CitA
BIM GATHERING 2019

4th CitA BIM Gathering 26th September 2019, Galway, Ireland.

Delivering **better outcomes** for Irish Construction

CitA
BIM GATHERING 2019

IBM Watson IoT Digital Twin Marketplace

Sandra Gannon

Senior Design Researcher, Watson Internet of Things

Please note

IBM’s statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM’s sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract.

The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

IBM TRIRIGA can be used to help meet compliance obligations, which may be based on laws, regulations, standards or practices. Any directions, suggested usage, or guidance provided by IBM TRIRIGA does not constitute legal, accounting, or other professional advice, and each client is cautioned to obtain its own legal or other expert counsel. Use of IBM TRIRIGA does not guarantee compliance with any law, regulation, standard or practice.

A change to existing **Operating Models** is happening

A **digital re-invention** is occurring in asset intensive industries that will change the **operating model** in a **disruptive way**, which enables the asset of the future and the technician of the future to start taking advantage of insights on a whole new scale.

Assets are becoming intelligent using AI, which calls for a more intelligent way of using assets.

The Digital IoT Conundrum

The Current Vision

- High operational availability
- Artificial Intelligence predicting failures
- Accurate asset usage, maintenance, procurement, and inventory records
- Condition-based maintenance
- Connected equipment
- Contextual data at technician’s fingertips

The Operational Reality

- Accurate Bill of Materials Do Not Exist
- Equipment Not Physically Tagged or In Digital Format
- Sites lack infrastructure for data needs
- Vendors not able to provide digital twin
- Parts/equipment catalog lacks structure/classification
- Massive data cleansing projects needed
- Install base lacks sensors and embedded monitoring to benefit from IoT
- With a lot of effort and reliability studies, you can “sometimes” achieve “predictability”
- Limited by Human capabilities

dig·i·tal twin

A digital representation of a physical thing. Combined with IoT, digital twins come alive, evolving into a living virtual model that mimics the experiences of it’s physical twin.


Autonomous Twin
Insurance Twin
Asset Twin
Operational Twin
Maintenance & Part Twin
Digital Twin
Operator Twin
Simulation Twin
Building / Site / Facilities/Factory Twin
Engineering/ Design Twin
Compliance Twin
Technician Twin

The Asset of the Future

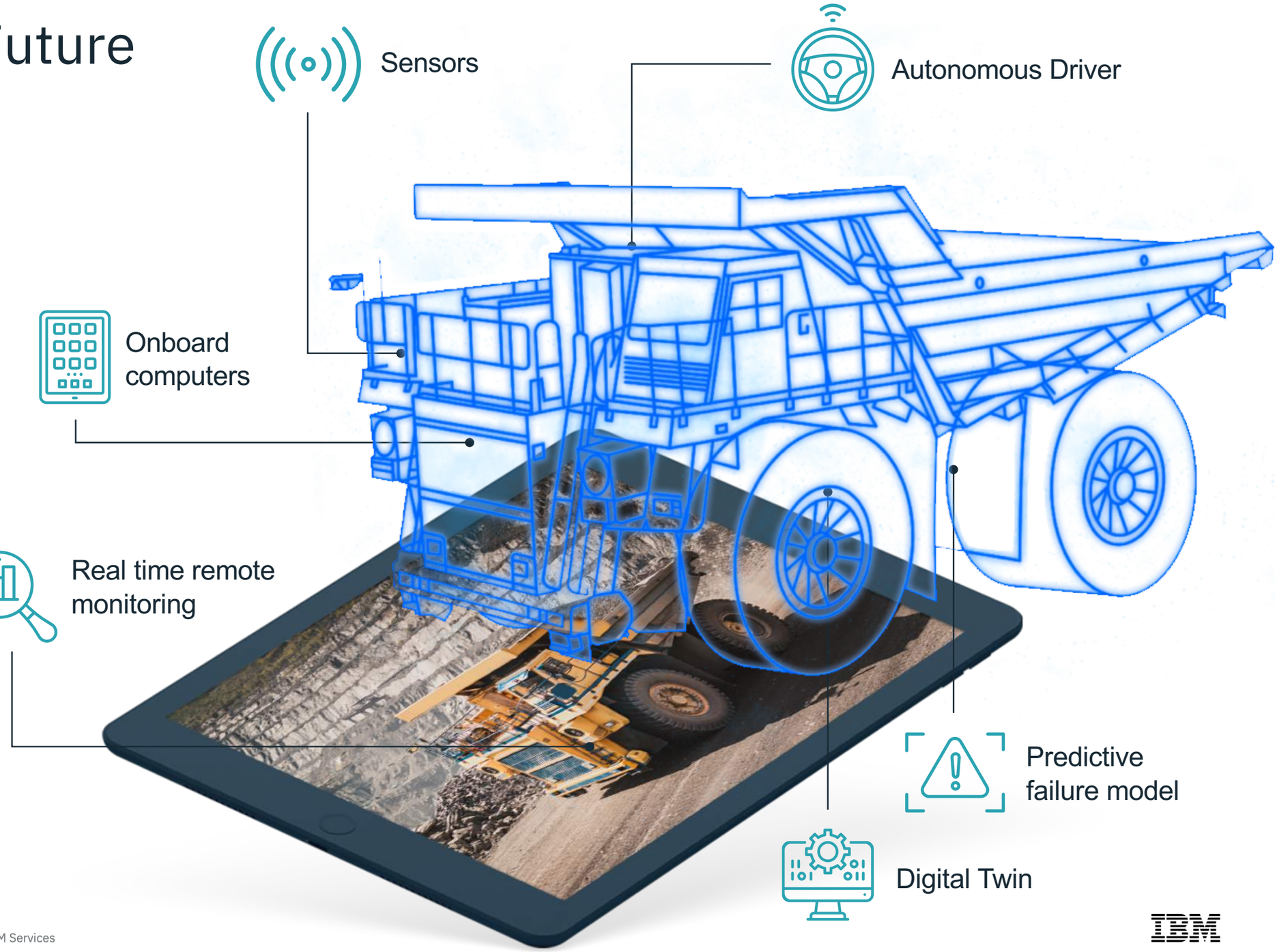
IoT is no longer a novelty.

