

INTERNATIONAL TRENDS IN VIDEO SURVEILLANCE- PUBLIC TRANSPORT GETS SMARTER

INTRODUCTION

Video surveillance is a very common technology used in public transport, especially for security purposes. In 2015 UITP, together with industry expert Axis Communications, conducted a survey among public transport organisations to get an understanding of the usage of video surveillance in public transport. The subsequent publications¹ outlined the international trends in terms of current usage, equipment, regulations, positive effects as well as potential barriers in using the technology. A vision for the future in terms of the needs of the sector and upcoming trends in video surveillance was also presented.

The survey has been repeated in 2017-18, allowing an analysis of the evolution of this technology in the intervening years, and giving an indication of future trends. Many of the expectations from 2015 have been realised, and in some areas the growth is quite staggering.



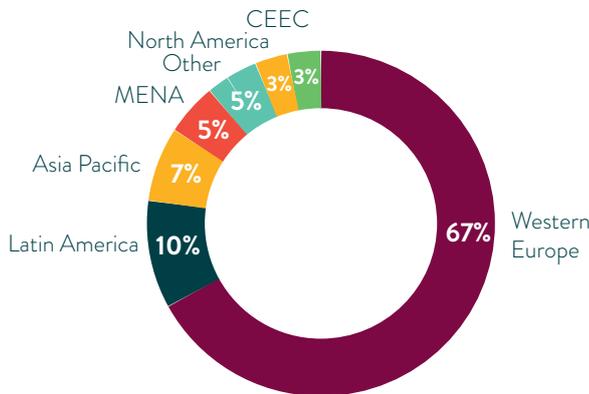
THE RESPONDENTS

The majority of the 61 respondents are public transport operators (81%), with a number of public transport authorities also taking part (12%). A small number of respondents are infrastructure managers (7%).

Most respondents (93%) cover urban areas, some of them exclusively, others also covering regional, state-wide or national areas too.

67% of respondents come from Western Europe with the rest spread out mainly in Asia Pacific, Central and Eastern Europe, Latin America, the Middle East and North America.

Respondents per region



Respondents represent a variety of modes including bus/trolleybus, light rail/tram, metro, commuter rail, main line rail and ferry.

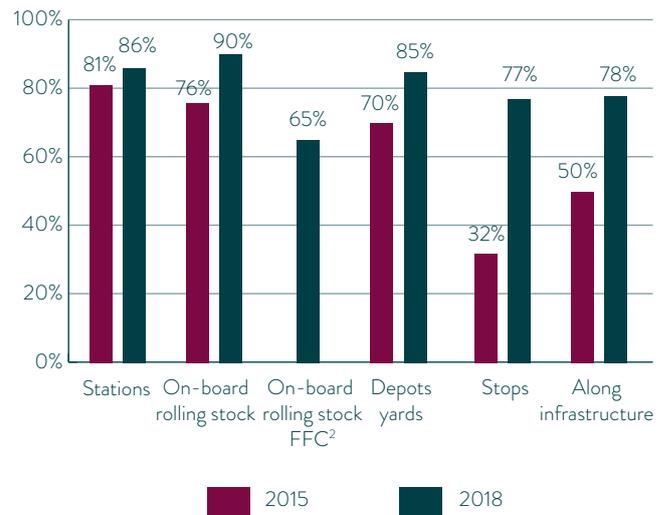
MORE CAMERAS IN MORE PLACES

All respondents either have video surveillance installed today (95%) or plan to install it in the next 12 months (5%). The largest total number of cameras reported by one respondent was 25,000. Indeed, the average number of cameras per network has increased almost 70%, from around 2,900 cameras to 4,900 cameras between 2015 and 2018. In the latest edition of the survey, 20% of respondents have reported to have 10,000 or more cameras, whereas only 5% of them did in the previous version, whilst the size of networks surveyed remains comparable.

“Between 2015 and 2018, the average number of cameras per system surveyed has increased by almost 70%”

The previous report pointed out that camera coverage concentrated on areas with passenger presence, as well as depots and rail yards. This continues to be true, however it seems that networks are covering a wider variety of locations. For example, the strongest growth can be seen at stops and along the infrastructure. Growth in installation on-board rolling stock, more technically challenging, is also notable, up to 90% from 76%.

