Utility Blockchain for Transparent Disaster Recovery

Blockchain technology to solve trust issues in Utility Industry

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Outline

Basics of the Utility Industry

Challenges of the Utility Industry

Blockchain technology benefits

What can Blockchain technology do for Utility Industry?

Disaster Recovery use case – Actors, trust issues, benefits

Disaster Recovery solution using Blockchain technology

Utility industry

Essential

High friction environment : Intermediaries , brokers, subcontractors

Central authority or government control

Traditionally not trusting to autonomy

Protected industry and high profits

Changes at the Utility Industry: Microgrids

Participants producing and consuming electric power

Self-sufficient or mostly sufficient

Neighbors trading energy - barter

Cheaper energy without the middleman

Blockchain technology benefits

- Peer to peer interaction
- High level security through encrypted and distributed database
- Tamper proof (falsification proof) with immutable records
- Fully traceable with full transaction history
- Disintermediation with smart contract automation
- Data transparency and interoperability

Blockchain technology benefits for Utility and Energy Industries

Is not a magical tool that can singlehandedly transform the energy industry

- Disrupting traditional thinking in information processing
  - Increased speed of exchange
  - Auditability
  - Reliability
  - Resilience - High availability – Eliminates single point of failure
- Smart Contracts
  - Dynamic Pricing
  - Regulation and mediation
  - Dynamic incentive creation

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Target consumer impact of peer to peer trade

Better prices for commodity service

Facilitate competition and better prices

Bidding possibilities

Better contract negotiations

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Neighborhood Energy trade on Blockchain

LO3 Energy – Brooklyn

Enerport - Ireland

Tokyo Power company

WePower - Lithuania, Estonia, Spain and Australia

Endesa and Gas Natural Fenosa – Spain

Grid+

Enerchain

Electric vehicles on Blockchain

Payment for charging stations - BlockCharge

Finding and choosing charging stations

Wireless charging payment

Autonomous vehicles interaction with energy resources

Electric vehicles to sell their surplus electricity

Electric vehicles selling energy to another vehicle

Tradable Green Certificates or White Certificates

Renewable energy certificates or green certificates help organizations prove that the electricity they provide is generated from renewable sources.

Details related to production of energy and benefits of certificate ownership are stored in national registries.

Flexinergy blockchain is an example implementation

White certificates in Europe are awarded to organizations that reduces energy consumption

