Creating value by integrating your supply chain

A blockchain driven supply chain ensures a seamless and trustworthy exchange of transactions

Digitalization drives the need for real time and accurate transactions with your supply chain partners, like manufacturers, suppliers, and logistic partners. Traditionally, each party in a supply network uses its own technology and data storage capacity. That creates barriers to exchanging information efficiently. To be competitive in the digital age organizations embrace solutions that overcome these barriers and as such, are accurate and trustworthy. An effective solution is to (re)design your supply network by using blockchain technology, which supports an integration of your supply network with other partners. As a result, data can be shared amongst partners in real time while the unique blockchain characteristics ensure transparency and immutability of transactions. Consequently, supply network partners achieve a competitive advantage.

Supply network challenges

Within the context of supply networks, practice shows various supply-related challenges that occur between partners, such as, the exchange of unclear or ambiguous product information, lack of contract compliance, manual matching of invoices and purchase orders, inaccurate and fragmented spend data, delay of payments and manual reporting. As each supply network partner uses its own ERP system, the degree of integration between these systems is often limited. Consequently, organizations experience difficulties with increased delivery lead times, inventory and replenishment planning, lack of transparency and auditability, and limited business intelligence and reporting.

Transparency, trust and visibility as foundation

To overcome these difficulties organizations strive to improve the quality of transactions with their business ecosystem partners. A recent report (see figure 1) of the Chartered Institute of Procurement and Supply (CIPS) shows that organizations focus on both achieving cost effectiveness and optimization goals by means of digitalization.

Figure 1: CIPS 2020 survey results

Digitalization creates opportunities by means of integrating supply network partners' ERP systems. When data between all supply network partners is shared simultaneously, and becomes available in real time, transactions can be handled more efficiently. In doing so, digitalization contributes to the required transparency with regard to the exchange of transactions. As transaction data becomes visible for all partners at the same time, trust between partners is strengthened.

Blockchain as supply network fundament

Blockchain technology is used more often to support supply chain management and procurement processes. The unique blockchain characteristics offer multiple advantages for organizations, specifically when supply chains are integrated.

First and foremost, the blockchain principle of sharing data through a shared ledger will integrate supply network partners' individual ERP systems. This means that supply network partners will equally receive the same transaction data, however, only partners that have the necessary rights are able to open the data. As such, data transparency will contribute to build a trusted supply network amongst partners. As all transaction data is stored on the blockchain the auditability of transactions is ensured. This opens up the opportunity to share data with an external party, such as an auditor.

Since blockchain transactions are immutable partners are not able to adjust the data, which in turn will decrease the degree of risk and fraud management. Moreover, blockchain supports for instance the inventory and replenishment planning of supply network partners' individual ERP systems that can be adapted automatically when changes occur. This creates a benefit by achieving insights in tracking and tracing products through the supply chain. Based on the characteristics of blockchain organizations' business intelligence will improve as data is shared real time with all supply network partners. An improved actual overview of transactions provides relevant insights that can be used to manage the supply network effectively.

KPMG's proposition

KPMG developed a seamless integration solution between an organization's ERP environment and a blockchain network (see figure 2). The proposition is centred around two core elements: technical integration and process alignment. Addressing the technical integration first, KPMG uses an organization's existing ERP system as a focal point claiming that this should not change significantly. To support transactions efficiently KPMG designed an application that translates existing ERP tasks towards a blockchain network. The application is able to switch between various types of ERP systems (e.g. SAP, Oracle, Microsoft) and blockchain protocols (e.g. Hyperledger fabric, Ethereum, Corda).

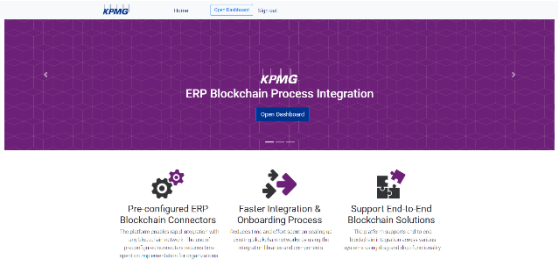

Figure 2: Integration solution

By translating ERP process tasks into blockchain tasks an organization's existing ERP system will remain untouched. In doing so, the integration focuses primarily on the application and not on transforming the existing ERP system(s). KPMG will configure the application and as a next step take care of the integration activities between an ERP system and a blockchain network (see figure 3). In parallel, KPMG will fulfill similar activities in other organizations that are part of the supply network. As a result, the organizations in scope become part of a supply network that is fully integrated and digitalized.

