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Efficiencies in Promoting Straight-through Processing

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About Liberty Mutual Insurance

- **#75 on Fortune 500 with \$38.3B in Revenue (2016)**
 - 6th Largest Global P&C Carrier
- **50,000 Employees in 800 Offices**
- **Global Presence – 30 Countries**
- **Recently Acquired Ironshore Inc.**



Liberty Mutual Structure

- **Three Business Units (excluding corporate)**
 - Global Consumer Markets
 - Commercial Insurance
 - Global Specialty
- **Receivables Managed within Business Units**
 - Treasury partners with Business Units to consult, innovate, and recommend receivable solutions

Liberty Mutual: B2B Receipts

	Group Life	Small P&C	Mid / Large P&C
Paper vs. Electronic	45% / 55%	40% / 60%	25% / 75%
% STP	40%	85%	70%
Success Stories	<ul style="list-style-type: none"> • MICR Table for Future Mapping • Online Bill Pay Registration • New Customer Registration Process 	<ul style="list-style-type: none"> • Retention Analysis • Expanding Payment Channels (One-Stop-Shop) • Paper Expense Analysis • Reduced Call Volume 	<ul style="list-style-type: none"> • Moved to In House OCR • Online EFT • Expanding EFT for Agent Commission • Online Credit Card for Involuntary
Challenges / Future Goals	<ul style="list-style-type: none"> • Technology Enhancements • One-Stop-Shop 	<ul style="list-style-type: none"> • Agent Buy-In • Consolidation of Systems 	<ul style="list-style-type: none"> • Misdirected Payments • Self-service enhancements

Liberty Mutual: C2B Receipts

	P&C and Individual Life
Paper vs. Electronic	30% / 70%
% STP	90%
Success Stories	<ul style="list-style-type: none">• Industry Leader in Payment Channel Offerings• Defaulted Setting to Paperless• Demographic Profile Analysis• Quarterly Review of Online Bill Pay Failures• EDI Files – Mortgage Payments• Account Validation• Online Bill Pay• eSignature• Agent Engagement
Challenges / Future Goals	<ul style="list-style-type: none">• Modernizing Fraud Detection• Integration• Reduction of Inbound Call Volume

J.P.Morgan

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Global full-service provider of cash management, liquidity,
trade and escrow solutions that help resolve the working
capital and efficiency challenges treasury professionals
face. 6th Largest Global P&C Carrier

Liquidity Management | Payments & FX | Receivables Management | Trade | Escrow

Virtual Reference Numbers

- **Virtual Reference Number (VRN)** is an enhanced cash management service reconciliation solution that helps clients manage their accounts receivables
 - VRNs are reference numbers formatted to look like account numbers in the local clearing market
 - **Linked** to a client's actual bank account to facilitate reconciliation of the client's receivables
 - Electronic Transactions - US ACH and Wire payments
 - Easily identify and reconcile who is paying them when funds are credited into their account with J.P. Morgan
 - Used extensively for specific countries in EMEA, APAC and LATAM

Virtual Reference Numbers

- A VRN is not:

- VRNs are **not** accounts, they are reconciliation numbers only, they are not meant to be used like an account.
- Each remitter should receive a unique VRN that is then associated to that remitter and his/her payment.
- Do not require KYC, do not have disclosure terms and do not conform to account-related regulations.
- A VRN cannot behave like a sub-account.
 - Multiple remitters using the same VRN.
 - Cannot initiate payments, no outgoing transactions can use the VRN as the sending account number
- VRNs do not produce statements