15%-50%

Reduced Operational cost

10%-20%

Increased equipment Uptime & availability



Market Sizing & Analyst PoV

Market is Large and Growing

$**1.82B** in 2016 expected to reach USD $**15.66B by 2023**, at a **CAGR of 37.87%**

- Only **16%** of organizations implementing IoT currently **have a Digital Twin**.
- **75%** of IoT organizations **plan to have a Digital Twin** within a year.

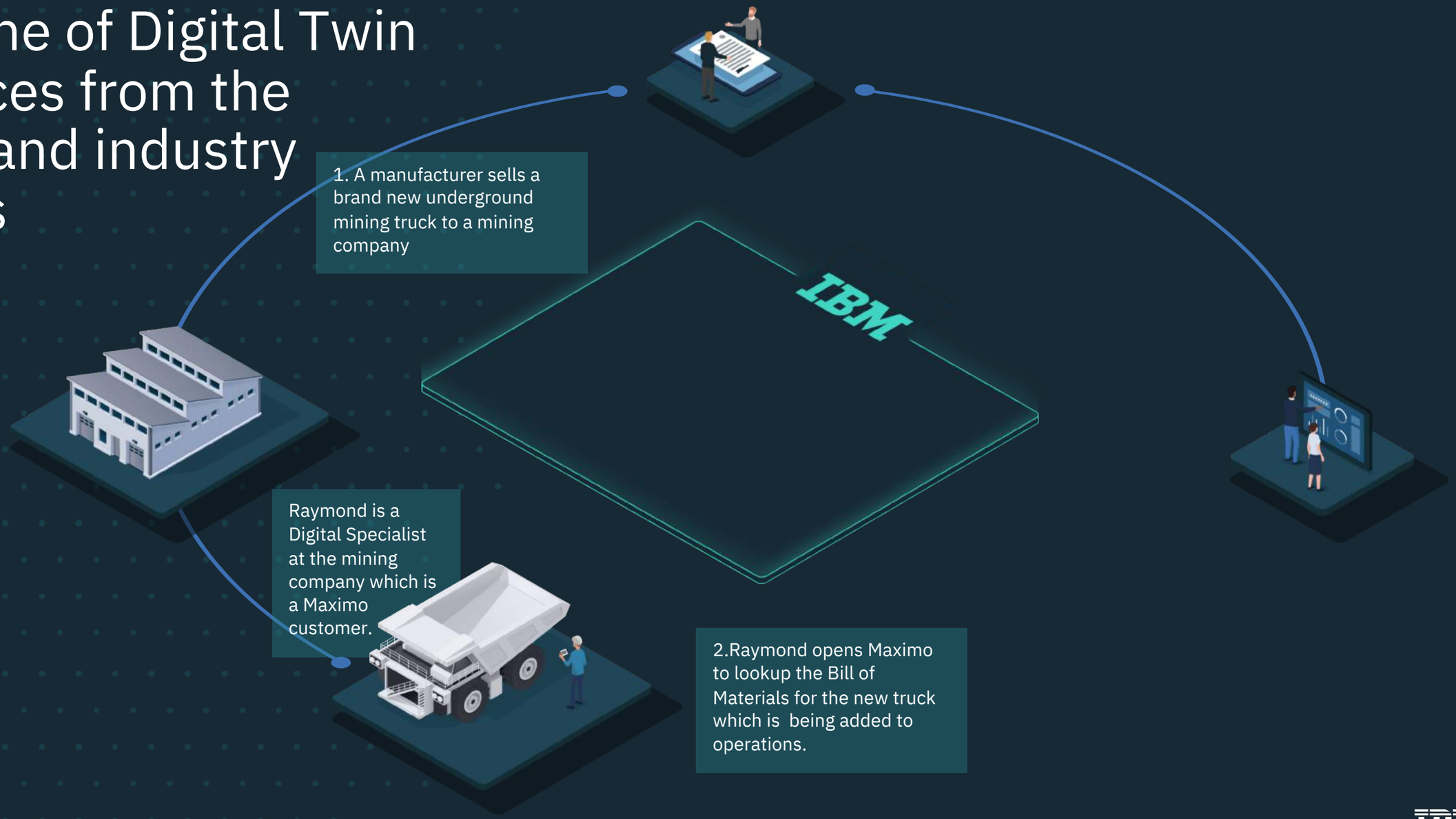
Source: Gartner report: https://www.gartner.com/en/newsroom/press-releases/2019-02-20-gartner-survey-reveals-digital-twins-are-entering-mai

