

Taler Systems S.A.

Taxable **A**nonymous **L**ibre **E**lectronic **R**eserves

Christian Grothoff & Leon Schumacher

Instant Independent One-Click Payments

December 6, 2017

Agenda

1. Unique Sales Propositions
2. The Problem
3. What is Taler?
4. Operating Model
5. The Market
6. Competitors
7. About Us
8. Use Cases
9. Partners
10. Risks

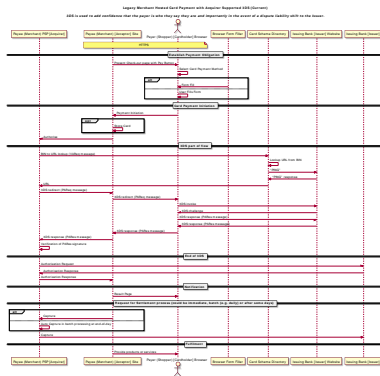
1. Unique Sales Propositions (USPs)

- Instant One Click Payments
- Privacy for spender from payment system provider
- No Fraud (compared to credit card online payments)
- No authentication needed for payment
- Micropayments possible
- Low transaction costs
- Open
- Scalable
- Transparent

2.1. The Problem

3D secure (“verified by visa”) is a nightmare:

- Complicated process
- Shifts liability to consumer
- Significant latency
- Can refuse valid requests
- Legal vendors excluded
- No privacy for buyers



Cryptographers' paper on 3DS:

“Verified by Visa and MasterCard SecureCode: Or, How Not to Design Authentication”

Online credit card payments will be replaced, but with what?

2.2. The Problem

- Global tech companies push oligopolies
- Privacy and federated finance are at risk
- 30% fees are conceivable
- Economic sovereignty is in danger



2.3. The Problem

European alternatives are low-tech:



European regulation requires high-tech:



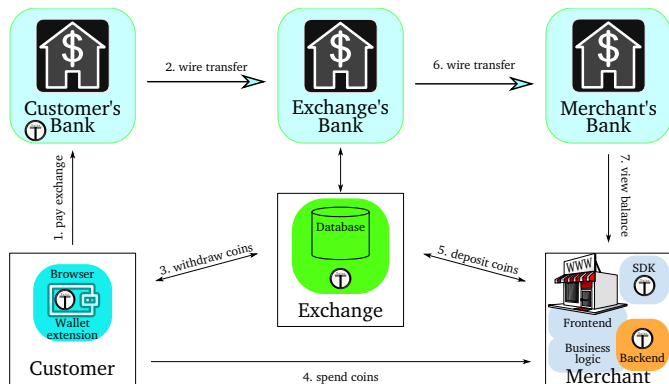
AML, KYC, **GDPR**

3.1. What is Taler?

Taler is an electronic instant payment system.

- Pay in existing currencies (i.e. EUR, USD)
- Uses electronic coins stored in wallets on customer's device

3.2. What is Taler?



⇒ Convenient, taxable, privacy-enhancing, & resource friendly!

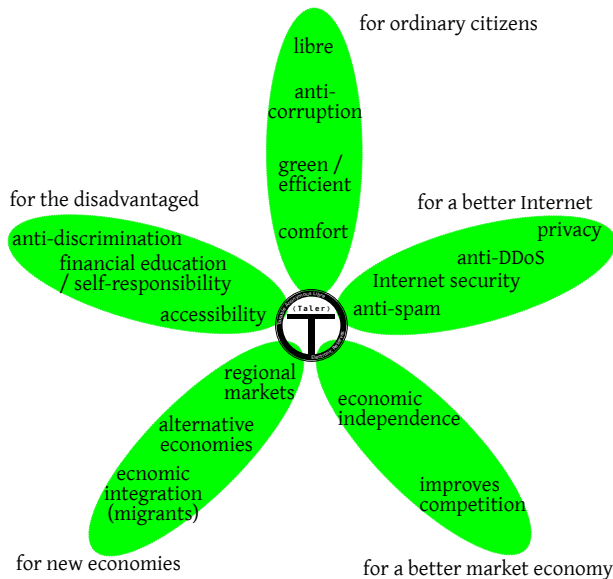
4.1. Advantages of Taler

- All operations provide cryptographically secured, mathematical proofs for courts & auditors
- Customer can remain anonymous
 - retain civil liberties in increasingly cash-less world
 - eliminates costly customer authentication
 - no credit card number theft possible
 - merchants do not need to operate expensive certified equipment & processes (PCI DSS, etc.)
 - Taler can give change and refunds, even to anonymous customers
- Merchants are identifiable in each payment they receive
 - bad for illegal business
 - no tax evasion