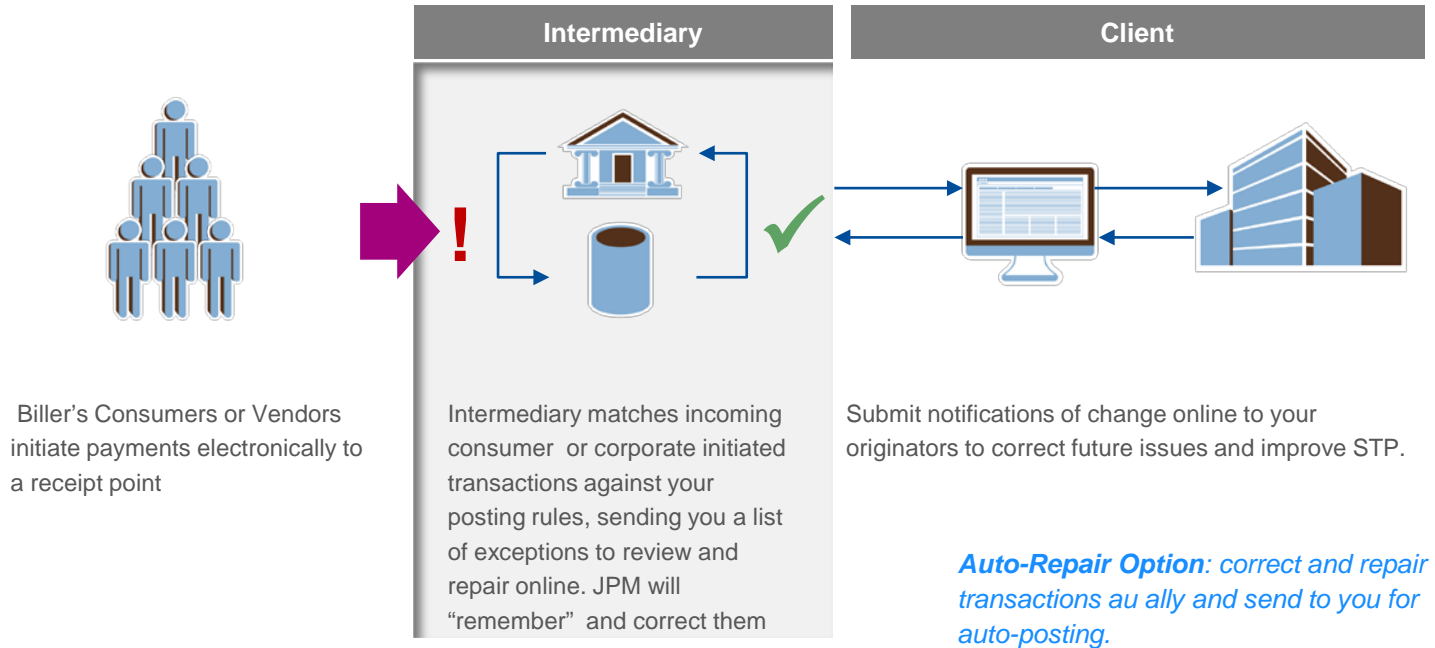
Virtual Reference Numbers

- **9 Step Process:**

- Client signs the agreement, Sales signs the SKYC form
- Client requests number of VRNs needed
- The VRN system links the VRNs to the DDA
- Client can then notify its remitters to use the new number in the beneficiary account number for transactions
- Remitters can then begin to send their ACH and Wire payments using the VRN
- ACH and Wire systems will automatically match to the actual account tied to the VRN using a VXR tag
- The Client can easily monitor and reconcile with the VRN
- If a return or notification of change occurs, the ACH and Wire system will provide the original VRN to allow for proper identity and exception
- Client controls distribution of the VRN and can reuse numbers at their discretion

ACH Transaction Repair

- How it works:



Distributed Ledger (Blockchain)

- **Blockchain is:**
 - A data store
 - Holds a log of transactions (events)
 - Replicated across a (public or private) distributed network
 - Uses cryptography & digital signatures to determine valid parties and transactions
 - Everyone agrees on the order and state of the ledger in real time
 - No need to rely on a trusted 3rd party to hold the true 'golden copy'
 - Practically immutable, verifiable audit trail

Centralized:



Decentralized:



Distributed:



Distributed Ledger (Blockchain)

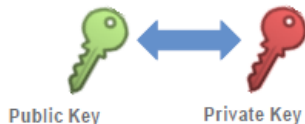
Cryptographic hashing

- ▶ One-way encryption generating a unique finger print for any piece of data



Public key cryptography

- ▶ Identity-based encryption preserving privacy in a distributed network



Distributed networks

- ▶ Scalable infrastructure creating a network of equal peers with no central authority



