



# SOLUTIONS | ERA

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For those who follow the trends in intelligent engineering solutions

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## Conference

FIMA ensured secure radio communications and the smooth running of one of the major Baltic conferences – the Riga Conference. The event is held every year and attracts hundreds of visitors, including national leaders, ministers, NATO and EU officials, as well as ambassadors.

## Experience

How do you fit data centre in the EU's tallest TV tower? FIMA shared their expertise with 300 professionals at the DC Forum in Stockholm. The DC Forum events are aimed at Scandinavian markets and are designed to introduce professionals in the relevant fields to the latest products and technology.

## Libraries

FIMA has become a sponsor of the 10th Congress of Lithuanian Librarians and announced global trends in the fields of security and efficiency. Representatives of FIMA and librarians discussed fire suppression with water mist systems and smart lighting technologies that guarantee security and convenience as well as reduced energy costs.

# The DNA of a smart building

It's hard to imagine a modern building without a host of modern engineering systems. These technologies are becoming increasingly smart. However, they should be managed effectively for investments to be justified.

Today's automated engineering systems that control heating, ventilation, lighting and security of buildings can independently collect and analyse information about comfort levels and energy consumption. But administrators are lacking experience in dealing with the collected data and ensuring efficient management of all systems.

"On a number of occasions, I have seen how building systems are managed separately from each other, which results in wasted energy. For instance, heating and cooling equipment is often operated simultaneously. Rising energy costs are a growing problem for facility managers," said Šarūnas Liktoravičius, ICT sales director at FIMA.

### A shift in attitude

To cut building operation costs, managers look for solutions that join all a building's systems into one efficient and intuitive interface which will not only reduce service staff but will also monitor energy consumption trends and even learn from them.

The resulting benefits are reducing number of people needed to service the systems, more reliable operation and more comfortable working conditions for tenants.

Smart buildings represent another technological trend that is contributing to efficient operation of buildings and saving energy. They also offer a lot more. Smart technologies are driving a shift in attitudes towards building construction, building system management and operation as well as efficiency and comfort.



**Šarūnas Liktoravičius**, ICT sales director at FIMA



**Long-term operation costs are becoming increasingly important. These costs determine both the value of a building on the market and the rents that tenants will be willing to pay.**



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## Management systems of smart buildings will become constituent part of a building's IT infrastructure soon.

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### Rising demands

“Real estate market is undergoing major transformation. It is no longer enough to just estimate construction costs and provide tenants with a building's energy efficiency certificates.

Long-term operation costs are becoming increasingly important. These costs determine both the value of a building on the market and the rents that tenants will pay. This is why any investment in smart facility management will justify itself,” said Vytautas Zinkevičius, business development director at FIMA.

According to Mr Zinkevičius, tenants' demands are also becoming more stringent. Companies are not only looking for comfortable working conditions but also want to accurately estimate their energy costs.

For instance, a potential tenant may want to sign a lease contract which includes operating and maintenance costs as part of a fixed rent. In this case, building manager should be sure that maintenance and operation of the building are efficient.

### Building management moving to IT

Modern technologies offer some previously unseen opportunities for facility management and reduction of building's energy use and operating costs. Furthermore, these technologies, in line with latest smart devices and cars, mean we can upgrade system operation and add new functions without replacing the equipment.

“Information processing and analysis, and data based solutions for services and processes are attributes of all smart technologies.

*The engineering systems of The National Centre of Physical and Technological Sciences NFTMC buildings are managed from a single computerised workstation.*

Therefore, the smart building management systems will, like other engineering systems, will move to building's IT infrastructure. This will provide us with new information analysis and process management opportunities. Buildings will be able to better adapt to changing weather conditions and to ensure a high level of comfort and more efficient energy consumption," said Mr Liktoravičius.

He highlighted the example of data centres, which, to ensure maximum efficiency, are essentially managed without human intervention. Those modern building management systems determine the amount of ventilation needed according to temperatures and on the amount and type of equipment installed in server cabinets, server cabinet load trends and other parameters.

### Scenario for the building

In 2016, FIMA implemented an integrated building management system and provided other engineering infrastructure and laboratory equipment at the Lithuania National Centre of Physical and Technological Sciences, which has become one of the most advanced buildings in the region in terms of the technologies. The building engineering systems are managed from a single workstation, with monitoring of the system operation on video wall.

"With the increasing speed of data transmission and growing importance of the internet of things, we can collect increasing amounts of precise data and can record and forecast trends of energy use depending on office worker habits and activities.

As the system collects and analyses information, it learns to predict the best lighting, heating and ventilation parameters and to employ them. Tenants no longer need to about heating or lighting, allowing them to focus on their work. Furthermore, such systems help to save energy since lighting, heating and ventilation costs account for the greatest share of building operation costs," explained Mr Liktoravičius.

## There are two main benefits offered by smart buildings: lower costs and increased performance.

*"There are two main benefits offered by smart buildings: lower costs and increased performance.*

*In business every single euro spent has to be justified. Investments in green buildings are normally 2% higher than investments in traditional buildings, but the higher investment pays off thanks to lower subsequent operating costs.*

*This is of a particular relevance for those constructors who plan to manage a building for at least 10 years. For them, a building must be durable and robust, its systems must be efficient, and tenant satisfaction must be as high as possible. Furthermore,*

*green buildings are good at keeping value and have higher demand on the market.*

*World Green Building Council report concluded that the performance of employees working in green buildings is 7% higher and that these employees are 8% less likely to be on sick leave compared to employees working in traditional buildings.*

*The report also has shown that ventilation system which is compliant with the highest standards can improve performance of employees by 8–11 %; and separate, smart temperature control system can boost performance by 3–7%."*

**Evaldas Savickis**, chairman of the Lithuanian Green Building Council



# Hello, how may we help you?

Customer experience (CX) is one of the key driving forces for business. With electronic channels increasingly gaining in popularity and the number of customer service offices is shrinking, DNB, one of the largest banks in Lithuania, has implemented smart technologies to provide customers with high quality services and advice.

