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Kudan Inc.

Kudan Advances Development of Disaster-Prevention Digital Twin in Collaboration with SoftBank

– Validating Emergency Building Risk Assessment Support and Evacuation Shelter Planning with Kudan PRISM –

Kudan Inc. (Headquarters: Tokyo; CEO: Daiu Ko; hereinafter “Kudan”) is collaborating with SoftBank Corp. (hereinafter “SoftBank”) to develop a disaster-prevention digital twin built on “Kudan PRISM,”its photoreal 3D digital twin platform, to provide consistent support across normal times, disaster response, and recovery.

By integrating facility information and disaster risk information into 3D space, Kudan aims to improve the efficiency of disaster response by creating an environment in which local government disaster-prevention officers and facility managers can make swift decisions based on shared information.



Figure 1: Concept for applying a disaster-prevention digital twin built on Kudan PRISM

Under this initiative, Kudan recreates buildings in PRISM as photoreal 3D space based on 3D data acquired and generated on site. Information such as damage and hazardous locations is linked to positions in 3D space and shared, supporting condition checks and judgments by experts, while functions for examining the layout and circulation routes of evacuation shelters are extended to disaster-prevention operations. By making facility data prepared through planning and drills in normal times useful also for grasping damage after a disaster and

for shelter operation during the recovery period, Kudan aims to build a “phase-free” disaster-prevention foundation.

As part of this effort, a demonstration was conducted on the school building and gymnasium of the former Esumi Elementary School in Susami Town, Wakayama Prefecture, during a disaster drill held on November 11, 2026, organized by the Kinan River and National Highway Office of the Kinki Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism, and the Susami Smart City Promotion Consortium. Kudan validated support for emergency risk assessment of buildings and examined the use of the platform for evacuation shelter planning.

■ Background

In a disaster, many decisions—such as checking the damage to buildings and opening evacuation shelters—must be made with limited personnel. At the same time, when drawings, photographs, and facility information are managed separately, it takes time for stakeholders to share the situation on site and consider their response.

Kudan is building an environment in which the shape and equipment layout of facilities can be understood in 3D space, and necessary information can be linked to actual positions and shared. By connecting the data used for disaster-prevention planning and drills to situational awareness and shelter operation during a disaster, Kudan aims to put everyday preparedness to use in disaster response.

■ Kudan PRISM Functions Supporting Disaster-Prevention Decisions and Planning

Kudan PRISM integrates facility information and disaster risks in 3D space, and supports decision-making in disaster-prevention operations, from situational awareness and information sharing among stakeholders to emergency risk assessment support and evacuation shelter planning.

- **Business use of 3D data:** Stakeholders can view 3D data of facilities that has been acquired or generated on PRISM, and check on-site conditions and spatial relationships on a common screen.
- **Semantic 3D recognition:** The meanings and attributes of equipment, entrances and exits, supplies, hazardous locations, and other items are linked to their positions in space and used for confirmation and judgment.
- **Integration of spaces from wide areas to indoors:** Regional disaster risks are connected with the equipment inside buildings and the layout of shelters, so that information of different scales can be handled together.
- **Movement simulation:** The movement of people and supplies and the placement of equipment are examined in virtual space, helping to verify evacuation routes, delivery routes, and space allocation in advance.

■ Consistent Support Across Four Disaster-Prevention Phases

The solution uses common 3D space and facility information across four phases: “Preparedness and Planning in Normal Times,” “Prevention Before a Disaster,” “Initial Response During a Disaster,” and “Recovery and Rebuilding of Daily Life.” Information gathered in each phase is carried into the next response, with the aim of providing seamless support from normal times through disaster response and recovery.

Kudan is working on applications for the following uses. In this technical demonstration, remote building checks and emergency risk assessment support were validated in particular. The use of the platform in shelter planning and operation is also being considered.