IBM Design Research

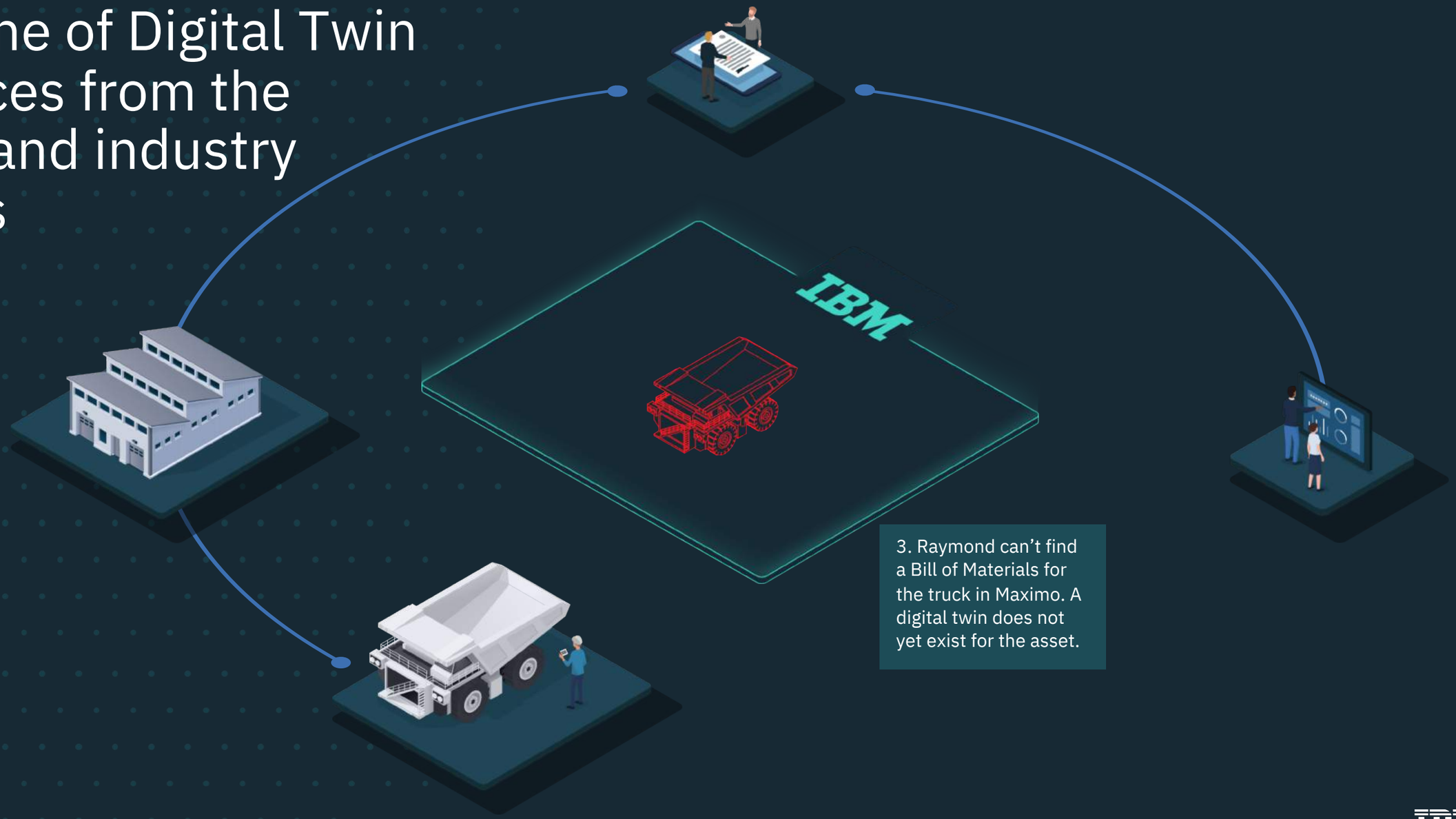
Drive actionable user insights. Build continuous knowledge, discovery, and empathy. Understand through empirical observation, experience, and making.

http://idr-prod.w3ibm.mybluemix.net/design/research/

We expose the collective goldmine of Digital Twin resources from the crowd and industry experts