“A bank customer is looking for two things: speed of service and professional advice. We want to guarantee customer satisfaction and our sales volume to grow, and we also want to use our resources efficiently. A modern bank can do this thanks to advanced technologies,” said Rasa Aleksaitytė, head of the Customer Service Centre at DNB.

FIMA has developed and implemented contact centre solutions for DNB. These solutions ensure that customers at the bank receive premium professional services.

## Prompt and flexible

“The pace of implementation of solutions for contact centres is becoming crucial. As DNB plans for the future, it wants its systems to be flexible and compatible with the rest technologies. But it takes time to develop customised solutions,” said Aušrys Pumputis, product manager at FIMA.

FIMA has implemented a multipurpose call centre system for the bank based on world-renowned products from Avaya. Within a short timeframe and without interrupting the provision of banking services to customers, its key call centre services were moved to the Avaya platform.

“A highly reliable and approved product was chosen. The new system is functional and flexible and satisfies the key requirements set by the customer. After the new platform was successfully launched, we were able to continue to build on it and introduce new functions according to the needs of our customer.

The call centre software runs on remote servers. It goes without saying that one of our tasks was to ensure information security, but this enabled us to reduce hardware costs and provide call centre services flexibly from any location,” said Mr Pumputis.



**The pace of implementation of solutions for contact centres is becoming crucially important.**

*Rasa Aleksaitytė, head of the Customer Service Centre at DNB*



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**DNB has a flexible workplace policy in place: every call centre operator may occupy any workstation, log in to the system and start working.**

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## Every second is precious

DNB noticed the advantages of the new call centre immediately. In 2016, the bank moved to new premises in Quadrum, one of the most modern business centres in Lithuania. The new premises now host a number of branches of the bank, including the call centre, which previously were located in different parts of the city.

At that time, the new system was already in place, and when operators moved to the new building the changeover went smoothly and there was no interruption to customer service.

The bank also has in place a flexible workplace policy: every call centre operator may occupy any workstation, log in to the system and start work. The system is perfectly adapted to this and is also connected to the bank's other communications channels.

“As the call flow at the contact centre is massive and continues to increase, every second is precious. Our task is to ensure a sufficient yet reasonable number of operators; we must also guarantee that there are sufficient specialists in the required fields at any given time.

Technologies help us to reduce service time and manage information flows in multiple channels. It is of the utmost importance that we understand customer needs and offer them the services that they require,” said Ms Aleksaitytė.

DNB customers who contact the customer service can identify themselves by means of mobile or electronic signatures, code generators or TANs and receive personalised advice and service offers.

### The DNB contact centre solution:

- ▶ Is a contact centre based on open standards;
- ▶ Ensures prompt and reliable operations;
- ▶ Has a modular IT infrastructure enabling expansion of e-services without interfering with the operations of the contact centre;
- ▶ Is provided with mobile workstations for contact centre agents;
- ▶ Is based on private cloud and virtualisation technologies;
- ▶ Has Avaya 24x7 software support and upgrades.





**Aušrys Pumputis,**  
product manager at FIMA

## Technologies help us to reduce service time and manage information flows in multiple channels.

### The importance of customer experience

“In the future, with customer behaviour and legal regulations changing, banks will inevitably have to change, too. I believe that customers will soon be able to receive financial services without leaving their homes.

“Currently, a customer has to visit a bank branch when they have to be identified. After the identification issue has been solved and remote channels have been sufficiently developed, customers will be able to receive all the services they need via their computer or mobile phone,” said Ms Aleksaitytė.

She added that the greatest challenge for the bank is to ensure that customers receive sufficient attention, proactive assistance with finance management and prompt assistance when problems connected with bank services have to be resolved.

This is why the quality of contact centre services is becoming crucial for ensuring the best customer experience (CX).

## The importance of customer contact

The importance of contact centres is growing as businesses optimise their operations and reduce the number of customer service offices. Most customers view direct contacts with an organisation’s representative as the best way to receive sound, useful and personalised information. Contact centres are therefore becoming places with a special significance for positive customer experience (CX). And customer experience is becoming increasingly important in a competitive environment.

### Market



**83%** of companies recognise CX as a competitive differentiator.

**78%** recognise CX as the most important strategic performance measure.

**77%** can evidence cost savings via improved CX and say it increases company revenue/profits.

**89%** measure quality on phone interactions.

### Analysis



**50%** of companies rank analytics as #1 factor to reshape the industry in the next 5 years.

**72%** say analytics enables better agent performance.

**69%** state that analysis drives better CX.

But **79%** of businesses have no big data capability.

### Channels



Omni channel top trend for 2016 integration capability set to triple from 22.4% to **74.6%** in next two years.

**36%** of companies can track a customer journey that spans multiple channels.

### Future



Proactive automation capability set to rise to **57.2%** in next year.

**34%** of companies use analytics to personalise solutions and services.

**23%** can provide a customised CX based upon user profile/analytics.

Source: The Dimension Data 2016 Global Contact Centre Benchmark Report.

# Silence in the sound

Open plan offices provide a better use of space and promote team work. But they also have several shortcomings: it can be hard to concentrate due to the inevitable noise in such offices and ensuring the confidentiality of private conversations can be difficult.

In Western Union's Lithuanian service centre, however, noise is not a problem even when work in the office is at its most intense because smart solutions are used to mask sounds.

There is a similar situation in the call centre where all operators are frequently talking to customers over the phone simultaneously and yet are hardly able to distinguish what the other operators are saying.

This is due to a sophisticated sound masking system that employs smart technologies to mask office noise even better than sound insulating partitions. It is a standard adopted in all Western Union offices around the world and it makes the company a more attractive place to work.

## Two problems solved

"We must deal with several challenges in open plan offices. One of these is to ensure the confidentiality of conversations required when financial services are provided. Assurance of good employee performance and comfortable working conditions are two more challenges.

For instance, personnel in the finance division need to concentrate and focus on their tasks, which is not always easy due to the amount of noise and talking in the office," said Laimontas Jukonis, regional facility manager at Western Union, explaining why his company has turned to sound masking systems.