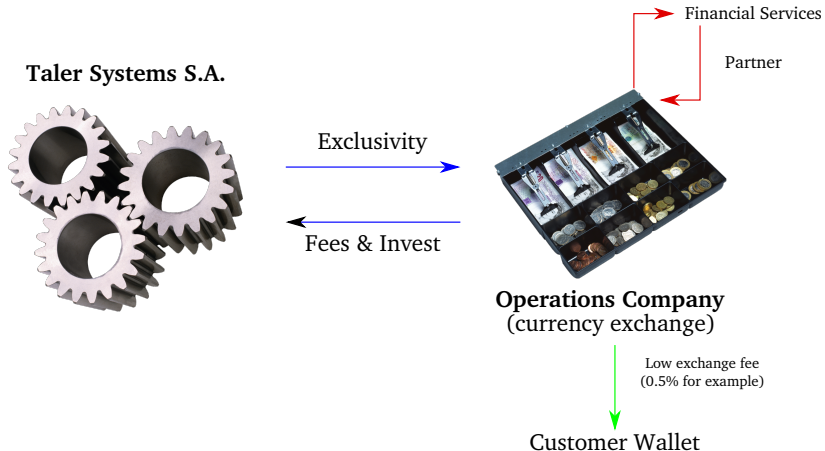
4.2. Advantages of Taler

- Payments in existing currencies, does not introduce any new currency
 - financial stability, no risks from currency fluctuation
 - payment system, not speculative investment
- Scalable, fast protocol implementation
 - low transaction costs (in terms of computation at high volume)
- Open standard protocol without patents with free reference implementations
 - low barrier to entry for new merchants
 - governments may adopt as part of digital sovereignty agenda

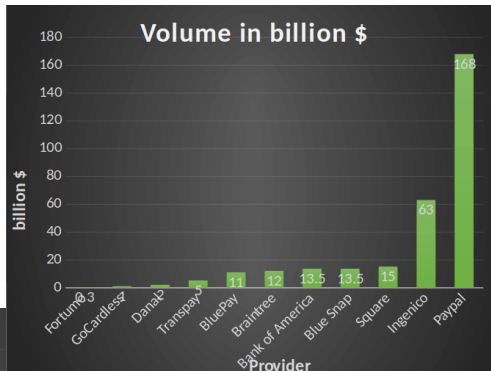
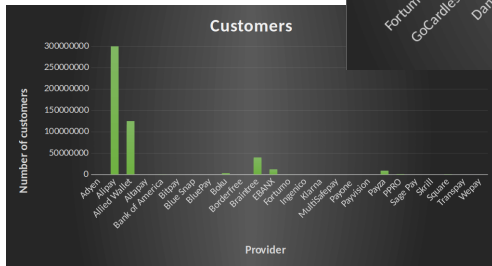
5. Social Impact of Taler



6. Operating Model



7. The Market



8. Competitor comparison

	Cash	Bitcoin	Zerocoin	Creditcard	GNU Taler
Online	---	++	++	+	+++
Offline	+++	--	--	+	--
Trans. cost	+	----	----	-	++
Speed	+	----	----	o	++
Taxation	-	--	----	+++	+++
Payer-anon	++	o	++	----	+++
Payee-anon	++	o	++	----	----
Security	-	o	o	--	++
Conversion	+++	----	----	+++	+++
Libre	-	+++	+++	---	+++

9. Payment solutions - Pricing

Provider	Pricing
Alipay	2,0% - 3,0%
Allied Wallet	1,95% + \$ 0,20
Amazon Payments	2,9% + \$ 0,30
Avangate	4,9% + \$ 2,50
Billpro	2,1% + 3,5% fee
BitGold Inc.	1% fee on every purchase
Bitpay (Bitcoin)	0%
Checkout.com	2,95% - 3,95% + £0,15
Coinify (Bitcoin)	0%
eComCharge	3,5% + 0,35€
GoCardless	1% up to a maximum of £2
Western Union	Variable — From 5% up

10. Why now and why us?

Why now?

