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Who am I? Value Networks What is a Value Network? What is a Business Ecosystem What is a Collaboration Space How to describe a Collaboration Space? The Resource-Event-Agent (REA) ontology: Relevance Blockchain technology What is Blockcinin to UNIVERSITÉ Relevance & Impact Issues of Blockchain What we propose Bibliography

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Prof. dr. Wim LAURIER

► I'm an Associate Professor in Management Information Systems at Saint-Louis University – Brussels, Belgium

- ▶ In 2010, I successfully defended a PhD on the REA ontology¹
- ► In 2010, I taught the ACC-321 summer session on REA at Michigan State University
- ► In 2011. I taught the ACCT-302 spring section on REA at the University of Delaware

2010, pp. XXI, 215.

²Wim Laurier and Geert P

³Wim Laurier and Geert Poels. "Invariant conditions in pp. 275-287.

► I published papers on trace of the Rest to Rest to Rest and single-version-of the week of the Rest ¹Wim Laurier. "The resource events agent which gy as a foundarian tax purples number of the second a resource-event-agent model". In: Information systems management 29.2 (2012), pp. 123–136

In: Decision Support Systems 56 (2013),

⁴Wim Laurier, Jesper Kieba, and Simon Polovina, "REA2: A unified formalisation of the Resource Event-Agent ontology". In: Applied Ontology 13.3 (2018), pp. 201-224. DOI: 10.3233/ao-180198

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What is a Value Network?

- ► A value network(VN) is any set of roles and interactions in any set of collaboration spaces in which people engage in both tangible and intangible exchanges to achieve economic or social good.
- "External-facing VNs (e.g. a business ecosystem) include those between the organization and its
 - suppliers, its

 - customers

 investors (including remains a vice set as a company)
strategic business or the set of the set product); and its adapted from Verna Alles. Whe network malasis and raw come si e and intangible assets". In: Journal of intellectual capital 9.1 (2008), pp. 5-2 BRUXELLES

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What is a Business Ecosystem?

A business ecosystem is "an extended system of mutually supportive organisations; communities of customers, suppliers, lead producers and other stakeholders, financing, governmental and quasi-governmental together in a partially inte highly self-organising, an SAINTLOU somewhat accidental man

from James F. Moore, "The rise of a new corpo In: Washington Quarterly 21.1 (1998), pp. 167–181, p. 168



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A collaboration space is "a business activity space where an economic exchange of valued resources is viewed independently and not from the perspective of any business partner."

An economic exchange is a business trading-partners derive highe the transaction.

Accounting and economic ontology, standard, https://www.iso.org/standard/67199.html. Apr. 2015



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How to describe a Collaboration Space? Concepts of the REA ontology: Initial state



How to describe a Collaboration Space?

Concepts of the REA ontology: Cookie transfer







⁵Sarah F Brosnan and Frans BM de Waal. "Evolution of responses to (un) fairness". In: Science 346.6207 (2014), p. 1251776. 10/19

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Relevance

of the Resource-Event-Agent (REA) ontology

- ► An ontology is "a formal specification of a shared conceptualisation"
- ► After almost 4D years, REA is still taught in Accounting Information Systems curricula in the USA⁷
- ► The REA ontology
 - ▶ is the foundation of Workday, which is the 2rd largest ERP vendor in the world and
 - ► was found to be compliant with SAP⁸ the largest ERP vendor in the world.
- ▶ In 2007, the REA ontology was the foundation for the ISO standard ISO/IEC 15944-4:2007 with go
- ► The REA ontology has The REA ontology has been used as a foundation for open value networks software (NRP) developed by Series a & Miker za

⁶P. Borst. "Constructing of engineering ontologies be build (2004), pp. 65-81.

2005 - 2015 - 4 2015

PhD thesis. University of Twente, 1997. Grand Valley State University, etc.

⁸Daniel E O'Leary. "On the setucional in batwaren REA and SAP". In: International Journal of Accounting Information Systems 5.1

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What is Blockchain technology?

technology for distributed and decentralised databases that stores information blocks ordered lists to solve the problem of maintaining the order of transactions, while the committed blocks are immutable to

Constantinos Patsakis. "A syster blockchain-based applications: C grant starter in Sin open issues". In: Telematics and Informatics S6 (2019 -81. DOI: 10.1016/j.tele.2018.11.006 Statosh "Bitcoin: A peer-to-peer electronic cash system"

Blockchain is a peer-to-peer network-based avoid the double-spending problem. BRUXELLES

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Relevance & Impact

of Elockchain Value Networks

- ► Traceability to combat counterfeit: e.g. LVMH
- ► Traceability for food safety: e.g. Walmart-IBM leafy greens, Beef Ledger
- ► Traceability for marketing (e.g. terroir). e.g. Provenance
- ► Traceability for short chains: e.g. for farmers markets & food cooperatives

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- Traceability for fair-trade flocert.net
- ► Value Networks for /
- ▶ etc.

► Value Networks for local eronom Vereiopro S ag. News Scotia Fisheries y Management, Market Creation, Access to Capical, Global Fayment, US

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Issues of Blockchain

According to forbes com, medium com, coindesk com, Deloitte & 101 blockchains.com Blockchain technology

- 1. is complex and difficult to use
- 2. has limited performance & scalability
- 3. has limited interoperability

4. has security issues, of an in the Error South Error for 4.1 Code Analysis (a Code in the Code in th 4.2 Formal Vendication S.g. Centification of in the Dopperation the DAO attack) BRUXELLES

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- Allee, Verna. "Value network analysis and value conversion of tangible and intangible assets". In: Journal of intellectual capital 9.1 (2008), pp. 5-24.
- Borst, P. "Constructing of engineering ontologies for knowledge sharing and reuse". PhD thesis. University of Twente, 1997.
- Brosnan, Sarah F and Frans BM de Waal. "Evolution of responses to (un) fairness". In: Science 346.6207 (2014), p. 1251776.
- Casino, Fran, Thomas K, Dasaklis, and Constantinos Patsakis, "A systematic literature review of blockchain-based applications. Current status, classification and open issues". In: Telematics and Incrimatizes 36 (2019) pp. 55 -81. DOI: 10.1016/j.tele.2018.11.00 ISO/IEC JTC 1/SC 32 Unitamination enter midentenchange. /SC 15944-4:2015
 - Information technology scenarios — Accounting and en On the X Counting standard. https://www.iso.org/standard/67199.html. Apr. 2015.

iness transaction

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Bibliography II

Laurier. Wim. "The resource-event-agent ontology as a foundation for business modeling", eng. PhD thesis. Ghent University, 2010, pp. XXI, 215. Laurier, Wim, Jesper Kiehn, and Simon Polovina, "REA2: A unified formalisation of the Resource-Event-Agent ontology". In: Applied Ontology 13.3 (2018), pp. 201–224. DOI: 10.3233/ao-180198. Laurier, Wim and Geert Poels, "Invariant conditions in value system simulation models". In: Decision Support Systems 56 (2013), pp. 275–287. - ."Track and trace future, present, and past product and money flows with a resource-event-agent mode Nh: Normation Stems management 29.2 (2012), pp. 123-136. Moore, James F. The death of on perition readership and strategy in the age of business ecosystems HarperBusiness New York, 1995 - ."The rise of a new corporate form" In: Washington Quarterly 21.1 (1998), pp. 167-181.