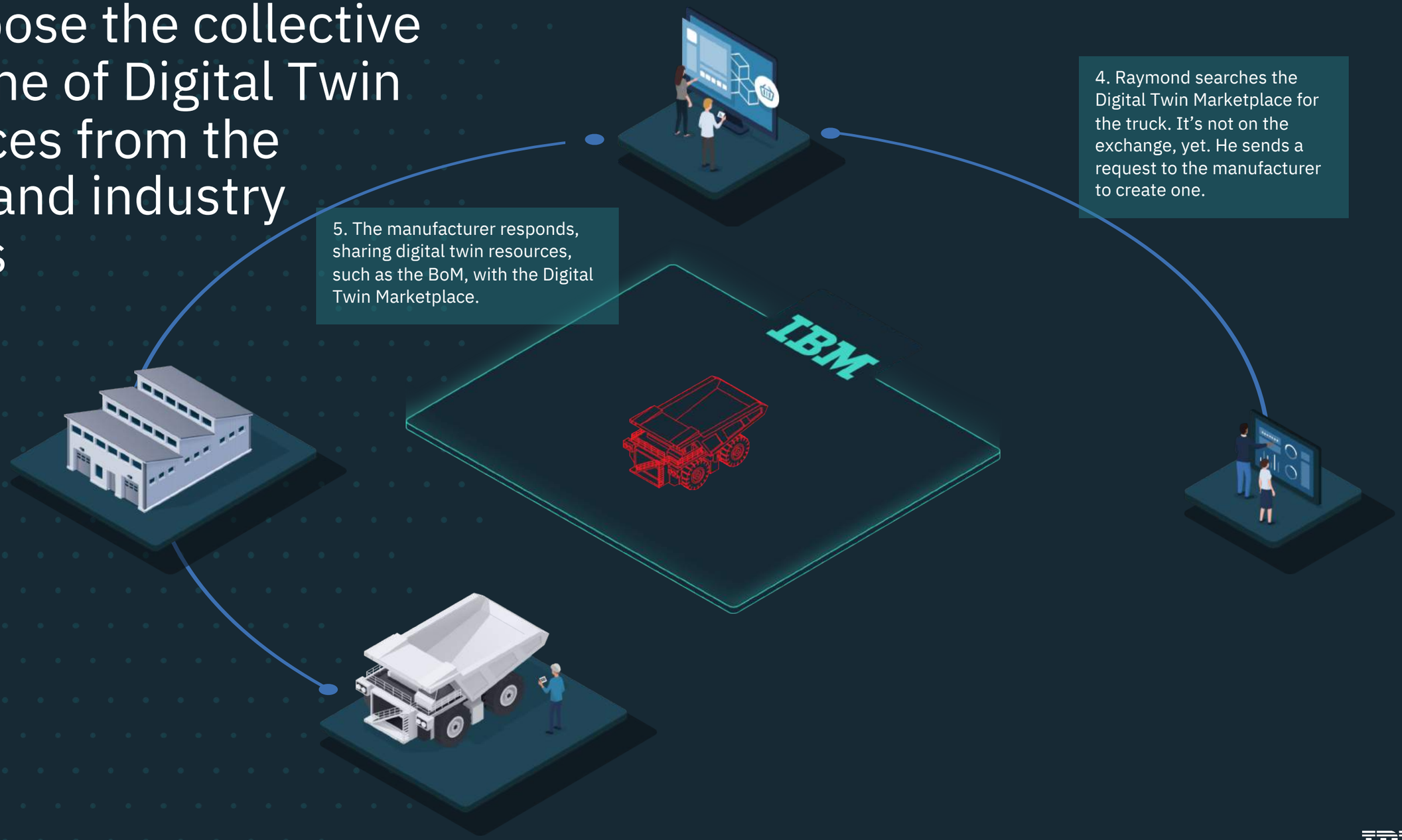


We expose the collective goldmine of Digital Twin resources from the crowd and industry experts

