# Reshaping the Audit with Blockchain and Artificial Intelligence: An External Audit Chain for Close to Real-Time Audit Reporting
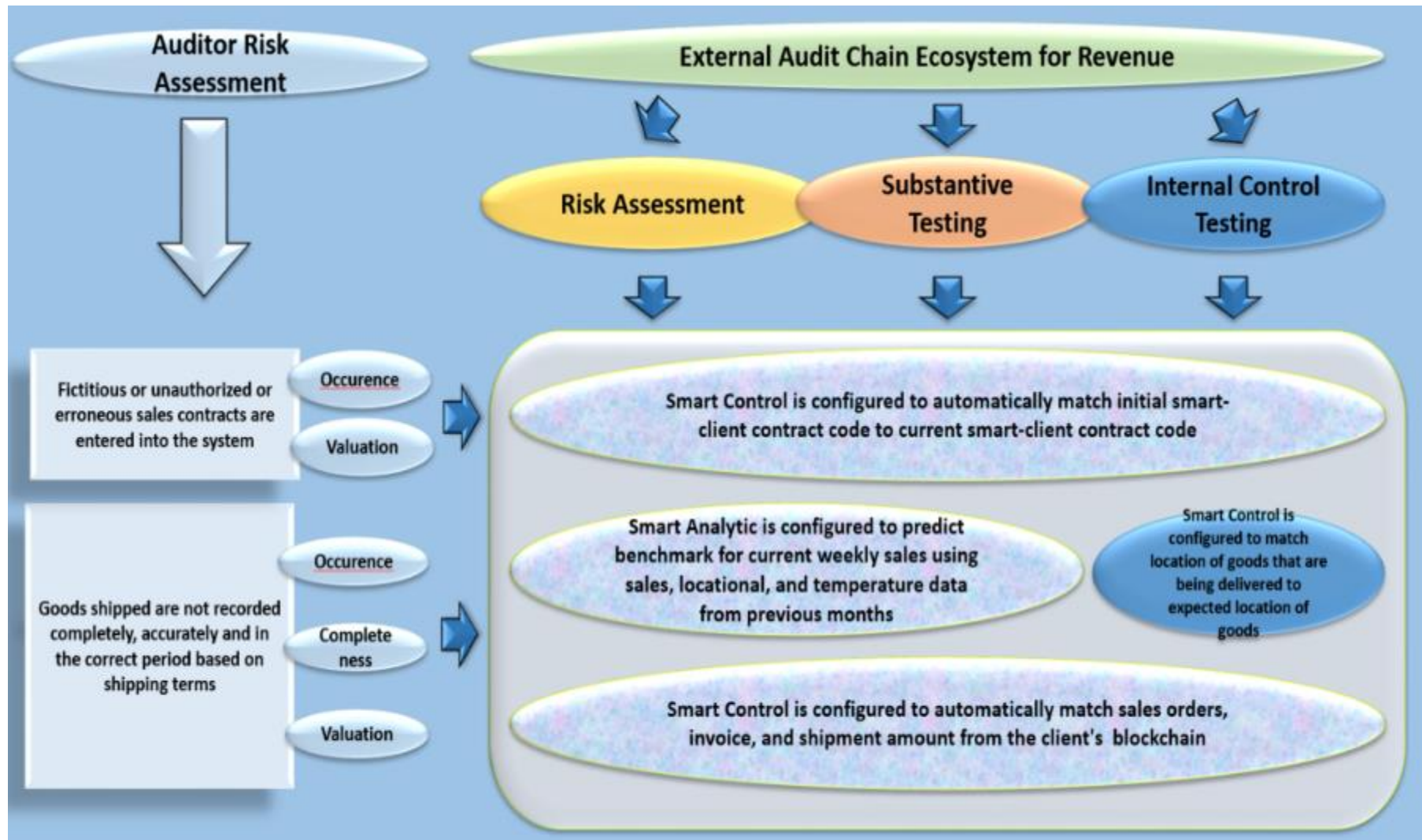
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Introduction

- Advances in technology have enabled a 'real-time' world in which economic transactions are processed electronically

- Expectation gap: auditors' procedures vs. expected audit procedures

- Innovations complement each other and have great potential to disrupt the external audit profession

- Explore how an external audit blockchain could enhance audit quality by executing automated internal control tests and analytics