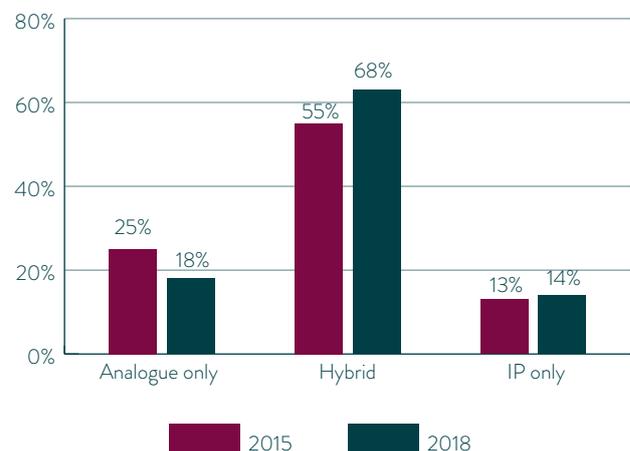
Camera placement



ADVANCES IN THE DIGITALISATION OF VIDEO SURVEILLANCE

Cameras can either be analogue or network/IP. Analogue cameras can also be adapted to the network using encoders. Compared to 2015, the number of public transport networks with only analogue cameras has decreased considerably (from 25% to 18%) as upgrades and new installations are increasingly digital. Those with purely digital systems has increased slightly (13% to 14%), and the biggest jump is in the share of hybrid systems, combining analogue cameras with IP or encoder-adapted cameras (55% to 68%). The shift towards digital video surveillance systems is clear with 82% of respondents having a digital component to their systems. Indeed, 85% of respondents claim that they will consider network/IP cameras in the future. However, as predicted in the 2015 report, the legacy of analogue systems will continue to be present in public transport networks for the foreseeable future.

Type of surveillance camera system

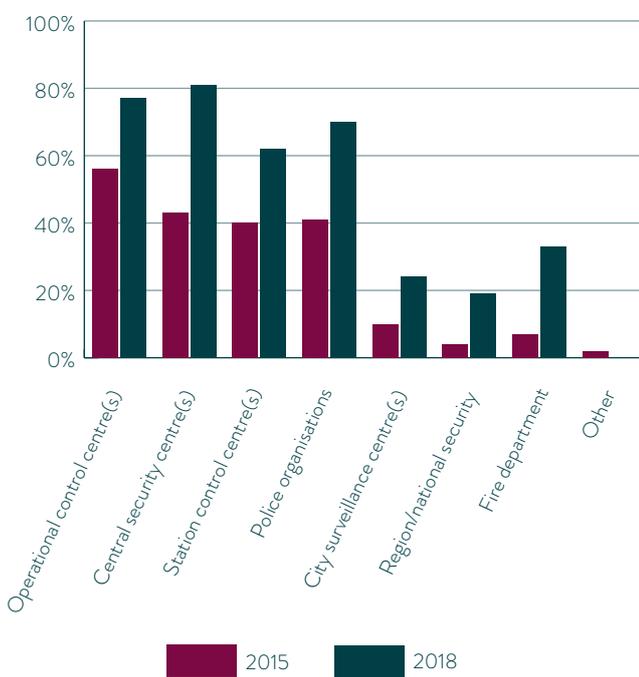


DEEPER VIDEO COOPERATION BETWEEN MORE PARTIES

Massive growth can be seen in the sharing of video, both internally and externally, compared to 2015, particularly regarding “City surveillance centres” (10% to 22%), “Fire departments” (4% to 28%) and “Regional/national security centres” (5% to 12%).

Additionally, it can be noted that more parties are being involved. In 2015, respondents shared video with an average of 3.04 parties. In 2018, the average is up to 3.4.

