Project Overview

Main goal

Advance knowledge and understanding of the technology, societal impact, and application potential of blockchain technology.

Resources

12 researchers from 4 faculties
6 PhDs + 2 associated PhDs

Main deliverables

1. establish NTNU as a centre of excellence in blockchain research
2. train a cohort of blockchain experts with cross-disciplinary understanding
3. develop a blockchain testbed at NTNU suitable for supporting a range of research problems and demonstrating innovative schemes

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Blockchains

- Bad press recently
  - Wildly volatile prices
  - Huge electricity wastage
  - Only used by drug dealers

- What happened to the vision?
  - Distributed trust
  - Cut out the profiteers
  - Take control of business

Six Interrelated Sub-Projects

Blockchain Cryptographic Foundations

Networking Impact and Support for Blockchains

Identity management

Blockchain Technology in Distributed Value Chains

Blockchain Technology in the Organizational Context

Blockchain Opportunities in Health Care and Health Sciences

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Is The Blockchain A Disruptive Technology for Healthcare 4.0?

WHAT DOES TOMORROW LOOK LIKE?

Blockchain + Healthcare: A Potential Roadmap

Use cases for blockchain will start in small projects that reduce duplicative work but can eventually shift to a system where patient's control access rights to their data

Where we are now

Short-Term
Closed consortia, pilot projects, no patient data

Medium-Term
Systems that can scale with permissioned stakeholders and handle some patient data

Long-Term
Patient-driven system with master health records and access rights in the hands of patients

Amount of patient data handled →

Number of stakeholders + scalability →

Amount of control given to a patient →

CBINSIGHTS

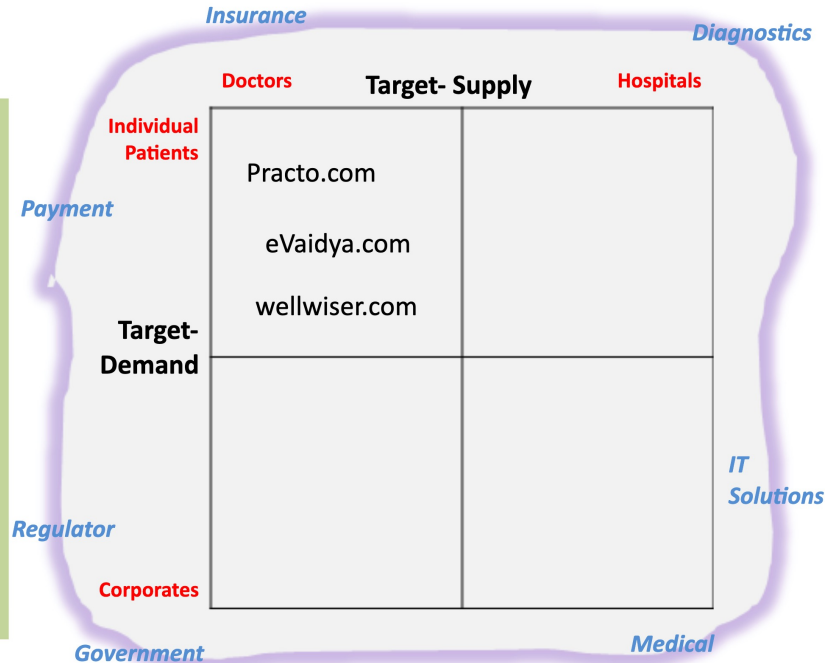Slide credit: https://www.cbinsights.com/