- Chaum's original patents¹ from 1996-1999 have expired
- Increased awareness of issue of privacy in payment systems
 - Contemporary payment systems fail on privacy
 - Cash is disappearing
 - Alternatives urgently needed
- Cryptocurrencies threaten control over money supply and tax base of governments

Why us?

- solved (technical) problem of unlinkability
- designed a modern, open standards based version
- technical expertise to really build it:
 - 15 years of research in network security and privacy
 - Founder of GNUnet and related projects
- good contacts: free software movement, press, academics

¹USPTO 5878140, 5781631, 5712913

9. Team &

Leon Schumacher
co-founder

Dr. Christian Grothoff
co-founder

Michael Widmer
Jurist

Dr. Jeff Burdges
PostDoc

Florian Dold
PhD Student

Advisory Board

Prof. Mikhail Atallah
Cryptographer, co-founder Arxan Technologies Inc.

Prof. Roberto Di Cosmo
Director IRILL

Greg Framke
CIO Manulife,
former COO Etrade

Ante Gulam
Global Head of Information Security — CISO
MetaPack Group

Dr. Richard Stallman
Founder of the
Free Software movement

Chris Pagett
former Group Head Security/
Fraud/Geo Risk HSBC

Prof. Alex Pentland
MIT Media Lab



10. Use Case: Consumers

Why would a consumer adopt Taler?

- Convenient: pay with one click instantly
- Guaranteed: no rejection by false-positives in fraud detection
- Secure: like cash, except no counterfeits
- Privacy-preserving: payment requires no personal information
- Stable: no currency fluctuations, pay in traditional currencies
- Free software: no hidden “gadgets”, third parties can verify

11. Use Case: Merchants

Why would a merchant implement Taler?

- Instant payments: transactions at Web-speed
- Secure: signed contracts, no legitimate customer rejected by fraud detection
- Free software: competitive pricing and support
- Low fees: efficient protocol + no fraud = low costs
- Flexible: any currency, any amount
- Ethical: no fluctuation risk, no pyramid scheme, not suitable for illegal business
- Legal: complies with Regulation (EU) 2016/679 (GDPR)²

²Requires privacy by design and data minimization for all data processing in Europe after 25.5.2018.

12.1 Use Cases — Potential Niches for launch

1. Non-bankable / unbanked people
 - Children
 - Refugees / Displaced population
 - Developing markets (Africa)
2. Instant One Click Web purchases
 - Newspaper articles (see Spiegel's LaterPay)
 - Platform provider with exposure risk (see Spotify)
3. Niche Markets
 - Entertainment & Media
 - Tor users (when privacy is required)
4. Micropayments
 - Gaming (in-game payments)
 - Eliminate spam (require payment to display unsolicited e-mails)

12.2 Use Cases — Potential Niches for launch: Anti-Spam

p \equiv p provides authenticated encryption for e-mail:

- Free software
- Easy to use opportunistic encryption
- Available for Outlook, Android, Enigmail
- Committed strategic partner

Attach Taler payment to secure e-mail communication channel:

- Avoids two-sided market: peer-to-peer payments (this is how PayPal launched)
- If unsolicited sender (i.e. not in address book), hide messages from user automatically request payment from sender
- Sender can attach Taler payment to be moved to inbox
- Receiver can grant refund to sender
(Taler still collects applicable transaction fees)

13. Use Cases — Used in financial model

- Newspaper articles (ex. Spiegel)
- Platform provider with exposure risk (ex. Spotify)
- Entertainment & Media
- Tor users

14. Partners

Research and development:



Business development:



Merchants:

DONAUKURIER



15. Strategic partners for distribution



2+ million daily users (in discussions)



(in discussions)

16. Next steps

1. Complete solution in v0.5 (alpha)
2. Complete first seed funding round for 1.5-2m €
3. Integrate with one or more distribution channels
(Tor browser, Mozilla browser, p≡p, ...)
4. Launch successfully in one of the niches
 - Newspapers
 - Entertainment & Media
 - Gaming
 - Platform provider under threat from
ApplePay, GooglePay, Amazon, ...

