

The benefit of **BMK Vision** data analysis solution to the client (retail trade, physical stores) in the context of Covid-19

1 BMK Vision is a data analysis solution that helps analyse information related to people flows, how they change and how to manage them. Its algorithms enable quick information comparison and analysis which can then be used for better insights about customers, their behaviour, behaviour changes, engagement, and staff planning questions as well as other process management aspects.

BMK 
VISION



Photo by Tim Douglas from Pexels

2 In the pandemic environment, retail trade businesses and other companies that attract customers in indoor premises are constantly balancing on the verge of risk. They face uncertainty of potential operation restrictions if stricter epidemiological requirements are not met and risk both their customers' and employees' safety inside the premises.

Finally, even if access to retail premises via provided entrances is limited, it remains difficult to ensure that key safety requirements are met.

BMK Vision project manager Vilius Jurgelevičius: "Even if we place restrictions on store area and number of people allowed in them, it is often impossible to avoid the possibility that a large part of customers gather at the same time in the checkout zone or a similar point of attraction, the area of which is significantly smaller than the whole venue. In order to solve such problems, systems based on artificial intelligence algorithms are being introduced, ensuring safe management of customer flows in the stores."

Predictions of scientists and retail trade experts show that the world will not return to pre-pandemic state. Therefore, we need to find a way to live in the new reality not only now but also in a year or five.

"That is why it is important to ensure epidemiologically much stricter and more thorough business models not just temporarily but also in the long term."

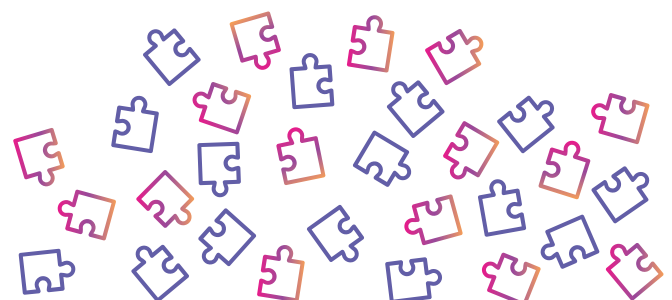
Vilius Jurgelevičius

3 Analysis by the prestigious global business management consultancy company McKinsey shows that customers will keep their habits they have formed during the pandemic year. They will also put pressure on retailers in two areas: to ensure convenient digital commerce channels and safe physical stores. According to Harvard Business Review, improved physical store's activities and a well-functioning digital commerce channel are now the most important combination for merchants.

Even when the spread of coronavirus is prevented, the need to control similar threats will not disappear due to four main reasons:

- inert customers' wish to keep shopping conveniently and safely at the same time;
- minimising the risk of interruptions in retailers' activities;
- inexpensive application of control and self-service mechanisms that have been developed during the pandemic;
- pressure applied by the governmental institutions.

In order to achieve that, companies will need to comply with the main requirements in indoor premises defined by the World Health Organisation: wearing masks, regular disinfection of the environment, keeping necessary distance between people, maximising usage of contactless transactions, introducing more self-service options as well as controlling employees' and customers' movement inside the stores.



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There are various ways to monitor visitor flows and movement in indoor premises. However, most of them contain some underlying drawbacks and cannot ensure reliable data and optimal price and service efficiency ratio.

What means are companies using to solve customer flow issue?

SOLUTION

More employees



DRAWBACKS

- Rapidly growing fixed costs
- Unreliable data

An average salary of a security guard in the Baltic States is €1100.11 (gross). It is clear that depending on the size of a store, from 1.5 (€1650.16) to X additional posts will be needed just to control customer flow. Human errors and fatigue may result in inaccurate data. Furthermore, there is little chance to collect reliable data for further analysis.

SOLUTION

Infrared sensor systems



DRAWBACKS

- Environment impact disturbances
- Unreliable data

Infrared sensor systems can be used for a rather accurate customer flow account. However, this is only true under perfect conditions. When the premises are affected by sun rays or when thermal curtains are used during winter, the accuracy of these systems drops dramatically. Additionally, it is hard to accurately identify individuals in groups and, therefore, several visitors often may be counted as one.

SOLUTION

Open data (Google data etc.) processing



DRAWBACKS

- Too little data covered, not enough for a reasonable analysis
- No possibility to use data in real time
- Human resources needed for data monitoring

Statistically, smartphones are constantly being used by 67% of citizens in the Baltic States. Even if all of them had activated Google location service, data of two thirds of users is not reliable enough to base analytic solutions on.

SOLUTION

Security cameras with analysis software



DRAWBACKS

- Limited functionality due to 2D view

In stores which use security cameras, it is possible to install additional software that would track the number of visitors entering and leaving in real time. The main drawback of such software is its limited representation of movement in physical space.

SOLUTION

**Stereoscopic image sensor system with BMK Vision software**

This solution offers very accurate people flow assessment and a wide range of possibilities of use in retail venues. Using software which processes data from video cameras and sensors based on artificial intelligence algorithms, it is possible:

- to implement and monitor social distancing and other epidemiological requirements (including whether masks are worn);
- to collect visitor flow data and compare it according to time, weather conditions, etc.;
- to monitor demographic visitor indicators;
- to create a map that shows visitor habits;
- to identify employees among visitors;
- to show targeted advertisement or any other messages in digital screens in retail venues based on collected data;
- to compare turnover of different article categories to visitor movement in the retail zone;
- to solve the issue of customer movement in hot spots more efficiently.

BMK Vision software shows real-time notifications about queues, people gatherings in one area or disregarding of epidemiological requirements. Every merchant can decide on their own what solutions should be used when the system locates a breach or a potential risk for it to happen. It may be a notification to an employee, a sound signal or other solutions.

Data analysis allows one to identify most dangerous places in the retail area and even suggests solutions for a more efficient store planning in the future.

BMK Vision functionality complies with applicable privacy and personal data protection rules. Data is anonymous and not disclosed due to irreversible pseudonymisation, i.e. it is guaranteed that data subject may not be identified or identified again and, therefore, this regulation does not apply. Furthermore, using anonymous information for statistical purposes is compatible with the GDPR.



5 In addition to all these advantages, data analysis lets companies plan work and marketing actions in a more efficient way because it clearly shows at what time there are most customers in retail venues and what needs they have. This data can also be integrated with business analysis systems that companies use on a regular basis.

6 Therefore, BMK Vision solution helps to accomplish complex tasks with one installation. Different functions can be combined in one system and their functionalities can be extended or limited according to specific needs. This helps save expenses and increase revenues significantly in the medium and long term by accurately regulating staff needs, making sales more efficient and managing warehouse demands more precisely. Most importantly, both customer and employee safety is ensured. Hence, it is easier to attract both.

7 BMK Vision solution has already been applied by one of the biggest Lithuanian telecommunications companies in their 40 stores. The solution consists of BMK Vision software and analysis system developed at BMK as well as Intenta S2000 three-dimensional stereoscopic vision sensors.

After the company implemented BMK Vision solution, it was able to fulfil these objectives:

- improve employee work schedule planning;
- accurately identify hot points in the stores at a specific time;
- improve customer service indicators;
- take rapid and data-base solutions about customer and employee safety in the retail venues in the context of Covid-19;
- integrate system data into business analysis systems and use it as additional indicators together with applied KPIs;
- reasonably compare data in different stores.