According to Mr Jukonis, Western Union assesses the level of noise when fitting out all of its offices, and Lithuania is no exception. Integrated solutions consisting of sound masking systems, acoustic ceilings and partitions are used to deal with the problem. These solutions ensure comfort and the required degree of confidentiality.



**The background noise neutralises individual distracting sounds, voices and conversations.**

**Laimontas Jukonis,**  
regional facility manager  
at Western Union

## Operations that may benefit from sound masking systems:



Call centres



Offices



Public service providers



Healthcare establishments



Banks and other financial institutions



Legal service centres and law firms



Libraries



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**A sound masking system is provided in all Western Union offices. Lithuania is no exception.**

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## Background noise to mask sounds

“This system requires no interference on the part of employees. Employees hardly notice the system since the loudspeakers are covered and the noise produced resembles ventilation sounds. Most people working in the office are unaware that this system is in place.

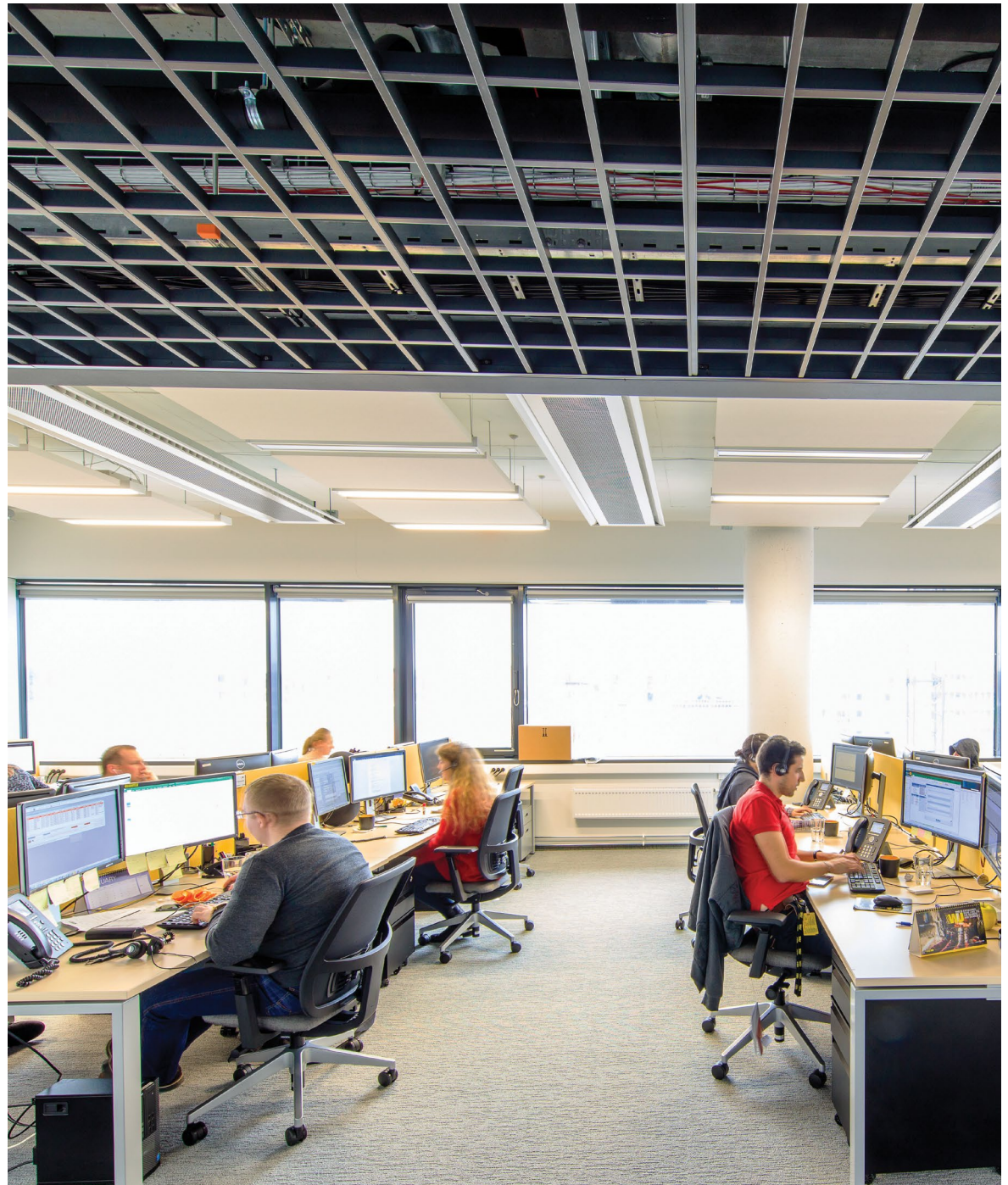
Furthermore, every system of this type is customised for specific premises with consideration to particular sound masking needs. For instance, a call centre requires a more powerful system,” said Mr Jukonis.

It may seem strange that noise emitted by loudspeakers can actually mask other sounds. But the background noise produced neutralises individual distracting sounds, voices and conversations.

“People are used to background noises. Our brains continually filter out sound, not reacting to them, In effect, it means that we do not “hear” these sounds. We only react to individual signals – words, for instance. This can be compared to the rustling leaves in the forest or the sound of waves at the beach. Such natural sounds can even be relaxing despite their high intensity,” explained Vytautas Visminas, product manager at FIMA.

### No effect on health

- One of the most common questions about sound masking systems is about their impact on human health.
- Numerous studies have revealed that the systems do not have any negative effect on human health.
- The level of the background noise produced by sound masking systems only amounts to 40–45 dB.
- The level of background noise produced by human voices, performance of work-related tasks and even outside noises on a business day normally amounts to 50–55 dB. People encounter even greater noise when they talk to each other or drive a car.
- Lithuanian hygiene standards provide for the following maximum allowable noise levels: administrative premises, computerised workstations and programmer workstations: 50 dB; service desks: 65 dB; industrial, construction and other production premises: 85 dB.
- The operation of sound masking systems uses the particular human perception of sound rather than on noise levels.