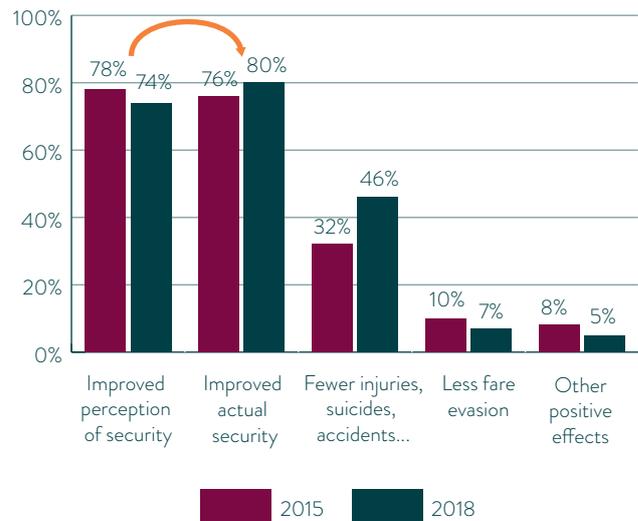
Sharing of video



POSITIVE SHIFT IN PERCEPTION OF TECHNOLOGY

There is a subtle but meaningful shift in the public perception of video surveillance between 2015 and 2018: Previously, the greatest positive effect of using video surveillance was the positive impact on the “perception” of security among passengers and staff, while now it is the improvement of actual security of passengers and staff itself. In other words, passengers and staff today not only feel safer when video surveillance is installed, they also benefit from higher levels of security in public transport thanks to video surveillance. This implies a more active and proactive use of the technology to solve real problems in a way which is tangible for both staff and passengers, as opposed to a more passive role of the technology of the recent past.

Positive effects



MORE POSITIVE FEELINGS ON VIDEO SURVEILLANCE

Passenger acceptance of video surveillance for security has always been rather high. Interestingly, public support for video surveillance has grown since 2015 (from 65% to 73%), whereas, by way of comparison, support from staff is stable on 78%. This may be due to the fact that investigation into some major high profile incidents involving public transport have been assisted thanks to footage from video surveillance in public transport systems. For example, following the Brussels bombings of 22 March 2016, thanks to the video surveillance system local operator STIB-MIVB quickly managed to identify the metro bomber as well as an accomplice who left the network before the bomb, which gave valuable information to the police. Video surveillance systems were also instrumental for police interventions in the truck ramming in Berlin in December 2016 as well as the truck ramming in Stockholm in April 2017.

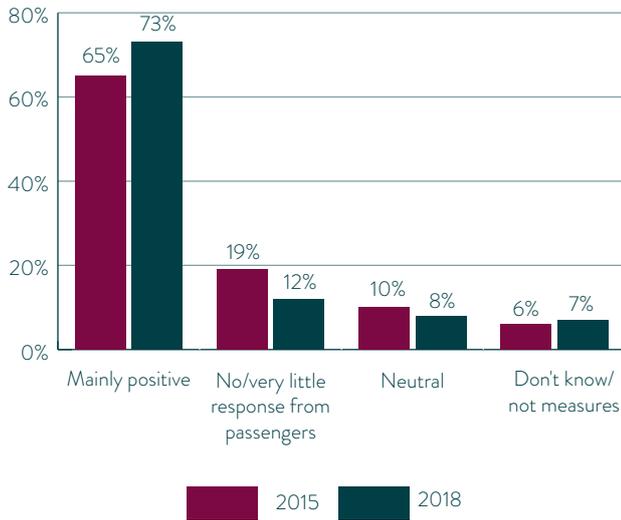
“ Support for video surveillance has grown since 2015, with 73% of respondents reporting positive reactions from passengers, up from 65% ”

Although issues on personal data and privacy are high on the agenda in many countries, it seems today that the increase in security from video surveillance is outweighing the loss of privacy for a growing majority of travellers.