Byzantine fault tolerant consensus mechanism

- ▶ Algorithm allowing participants to agree on the current state of the ledger with no central authority



A database with special properties

- ▶ Impossible to alter historical records
- ▶ Comprehensive audit trail
- ▶ E-sign every step in a transaction
- ▶ No data silos
- ▶ Standardized data
- ▶ Regulatory transparency
- ▶ Robust network resistant to attack
- ▶ Simpler disaster recovery
- ▶ Can be used to record transfer of digital (tokenized) assets
- ▶ Prevents double spending of tokens



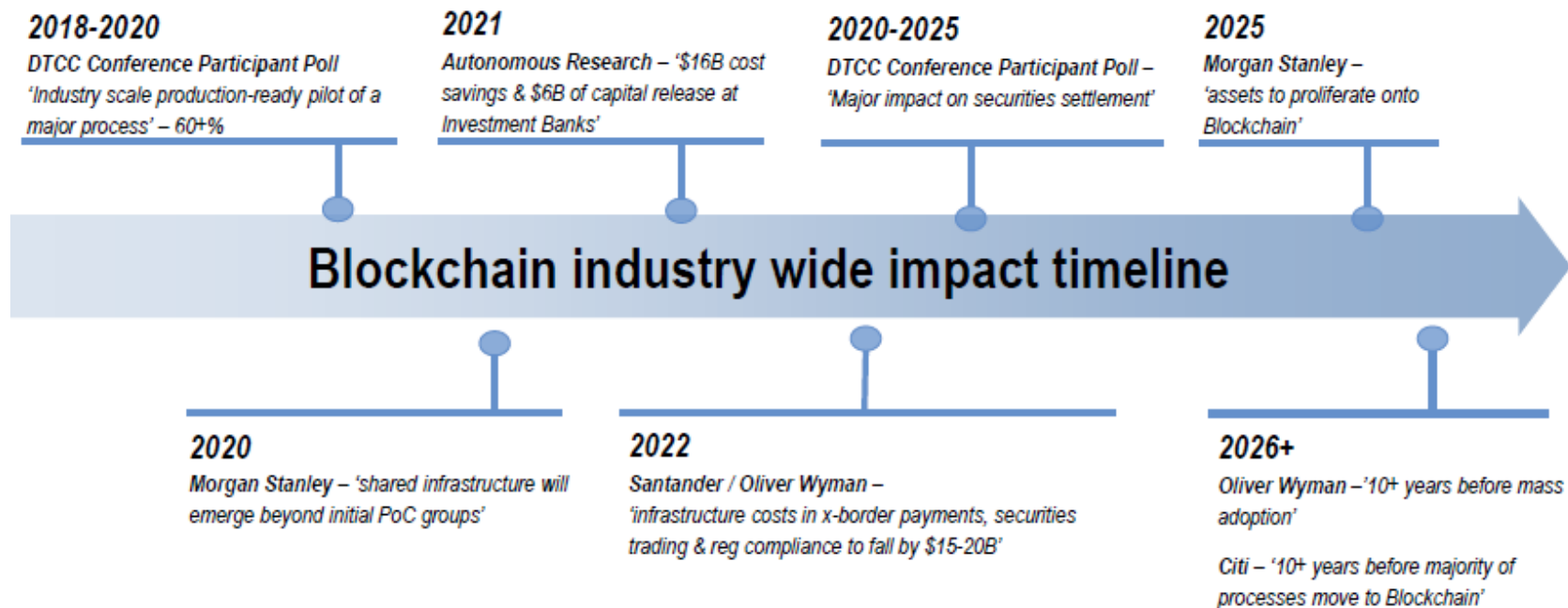
Distributed Ledger (Blockchain)

Public Views:

- “...one of the most disruptive innovations since the advent of the Internet”
-- McKinsey, “Beyond the Hype: Blockchains in Capital Markets”
- “... a truly new way to organize financial transactions and information...”
-- Oliver Wyman, “Distributed Ledgers in Capital Markets”
- “... industry hype has been unprecedented, but also generally uncoordinated up to this point...”
-- DTCC, “Embracing Disruption”
- “... many challenges need to be overcome. This will take not only years but hundreds of millions if not billions of investment dollars...”
-- Tabb Group, “Blockchain Clearing and Settlement: Crossing the Chasm”