## How we created a comfortable working environment

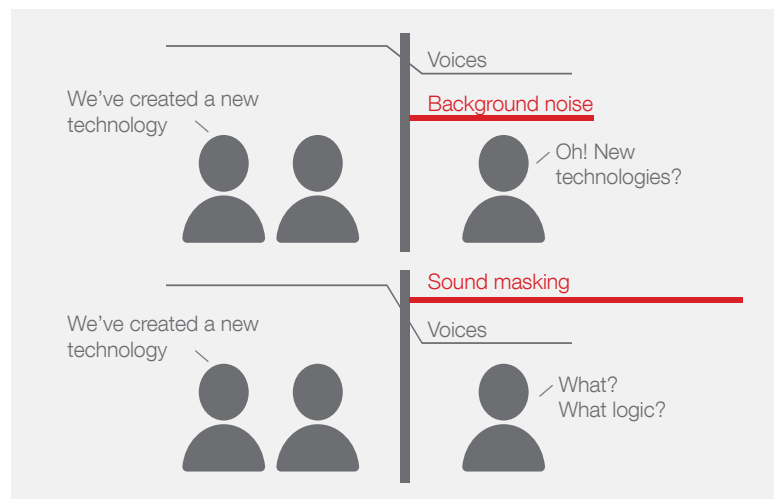
A sound masking system consists of a noise generator, a sound processor customised to the characteristics of specific premises and sound sources, an amplifier and a loudspeaker system. Loudspeakers are normally mounted above suspended ceilings and are not visible.

In most cases, loudspeakers are provided all over the premises which suffer from distracting noise. To ensure comfortable working conditions, the system must be customised for each individual room.

“It may be surprising but people do need noise. We would be unable to remain in an absolutely silent room for any length of time. Yet individual sounds such as conversations and sounds produced by keyboards and utensils can be distracting. A sound masking system solves the issue of these individual sounds. Offices equipped with such systems see higher employee performance and lower error rates,” said Mr Visminas.

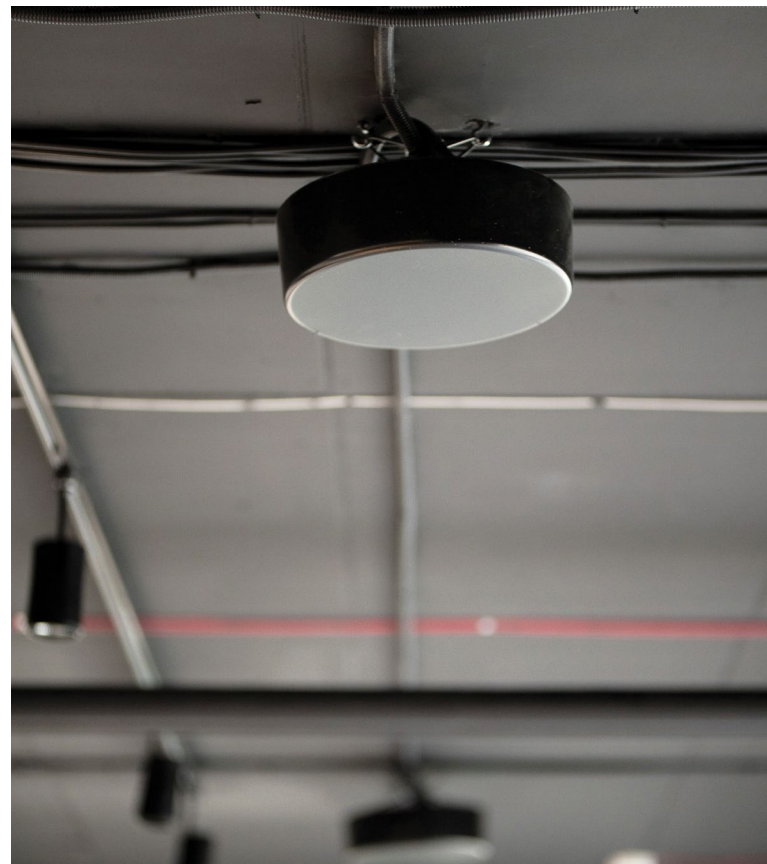
He added that companies have been increasingly providing comfortable working conditions in order to attract new employees. Table football or a quality coffee machine are becoming necessities in the office. The elimination of undesired sounds is no less important.

Sound masking systems are also useful elsewhere. For instance, although health information is highly sensitive, healthcare establishments on many occasions fail to ensure sufficient confidentiality of such information. Patients can often overhear what physicians are telling other patients.



Vytautas Visminas,  
product manager at FIMA

**Although health information is highly sensitive, healthcare establishments on many occasions fail to ensure sufficient confidentiality of such information.**



The presence of sound masking equipment in offices is barely noticeable.

# Smart security tools on show

Security Essen is one of the major events dedicated to security products and features the latest technologies and future trends. It is main spot for FIMA professionals to keep pace with security market.

The technological solutions shown in CSI, a popular US television series, have sometimes seemed somewhat unrealistic to video surveillance and security experts. That is, until now.

“I used to watch CSI with a certain degree of irony. In terms of technology, it was impossible to zoom in and rotate images as portrayed in the show and then highlight the image contours to make a person recognisable. But today, all this and even more is possible,” said Šarūnas Pavilionis, expert engineer at FIMA, on his return from Security Essen 2016.

## A digital evolution

Security Essen 2016 is one of the major events in the industry. More than 40,000 business representatives visited the fair in four days and were able to meet 1,040 technology and service companies from 45 countries.

