

Drag-and-drop web platform for 3D digital twins



Highlights

- 1 Business-to-business (B2B), software-as-a-service (SaaS) company
- 2 Over \$200K in made and committed revenue so far this year
- 3 Selected by the Alaska Angel Conference 2022 investors

Our Founder



Jay Byam Founder & CEO

Jay is a former senior software consultant and developer with experience working on 3D, AR and VR projects for large Fortune 500 companies including Amazon and GE.

Pitch



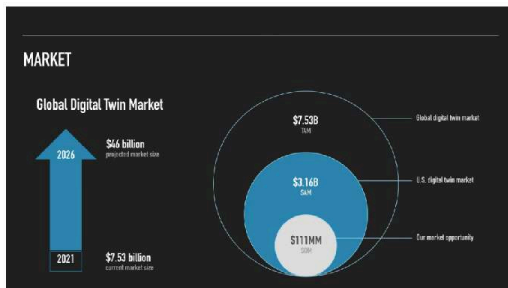
PROBLEMS

Data is siloed.
Not all the people who need to know, do know.

Workforce turnover
They take it with them.

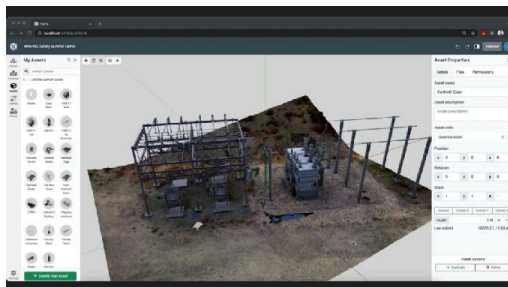
Remote, harsh conditions
Rural, remote.

Too technical
Not designed for nontechnical people.



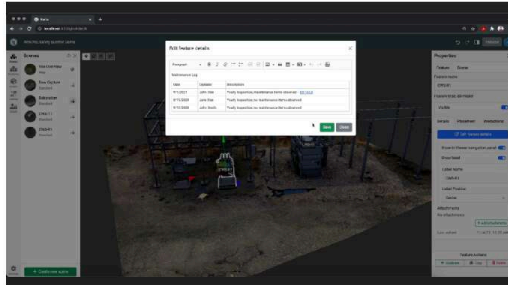
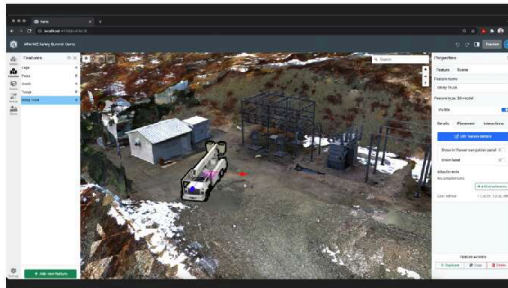
STEP 1

VIRTUALIZE



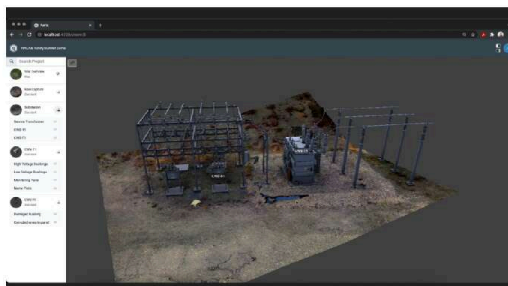
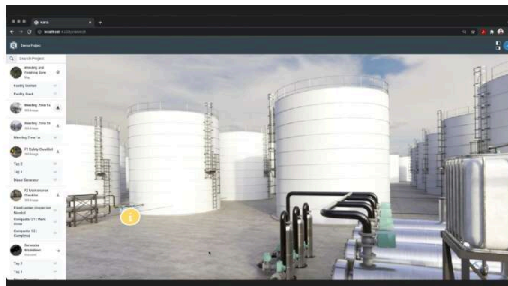
STEP 2

CONFIGURE



STEP 3

COLLABORATE



VALUE PROPOSITION



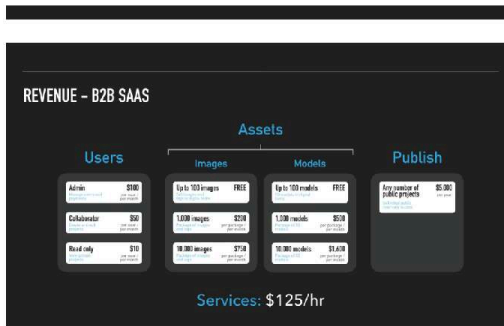
Faster, better training
Scientifically proven methods