17. Main Risks

1. Technical risk — resolved
2. Cryptographic risk — resolved
3. Distribution on customer side challenging
4. Distribution on merchant side challenging
5. Regulator does not approve
6. System hacked (by internal admin staff)

18. Risk Mitigation

1. Technical risk — resolved
2. Cryptographic risk — resolved
3. Distribution on customer side challenging
Partner with reach on consumer end
4. Distribution on merchant side challenging
Partner with platform merchant, or
Partner with large financial service player
Focus on e-commerce
5. Regulator does not approve
Initial reviews by specialists see no issues
Partner with large financial service player
6. System hacked (by internal admin staff)
Automated reporting shows maximum exposure
Audits conducted regularly
Vetting of admin personnel

19. Business risks and measures

Risk	Impact	Countermeasure
Usability too low	few users, insufficient income	usability testing
Exchange data loss	financial damage	backups
Exchange compromise	financial damage	limit loss by key rotation
Exchange offline	reputation loss	redundant operation
Compliance issues	illegal to operate	work with regulators
No bank license	illegal to operate	work with banks

20. Recent Press

09-2015

- <https://bitcoinmagazine.com/21901/bitcoin-governments-without-privacy-taxes/>
- <http://www.heise.de/tp/artikel/46/46089/1.html>

06-2016

- http://www.theregister.co.uk/2016/06/06/gnu_cryptocurrency_aims_at_the_mainstream_economy_not_the_black_market/
- <http://www.golem.de/news/halbanonymes-bezahlssystem-gnu-taler-soll-kryptowaehrungen-gerechter-machen.html>
- <http://www.heise.de/newsticker/meldung/GNU-Taler-Open-Source-Protokoll-fuer-Zahlungen-in-Version-1.0.html>

08-2016

- <https://www.theguardian.com/technology/2016/sep/01/online-publishers-readers-ad-block-surveillance-donate-anonymously>

02-2017

- <http://hackerpublicradio.org/eps.php?id=2222>

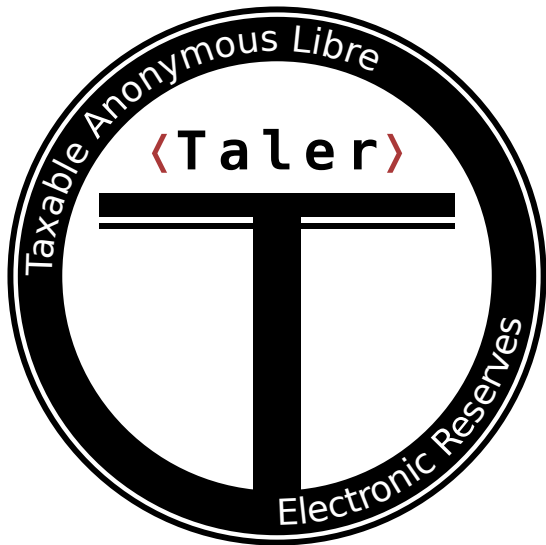
Complete list at <https://taler.net/press>

Contact details

Leon Schumacher
leon@taler.net
+41-79-865-9365

Dr. Christian Grothoff
christian@taler.net
+33-2-99-84-71-45

<https://www.taler.net/>



Potential Synergies between Taler and Blockchains

What can Blockchains do for Taler?

Taler cannot cryptographically prove the **timing** of transactions. Using a blockchain for **timestamping** would allow GNU Taler to provide hard proof of **when** a payment happened.

What can Taler do for Blockchains?

Blockchains have inherently high transaction **costs** and little **privacy**. Taler can operate as a **side-chain**, providing enhanced privacy and **performance** for crypto currencies.

License model

Component	License	Why?
Exchange	Affero GPL	competitors must share extensions
Wallets	GPLv3+	enable community development
Merchant	Lesser GPL	maximize market adoption