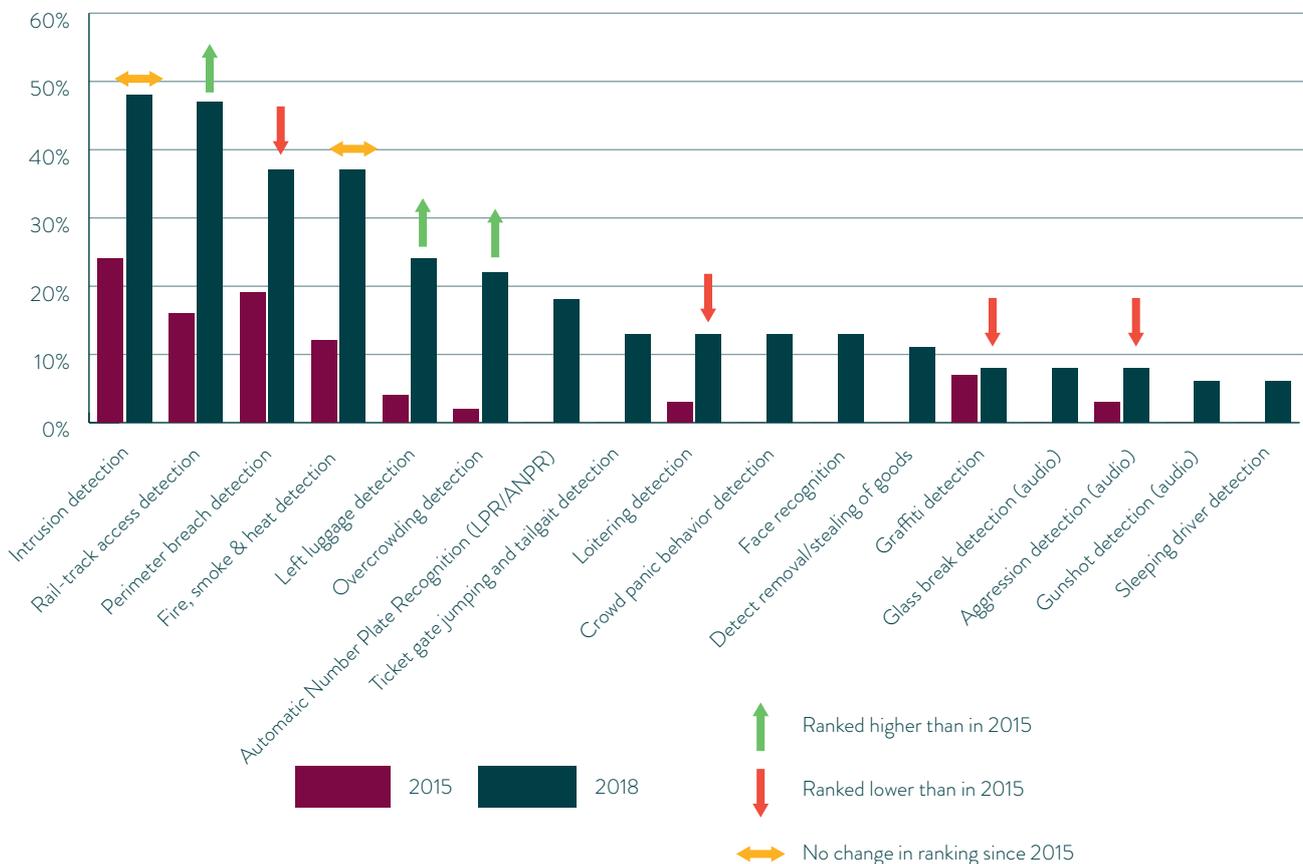
MASSIVE GROWTH IN ANALYTICS: PRESENT USE AND FUTURE INTEREST

Among the most impressive areas of growth between the surveys concerns video and audio analytics and other advanced techniques. In 2015, a handful of such analytics were in use, and by a small number of respondents. By comparison, in 2018 all analytics mentioned in the survey are in use to a greater or lesser extent, with some of the most popular ones approaching 50% usage among respondents.