Is The Blockchain A Disruptive Technology for Healthcare 4.0?
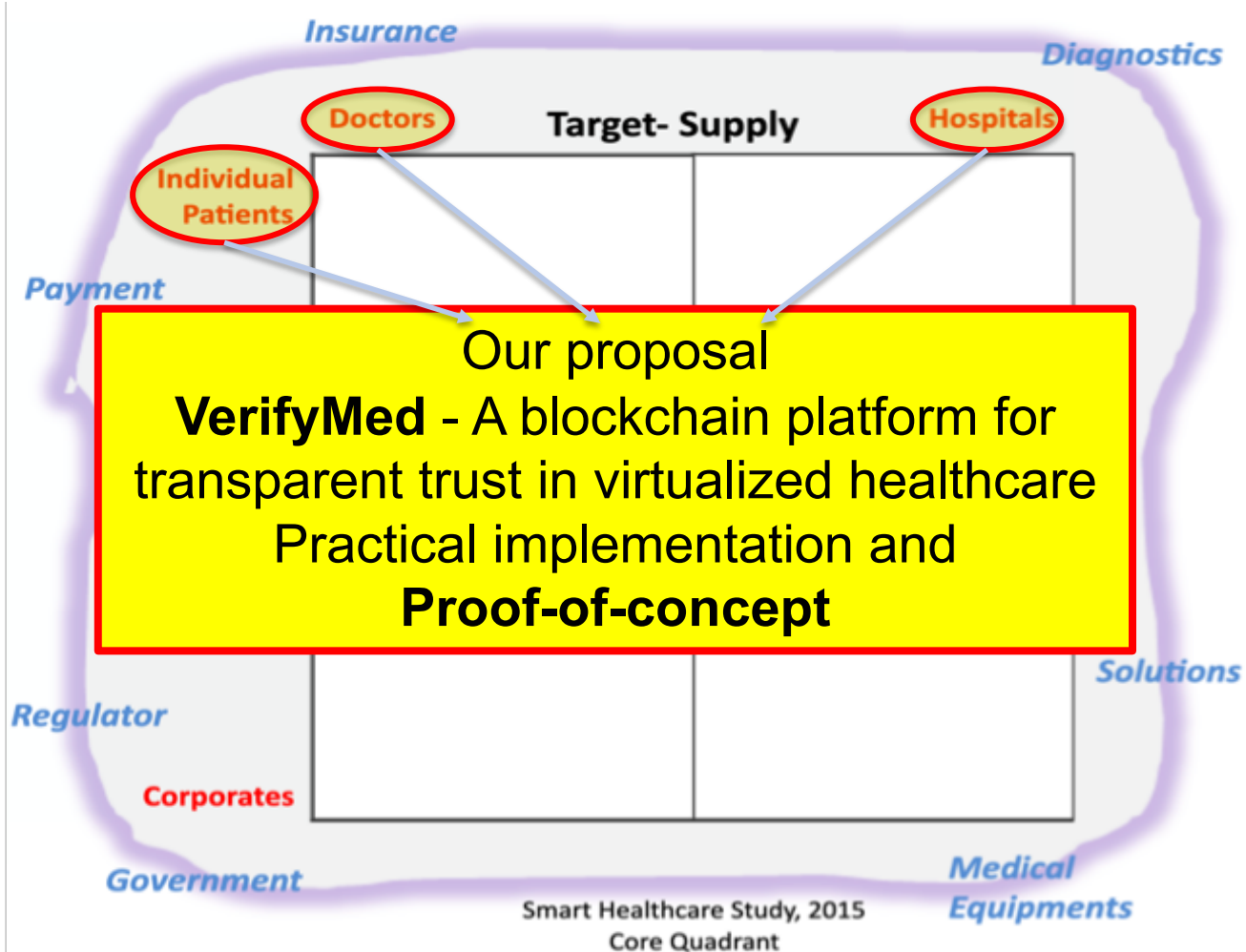
Disruptive Forces

1. The new entrants
2. The lateral entrants
3. The digital market place creators
4. The Supply intermediaries
5. The Digital Institutions
6. The Digital Advocates

Leading Digitally, 2015

Insurance

Diagnostics

Doctors **Target- Supply** Hospitals

Individual Patients

Payment

Practo.com

eVaidya.com

wellwiser.com

Target- Demand

IT Solutions

Regulator

Corporates

Government

Medical Equipments

Smart Healthcare Study, 2015
Core Quadrant

Slide credit Kapil Dev Singh, Presentation "Smart Healthcare – A Journey", Healthcare CIO Summit, 2015, https://player.slideplayer.com/35/10496307

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6

Insurance

Diagnostics

Doctors

Hospitals

Target- Supply

Individual Patients

Payment

Our proposal
VerifyMed - A blockchain platform for transparent trust in virtualized healthcare
Practical implementation and
Proof-of-concept

Regulator

Solutions

Corporates

Government

Medical Equipments

Smart Healthcare Study, 2015
Core Quadrant

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VerifyMed

https://github.com/jarensaa/transparent-healthcare

- **VerifyMed** - the first proof-of-concept platform, for transparently validating the authorization and competence of medical professionals using blockchain technology.
- Our platform **models trust relationships** within the healthcare industry to validate professional clinical authorization.
- It enables a healthcare professional to build a portfolio of real-life work experience and further validates the competence by storing outcome metrics reported by the patients.
- It is built on Ethereum