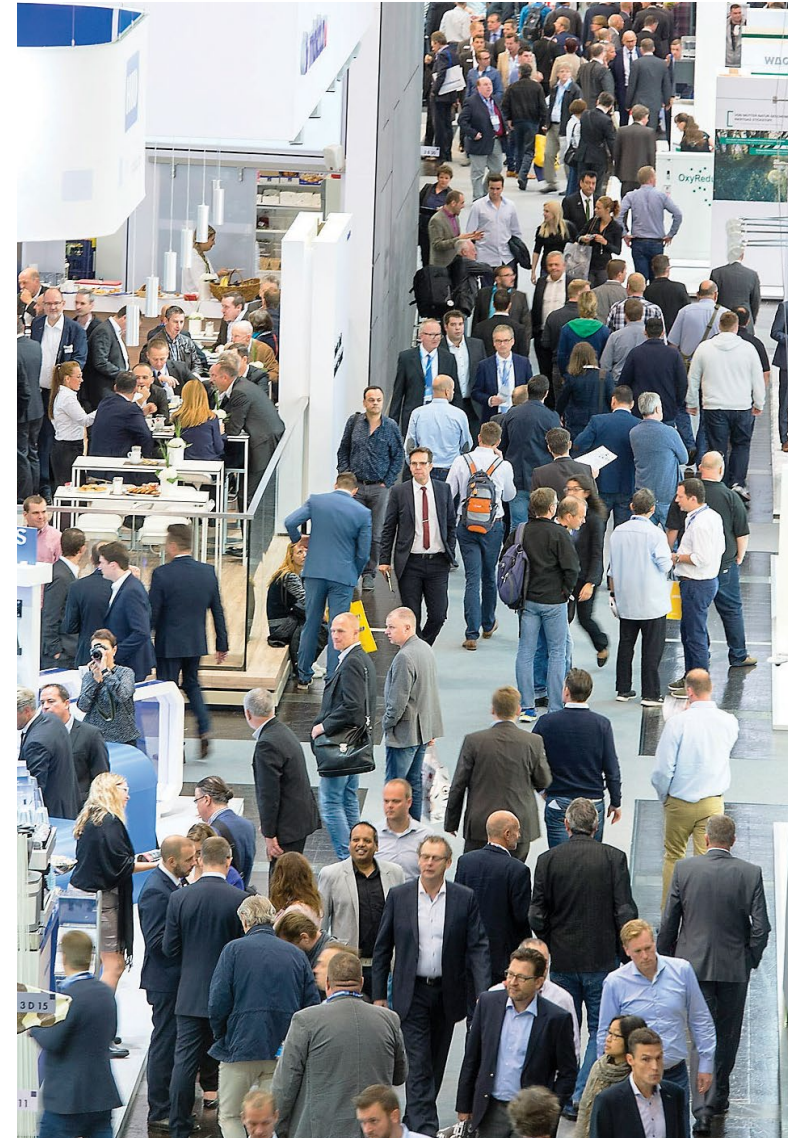
“The revolution is over but the evolution continues,” said Mr Pavilionis. “Digital systems have already replaced analogue systems and we are now seeing the rapid development of those digital technologies with their capabilities being enhanced and methods of transmitting video surveillance and security data via common internet channels being developed further. Specialised network equipment – computers intended for security systems, for instance, are appearing on the market. But all of these come with particular challenges.

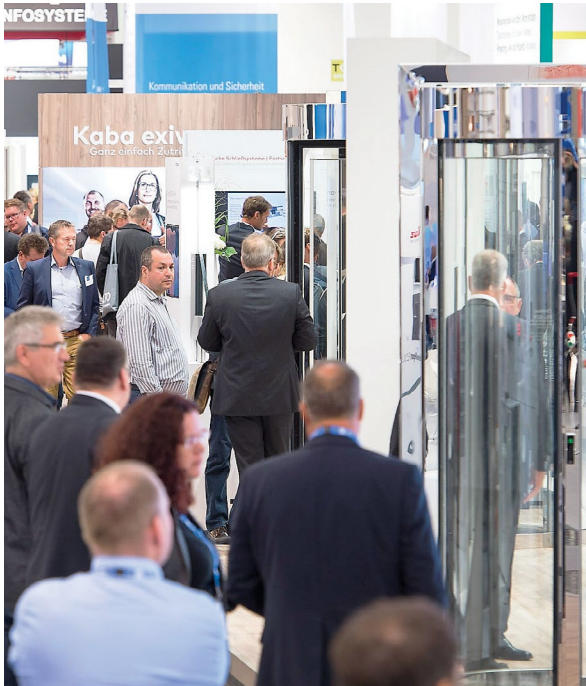
Those challenges concern network security. With the internet of things increasingly important and the number of devices connected to the web growing exponentially, the number of potential threats also increases. Phones and computers are now protected against attacks, but we already have viruses that can contaminate other equipment connected to the web.

“If a video camera is connected to the web, there is the threat of interference with its operation. But the fair featured an impressive number of network security solutions. This threat has been already taken into account by equipment manufacturers,” said Mr Pavilionis.

**Smartphones, devices controlled by smartphones and unmanned aerial vehicles are also finding their niches in the security products market.**

*Security Essen 2016 is one of the major events in the industry.*





## Doors will be locked using smartphones

The fair clearly demonstrated the directions in which technologies are heading. Smartphones, devices managed via smartphones and unmanned aerial vehicles are also finding their niches in the security products market.

It is therefore not surprising that a lock manageable from a smartphone was one of the products that received most attention during the fair.

“Unmanned aerial vehicles also offer new opportunities for improving security and video surveillance. Such vehicles can be controlled from a specialised centre and provided with the latest surveillance equipment.

“But there is also the issue that unmanned aerial vehicles themselves pose a security threat as they overfly a secure area and take photographs. There are solutions that deal with this issue: special systems can detect unmanned aerial vehicles approaching a secure area and send a warning signal,” said Mr Pavilionis.

The FIMA expert always bring back several samples of innovative technological solutions from the fair, which can then be tested and put into use.

## Looking for new ideas

The fair has demonstrated the current trends in the security industry. Security products are becoming increasingly digital and web-linked.

Delegates presented their best security solutions, including door locks controlled by smartphones, HD and 4K video cameras, security alarm systems connected to automated building management systems and multipurpose aerial vehicles.

