

[www.pwc.ru](http://www.pwc.ru)

***Effective revolutionizing of business and finance  
with Blockchain & IoT***

# ***Blockchain is a platform for distributed data storage and reliable transactions in decentralized networks***



Distributed ledger



Cryptography



Consensus



Smart contracts

***What does it mean for your business?***

*Data storage reliability and transparency*

*Prevents intrusion by design*

*Prevents unauthorized changes*

*Business processes automation*

## *There are 2 key Blockchain applications for business transformation*



### Reliable registers

- Decentralized and reliable data storage, reliable changes history
- Update data from multiple sources
- Distributed read only access to reliable information



### Automatic transactions

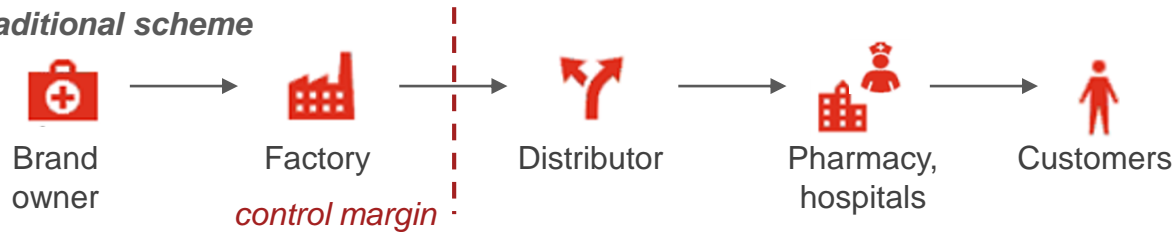
- Automatic verification & payments processing
- Complex contract terms without significant increase in transactions verification costs

# Blockchain allowed to dramatically reduce counterfeit drugs and discover new business opportunities

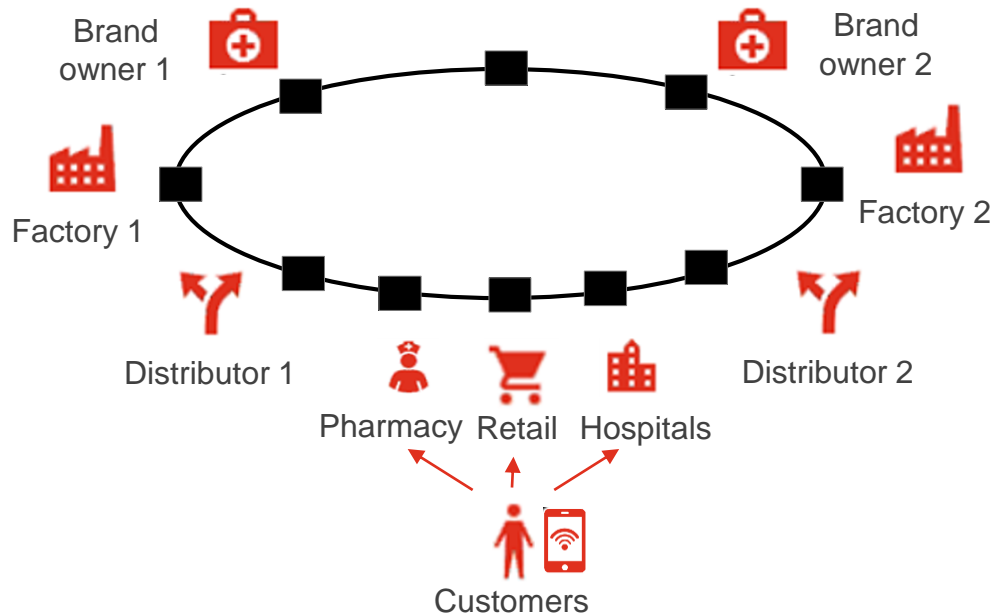


## Drug tracking

### Traditional scheme



### Blockchain



### Problem

- Brand owner loses drug identity control after drugs leave the factory
- Customers can't check drug identity at sales point

### Why Blockchain?

- Standard labeling program reduces counterfeit, but does not solve RFID / QR server data protection and sync problems
- Openness and transparency allow to speed up participants critical mass accumulation