① Normal Times: Preparedness and Planning

Gymnasiums and other facilities that will serve as evacuation shelters are recreated in 3D space, and the placement of beds, partitions, supply storage areas, and aisles is examined in advance. Based on the actual dimensions of the facility and the positions of entrances and exits, Kudan aims to apply the platform to checking capacity and people's movement routes, and to examining whether stockpiled supplies are sufficient or excessive.



Figure 2: Example of an evacuation shelter layout and supply placement study using Kudan PRISM

② Before a Disaster: Prevention

By overlaying assumed flood levels and damage forecast information on 3D space and visualizing their positional relationship with facilities and equipment, disaster risks can be shared intuitively. Kudan is advancing use of the platform for identifying hazardous locations and for evacuation planning and drills, supporting preparation and response planning before a disaster.

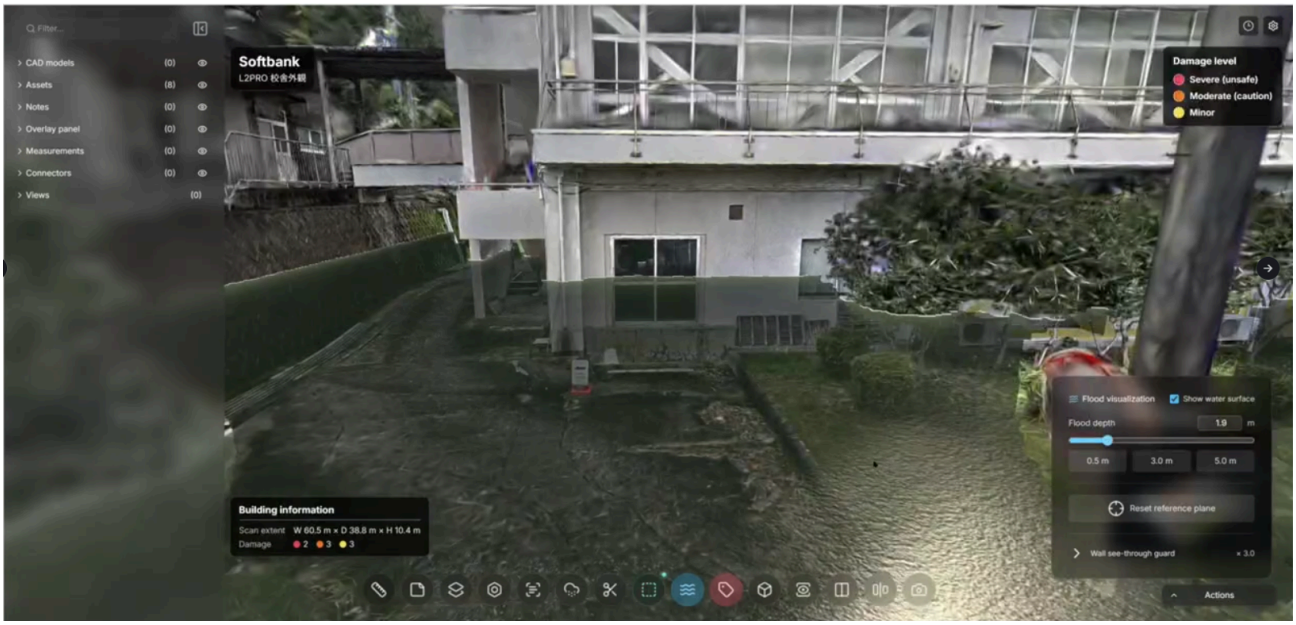


Figure 3: Example display of a flood simulation

③ During a Disaster: Initial Response

Information on damage and deformation of buildings is checked and shared in 3D space, and its use for situational awareness by remote experts and for support of emergency risk assessment will be validated. By comparing with facility data from normal times to identify damaged locations, Kudan aims to share the information needed for decisions such as whether an evacuation shelter can be opened.

④ Recovery Period: Rebuilding of Daily Life

Based on the shelter layout examined in normal times, Kudan aims to support layout revisions and the securing of living space according to evacuees' conditions. With a view to expanding to uses that continuously monitor and share sanitary conditions, the placement and shortage or surplus of supplies, and occupancy, Kudan is building a foundation that supports shelters from opening through operational improvement.