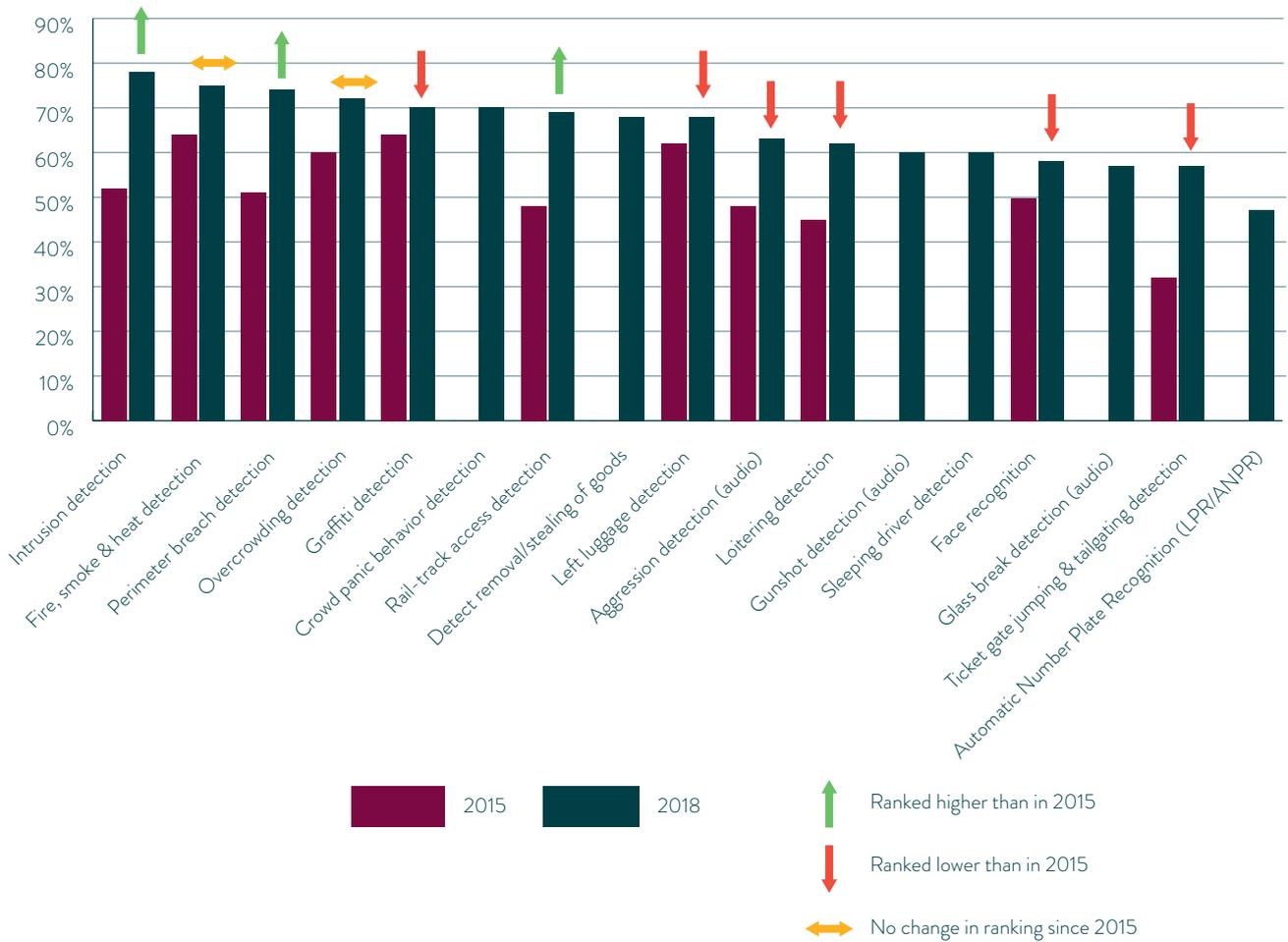
Passenger reactions



Analytics in use



Analytics future interest



In terms of future interest, it is worth noting which analytics score highest today compared to 2015. In the initial survey, “graffiti detection” topped the list, no doubt due to the prevalence of that particular issue at that time. Today, “intrusion detection”, “fire, smoke and heat detection”, “perimeter detection” and “overcrowding detection” are the front-runners. The arrows on the chart indicate the position of each analytic in terms of popularity between 2015 and 2018. So in the case of “face recognition” for instance, it has gone down from the 7th most popular analytic to the 14th most popular, even although 60% of respondents are now interested in the technology, compared to 50% in 2015.

The growth in this area is no doubt driven by the maturing of analytics, making them more usable and reliable. Secondly, as sheer numbers of cameras are on the increase, it implies the necessity to invest in more intelligent management systems. Indeed, the greatest challenge mentioned by respondents is still the difficulty in overlooking and monitoring all cameras.

“ The greatest challenge mentioned by respondents is still the difficulty in overlooking and monitoring all cameras ”

FUTURE TRENDS & CONCLUSIONS

The findings of the 2015 report have been confirmed: a clear tendency towards the digitalisation of video surveillance networks, especially investment in real-time technology and analytics. The conclusion that legacy analogue cameras will continue to have an important presence in public transport systems for the foreseeable future also remains valid. The assumption that investment in real-time would allow greater opportunity for live feeds to be shared with third parties has certainly been proven.



“Nonetheless, the sheer pace and enormous growth that has materialised in just 2 to 3 years is remarkable”

This repeated survey clearly demonstrates that video surveillance is a widely used technology in public transport. It is a solution which is increasingly valued by staff as well as passengers. These technologies are maturing rapidly. The potential to assist public transport organisations in real-time, as noted in 2015, is quickly becoming a reality. Video surveillance will firmly remain a cornerstone technology in public transport and a positive example of how the digitalisation of the sector is bearing fruit.

UITP and Axis Communications would like to thank the respondents who took the time to complete the survey. This Statistics Brief is effectively an executive summary of findings. A full report will be published in autumn 2018.

This is an official Statistics Brief of UITP, the International Association of Public Transport. UITP has over 1,500 member companies in 96 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport worldwide.

This Statistics Brief was prepared by UITP and Axis Communications, under the auspices of the UITP Security Commission.

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