### Effect

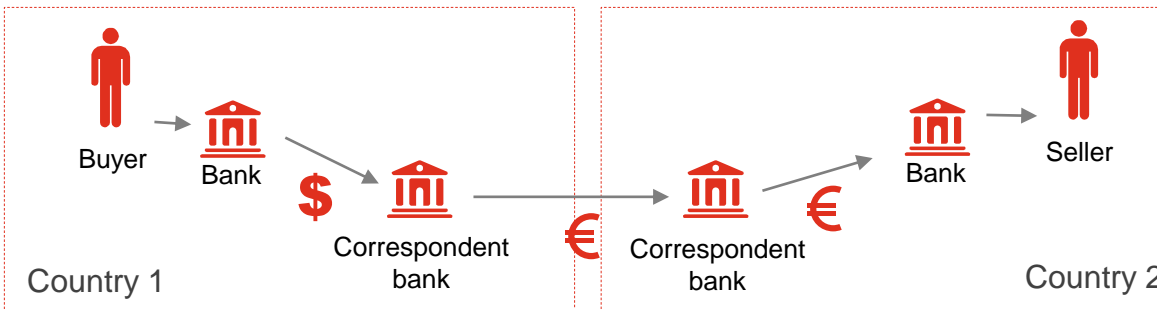
- **Shorter reaction time** when counterfeit drug discovered
- Frequent mobile app usage by customers leads to **new opportunities**: customer feedback, promo actions, etc.

# Blockchain allows to dramatically accelerate international payments, reducing number of intermediaries and their fees

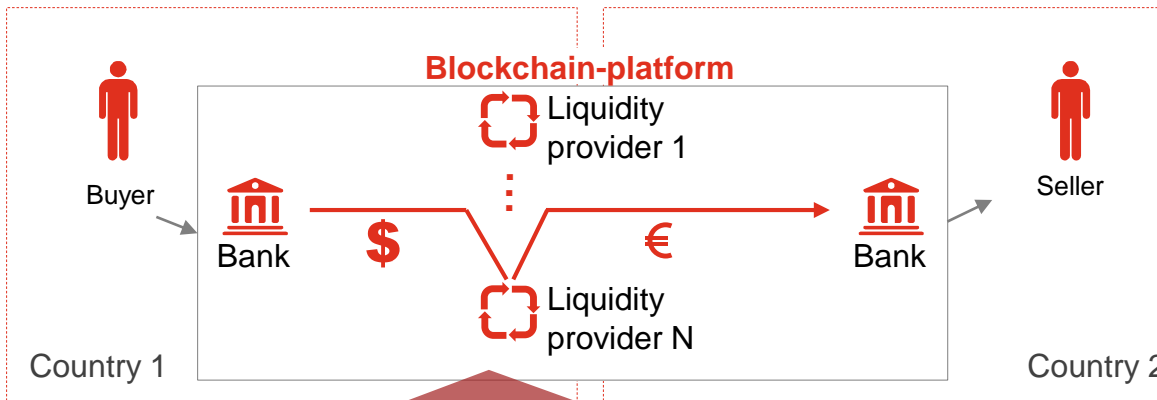


## International payments

### Traditional scheme



### Blockchain



Automatic liquidity provider selection basing on a predefined algorithm

### Problem

- International money transfer requires:
  - transaction verification by human
  - 6+ different parties
  - many hours for processing

### Why Blockchain?

- Automatic payments may exist only in a trusted reliable system
- Dynamic liquidity provider selection is possible with smart-contracts

### Effect

- Transaction time reduced from **>6x times to 1 hour**
- Intermediaries elimination reduced transaction fees
- Total process cost optimization **up to 80%**