The opportunities offered by smart buildings were presented in special premises that resembled offices or private homes. Visitors had a chance to see how products are actually operated – for instance, how a smart building welcomes guests or reacts to break-in attempts or even to a fire.

“This is a truly unique experience. Looking at equipment and reading a brochure about its operation is not the same as seeing devices or systems in action. It is worth visiting such fairs not only to find new business partners, but also in order to look for new ideas,” explained Mr Pavilionis.

*Fair participants presented their latest security technologies.*



# 5 questions about speed cameras

Speed cameras have become an inevitable part of traffic control. But how reliable and effective it is? There are few issues that traffic safety experts and drivers should know.

A network of speed meters has been operating across the Lithuanian road network for several years.

Speed meters are part of the infrastructure which controls the country's most important road safety issue: speeding vehicles. Exceeding speed limits is behind more road accidents in Lithuania and across Europe than any other issue.

"The success of speed meters is normally determined by reducing the number of traffic accidents caused by excessive speed rather than by the number of fines issued. However, there still exist many controversial opinions and questions about speed meters and we should respond to these," - said Rokas Šlekys, head of the Solutions Department at FIMA.

Are speed meters effective? How do their technologies differ? Do speed meters only control speed? What are the average speed enforcement systems which Lithuanian drivers are becoming more familiar with? Finally, what kind of speed meters does Lithuania need in the roads? The answers to these questions are both interesting and important.

## Are speed cameras effective?

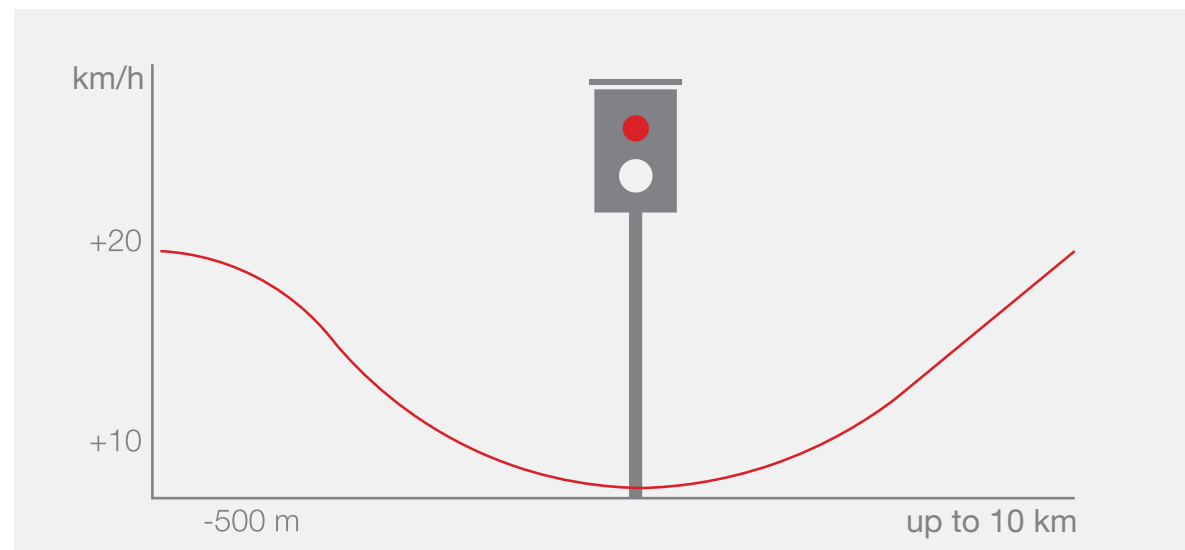
Some say that fixed speed meters that measure speed at a particular point are ineffective. If the driver knows where such a speed meter is installed, then he or she will slow down when approaching it and then accelerate as soon as the car pass it. But that is exactly what speed cameras are dedicated for: to force drivers to slow down in a dangerous area.

It is only dummy speed meters which ineffective: drivers soon figure out that they can drive with impunity in areas where such fake cameras are installed.

Studies show that most drivers, upon becoming aware of a speed meter, start to slow down about 500 metres before it and do not



**Rokas Šlekys**, head of the Solutions Department at FIMA





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## The benefits of speed meters should be judged by decreasing number of traffic accidents caused by speeding drivers rather than the number of fines collected.

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accelerate as soon as they get past it. The average vehicle speed continues to be low for several more kilometres after control area.

According to the data from the Lithuanian Road Administration, the death toll on road sections with speed meters has fallen by more than 83%. Speed meters are therefore one of the most effective means to reduce the number of traffic accidents.

“FIMA has installed 139 fixed speed meters on the most accident-prone road sections in Lithuania. The company displaces approximately 10% of all speed meters to new locations every year, taking into account the number of accidents at specific locations. All the speed cameras are operative.

“We do encounter certain challenges, however. Every year, there are 30 to 50 minor instances of vandalism and up to 10 serious attacks after which we have to either repair or to replace the speed meters. There have been attempts to remove speed meters, blow them up and even shoot at them. And I haven’t even mentioned the times when the glass on the camera is broken or a speed meter is defaced with graffiti,” said Mr Šlekys.

### What are the differences between speed meter technologies?

There are different types of speed meters but we have to consider circumstances when deciding which equipment to choose: video quality, precision, safety and price are the main factors.

“There is a debate over laser or doppler technologies should be deployed. The truth is that both technologies have improved so much that they are able to measure speeds of up to 300 kilometres per hour and identify specific speeding vehicles.” explained Mr Šlekys.

The quality of video recording is also important. The choice of cameras and their resolution – 2, 5 or 10 or more megapixels – will



depend on the specific requirements and the conditions of the road where fixed speed cameras must be installed.

The price of the entire speed metering system depends on the camera resolution although very high resolution is rarely required.

Another technology that can be implemented in speed meters is automatic number plate recognition (ANPR). This technology is based on the average speed metering system – implementation of these systems in Lithuanian roads is being considered now.

### What is an average speed metering system?

Average speed metering systems have been implemented in some countries and Lithuania is now testing them as well. Such a system contains video cameras with the ANPR function and works by measuring the time required for a specific vehicle to travel across a section of road of several hundred metres or longer.