Next-gen operations
Leverage the information age




Accessible anywhere
Recruits planning and learning
anytime




TEAM




Jay Byam
CEO
Full-time




Colton Anderson
Technical Account Manager
Full-time




Anthony van Weel
Developer Intern
Full-time




Melanie Blodow
Business Development
Part-time




Joseph Byam
Developer / Drone Pilot
Full-time




Ray Byam
Developer Intern
Full-time



Jonathan Christopher
Lead Full Stack Developer
Full-time



Alora Greer
Developer Intern
Full-time



Dima Bender
Developer Intern
Part-time



The committed revenue is not guaranteed to close.



This slide contains forward-looking projections that cannot be guaranteed.



Only \$250k of the \$350k listed on this slide will be offered on Wefunder.



DIGITAL TWINS, EASIER

Jay Byam | jaybyam@kartorium.com

Kartorium

APPENDIX A: IMPACT OF 3D ON KNOWLEDGE TRANSFER

➤ Bots G, Witmer, John H, Bailey, Bruce W, Kranz, Kimberly C, Parsons. Virtual spaces and real world places: transfer of route knowledge. International Journal of Human-Computer Studies, Volume 45, Issue 4, 1998. <https://doi.org/10.1006/ijhc.1998.0060>.

➤ Virtual Environment (VE) training decreased among turns by 64% over verbal instruction with images (average of 9.13 down to 3.30).

➤ VE training decreased traversal time by 32% over verbal instruction with images (average of 11:35 down to 8:09).

➤ M. Vidal. Influence des cadres de référence sur la mémoire spatiale de trajets en trois dimensions, 1999. <https://www.semanticscholar.org/paper/Influence-des-cadres-de-reference-sur-le-memoire-de-Vidal/1031b7c5470af4c03a36de39f6d872ab0303ac11a5>.

➤ VE training decreased angular error by 37% over training with snapshots (average score of 135 down to 85).

➤ VE training decreased distance error by 28% over training with snapshots (average score of 39 down to 28).

➤ Chitaura L, Buitoni F. Assessing Knowledge Retention of an Immersive Serious Game vs. a Traditional Education Method in Aviation Safety. IEEE Trans Vis Comput Graph. 2018. <https://doi.org/10.1109/vis.2018.2017983>.

➤ VE training increased knowledge retention by 14% over 2D safety card (average score of 7.29 up to 8.42).

➤ VE training increased self-reported engagement by 48% over 2D safety card (average score of 3.41 up to 5.04).

APPENDIX B: IMPACT OF INTERACTIVITY ON KNOWLEDGE TRANSFER

➤ Grigory, Vallet, Hélène Saulnier, Jérôme Rodriguez, and Bernard Nkomo. Transfer of spatial knowledge from a virtual environment to reality: Impact of route complexity and subject's strategy on the wayfinding mode. JVRB - Journal of Virtual Reality and Broadcasting, 4 (2009), no. 4. <https://www.jvr.org/jvr/article/view/1305/1357>.

➤ Interactive virtual learning decreased way-finding errors by 85% over passive virtual learning for simple routes (10% down to 3.5% errors).

➤ Interactive virtual learning decreased way-finding errors by 27% over passive virtual learning for complex routes (16.5% down to 12% errors).

➤ Interactive virtual learning decreased way-finding hesitations by 50% over passive virtual learning for simple routes (8% down to 4% errors).

➤ Interactive virtual learning decreased way-finding hesitations by 49% over passive virtual learning for complex routes (15% down to 9% errors).

➤ Interactive virtual learning decreased sketch mapping errors by 54% over passive virtual learning for complex routes (41% down to 19%).

➤ Ryan E. Poole C. Impact of Virtual Learning Environment on Students' Satisfaction, Engagement, Recall, and Retention. J Med Imaging Radiat Sci. 2019. <https://doi.org/10.1016/j.jmir.2019.04.005>.

➤ Interactive virtual learning increased engagement by 9% over traditional presentation learning (average score of 25.18 up to 27.48).

