Blockchain Technology in Enterprise Asset Management: (BEAM)

Innovative use of blockchain technology brings the entire ecosystem of buyers, suppliers, service providers and asset owners onto a single operating platform, delivering trust in the transactions, complete accuracy and transparency into valuable asset data.

Executive Summary:

Businesses experience significant pain around the lack of transparency and trust on transactions for all hardware and software asset life cycle events. Critical data surrounding the disposition and use of these assets provides significant insights for managing strategy and operations. IBM Enterprise Asset Management (EAM) provides tracking and management services to over 1 thousand client accounts consisting of 2.5 million physical hardware assets located in over 170 countries worldwide. Coupled with managing over 150 thousand unique software products, clients put considerable trust in IBM to manage these operations efficiently and accurately. Improving this trust and transparency with speed and automation on a networked platform potentially eliminates the need for risk and compliance activities.

IBM's innovative use of blockchain technology accomplishes this by bringing the entire ecosystem onto a single operating platform. This approach delivers new value that is intrinsically derived from the trusted transactions that a blockchain provides. (https://youtu.be/UZgNLIwdILA)

https://www.youtube.com/watch?v=UZgNLIw

The IBM BEAM product is radically changing the service models for asset management initially managing 30 thousand hardware assets and 60 thousand transactions within the first year. Partnering with strategic technology companies and external clients, IBM BEAM is now a fully active, in-production delivery model that:

- improves data accuracy to 100%
- reduces operations in Inventory and Receiving by 25%
- shifts the >$3B market to a whole new business platform with opportunities for those network members utilizing shared, permissioned data

Strategy & Value Realization:

Today, technology and services from the best EAM providers are primarily linear. This means providers serve each client independently. Clients pay large amounts to each particular service provider for managing physical assets. Most service providers bundle software-as-a-service with add-on service contracts to provide an umbrella approach that provides a high value solution. Though there is hype around asset management using blockchain, there are very few industry implementations and far fewer stand-alone, viable solutions. IBM's strategic objective for EAM is to provide higher-value services at lower costs to increase competitiveness. Our IBM BEAM platform is built to support this by providing easy start-up services for members, quick-connect APIs to key systems of record and security underpinned by using the IBM Blockchain Platform on the IBM Cloud. Data quality, an ever-present foe in the EAM environment, is significantly enhanced due to the elimination of human error via machine-based flow of information throughout this new process. Traditional processes and operations are significantly optimized due to a low-touch, trusted transaction approach by fully digitizing both hardware and software asset records on this single, networked platform. The consensus reached by key members of the network significantly mitigates disputes and version control issues across their record sets previously managed independently.
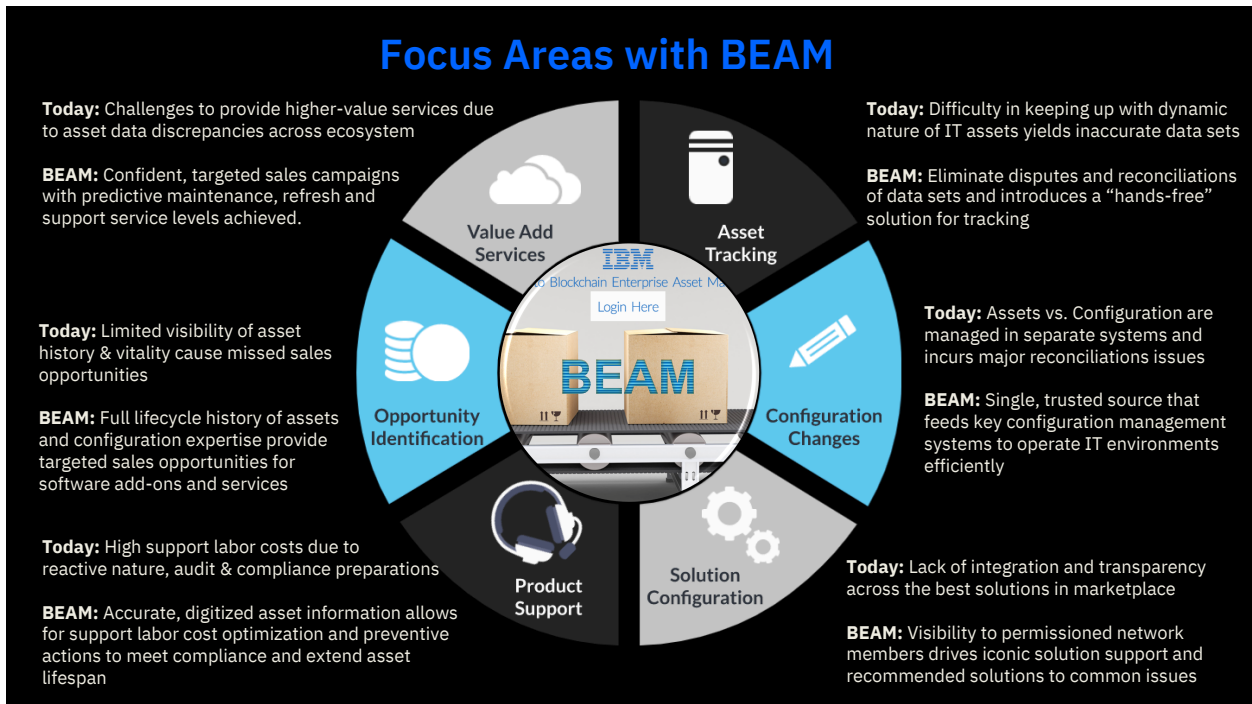
Additional insights and technology considerations are published on IBM's Developer Works website: "Adopting blockchain for enterprise asset management (EAM)". (https://developer.ibm.com/tutorials/cl-adopting-blockchain-for-enterprise-asset-management-eam/)

Engagement Approach & Innovation:

We used Design Thinking approach to lever blockchain technology as our path to success. Following agile methodologies, we conducted a series of collaborative approaches to empathize with key personas, map and prioritize needs statements and design a composable solution that is built with continuous feedback and small steps in development to iterate on the value offered to the solution. BEAM went live within the IBM Corporation by first focusing on our own IBM Manufactured assets. Then, in September of 2018, we boarded our first set of network members (a large leading HW Manufacturer and a global HW and SW Reseller). Senior leaders for all network members are fully engaged on this initiative, applying it directly to their transformation strategies as a core platform. IBM has invested significantly ($$s, up-skilling, people) in this operating platform and is actively moving forward with securing long-term funding for it.