# Blockchain allowed to prove unregulated effective electricity market model viability

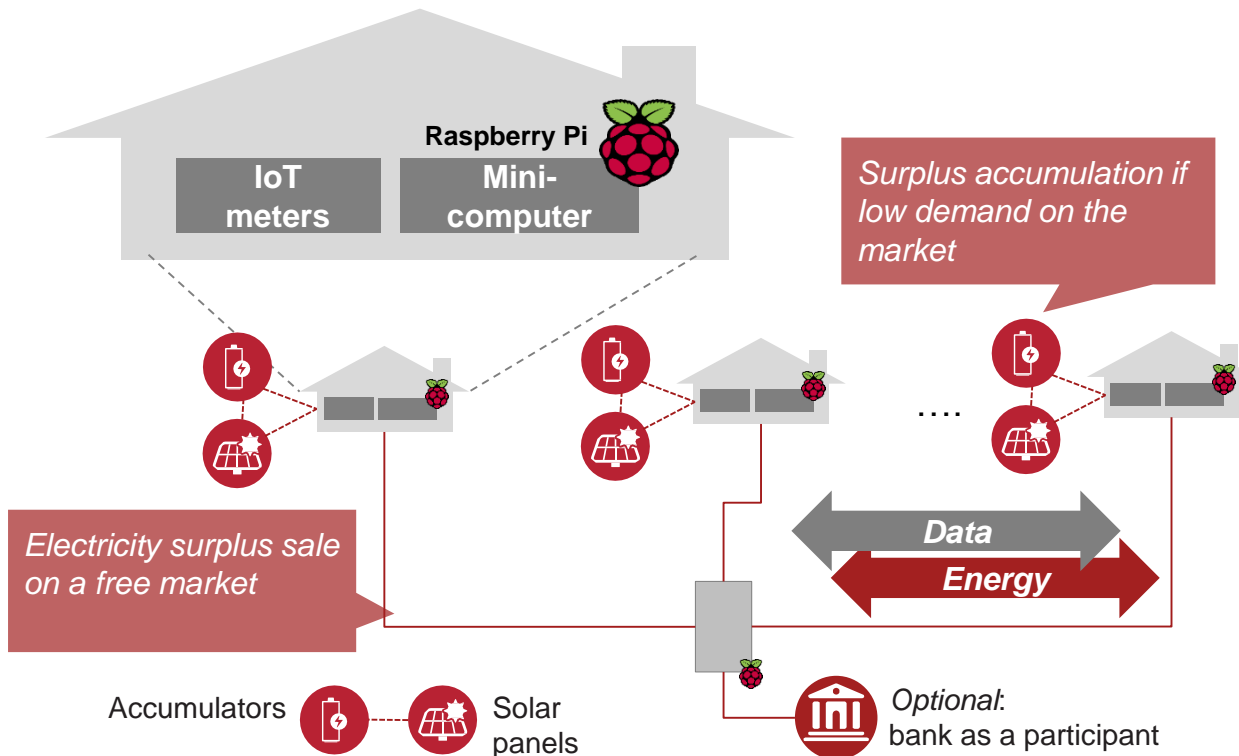


## Own power generation

Dynamic status switch for each network participant

**Consumer:** own generation is not enough

**Supplier:** have surplus energy for sale



## Problem

- Uneven demand leads to losses of energy surplus
- Limited ability to dramatically increase power for a short time

## Why Blockchain?

- Automatic payments may exist only in a trusted reliable system
- Dynamic roles switch possible with smart-contracts
- High potential for scalability