Distributed Ledger (Blockchain)

- Full implementation will take time



Distributed Ledger (Blockchain)

- **An Approach**

Strategy and governance	<ul style="list-style-type: none">▶ Partnership between strategy, business, and technology leads to develop a cohesive cross line-of-business ("LOB") view▶ Industry thought leadership, internal education and training▶ Coordination of use case analysis, development efforts, external engagement, press and client communication▶ Development of LOB-specific working groups and leads
In-house capabilities	<ul style="list-style-type: none">▶ Team of dedicated engineers:<ul style="list-style-type: none">– Vetting of blockchain technology in the marketplace– Deep R&D into next-generation distributed ledger design
External engagement	<ul style="list-style-type: none">▶ Announced investment in Digital Asset Holdings▶ Ongoing engagement with startups and infrastructure providers
Consortia participation	<ul style="list-style-type: none">▶ R3's Distributed Ledger Group (DLG)▶ Linux Foundation Hyperledger Project

Receivables EdgeSM eRemittance

Helping to Automate and Accelerate Exception Processing

- **Current Environment**

- How clients receive remittance data sent directly by trading partners
 - 88% - As a document via email, fax, or paper with remittance detail that needs to be re-keyed
 - 34% - Through a portal or network
 - 32% in an electronic file that is reconciled automatically (no manual intervention)
 - 12% - Other
- Formats provided by bank or processor when remittance data is carried in an ePayment
 - 34% - Electronic file in an ACH format that we input manually
 - 33% - A document via email, fax, or paper that is re-keyed
 - 26% - An EDI data file in a format that can be reconciled automatically
 - 16% - We do not receive any remittance information
 - 15% - in a BAI2 or (BTRS) file
 - 13% - Unknown
 - 8% - Other

Receivables EdgeSM eRemittance

Helping to Automate and Accelerate Exception Processing

- **The Solution**

- Payment detail captured and reported to Receivables EdgeSM
- For electronic payments containing invoice detail (e.g., CTX, CCD+), remittance detail also passed to Receivables Edge
- Images of checks and accompanying documents captured and delivered to Receivables Edge
- Email and attachments converted to TIFF images and delivered to remittance processing application for data capture
- At end of day, detailed data file is sent to the client for cash application



The Value of Emerging Solutions

- **The Need for Speed**

- Stakes are increasing for accelerating receivables posting with the development of faster payments systems
 - Government Agency Disaster Relief
 - Insurance Claim Processing
 - Interest Rate Impact

- **Options for Quicker Payments**

- Same-day ACH
- Real-time Payment System (Fed Initiative)
- Wire
- Back-valuing payments

- **Solutions to Help Billers Create Pathway to Receivables and Faster Payments**

- 71% of remittance information related to electronic payments travels separately from the payments
- Billers can leverage tools to benefit both the payer and payee
 - SAP, PeopleSoft, Wall Street System, Oracle, proprietary, etc.,

- **Conforming Formats**

- Legacy systems plague Billers by causing roadblocks to becoming more efficient

The Value of Emerging Solutions

Pathways to a Standard Transfer Protocol for Receivables (STP)

- **Seamless Receivables Processing**

- Validation Criteria
 - Field location for Identification,
- Artificial Intelligence
 - Optical Character Recognition
- Central Payment Data
 - Enrolment and Biller Directories
- Mobile Technology

- **Top Down Approach to Change**

- Modify Large Payers Behaviour
- Encourage Standards
 - CCD+ & ISO20022
- Creates End-to-End Consistency
 - Better for Payers and Payees



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Emerging/mature economies with real time low value settlement systems