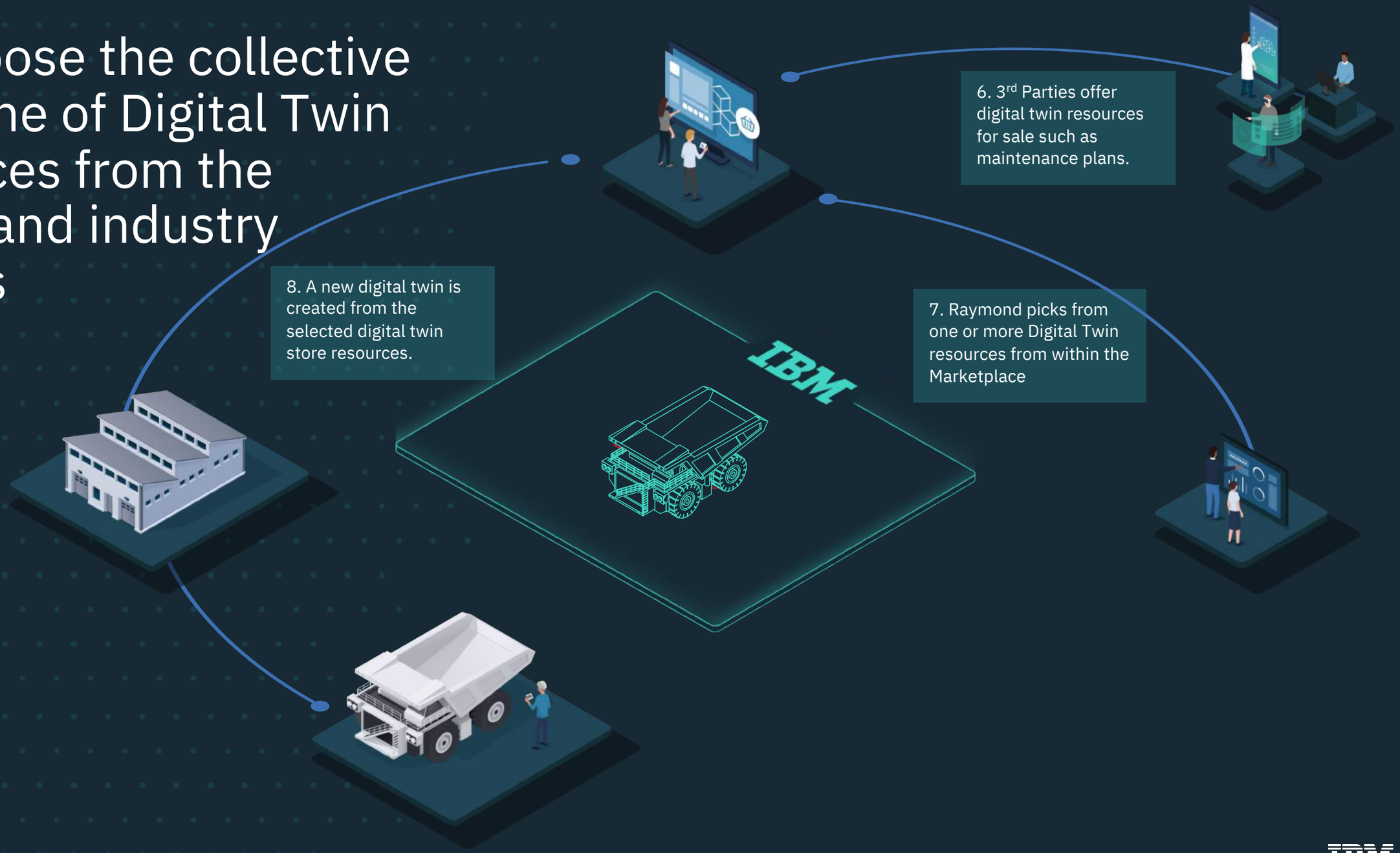


3. Raymond can’t find a Bill of Materials for the truck in Maximo. A digital twin does not yet exist for the asset.

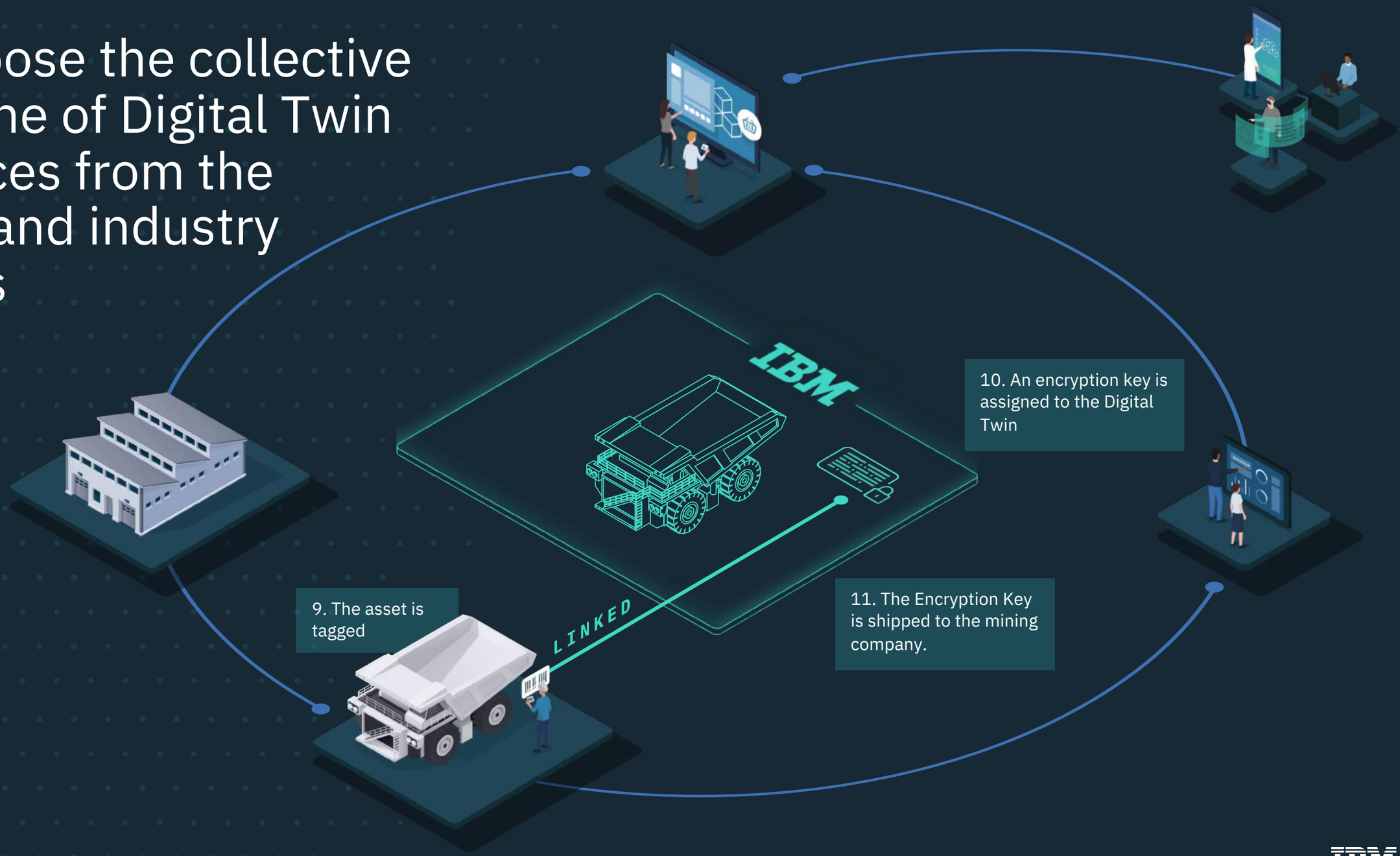
We expose the collective goldmine of Digital Twin resources from the crowd and industry experts



