Global Market Insights: The construction industry is a global market, with different regions experiencing varying levels of growth and trends. For example, North-East Asia, including countries like China, Japan, and South Korea, has been a significant contributor to the construction market in recent years.

In conclusion, we should note that these insights are based on the search results and snippets from various sources. The construction industry is dynamic, and new trends and innovations continue to emerge as technology advances and sustainability becomes a priority.

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MODERN INTERACTIVE PEDESTRIAN CROSSINGS

It is a well known fact that every year many accidents, that result in injuries and deaths, occur at pedestrian crossings around the world. That is why the British insurance company Direct Line, in collaboration with the design bureau Umbrellium, has created a "smart crossing", called Starling Crossing (STigmatic Adaptive Responsive LearningING), which will make such road sections safer for pedestrians, cyclists and motorists.

This innovative development differs significantly from traditional crossings because it is not static, it is painted on the asphalt surface and it is constantly changed in accordance with the road situation. As you know, the design of the first zebra crossings with the rules of behaviour appeared in the 1950s. Since then, such markings have remained virtually unchanged, but today, in the 21-st century, roads are significantly different from the roads of the 20-th century.

How does Starling Crossing work? This system uses machine learning to make roads safer and the first prototype of such crossing has now been created on the territory of a television studio in London. The idea to create such a prototype became a necessity for testing different road situations, such as how a digital zebra would react to a cyclist approaching the intersection, to a truck being in a blind spot or to a child running out into the road. The Starling Crossing technology is not just white paint applied to the road surface, but a complex system of video cameras, computer algorithms and multi-coloured lights that signal pedestrians about their behavior in a given situation. These LEDs are protected from damage by special high-strength steel and plastic covers. Video cameras capture images of road users, after which artificial intelligence performs calculations and determines the current risks and then chooses what shape and colour of markings should be shown to the pedestrian at the moment. Three familiar colours are used

for this purpose on the road - white, red and green. Each of them sends a signal about how pedestrians should behave, where dangerous sections of the road are located and where they are safe. These sounds are quite understandable in reality and all the patterns that appear on the asphalt are intuitive and unmistakable.

And, of course, the speed of the Starling Crossing system is impressive, responding to the changes in road conditions in 0.01 seconds. It's enough time to respond properly to instantly changing conditions. But if there are a lot of people on this interactive zebra during "rush hour", it automatically expands and begins to zone pedestrian traffic, as well as car and bicycle stopping lines. When all pedestrians have safely crossed the road, the Starling Crossing pattern simply disappears until it is needed again [1].

This full-scale prototype, temporarily installed in South London, is based on research made by the Transport Research Laboratory. It is designed to support the weight of vehicles, not to slip in a downpour and to display bright markings to be seen during daylight hours. At different day times of the day and in different situations, the road can change its configuration in real time. If a person is distracted, looking at mobile phone, and turns too close to the roadway when a car is nearby, a warning pattern flashes around them, filling their field of vision. If the child unexpectedly runs out into the road, a large buffer zone is created around them so that their trajectory is clear to any drivers or cyclists in the vicinity. In a particularly dangerous situation, when a pedestrian is racing across the street but he is in a blind spot for a cyclist or driver, Starling Crossing is adapted in real time to draw the attention directly to the location and trajectory of the hidden pedestrian. Starling Crossing can track and it can be adapted to pedestrian desire lines over time so that, for example, if most people exiting a metro station end up walking diagonally across the street to the park entrance, the crossing can be converted to a diagonal or even trapezoidal crossing with the appropriate safety buffer zones.

Starling Crossing is a pedestrian crossing built with modern technology which puts people first, by allowing people to cross the road safely anywhere, not just in one place or along a fixed path. Key design principles include seeking for improving the people's perceptions without distracting them, and creating a safe relationship between people and cars so that they can make their own decisions. [2]

Like any other technology Starling Crossing has its advantages and disadvantages.

Besides, we can already see many potential benefits of using smart pedestrian crossings depending on their complexity:

1) Reducing the number of accidents due to improved visibility;
2) Ability to manage urban traffic, reducing congestion and pollution;
3) Adaptation to different street types and traffic situations;
4) Ability to be controlled remotely and dynamically;
5) LED-based designs can be switched on and off on demand.

The main disadvantage of Starling Crossing is its cost and complexity of installation. It can be expensive to install and to maintain and it can become a problem for cities that do not have sufficient budgets for such innovative projects. In addition, the system may be limited in the range of interaction with road users. For example, it can not work on roads with a large number of vehicles or on roads with irregular pedestrian and cyclist traffic.

The costs of maintaining the system, such as maintenance, configuration and software updates, must also be taken into account. As Starling Crossing is a fairly new technology, the cost of installation and operation can be significantly higher than traditional road safety methods. The cost of installing and operating such a system can vary significantly depending on many factors, such as size and complexity of the system, geographic location, labour and technical equipment.

Taking into account the above mentioned information, the specific cost of installing and operating Starling Crossing cannot be determined accurately without considering all the details and conditions. However, the Direct Line company which developed Starling Crossing reports that the cost of installing the system is about £50,000 (i.e. approximately UAH 2210000), and the cost of its operating depends on many factors and must be calculated individually for each installation site. [3]

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AI IN BUILDING PROJECTS

Artificial Intelligence (AI) is revolutionizing various industries, including construction. By leveraging AI technologies, construction companies can enhance efficiency, improve safety, reduce costs, and optimize project management. Here are some key points about the use of AI in building projects:

1. Reducing Costs and Enhancing Efficiency. Robotics, AI, and the Internet of Things can reduce building costs by up to 20 percent. Engineers can use virtual reality goggles and mini-robots to track the progress of construction, plan the routing of electrical and plumbing systems, and develop safety systems for worksites. [1]

AI is used to track real-time interactions of workers, machinery, and objects on the site, alerting supervisors of potential safety issues, construction errors, and productivity issues. [1]

AI is expected to optimize energy efficiency, water supply, indoor air quality, and other performance metrics in building projects, leading to enhanced efficiency and cost savings. [2]

2. Improving Safety. AI is being used to develop safety systems for construction sites. It can track real-time interactions between workers, machinery, and objects on the site and alert supervisors of potential safety issues. By identifying construction errors and potential hazards, AI can help reduce worksite injuries and improve overall safety. [2]

3. Post-Construction Management. AI can be used long after construction is complete. Building managers can utilize AI to collect and analyze data, optimize energy efficiency, monitor indoor air quality, and improve overall performance metrics. By leveraging AI in post-construction management, building owners can enhance the operational efficiency of their facilities. [1]

4. Building Information Modeling (BIM). BIM, when combined with AI, has the potential to create new value in the construction industry. AI can automate various BIM procedures, including design and rule checking, 3D as-built reconstruction, event log mining, building performance analysis, and virtual and augmented reality. By streamlining and automating these processes, AI can enhance the management of complex construction projects. [3]

5. Predictive Maintenance. AI can analyze data from building systems to predict maintenance needs. By identifying potential issues before they occur, AI can help prevent costly breakdowns and improve the overall maintenance process. [4]

6. Optimizing Decision-Making. AI can assist in decision-making processes, such as project scope assessment, bidding strategies, and building code compliance validation. By automating repetitive tasks and analyzing data, AI can streamline processes and improve the speed and accuracy of decision-making. [4]

It's important to note that while AI is transforming the construction industry, it is unlikely to replace the human workforce. Instead, AI will augment human capabilities, improve efficiency, and enable new business models in the construction industry.