45+

Markets recently announced their intention to do the same



Frank D'Amadeo

Consolidated Edison

Assistant Treasurer

43 years in various positions



Con Edison

- Consolidated annual revenues: \$13 Billion
- Total Assets \$46 Billion
- Principal business segments
 - Con Edison NY – Electric, Gas & Steam delivered to 3.6 million customers
 - Orange & Rockland Utilities – Electric & Gas delivered to 1.2 million customers
 - 5th largest US provider of Solar Electric power
- Employees: Approximately 15,000

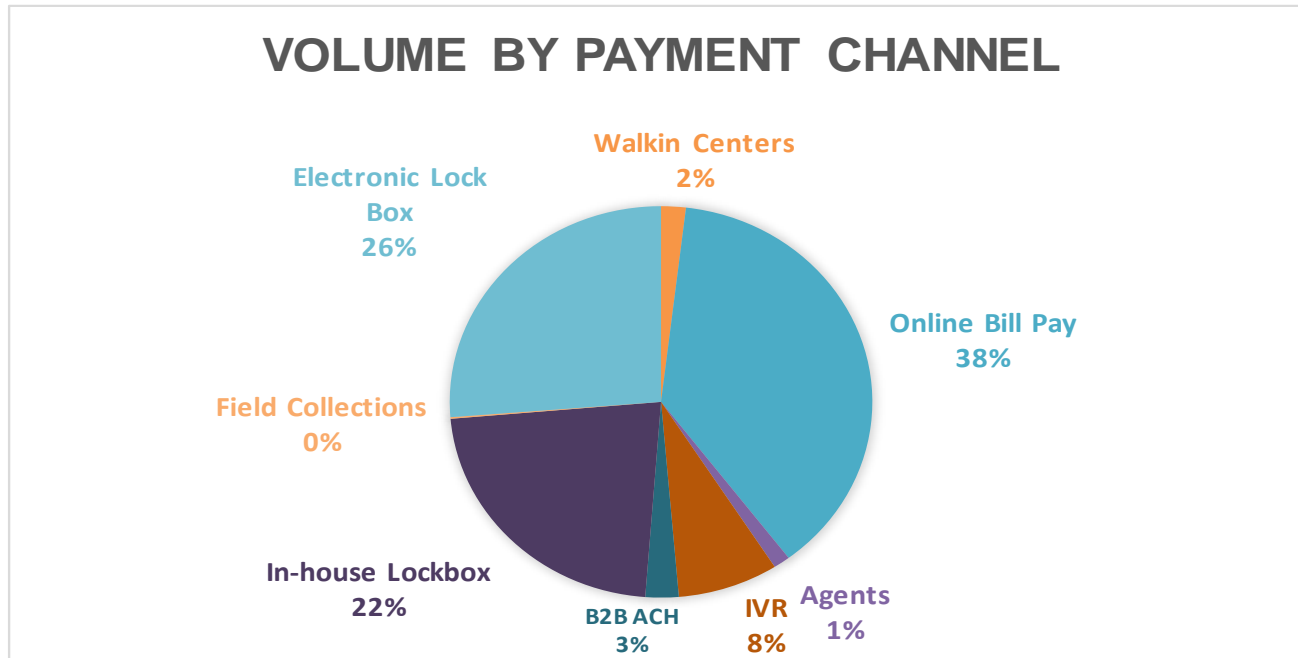
Job Function

- Bank contract reviews and fee negotiations
- Daily Cash Position – (Investments – Debt)
- Lock Box Operation
- Cyber Security Administrator for Treasury
- Stock Transfer contract management