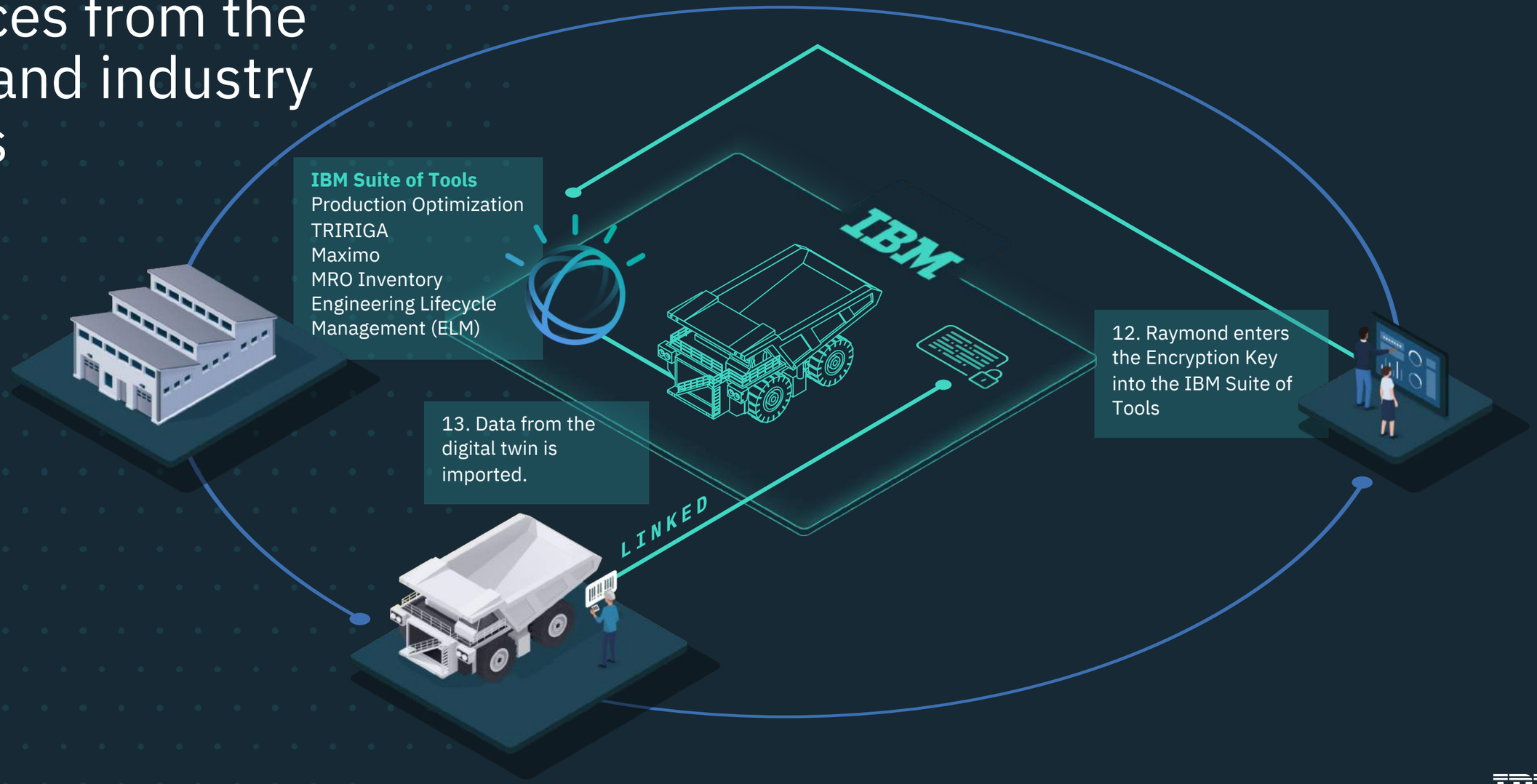
We expose the collective goldmine of Digital Twin resources from the crowd and industry experts