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Blockchain Ecosystem
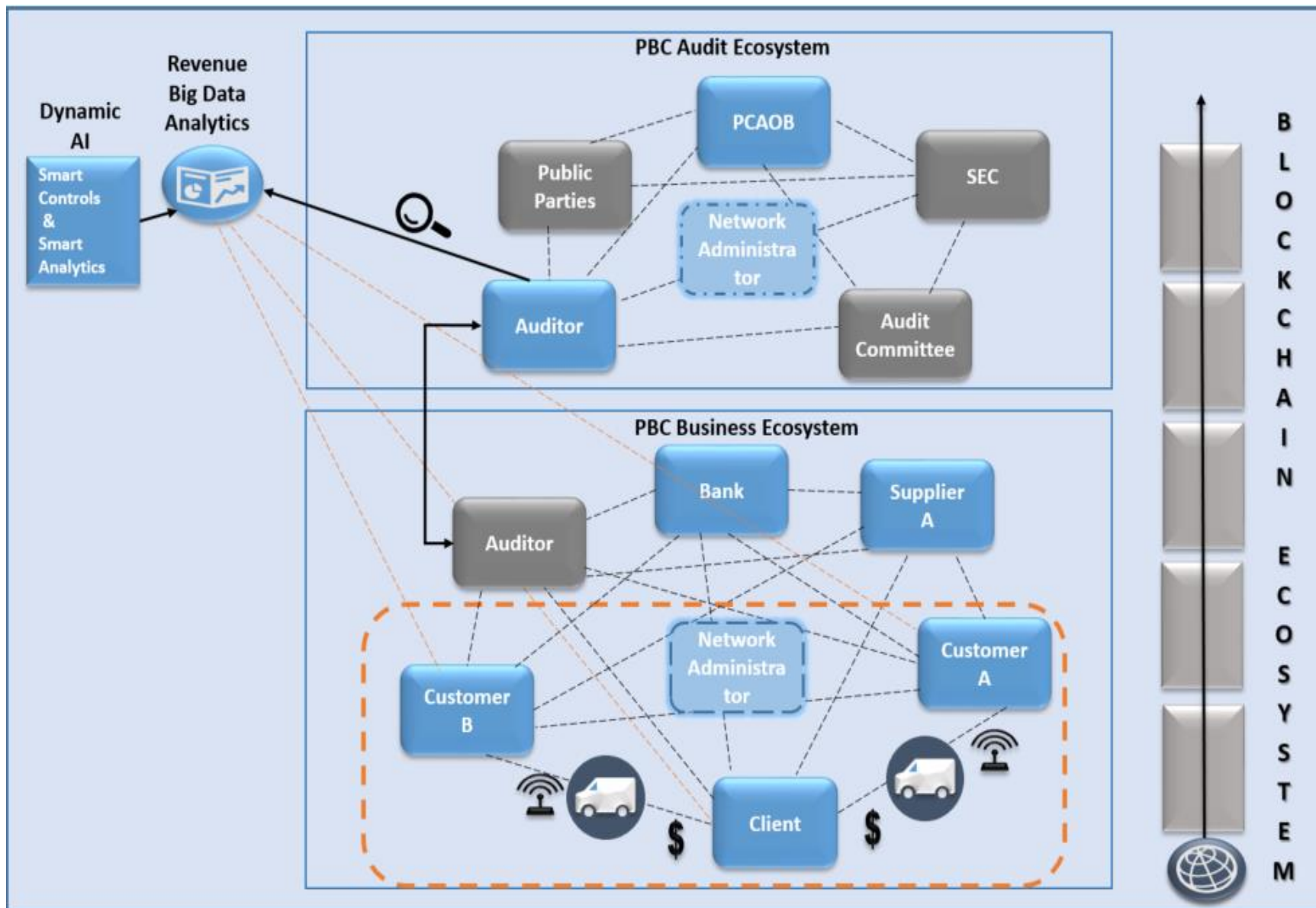
External Audit Chain Ecosystem – Revenue Example

Auditor Risk Assessment

External Audit Chain Ecosystem for Revenue

Risk Assessment | Substantive Testing | Internal Control Testing

Fictitious or unauthorized or erroneous sales contracts are entered into the system
- Occurence
- Valuation

Smart Control is configured to automatically match initial smart-client contract code to current smart-client contract code

Goods shipped are not recorded completely, accurately and in the correct period based on shipping terms
- Occurence
- Completeness
- Valuation

Smart Analytic is configured to predict benchmark for current weekly sales using sales, locational, and temperature data from previous months

Smart Control is configured to match location of goods that are being delivered to expected location of goods

Smart Control is configured to automatically match sales orders, invoice, and shipment amount from the client's blockchain

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Risk	Assertions	Risk Assessment	Substantive Analytics	Tests of Controls	On BC?
Fictitious unauthorized or erroneous sales contracts are entered into the system	E/O, A/V	Cognitive analytics is used to read and analyze terms of physical client-contracts, such as amount, approvals, contracting parties			No
		Rules-based system is configured to automatically match the terms of physical client-contract to the terms in client-smart-contracts			No
		Smart Control is configured to automatically match initial smart-client contract code to current smart-client contract code			Yes
		Not applicable	Not applicable	Smart Control is configured to automatically match the access level of customer node	Yes
		Not applicable	Not applicable	Smart Control is configured to automatically match smart-client contract customer name to active digital wallets	Yes
		Smart Control is configured to automatically match sales, invoice, and shipment amount from the client's blockchain			Yes
Revenue transactions are not recorded in the correct period	C, C/O	Not relevant, the record of the transaction and transaction event itself are triggered at the same time			Yes
Cash receipts are not accurately recorded or posed in the correct period	C/O, A/V	Not relevant, reconciliations occur as transactions are validated and then posted			Yes
Goods shipped are not recorded completely, accurately and in the correct period based on shipping terms	E/O, C, A/V, C/O	Smart Analytic is configured to predict benchmark for current weekly sales using sales, locational, and temperature data from previous months		Smart Control is configured to automatically match location and temperature of goods that are being delivered to expected location and temperature of goods	Yes
		Not applicable	Not applicable	Smart Control is configured to automatically match date goods were shipped does not exceed date of delivery per contract	Yes
		Smart Control is configured to automatically match sales, invoice, and shipment data from the client's blockchain			Yes

Why Blockchain?

ERP / Data Warehouse / Software Providers	Blockchain
Risk of management override	Lower risk of management override
Separate databases for endogenous and exogenous data	One depository for endogenous and exogenous data sources
Laborious data standardization	Less laborious data standardization
Automated audit analytics packages exist but not integrated to a platform	Provides a platform for deployment Smart Controls Tests and Smart Analytics and close to real-time reporting

Conclusion

- There are synergies from Blockchain and AI to be exploited in auditing

- Envisioned how the financial statement audit paradigm will evolve

- Insights from this study can be used by vested parties to inform the debate on the use and impact of technologies in financial statement audits