The more strategic the issue and the larger potential threat it poses to business continuity, the more likely an outsourced specialist is being pulled in to help senior decision makers to ensure not only the functions of security systems are working; but also, broader operational and higher level risk management mitigation demands of the board are also considered and designed into security system improvements and extensions.

External security specialist offers opportunity to explore use of CCTV systems to derive more value from systems

Every measure in our research shows that using an external security integrator tends to result in the more holistic use of technology and system management. Where a good specialist is involved, in-house security, FM or IT departments are more likely to get an opportunity to look up from simply keeping CCTV systems running and to consider what new video analytics solutions could be applied for the wider benefit of the business longer term.

Bringing in an expert who has already worked wonders for others and getting them to share ideas and potential outcomes is a good place to start when looking at which new video analytics' capabilities to switch on and optimise for the 32 per cent of video analytics users in the market right now for upgrading their video analytics-driven capabilities.

From a security systems efficiency perspective, it is clear that, given the level of dissatisfaction that current CCTV system owners have expressed in our survey amongst those who have already deployed advanced video analytics tools, external security specialists are very well-placed to help many more businesses make better use of the plethora of this technology.

Effective set up and configuration is key to ensuring advanced analytics tools achieve their key goal of cutting false alerts, increasing system accuracy and detection rates. Companies like NW Security can help optimise security systems, before extending their role to unlocking wider operational benefits.

Every measure in our research shows that using an external security integrator tends to result in the more holistic use of technology and system management.

Bringing in an expert is a good place to start when looking at which new video analytics' capabilities to switch on and optimise.

7. Bringing it all together

Importance of data usage policies & consent

The high level of adoption of Facial Recognition – the highest of all 14 types of video analytics this study captured – remains surprising given the complexity of implementing Facial Recognition analytics and the data protection and privacy considerations and potential controversy that can be associated with its implementation.

This became all too clear when news broke in mid-October 2021 about nine schools in North Ayrshire which had begun authorising payments for school lunches by scanning the faces of their pupils, according to **reports in the Financial Times**, the Guardian and other national media outlets.

The Information Commissioner's Office said it would be contacting North Ayrshire council about this move and urging a 'less intrusive' approach should be adopted where possible.

It shows the dangers of adopting some types of video analytics without taking proper advice on ethical as well as technical considerations – ensuring appropriate data protection safeguards are in place and system configurations are completed correctly to ensure accuracy of these systems.

It also highlights the need for appropriate consent (for use of personal data) to be obtained. Given the age of children, the schools would need to have consulted and gained the approval of all parents to go ahead with this implementation? Had these consents been properly obtained? Were parents fully aware of the new Facial Recognition-powered system? If not, then that clearly opens the council up to complaints, even if in reality they would have been collecting images of all pupils for enrolment and identification purposes beforehand.

The use of video analytics requires appropriate consent from data subjects (people)

Advanced video analytics are rarely ‘Plug and Play’

More widely, our study reveals a mismatch between end users’ expectations and their real-life experiences with video analytics. We don’t put this down to video analytics products not working well but more to design, installation and configuration of video analytics tools which needs to be improved in the field.

Many end users reported finding video analytics vendors’ marketing literature confusing. Others stated categorically that video analytics vendors were over-promising in their sales literature. This sort of miscommunication does not help end users to begin their adoption of video analytics with the right expectations.

With some of the more complex video analytics it’s all about correct positioning of cameras, matching hardware specification to application and detailed configuration, as well as implementation of appropriate personal data usage policies and safeguards. These are rarely ‘plug and play’ solutions.

The fact that advanced video analytics tools are now being bundled as standard within many new surveillance cameras, makes this even more troublesome as this functionality reaches the Late Majority conservatives who expect the technology they deploy to work out of the box, with a minimum of configuration.

Whereas we know that to get best results with some of the more complex video analytics like Facial Recognition, People Counting, ANPR, OCR and Heat Mapping, it’s all about correct positioning of cameras, matching hardware specification to application and detailed configuration, as well as implementation of appropriate personal data usage policies and safeguards. These are rarely ‘plug and play’ solutions.