Figure4: Example display sharing the positions and conditions of damage and hazardous locations in 3D space

*Note: Damage shown is simulated.

■ **Demonstration in Susami Town**

This demonstration was conducted as part of the "Reiwa 8 (FY2026) Disaster-Prevention Roadside Station Susami ICT Disaster Drill," carried out under the Ministry of Land, Infrastructure, Transport and Tourism's Smart City Implementation Support Project. The drill was organized by the Kinan River and National Highway Office of the Kinki Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism, and the Susami Smart City Promotion Consortium, chaired by the Mayor of Susami Town. SoftBank serves as the coordinator of the Consortium's Disaster Prevention Working Group.

The drill assumed a series of responses, from securing communications and checking the extent of damage to notifying residents and guiding evacuation. While the Kinan River and National Highway Office handled the satellite communications drill between the disaster-prevention base and Roadside Station Susami, and Susami Town and SoftBank were involved in running the drill and guiding evacuation, Kudan, in collaboration with SoftBank, validated building condition checks and assessment support, as well as the use of 3D data for evacuation shelter planning.

The technical demonstration of remote emergency risk assessment of buildings was conducted three times—on June 29, September 10, and November 11, 2026. Cracks, tilting, and other damage were simulated at the former Esumi Elementary School, and emergency risk assessors in remote locations checked and evaluated the buildings using data acquired with handheld 3D scanners made by XGRIDS and with drones.

The demonstration confirmed that all items required for the emergency risk assessment of a reinforced concrete building can be checked and evaluated remotely. The items validated included damage to columns and walls and the condition of members at high elevations, as well as slight inclination and deformation of the building and inter-story drift angle measured by three-dimensional surveying. During the drill on November 11, based on the assumed assessment results, whether entry to the building was permitted was announced by voice broadcast from a disaster-response drone, and evacuation guidance was carried out.

The damage and assessment results were simulated for the purposes of the demonstration and drill. The condition of the buildings was checked and evaluated by qualified personnel.



Figure 5: The demonstration on November 11 (left: checking a building in PRISM; right: presentation at the venue)



Figure 6: Evacuation to the school building of the former Esumi Elementary School during the November 11 drill

■ Outlook

Kudan will reflect the insights gained from the demonstration in its development and improve ease of use for building condition checks and evacuation shelter planning. Working with partners including SoftBank, Kudan will advance the use of disaster-prevention digital twins suited to the actual operations of local governments and facility managers.

Going forward, Kudan will advance integration with hazard and facility information and AI-based analysis support, and expand use in advance planning for evacuation shelters, damage forecasting and drills, situational awareness after a disaster, and shelter operation. Aiming to build a foundation that supports activities from examining shelter layouts and the flow of people and supplies in normal times, through grasping building damage during a disaster, to recovery and reconstruction, Kudan will work with local governments and partners to apply it to actual operations.

■ Related Information

- SoftBank press release (November 11, 2026) (Japanese only)
  防災分野にデジタルツインを活用して、被災した建物の応急危険度判定を遠隔から実施する技術を実証
- Susami Town materials (Japanese only)
  Official information on the Disaster-Prevention Roadside Station Susami ICT Disaster Drill
  Materials for the Reiwa 8 (FY2026) Disaster-Prevention Roadside Station Susami ICT Disaster Drill (PDF)

- Details on Kudan PRISM

About Kudan Inc.

Kudan provides spatial perception technology, described as “eyes for all machines”, that drives the advancement of Physical AI and plays a pivotal role in next-generation digital twins and robotics. This spatial technology perceives the real world and creates digital twins that AI can analyse.Kudan thereby contributes to the digital transformation (DX) of operational management and improved productivity. Furthermore, the company offers fundamental technologies that enable robots to digitally perceive their surroundings and achieve autonomous mobility in complex environments.

For more information, please visit Kudan’s website at https://www.kudan.io/ .

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