Regarding deployment, BEAM was first introduced to a few select physical environments to receive IT hardware assets. To enable this, we created our own BEAM mobile receiving application. The development of this application followed best practices as defined by IBM Receiving SMEs and related "Design Thinking" personas. The IBM BEAM mobile application connects directly to the blockchain and is built for both Android and iPhone devices. It utilizes camera functionality to scan unique identifying aspects of the asset (e.g. serial numbers, asset tags) and to capture images of packing slips. All this digitized information is transacted on the blockchain giving valuable data to both upstream and downstream delivery actors.

BLOCKCHAIN NETWORK ASSETS (SHIPMENTS) STATUS & PERSONAS								
Network Collaborators (Personas)	**Created**	**Shipped**	**Order Info update**	**Received**	**Capitalized**	**Installed**	**Ship Notification**	**Receive Notification**
HW Manufacturer	V D S	V	V	V	V	V		
Shipping / Logistics	V	V D S						
HW Receiving	V	V	V	V D S				
Asset Capitalization Analyst	V	V	V	V	V D	V	Outgoing event	Outgoing event
Installer	V	V	V	V	V	V D S		
Ordering Analyst	V	V	V D	V	V	V		

PERSONAS' PROFILE CAPABILITY   (V) VIEW Asset Info   (D) DATA Update   (S) STATUS Update

These deployments were a significant achievement as BEAM is now operational in real world environments and is certainly no longer just a concept or hypothesis. From this, the results easily facilitated additional transformative planning and discussions with potential partners as they are based on a fully functioning product platform. As initially designed, this platform allowed for an accelerated, scalable approach for quick and easy implementation by all members.
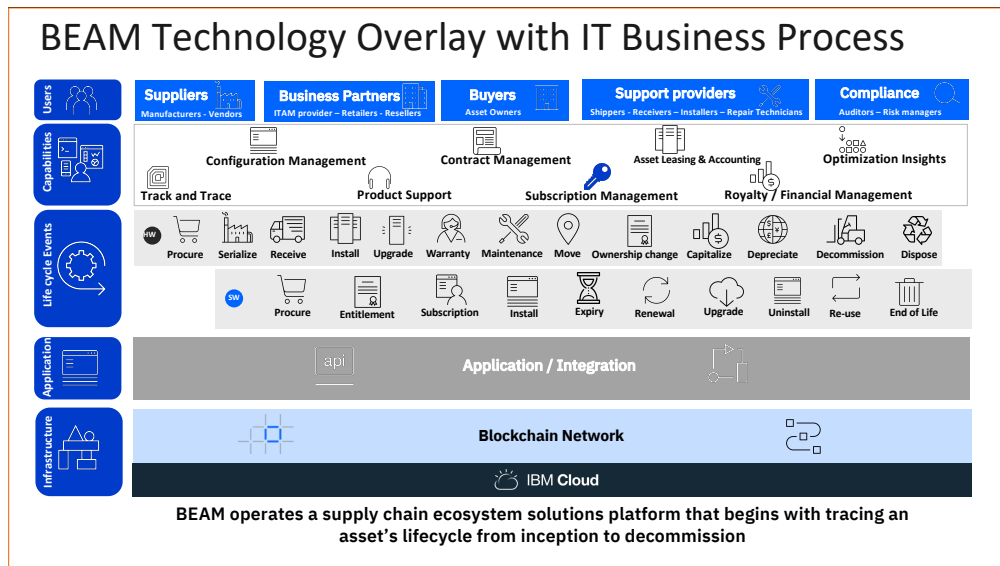
Benefits & Relevance:
With the implementation of BEAM, the receipt of goods process is completely digitized. At this point, we've reduced 25% of the administration tasks related to the inventory and receiving of physical assets process. This eliminated the need for:

- paper-based receiving
- manual key entry errors
- filing paper packing slips
- reconciliation between financial & operational books for scanned data
- receiving cycle time metrics.

This also increased data integrity, accuracy and overall quality. Scanned data fields now run at 100% accuracy which eliminates downstream reconciliation of this data, especially between the various members in the BEAM network.

Along the journey, new and emerging business models have been identified with our collaborators and partners. The areas of simple asset tracking are evolving driven by the standards of blockchain technology. Related services (product support, analytics and insights, optimization, etc.) are equally involved in future use cases and development.

BEAM operates a supply chain ecosystem solutions platform that begins with tracing an asset's lifecycle from inception to decommission

Business members / stakeholders for this project have started to expand BEAM to more of their enterprise operations. The cost efficiencies and accuracy of digitized data alone drive additional innovation to business / product support service models. The coupling of trusted and secure transactions eliminates discrepancies, reconciliations and often times exhausting compliance activities. Furthermore, the immutable records on one single shared ledger give full confidence and reinforce trust among transacting members. BEAM has already begun and will continue to achieve general adoption of blockchain technology. It will continue to spark many additional innovative approaches to conducting business in the new era of digital records.