It’s certainly not helped by the elastic definition of an analytics algorithms’ precision and by the range of different algorithms in use today - some of which work well for one application but poorly for another.

Precision in video analytics remains a key problem for video analytics usage. There are also trade-offs to be made between different types of analytics. For example, strongly performing deep learning algorithms may be more accurate than heuristics for many applications but they demand more computer power and may therefore be too expensive to use in certain instances.

Operational requirements good guide for analytics

implementations

One key rule of thumb for video analytics applications and indeed all your CCTV system installations, is to properly consider the purpose and operational requirements of any new monitoring or surveillance that you are planning to enable.

Far too often, installs are driven by coverage. In other words, this camera is capable of covering that field of view. It may technically be able to 'cover' all the gates at the entrance of a stadium, for example, but can a behavioural video analytic tool deployed on that camera accurately locate dangerous crowd density levels building up or help spot the epicentre of a fight which is about to break out?

Video systems and their accompanying video analytics must be designed and configured with that safety or security goal in mind first. Without that hard focus on operational requirement there is always a risk that system owners and users will be lumbered with a system which is putting out too many false alarms and failing to do its job when incidents happen.

Suffice to say, such is the complexity of the issue of selecting the right video analytics software, married with the right hardware, installed and configured correctly to generate optimum results, that it's worth calling in an expert to assist in working your way through the mine field of decisions which need to be taken to make sure the video analytics solutions you need is delivered optimally.

Looking into 2022

From April 2022, NW Security plans to conduct another piece of market research to explore current practice and best practice implementation associated with the application of video analytics as it becomes more widespread in video security systems. This study will focus on policy setting; effective communication of that policy to data subjects, data sensitive deployment of new technologies; as well as the application of vital safeguards such as strong cyber security and data management regimes.

It will also look at the emergence of Managed Service Providers which are capable of delivering systems which offer their users genuine peace of mind longer term. This new breed of service and expertise providers might manage technology implementation using robust and sustainable hardware, software and data management regimes; all bundled with full maintenance and upgrade regimes for video security systems designed for the long-term.

Research outline

Nationally-respected market research firm Opinium executed this survey which was completed by 152 IT, Operations and security systems decision makers of firms with more than 50 employees based in England, between 18th and 28th May 2021.

Of this group of 152 questioned, 49 (32 per cent of the whole) respondents claimed not to use any video analytics or were unsure of whether video analytics was in active use in their systems. These non-analytics users gave NW Security an opportunity to explore why a third of the existing potential market for video analytics has not yet put it to work and what is likely to trigger adoption.

Working with Opinium, NW Security directed two-thirds of all questions to those that had already adopted video analytics tools as it was keen to explore, in some depth, which video analytics tools had been put to work and to what level of success to date.

Respondents were heavily-weighted towards senior operations as well as security and IT heads of medium-sized (with 50 to 249 staff) and large businesses (with 250 or more staff): 25 per cent were IT managers, 26 per cent IT directors, 16 per cent CTOs and 7 per cent CIOs. 11 per cent were operations managers and 8 per cent operations directors. The balance held different roles but were still physical security system decision makers.

A copy of the raw data from this study can be provided by contacting Miles Clayton at Agility PR on 01992 587439 or emailing him on miles@agilitypr.co.uk

About NW Security Group

Established in 2004, NW Security Group has been one of the leading IP video technology companies at the forefront of the digital convergence in the UK CCTV market. Focussed on the delivery of high-performance IP video solutions and cloud-hosted video services, NW is committed to improving the security and safety of its customers, and make their business operations run better. To deliver this, NW works closely with best-in-class technology partners and takes a collaborative approach in its relationships with its customers. NW Security Group offers a strong focus on system life cycle management, durable system performance and long-term benefits and investment protection to its customers.

www.nwsecuritygroup.com

Phone: 0151 633 2111