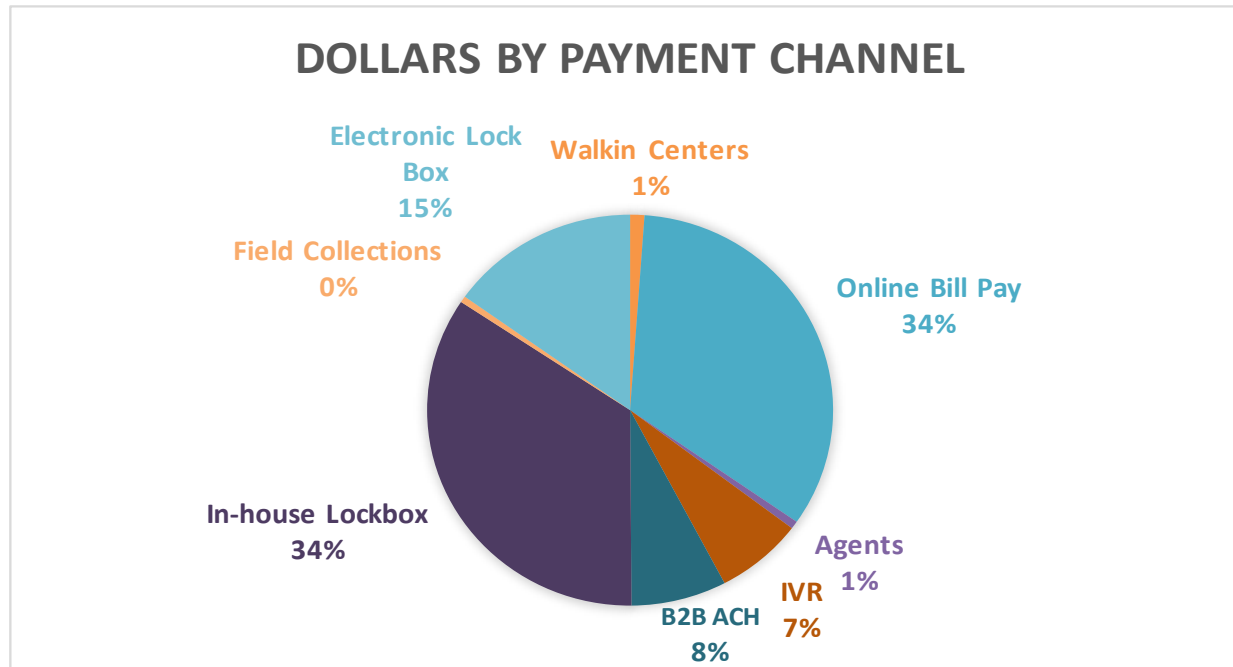
Consolidated Edison

- **Three Business Units**
 - Consolidated Edison of NY - Regulated
 - Orange & Rockland Utilities - Regulated
 - Various Unregulated – Solar, Wind, Transmission
- **Receivables Managed within Business Units**
 - Treasury partners with Business Units to consult, innovate, and recommend receivable solutions

Con Edison / O&R Payment Composition



Con Edison / O&R Payment Composition



Avg. Monthly Receipts Distribution

Payment Types	Volume		Dollars	
Paper Checks and Walk in centers	831,535	24.5%	\$ 361,108,712	36.1%
ACH / Wire	86,418	2.5%	75,981,006	7.6%
3 Party Agents / Home Banking	935,886	27.5%	157,817,929	15.8%
Web / IVR / Recurring	1,547,035	45.5%	405,186,911	40.5%
Totals	3,400,874	100%	\$ 1,000,094,557	100.0%
Paper vs. Electronic		24%		36%

Goal to expand B2B Straight Through ACH Payment Processing

- **Problem**
 - Customer Service gave out bank depository account number to any customer requesting to pay by direct ACH
 - 95% of ACH payments were unformatted and contained little to no addenda information
 - Customer Service had to contact each customer to determine how to process payment
 - Payment details sent in body of an email, excel file, fax or dictated on the phone

Goal to expand B2B Straight Through ACH Payment Processing

- **Develop a system to automate ACH STP**
 - Opened new ACH master bank account
 - Worked with Chase to build a standard format ACH input file – too difficult to build on our own
 - Developed instruction guide booklet to onboard customers – support CCD+ and CTX – no wires
 - Leveraged Mavro Lockbox software to build environment to automatically process conforming ACH transactions
 - Built transaction repair module within the Lockbox system for items that failed STP

Goal to expand B2B Straight Through ACH Payment Processing

- **Still had to deal with hundreds of customers sending non confirming payments to the old account**
 - Established a virtual bank account structure with Chase
 - As customers are onboarded to the new account we provide them with a new virtual account number specific to that customer
 - Customer is advised that if they continue to send non confirming payments we will shut down the virtual account and force them to revert back to check