Beyond the borders of the issuing country, they are tradable and beneficial

Storing these certificate on a blockchain helps the authenticity and tradability

Issues

Scalability

System ownership – System as a service

Reliability and security

Privacy

Blockchain based disaster recovery
Problem definition

Disaster happened

Coordination needed

Safety and quality targets are essential

Adequate communication

and information is needed

Poor customer service

Poor issue tracking

Poor quality post-mortem information

Proposed solution
Cross functional flow chart of the blockchain events

A disaster recovery blockchain

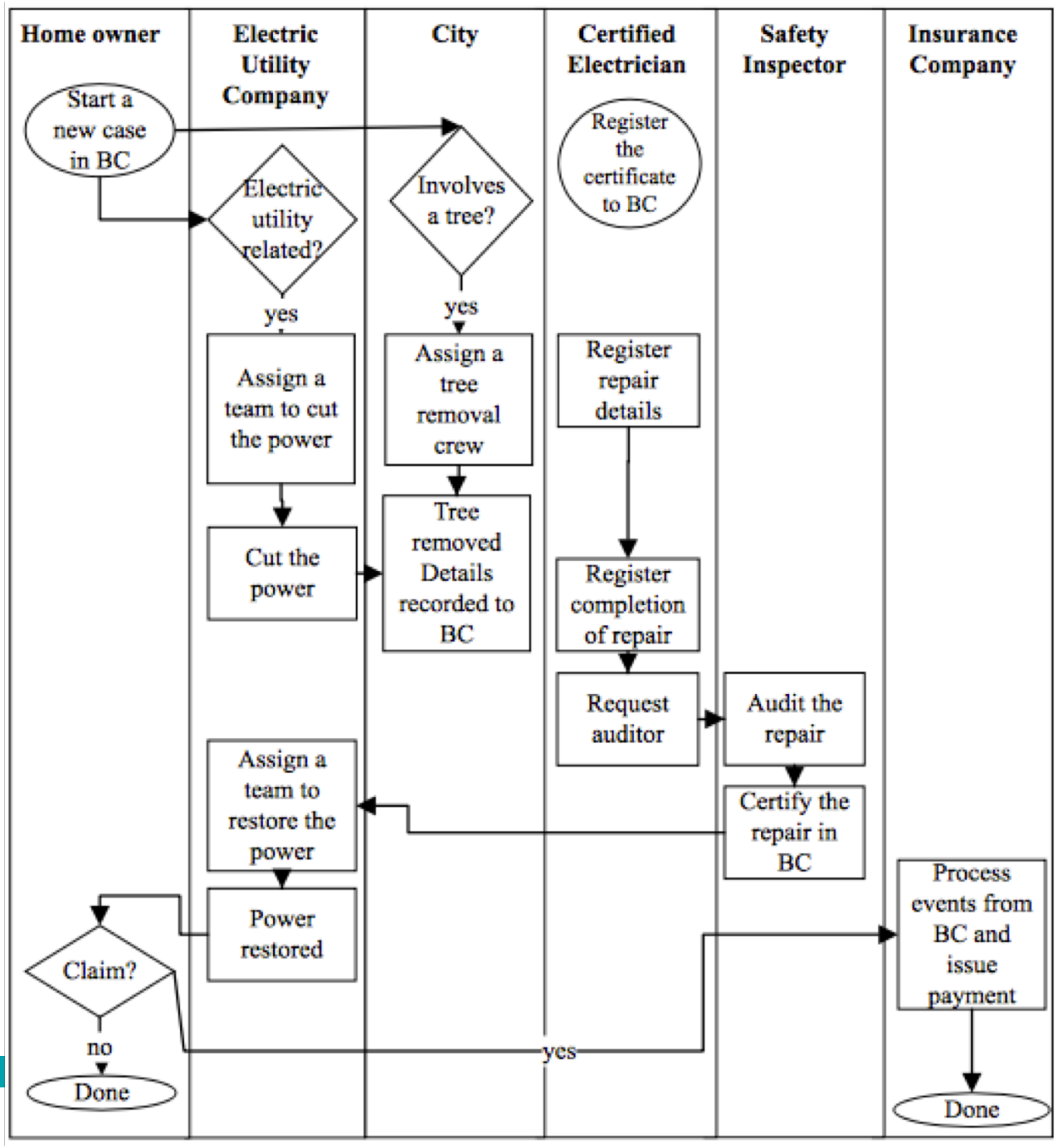
Transparency

Tamper free information

Information sharing

Dispute resolution

Tamper free history



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Proposed solution Information Flow

A disaster recovery blockchain

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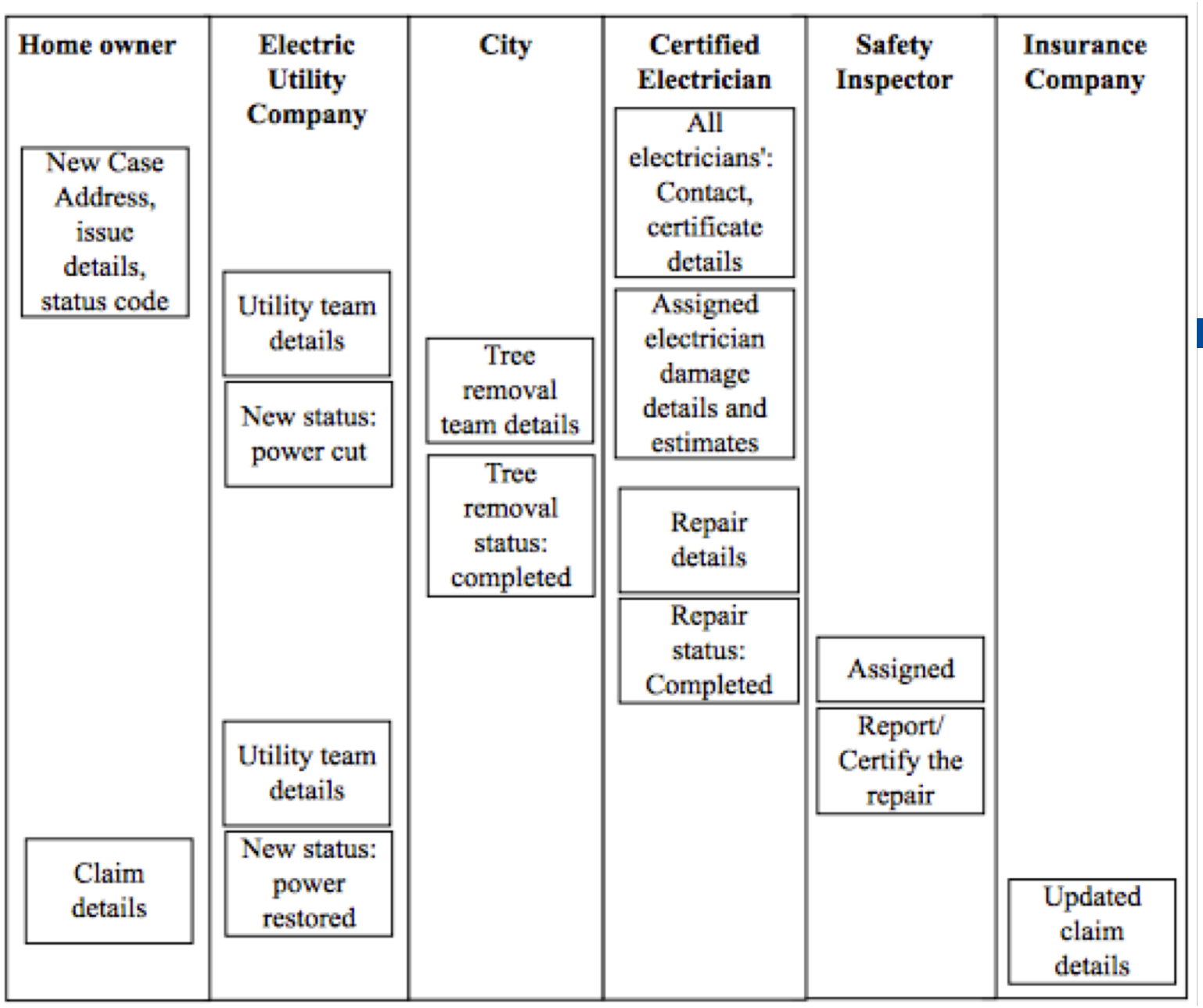

Questions?

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