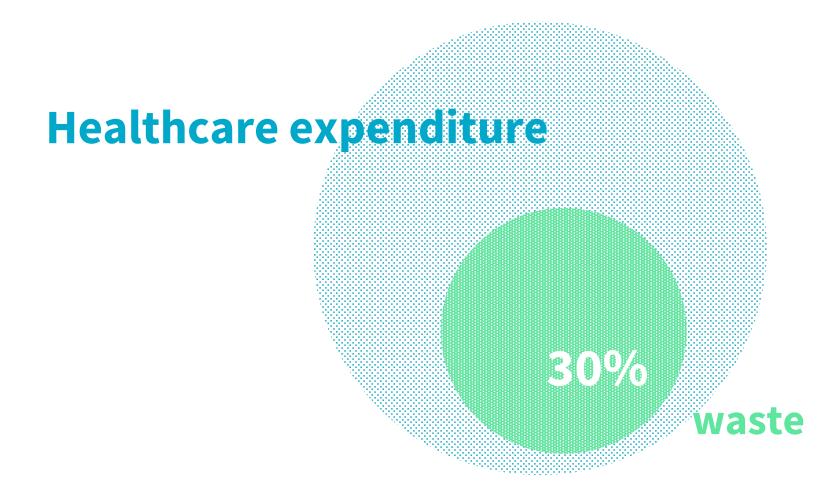


A Decentralized Electronic Prescription Management System

Johannes Sedlmeir, Fabiane Völter, Egor Ermolaev, Vincent Schlatt, Lukas Willburger, Linda Weigl



Healthcare expenditure in Europe



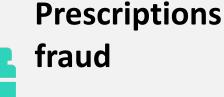


Healthcare waste in Europe

Healthcare waste is "healthcare spending that can be eliminated without reducing the quality of care"

- The New England Health Institute

€ 56b lost to healthcare waste





Highest healthcare expenditures in LUX



Digitalization of the healthcare sector

Economic benefits

Efficiency gains, reduction of fraud and printing costs



Health improvements

Reduced errors in medications and better (remote) accessibility



Social benefits

Enabler of transparency and financial relief for society



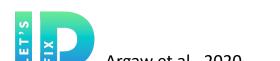


Vulnerabilities of a digital healthcare sector



"Patient data is 10 to 15 times more valuable than credit card data when sold on the dark web"

- Professor Kevin Curran



higher incentives for cyber criminals to target medical databases!

Challenges of e-prescriptions

Governance challenges

Security risks due to centralized silos as attractive targets for attacks



Lack of trust & transparency

No data sovereignty for user



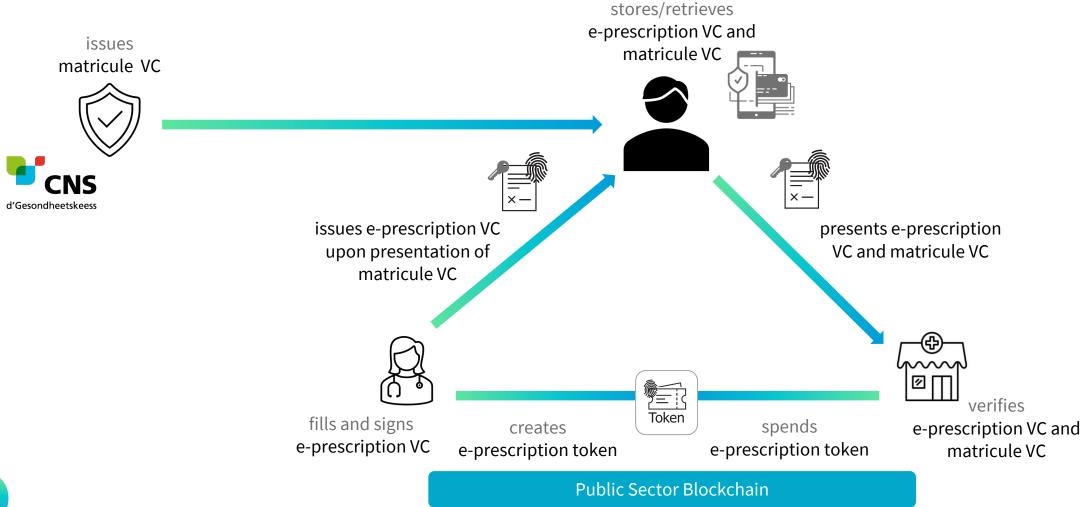
Architectural challenges

Fragmentation increases costs and slows down processes





LetsFixID to overcome the challenges!