➤ Interactive virtual learning increased recall by 15% over traditional presentation learning (average score of 6.94 up to 8.00).

➤ Interactive virtual learning increased retention by 20% over traditional presentation learning (average score of 6.18 up to 7.43).

APPENDIX C: IMPACT OF SIGNALING ON KNOWLEDGE TRANSFER

➤ Patrick Albus, Andrea Vogt, Tina Seufert. Signaling in virtual reality influences learning outcome and cognitive load. Computers & Education, Volume 166, 2021. <https://doi.org/10.1016/j.compedu.2021.104154>.

➤ Signaling (annotating with text) in this study improved recall by 15%

➤ Sascha Schneider, Malik Baege, Steve Nebel, Günter Daniel Rey. A meta-analysis of how signaling affects learning with media. Educational Research Review, Volume 23, 2018. <https://doi.org/10.1016/j.edurev.2017.11.001>.

➤ Signaling improves retention by 42-64%

➤ Signaling improves recall by 22-43%

➤ Signaling improves engagement by 4-22%

APPENDIX D: IMPACT OF SEGMENTATION ON KNOWLEDGE TRANSFER

➤ Logie, M.R., & Donaldson, D. Do doorways really matter: Investigating memory benefits of event segmentation in a virtual learning environment. Cognition, Volume 209, 2021. <https://doi.org/10.1016/j.cognition.2020.104578>.

➤ Information segmented into virtual rooms resulted in a 52% increase in recall over non-segmented information (proportion recalled 31% up to 47%).

➤ Aidan J. Horner, James A. Bisby, Aijing Wang, Katrina Bogus, Neil Burgess. The role of spatial boundaries in shaping long-term event representations. Cognition, Volume 154, 2016. <https://doi.org/10.1016/j.cognition.2016.05.013>.

➤ Sequential information recall in context (same room) resulted in 21% improvement (40.6% up to 49.2%).

APPENDIX E: COMPETITION

TOOL	DESCRIPTION	NON-TECHNICAL	GIS	360 PHOTOS	3D MODELS
Kartorium	(-) 3 Diagonal-map interface (+) Interactive data & models (+) Embed multimedia and tags (+) Simple learning structure (+) Large GIS flexibility	✓	✓	✓	✓
PowerPoint	(+) Widely used and supported (+) Extensive multimedia (+) Flexible knowledge transfer	✓	✗	✗	✗
Esri (ArcGIS)	(+) Widely used and supported (+) Powerful GIS ecosystem (+) Experience & continuing learning structure	✗	✓	✗	✓
Matterport	(+) LIDAR = virtual tour (+) Internal business integration (+) Tags for annotations (+) Proprietary capture pipeline	✓	✗	✓	✗
Sketchfab	(+) Online 3D viewer (+) Support for major file formats (+) Two-way communication	✓	✗	✗	✓

* Light Detection and Ranging (LiDAR) = Matterport provides a 3D view of spaces captured with their proprietary capture pipeline, but the tool does not support user-specified 3D models.

APPENDIX F: COMPARABLES

COMPANY	EXIT	VALUE	DATE	REVENUE	DESCRIPTION
Matterport	Public	\$2.56B	7/2021	\$85.9M in 2020	Virtual property tour technology
AbsorbLMS	Acquired	\$500M	4/2021	\$50M in 2020	Cloud-based learning management system
Flow-Cel	Acquired	\$100M	3/2019	\$11.5M	Oil and gas measurements software

APPENDIX G: CAP TABLE

Legal entity: Karta Software, LLC

MEMBER NAME	REPRESENTATIVE NAME	MEMBERSHIP PERCENTAGE
Karta Solutions, LLC	Jay Byam	59.4%
Jonathan Chronister	N/A	8.1%
Colton Anderson	N/A	7.2%
Joseph Byam	N/A	7.2%
Tom Consulting, LLC	Melanie Wadlow	4.9%

Leon Bridges	N/A	4.0%
49th State Angel Fund	Melanie Lucas-Cornwell	4.0%
Force 10, LLC	Casey Page	2.0%
Sherwood Byam II and Deborah Byam, a married couple	N/A	1.8%
Russell Jackson and Laura Jackson, a married couple	N/A	0.9%
Scott Anderson and Sari Anderson, a married couple	N/A	0.9%