

FIVE REASONS YOU NEED A SUPER INTELLIGENT DIGITAL TWIN FOR YOUR TERMINAL



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Digital twins are one of the fastest growing concepts in the container handling industry, especially with the growth of complementary technologies such as IoT and cloud. The virtual 3D replica of a terminal gives you complete visibility of the terminal environment, its equipment, container inventory and much more. However, a digital twin alone may not be enough to provide a wide variety of benefits, it also needs to be paired with a super intelligent engine that can work hand in hand to improve a terminal overall operation. When digital twin technology is combined with the latest machine learning and AI tools, terminals are exposed to a wide range of benefits. This includes the ability to view and even resolve incoming problems. The following highlights the key reasons why you need a super intelligent digital twin for your terminal:

1. REDUCES RISKS AND DRASTICALLY IMPROVES PERFORMANCE

With continuous forecasting of terminal performance, a 3D digital twin can reduce the risks of accidents and respond to safety-critical events more effectively. Having an overall 3D view of the terminal, its equipment and the container inventory in the yard will allow the terminal to reduce the risk of any potential accidents that can happen in the yard. Furthermore, the forecasting of potential bottlenecks and issues allows your terminal to improve overall efficiency and performance. For equipment control, a super intelligent digital twin can link to the



terminal operating system (TOS) to minimise the unladen movement of container handling equipment (CHE). Moreover, it can distribute traffic and avoid congestion in terminals, to prevent bottlenecks and other issues from occurring. This benefit is further enhanced when linked to automated CHEs, as it can provide maximum operational efficiency. In terms of vessel operation, a digital twin can more accurately predict ETA/ETD of vessels for increased efficiency in terminals. All these

features of a digital twin linked to a super intelligent engine can reduce risks within a terminal and improve a terminal's overall operational efficiency.

2. REDUCES OVERALL OPERATIONAL COSTS

Having a digital twin can be useful in determining optimal resource allocation. It does this by helping to calculate the most efficient berthing times, forecasting the

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cost of resources, and reducing the downtime of equipment. A digital twin should also have real coordinate data of any CHE and container in the yard to calculate the distance for every move and equipment utilisation. This calculation and forecasting allow for the best possible use of resources which can save fuel and time, resulting in lower overall operational costs. Combined with automation, it will increase control and further reduce the overall costs of operations for the terminal. A digital twin paired with AI capabilities will allow it to also predict and resolve incoming problems, which will result in even more cost-saving benefits.

3. ALLOWS FOR COMPLETE VISUALISATION OF THE TERMINAL

Having a real-time 3D view of the terminal, its equipment and the containers in the yard allows you to oversee all the operations, resources and plans to make more informed decisions. Usually, it can be difficult to oversee an entire terminal with just a TOS, so a digital twin really helps in real-time visualisation and monitoring. A digital twin with a super intelligent engine will not only allow the user to visualise terminal operations but also predict and prevent incoming problems before they even occur. A super intelligent digital twin will allow the user to visualise the

current yard and to look into the future to optimise planning. An intuitive digital twin should also be easily accessible anywhere in the yard to allow the users to better monitor and control the terminal.

4. HELPS GUIDE DECISION MAKING

The complete visualisation of all activities in the terminal allows you to make more informed decisions which can lead to better operations. It allows for predictive maintenance, which helps avoid risks and the wear and tear of resources. Not only does it help with operational decision making but also improves financial decision making as real-time data

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and advanced analytics allow decision makers to make better and faster decisions, leading to a potential boost in business performance. The digital twin, paired with an intelligent engine, can also have predictive and preventative capabilities, which further enhance the decision-making process. Additionally, data can be outputted to several charts that will outline the performance of your terminal and what areas can be improved. With this technology, terminals can make more informed operational and financial decisions.

5. FOR BETTER TEAM COLLABORATION

When a digital twin is properly utilised by users and operators, it can improve your productivity and operational efficiency. The 3D view allows for more transparency and an increasing level of integration between systems. This will in turn optimise the workflow and productivity of the team. Also, it will undoubtedly impress visiting customers when they view your

workflow. In its recommended setup, the team will have at least one large screen to display the digital twin, where the whole team can view the real-time operations and movements within the terminal. This way everyone in the team can have a complete 3D visualisation of the terminal, which allows the team to collaborate better and make more informed decisions.

The multitude of benefits that digital twin technology brings to your terminal is hard to dismiss. With the growing emergence of this technology within the industry, combined with other technologies such as AI and automation, your terminal can experience a massive competitive edge. The wide variety of benefits includes reducing risks and improving performance; reducing overall operational costs; gaining complete visualisation of the terminal; better decision making; and improved team collaboration. A digital twin is definitely worth the investment and when paired with a super intelligent engine, the advantages are almost endless.

ABOUT THE AUTHOR:

Harrison Nguyen is an Account Executive at Realtime Business Solutions (RBS) and is passionate about how software can revolutionise industries. He graduated from the University of New South Wales with a Bachelor of commerce and computer science with distinctions. With his fresh ideas and burning ambition, Harrison is dedicated to helping terminals find the best solutions to optimise their operations.

ABOUT THE COMPANY:

Realtime Business Solutions (RBS) specialises in developing state-of-the-art TOS solutions and has worked exclusively in the Container Handling Industry for over 30 years. Over this period, RBS has carried out the installation of the RBS TOPS software to many Container Handling operations around the globe. RBS' most recent products include TOPS Expert and TOPX Intelligent 3D, which is a super intelligent digital twin. For more information, please visit: www.rbs-tops.com.