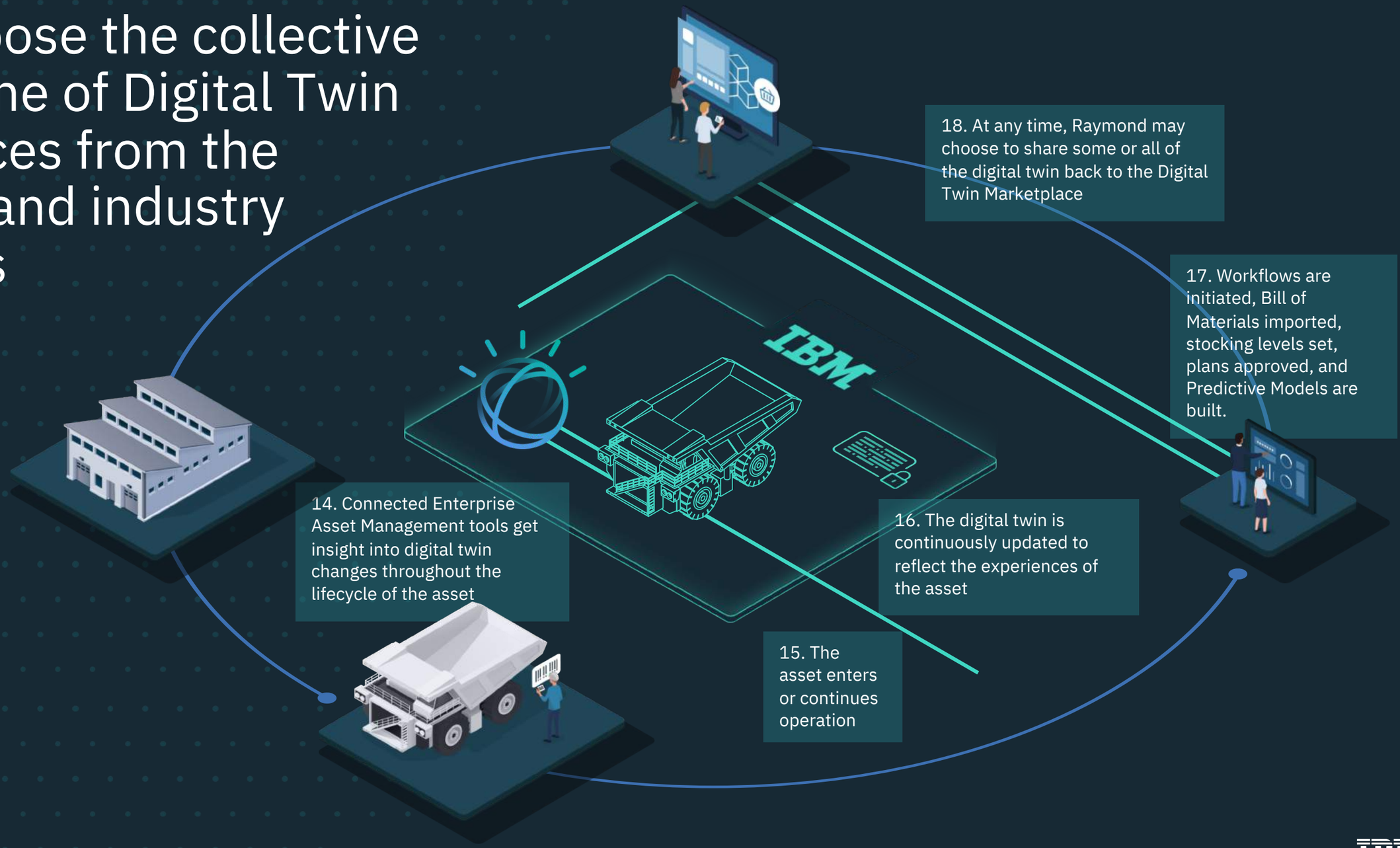
We expose the collective goldmine of Digital Twin resources from the crowd and industry experts



We expose the collective goldmine of Digital Twin resources from the crowd and industry experts



We expose the collective goldmine of Digital Twin resources from the crowd and industry experts



Competitive Differentiators

- 3,000 existing Enterprise Asset Management customers
- Increased revenue opportunity for THEM as content providers
- Increased value from Digital Twin integration with Maximo.
- Not to mention TRIRIGA, IoT Platform, and CE install base.

- Digital Twin physical asset mimicry
- IoT Platform and our current monitoring and device capabilities is the next step when combined with the marketplace to offer an “operational twin”
- Digital Agreement & Blockchain

- AI isn’t possible without the Digital Twin
- Continuous digital content updates allow for more accurate AI.

- ~20 Patents
- Patent Pending

- IBM Services for digital transformation.
- Existing Partner ecosystem

CitA
BIM GATHERING 2019

Thank you

Delivering **better outcomes**
for Irish Construction

IBM

Sign up and learn more about Digital Twin at

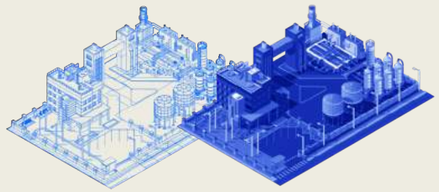
https://ibm.co/DigitalTwinMarketplace

IBM Digital Twin Exchange:

Achieve operational excellence through digital transformation of your physical assets

1. What is a Digital Twin?

The concept of a Digital Twin has been around for over a decade. In its simplest form, a **Digital Twin is a digital representation of a physical thing.** However, the way in which we are operating our businesses has evolved thanks to the **power of the Internet of Things (IoT).** With IoT, it is now possible to capture data using sensors, provide real time monitoring, connect through onboard computers, and autonomously operate equipment.