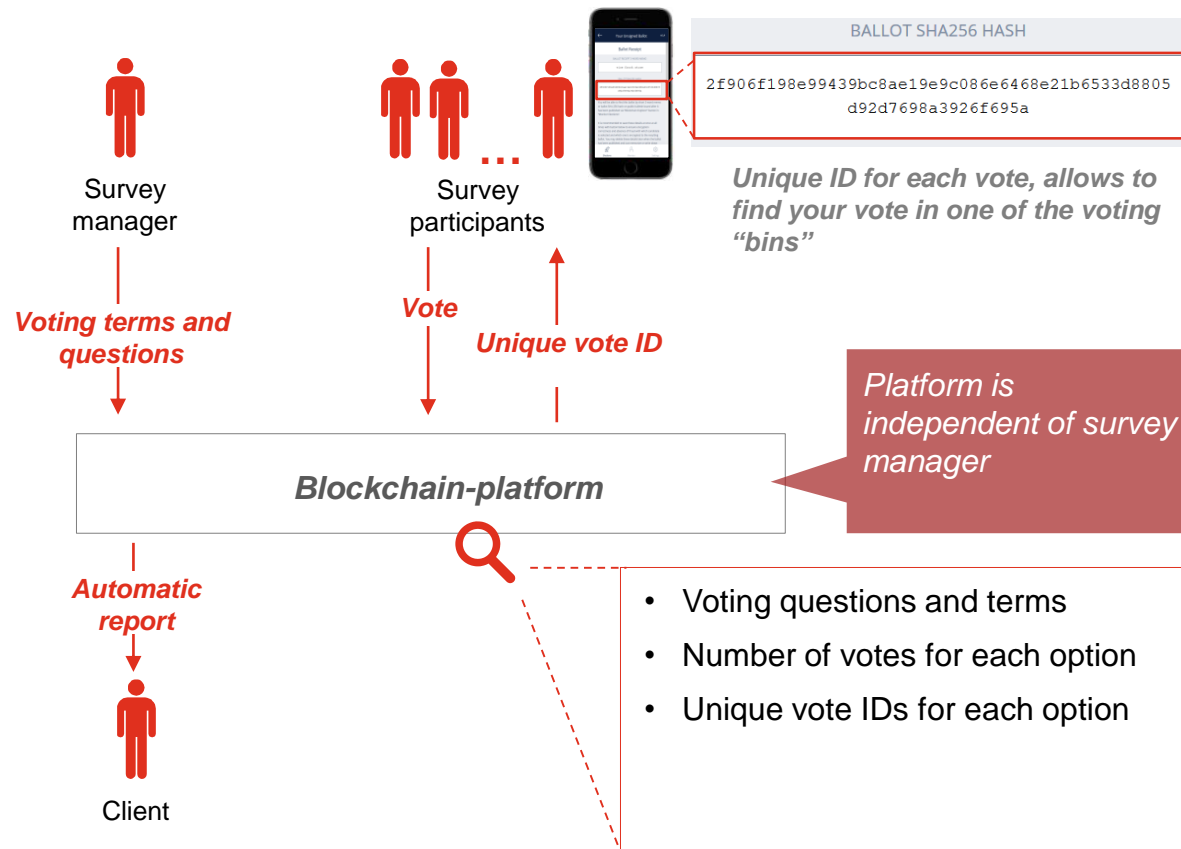
## Effect

- Electricity usage **efficiency**: most of the surplus is accumulated or sold
- Free market prices, automatic payments **without intermediaries**

# Reliable voting system allows business leaders to trust voting and survey results



## Voting and surveys



### Problem

- The client can't verify data reliability since the data pre-processed by survey manager
- Low transparency reduces % participants for voting/surveys

### Why Blockchain?

- Platform processes and sends results directly to the client, survey manager can't skew results
- Openness and transparency increases response rate and the number of participants

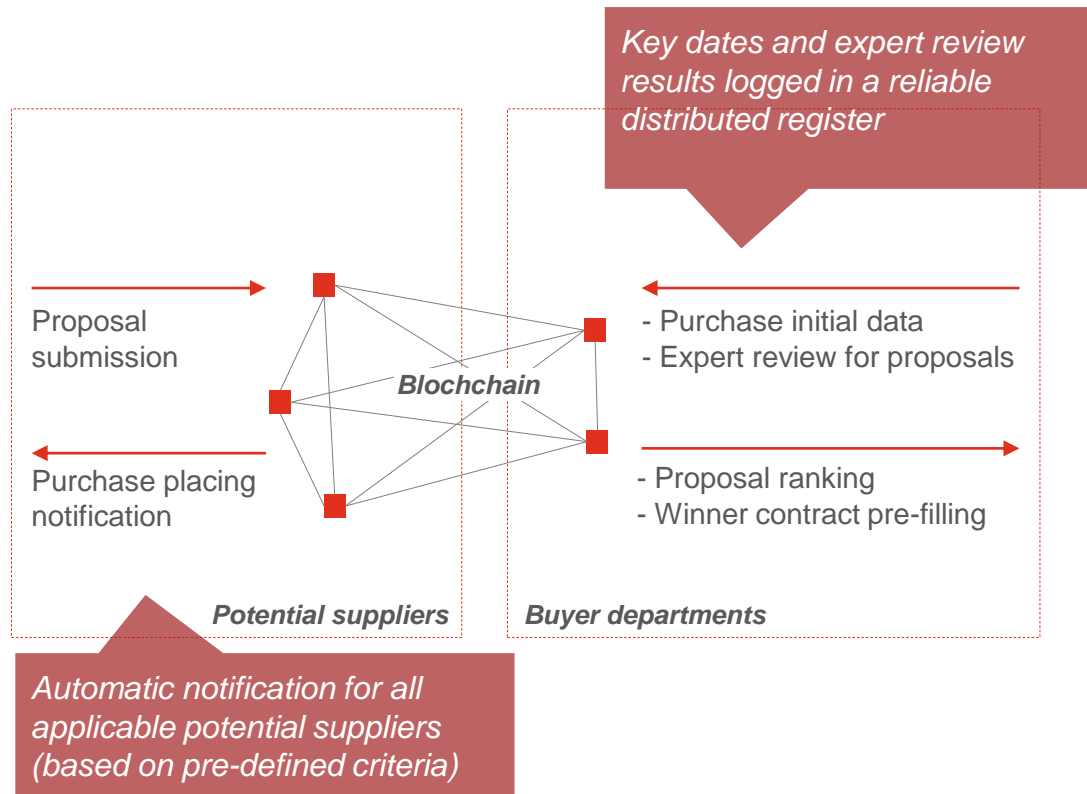
### Effect

- **Reliability:** voting results delivered directly to the client, platform is independent of survey manager
- **Transparency:** each voting participant can find his voice in the results