DEMO INFRACHAIN CHALLENGE "Public Sector Blockchain" MEETS

"A decentralized electronic prescription management system that will **digitize**, **transform and simplify** current prescription processes, **speed up** transactions, **reduce costs**, and **increase transparency & trust**."



Roadmap

- Infrastructure extension:
 - **Use-case extension** towards medical consultation bills (and other health-related services)
 - Connection to border countries (or European-wide)
- Further automation:
 - Automatic presentation of VC prescription bills to CNS
- Seamless integration of non-health related infrastructure:
 - Luxembourg Base ID
 - European Digital Identity Wallet



Quick summary: A Decentralized Electronic Prescription Management System

Governance

Digitizes and simplifies processes, speeds up transaction and reduces cost

Privacy, trust & transparency

Gives users control over their data and preserves privacy of data subjects

Architecture

Designed along principles of SSI + prevention of double-spending, involves four parties (public private sector issuers and verifiers), stores no personal data onchain, user-centric by design, no app-fatigue



Q&A





Sources

European Healthcare Fraud & Corruption Network. (2015). Fighting Fraud & Corruption in Healthcare in Europe, retrieved from: https://www.sns.gov.pt/wp-content/uploads/2017/08/EHFCN MoH Portugal 16May16.pdf

Gee, J & Button, M. (2015). The financial cost of healthcare fraud 2015What data from around the world shows, retrieved from: https://www.pianoo.nl/sites/default/files/documents/documents/thefinancialcostofhealthcarefraud-september2015.pdf

Lapeyre-Mestre, M. et al. (2014). A European Community Pharmacy-Based Survey to Investigate Patterns of Prescription Fraud through Identification of Falsified Prescriptions, European Addiction Research, DOI: 10.1159/000356812

Perelló, M. et al. (2018). Evaluation of Medicine Abuse Trends in Community Pharmacies: The Medicine Abuse Observatory (MAO) in a Region of Southern Europe

Deetjen, U. (2017). European E-Prescriptions: Benefits and Success Factors, retrieved from: https://www.politics.ox.ac.uk/materials/publications/15224/workingpaperno5ulrikedeetjen.pdf



Sources

Vincke, P & Cylus, J. (2011). Healthcare fraud and corruption in Europe: An Overview, retrieved from: https://apps.who.int/iris/bitstream/handle/10665/333121/Eurohealth-17-4-14-18-eng.pdf?sequence=1&isAllowed=y

Eurostat. (2018). Healthcare expenditure statistics, retrieved from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthcare expenditure statistics

Luxembourg Institute of Health. (2017). National Drug Report, retrieved from: https://statistiques.public.lu/fr/actualites/conditions-sociales/sante-secu/2017/12/20171222/RapportRELIS2016.pdf

Argaw, S et al. (2020). Cybersecurity of Hospitals: discussing the challenges and working towards mitigating the risks, BMC Medical Informatics and Decision Making

Bruthans, A. (2020). The state of national electronic prescription systems in the EU in 2018 with special consideration given to interoperability issues, International Journal of Medical Information, DOI: doi: 10.1016/j.ijmedinf.2020.104205



Sources

Center for Internet Security. (2021). Data Breaches: In the Healthcare Sector, retrieved from: https://www.cisecurity.org/blog/data-breaches-in-the-healthcare-sector/

HIMSS Europe. (2017). Security and privacy in the era of Connected Health, retrieved from: https://www.himss.eu/himss-blog-tags/cybersecurity