2. Why Now?

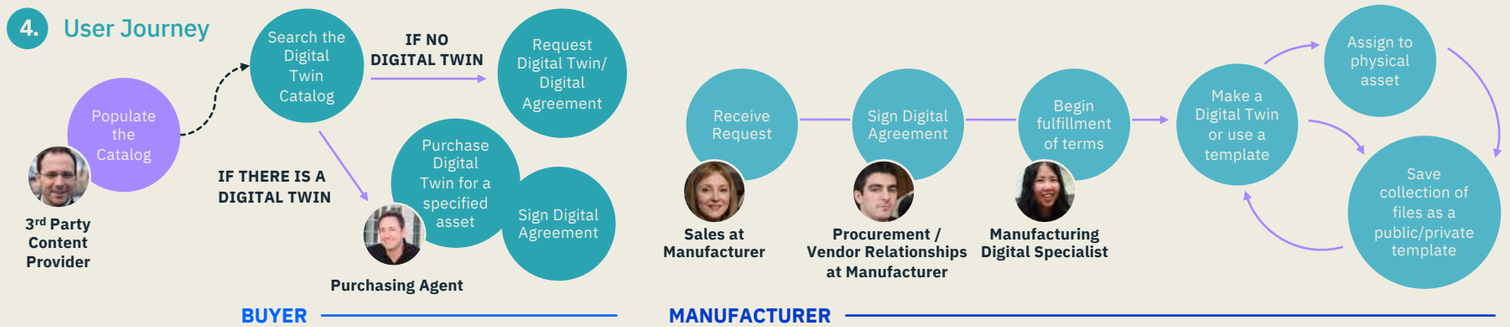
IoT brings a Digital Twin to life, resulting in a fully functional digital twin. It is now possible to have a digital representation not only of your individual assets and equipment, but **of your entire system and process**. Digital twins help you to effectively model operations, monitor every aspect of your operation, and optimize the output of your system. They enable better information sharing between parties, minimizing downtime, and create effective communication amongst asset OEMs, owners, operators, and maintainers.

You cannot have **AI** without **DIGITAL TWIN**

3. Common Pain Points

- No bill of materials
- Equipment is not in a digital format
- Equipment is not tagged
- Parts and equipment catalogs lack structure and standardization
- Vendors can't provide digital twins
- Massive data cleansing is needed
- Technicians and reliability engineers lack expertise

4. User Journey



5. The Value of a Digital Twin

- High operational availability
- Artificial Intelligence predicting failures
- Accurate asset usage, maintenance, procurement, and inventory records
- Condition-based maintenance
- Connected equipment
- Contextual data at technician's fingertips

Only 16% of organizations implementing IoT currently **have a Digital Twin.**

75% of IoT organizations **plan to have a Digital Twin** within a year[1]

6. Key Benefits of IBM Digital Twin Catalog

3rd Party Content Providers & Manufacturers

Gain exposure to existing Maximo install base

Intellectual Property control and security

Increased revenue opportunity

Asset lifecycle feedback loop to Engineering

Digital Twin Buyers

Tight integration with IBM Maximo

Ensure contracts include well-defined terms

Search and Explore digital resources available for physical assets

Operation critical data available

7. Stages to Adopt a Digital Twin Strategy

1. Understand Digital Transformation Strategy & resource needs – Digital Agreement
2. Request and Load Digital Resources adhering to industry standards into the Digital Twin Catalog
3. Acquire and host Digital Twin base resources for a physical asset – Digital Twin Registry

Future. Personalize the digital twin based on the operational experiences of the linked physical asset over the entire lifecycle of the asset – Operational Twin

8. Who Benefits & How?

Board Members
- Driving company to have digital strategy for assets
- Improved efficiencies

CEO
- Wanting to digitally enable their companies

Chief Procurement Officers
- Save time on digital agreements

Asset Engineers
- Accurate and updated information on assets
- Greater visibility into all aspects of assets

Asset Operational Owners
- Maximize operational efficiencies / reduce costs
- Reduce maintenance time

Asset Manufacturers
- Realtime information on how their assets are being used in the field

VP of Procurement / Supply Chain
- Enhance supply chain efficiencies
- Improve product quality

Technicians
- Increased access to relevant and timely information
- Knowledge and reasoning information not just data

9. Key Contacts & Resources

Executive Sponsorship:
Joe Berti, joe.berti@ibm.com
Lisa Seacat DeLuca, ldeluca@us.ibm.com

Offering Management:
Bjorn Kutz, bjkutz@us.ibm.com
Chandler Maskal, chandler.maskal@ibm.com

Design: Hal Wuertz, hlwuertz@us.ibm.com
Marketing: Bruce Baron, bruceba@us.ibm.com
GBS: Skip Snyder, skips@us.ibm.com
Lab Services: Bradley Downing, bdowning@ibm.com
Sales Enablement: Liz Vaughan, etcorri@us.ibm.com

Design demo:
https://tnsd.invisionapp.com/share/VCRNGLP2WBE#/screens/359324934
NPS feedback survey:
https://www.mysurveygizmo.com/s3/5040345/IBM-Digital-Twin-Marketplace
Signup to learn more:
https://ibm.co/DigitalTwinMarketplace

[1]Source: https://www.gartner.com/en/newsroom/press-releases/2019-02-20-gartner-survey-reveals-digital-twins-are-entering-mai


IBM