# Procurement transparency increase and cost reduction due to tender procedures & supplier selection enhancement with Blockchain



## Procurement transparency & speed



### Problem

- Non-transparent process and criteria for supplier selection
- Complex contract terms require monthly verification by human force

### Why Blockchain?

- Transparency attracts new potential suppliers to participate in tender procedures
- Not possible to change retrospective data to hide violations

### Effect

- **Up to 80%** cost reduction for the process
- Reduced violations due to reliable history (placing dates, selection criteria, winner selection principles, etc.)



# Blockchain advantages allow to enhance project finance approach to improve transparency, data reliability and overall projects' effectiveness



## Project finance effectiveness

### Project selection

- **Automatic** on quantitative criteria
- **Expert-signed** on qualitative criteria

### Deal structuring

- **Pre-filled** term sheets to sign
- **Complex terms** that auto-adjust basing on project company's progress on KPIs

### Performance tracking

- **Smart-contracts** monitor performance and implement complex terms

### Results assessment

- **Automatic** reliable reports on completed projects

### Blockchain-platform

Platform is independent of ANY party, possible to add trusted advisor to monitor all the activities

### For all parties involved, anytime:

- Selection criteria, expert decisions by person, ranking
- Pre-filled term sheets, signed scans (verified by experts)
- Performance KPIs and rules of financing
- Full reliable milestones log for retrospective projects and portfolio analysis

### Problem

- Project finance requires significant management attention for a long time
- Multiple parties involved, coordination and reliable timely reporting are extremely important

### Why Blockchain?

- Transparency that attracts both sponsors and lending institutions
- Reliable reporting allows stakeholders to track project performance on each step of the project lifecycle
- Flexible financing options with smart-contracts (e.g. automatically increase financing for reaching and keeping cash flow level for 3 months, ...)

### Effect

- **Increased transparency** for all stakeholders in both projects selection and performance tracking
- Reliable **automatic transactions** and practically real-time **automatic reporting** (incl. debt, cash flow, ...)

# Overall, corporate Blockchain solutions have many applications for Oil&Gas business, both visionary and well-developed



## Procurement, supply chain & logistics

- **Shipping tracking:** payment basing on cargo delivery time, temperature, etc.
- **Complex contract terms:** auto-discounts for reaching minimal volume, specific payment delays, ...
- **Full reliable history** of supplier contracts & received feedback



## Rights and license management

- **Dynamic rights distribution** basing on performance (technically possible for mining operations licenses)
- **Automatic license revocation** if criteria are not met



## Identity management

- **Unit scan** on each step of value chain, automatic warning if counterfeit discovered
- **Traceable, up-to-date and reliable history** for each unit using QR/RFID



## Reliable IoT data & settings

- **Reliable equipment faults data** gathering and aggregation
- **Dynamic reliable raw materials consumption tracking** based on data from multiple facilities, automatic warnings



## Automated billing

- **Multi-party disputes minimization** since all parties trust Blockchain data
- **Practically real-time billing systems sync** simplifies tracking by both buyer and seller



## Non-core processes automation

- **Automatic insurance claim processing** and payments
- **Complex dynamic terms** without high overhead costs for verification

---

***www.pwc.ru***

**РwС в России** ([www.pwc.ru](http://www.pwc.ru)) предоставляет услуги в области аудита и бизнес-консультирования, а также налоговые и юридические услуги компаниям разных отраслей. В офисах РwС в Москве, Санкт-Петербурге, Екатеринбурге, Казани, Новосибирске, Ростове-на-Дону, Краснодаре, Воронеже, Владикавказе и Уфе работают более 2 500 специалистов. Мы используем свои знания, богатый опыт и творческий подход для разработки практических советов и решений, открывающих новые перспективы для бизнеса. Глобальная сеть фирм РwС объединяет более 223 000 сотрудников в 157 странах.

\*Под «РwС» понимается общество с ограниченной ответственностью «ПрайсвотерхаусКуперс Консультирование» или, в зависимости от контекста, другие фирмы, входящие в глобальную сеть PricewaterhouseCoopers International Limited (PwCIL). Каждая фирма сети является самостоятельным юридическим лицом.

© ООО «ПрайсвотерхаусКуперс Консультирование», 2018. Все права защищены.