The cameras record the vehicle at the start and at the end of a road section and the system calculates the average speed across that section. If the driver exceeds the average speed, he or she may be subject to a penalty.

While it might seem logical to replace fixed speed control cameras with the new average speed enforcement system, such a decision is not as straightforward as it appears.

These systems are as expensive as the most modern speed meters because the equipment has to be absolutely precise when it comes to recording violations and issuing fines and must also be registered with the Register of Measuring Instruments.

For instance, the length of the road section is measured between points on the road where camera capture passing vehicle rather than between the poles where the cameras are mounted.

Furthermore, on the road with two lanes of traffic, the software must be able to distinguish in which direction vehicle is heading, so that any drivers wanting to evade the system cannot simply change the lanes.

“Road safety analysis shows that in areas where such a system is installed, 85% of drivers do not exceed the average speed. However, this system also has certain shortcomings. It is ineffective, for instance, in cities or on roads that have many busy intersections.

Furthermore, the need to ensure the precision of these cameras and the need to have certified equipment are often underestimated. These systems are considerably more complex than traditional video cameras mounted on poles and connected to a computer,” stated Mr Šlekys.

### Are speed meters only intended to measure speed?

Modern fixed speed meters at a given moment are able to perform other functions like monitoring traffic lanes, observe violations of traffic light signals, prohibited turns and blocking of intersections on top of their primary speed control function.

They can also record video and provide information about situations at intersections or road sections. These speed meters can also be equipped with the automatic number plate recognition function (ANPR).

“For instance, in the UK, which is one of the leaders in terms of traffic safety, there are thousands of cameras with the ANPR function and many other functions.

The cameras monitor and measure average speeds on roads, record vehicles that have missed technical inspection and do not have insurance cover, stolen vehicles, vehicles entering congestion charging areas in cities and monitor and analyse traffic flows and road conditions,” said Mr Šlekys.

Lithuania should consider implementing integrated systems that will provide centralised information and other functions as well as speed control.

### What kind of speed meters does Lithuania need?

Fixed speed cameras that measure speed at a particular point have proved effective in Lithuania. After these speed meters were installed on the Lithuanian roads with the worst accident records, the number of “black spots” decreased fourfold over four years with the number of people killed or injured in accidents on these sections dropping eightfold.

To further improvements regarding road safety, like average speed metering systems should be implemented.

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**Speed control is not the only thing we should think of. The new technologies offer us a number of road safety benefits.**

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“Unlike with fixed speed meters, these systems should be interconnected and integrated. For instance, individual sections of the Vilnius–Klaipėda highway can monitor average speed of car driving between Vilnius and Kaunas or Klaipėda,” said Mr Šlekys.

He also highlighted traffic safety in cities with high numbers of vehicles, where the potential consequences of road accidents can be severe. Certain road sections (around schools, for example) in such cities could therefore also be controlled by average speed meters.

# Speed control on the Vilnius Western Bypass

The new Vilnius Western Bypass will enhance and speed up communications between the southern and northern parts of the city so that traffic no longer has to traverse the city centre. Traffic safety on the new bypass is also a major priority.

FIMA has provided four new speed meters and traffic lights control as well as IP video cameras in two intersections on the Vilnius Western Bypass. The video cameras have been linked to the city's central traffic management system which has been upgraded accordingly.

The speed meters control vehicle speeds at busy two-level intersections, while the street lights and video cameras ensure traffic flow control.

The speed meters control speed across three lanes of traffic and can identify drivers who violate road regulations. 11 MP cameras with Doppler radars have been installed.

FIMA has vast experience in implementing smart traffic management systems. The company has provided intersection surveillance and communications systems and a traffic control centre in Vilnius.

FIMA provides traffic lights and public transport priority systems both in Lithuania and in neighbouring countries. It has also installed 139 fixed speed meters on Lithuanian highways.



*Drivers at Vilnius Western Bypass are controlled by four speed meters.*



## Latest technology handed to TV creators

What does one of the most modern television studios in the Baltic States look like? SIA Fima, FIMA's Latvian subsidiary, has implemented the latest technologies at the Latvian TV channel, LNT. New equipment will ensure efficient and comfort working conditions for the crew and the best viewing experience for the audience.

The new LNT studio is based at Riga Industrial Park and shares the facilities with another TV channel belonging to the international MTG group, TV3, which moved in earlier. The two TV channels now operate under one roof.

SIA Fima has provided telecommunications, security, power supply, air conditioning systems and modern server room in which the systems ensuring operation of the TV channels are housed.

The work had to be carried out without interruption to the TV broadcasts and so had to be completed in fast pace which meant that it had to be scheduled carefully and coordinated with the work of the other parties involved in the project.

New technologies, upgraded communication network and other smart engineering solutions will help to reduce costs while ensuring high-quality television broadcasts.

Just like any other modern TV channel, LNT broadcasts across multiple formats including web and mobile platforms.

*The crew of Latvian TV channel LNT now work in one of the most modern TV studios in the Baltic States.*



## ESO to use digital radio communications

Lithuanian Energy distribution operator ESO commissioned FIMA to implement Tier II digital mobile radio (DMR) communications system, which will be one of the largest in Europe in the size of the coverage area. DMR system will ensure reliable communications and effective maintenance of power and gas infrastructure.

FIMA has signed a contract with ESO to implement both the DMR infrastructure and to supply communications equipment. The system, which uses modern digital radio communications, will replace existing analogue radio stations.

Nearly 60 digital radio repeaters will be installed on ESO's communications masts in remote areas of the country which will ensure that operators from Vilnius and Kaunas are able to communicate with workers at any location across the country.

The power and gas distribution network is strategic infrastructure which means that having a dedicated communications network that is not reliant upon other providers is a priority. The network has to be reliable and encrypted, thus ensuring that information transmitted across it is secure.

The new communications system will be used by teams of workers maintaining power and gas distribution networks. Radio transceivers will be installed in ESO vehicles, while some will be portable and others will be able to operate in environments where explosive materials are present.