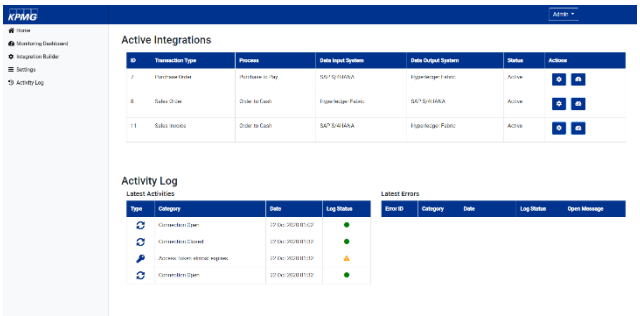

Figure 3: Integration dashboard

Dealing with supply chain processes is the second core element. KPMG developed blueprints to streamline various supply chain processes, for example, procurement and finance. This approach supports the technical integration activities as common process steps have been predefined. More specifically, blueprints describe the mapping between ERP functionality and the blockchain. Establishing process integration is easy to conduct due to a helpful configuration dashboard (see figure 4). By developing blueprints in advance KPMG is able to increase the implementation lead time.

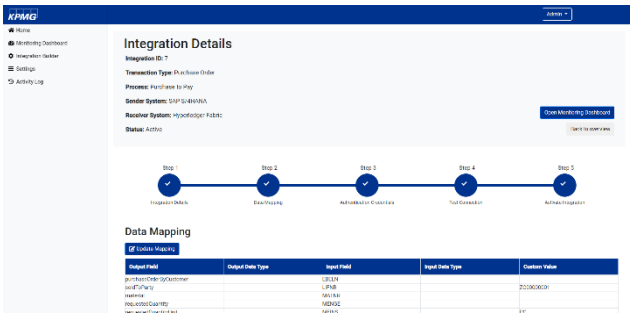

Figure 4: Configuration dashboard

Value drivers

The value drivers for creating an integrated supply network based on blockchain technology are threefold (see figure 5). First, ***cost reduction*** is an essential benefit as transactions are fully automated between supply network partners' individual ERP systems, creating a higher degree of accuracy, less errors and avoiding unnecessary manual work. Due to the integration of individual ERP systems supply chain processes are improved and become more efficient. In addition, the degree of complexity of reconciliation processes is reduced significantly.

Figure 5: Relevant value drivers

Second, ***user friendliness*** is strengthened as supply chain processes remain the same. As such, employees can still use their own systems and processes without any change. This will improve the degree of customer satisfaction. The use of blockchain technology supports a stronger enforcement of policies and procedures to handle supply chain tasks. Third, improved transaction insights, such as product and pricing information, are available in real time, offering greater control of financial visibility and reporting. This corresponds to the ***quality improvement*** of the solution.

Assessment approach

To support your integration journey KPMG applies an evolutionary approach to explore opportunities (see figure 6). A first step is to select supply chain processes for the assessment set. Next, during a workshop we use a multi-dimensional lens that focuses on practicality. Third, we use an additional analysis to rank potential supply process candidates based on the answers. Finally, as part of a post-assessment workshop we discuss the results and identify follow-ups. In doing so, we are able to create a better understanding of feasible opportunities.

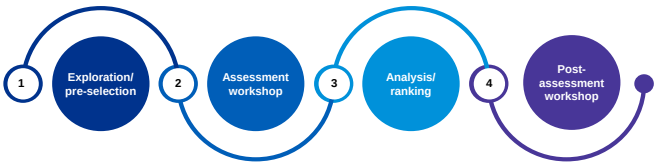

Figure 6: Opportunity assessment approach

How KPMG can help?

KPMG's value-add approach integrates supply chain management and digital transformation with industry proficiency to provide organizations with detailed guidance on blockchain. Our suite of services provides full support at every stage of development – from proof of concept to designing relevant use cases, integrating systems and operations, through to ongoing support.

Seize the potential of blockchain today with KPMG and create value by integrating your supply network!

To find out more about ERP / blockchain supply chain integration, please contact:

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