The Tier II DMR solution from one of the world's leading manufacturers of high-quality communications systems – Hytera, is the best solution for ESO in terms of functionality and value. The project is due to be implemented by the end of this year.



## A unique foundation for a border control post

FIMA is building a new control post on the Lithuania-Russia border, and the project began with the construction of a special foundation to resolve issue with unstable soil in the delta of the Nemunas river.

The Rambynas–Dubki border control post will be primary gate with Kaliningrad province (Russia) for trucks crossing the Lithuanian-Russian border.

Due to the unstable soil, FIMA experts have introduced geopile foundation at the construction site: over 2,000 piles with a length of 12 metres and a diameter of 0.8 metres were inserted into the soil. Fourteen control posts, passenger control buildings and sheds will be constructed on these foundations. FIMA will also reconstruct an old building with floor area of 2,500 sq m.

The geopile technology used for this project is unique and rather new in Lithuania.

FIMA will also build power and communications networks and provide security alarm, video surveillance, car number plate recognition, fire detection and warning systems.

Traffic management system for flexible traffic flow control will also be put in place. In cases where the vehicle flow from one direction is more intense than from the opposite direction, the number of lanes allocated to the required direction can be increased accordingly.

The construction of the border control post near the town of Panemunė will be completed in 2018. The new post will comply with the requirements of the Schengen zone.

# Creating the future

Smart City III contest for creative students has been announced and number of projects have been submitted – including the surroundings of Hill of Crosses heritage site, a multipurpose sports and leisure arena in Ukmergė, a sports centre in Kuršėnai, a health centre and recreation area in Akmenė, the Joninės pond bank in Jonava.

The purpose of the Smart City project is to provide teams of architecture, engineering and construction students from Lithuanian higher education institutions with an opportunity to come up with exciting ideas for the country's municipalities. This year, students are preparing five development projects which were proposed by Jonava, Šiauliai, Ukmergė and Akmenė municipalities and which may subsequently get put into practice. FIMA is the main partner of the traditional contest held by Structum magazine.

“We are also creating cities of the future by implementing intelligent engineering solutions, which most people encounter in their daily lives. Traffic flows in cities are regulated by smart management systems, video surveillance cameras ensure secure environment, and smart systems help to save energy and create a comfortable climate in buildings.

It is therefore natural for us to be involved in this contest and to share our expertise. We are looking forward to receiving exciting ideas from the teams taking part,” said Vytautas Zinkevičius, business development director at FIMA.

Teams of students from Vilnius Academy of Arts, Kaunas Branch of Vilnius Academy of Arts, Vilnius Gediminas Technical University, Vilnius Technologies and Design College, Kaunas University of Technology, the Arts Room of Kaunas University of Technology, Klaipėda University and Klaipėda State College are taking part in the contest.

“We want talented students of architecture, urban planning, construction and other disciplines to deliver for Lithuania rather than go abroad. The cities of the future belong to youth generation and it is up to them to create environment in which people are happy to live and work,” said Aurelija Ruželienė, head of administration at Structum Projektai.

The students are expected to present innovative ideas that would be appropriate to implement and to expect that the best projects will go



*One of the tasks for students: to surroundings of the Hill of Crosses suitable for modern tourism.*

**“We are expecting smart ideas from the project teams.”**

V.Zinkevičius

forward and subsequently get developed.

As a project partner, FIMA frequently presents its innovative solutions to students and keeps them familiar with the opportunities offered by the latest technologies. This year's Smart City contest is focused on resource saving, automated information collection, processing and transmission, and automated management systems.

The projects will be assessed by a commission made up of renowned architects, urban experts, university professors, representatives of real estate and construction companies and representatives of municipal governments. A winner will be announced in each of the categories based on the originality of the ideas, implementation quality and proof of concept.

*The Smart City contest is being held for the third year in a row.*

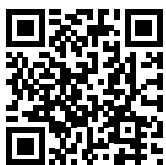
## Smart City III projects:

- ▶ **Ukmergė Municipality** plans to construct a multipurpose sports and leisure arena with 1,500–2,000 seats in the grounds of the sports and entertainment complex. The plan also covers the construction of recreation park with enclosed stages, golf courses and a car parking.
- ▶ **Jonava District Municipality** aims to create an attractive and accessible environment in Jonava for recreation and leisure in the vicinity of Joninės lake and provide modern sound and video equipment to ensure that Jonava residents are able, to receive information about events at certain locations in the town.
- ▶ A new modern health complex is planned **in the centre of Akmenė**. The adjoining land will also be finished and adapted to the recreational needs of the town's residents. The building of the new wellness complex should be in harmony with the other buildings in the town centre.
- ▶ **Šiauliai District Municipality** wants to reconstruct the abandoned stadium and the old building in the southern part of the town of Kuršėnai, which is situated in a beautiful natural setting with the River Venta and a recreational park nearby. The plans are to transform the territory into a modern sports complex and to clean up the environment.
- ▶ **Šiauliai District Municipality** plans to adapt surroundings of the Hill of Crosses to visitor needs. This area must be suitable for modern tourism and attract small business.





## About FIMA companies



Solutions Era is a quarterly publication covering intelligent engineering news. It has been published by FIMA since 2006 and is available in Lithuanian, English, Russian and Latvian. Back issues can be downloaded at [www.fima.lt](http://www.fima.lt).

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FIMA is the leading electronic engineering systems integrators in Baltic countries, offering telecommunications, security, automation and data center solutions as well as individually tailored solutions for transport and energy sectors.

The company implements intelligent engineering solutions for businesses and governmental organisations in the Baltic states and Belarus and is continuously involved in projects of technological innovation. In two decades of operation, FIMA has carried out several thousand projects of a various scale and degree of complexity.

FIMA's headquarters are based in Vilnius, Lithuania. The company has subsidiaries in Latvia, Poland, Belarus.

**Do you have ideas, suggestions or comments? Email us at [solutions.era@fima.lt](mailto:solutions.era@fima.lt).**

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