

**cryptotools**

designing the fun into them.

# how to presentation

1. Ziele definieren

2. „Schnittstellen“ suchen

3. Informationen filtern

4. Wirksam visualisieren

5. Ablauf klar strukturieren

6. Haltung kontrollieren

7. Blickkontakt herstellen

8. Gestik gezielt einsetzen

9. Langsam und klar sprechen

10. Pausen machen

# vorbereitung 1/4

## Zielsetzung:

- **Aufgabe:** Crypto-Quants mit UX-Perspektive & -Designern konfrontieren
- **Ziel:** Sensibilität & neue Sichtweise dafür erzeugen, daß Crypto ohne Fun-UXP völlig sinnlos ist
- **Reaktionen:** In Diskussion kommen zu Verbreitungsproblem durch Metcalfe's Law & Reed's Law & fehlenden „Fun & Enjoyment“

# vorbereitung 2/4

## Zeithorizont:

- Maximal 30 Minuten Vortrag
- Anschließend 15 Minuten Diskussion

## Zielgruppe:

- **Zusammensetzung:** Crypto-Quants, Performing Nerds, Self-Protecting Users, Dissidents & Activists, Artists, Developers (hopefully!)
- **Vorkenntnisse:** Crypted E-Mail (e.g. PGP), Crypted Phone (e.g. GSMK CryptoPhone), Crypted Filesystem (e.g. File-Vault), Crypted Money (e.g. bitcoin)

# vorbereitung 3/4

## Hindernisse:

- **Atmosphäre:** Relaxed aber sehr ernst bzgl. Crypto, International/English, gemischte, oft sehr tief spezialisierte Skillsets (Skill-Silos)
- **Mögliche Zwischenfragen:**
  - Warum ist Crypto noch wichtig, ist doch eh alles broken?
  - Ein Textverarbeitung funktioniert auch ohne Spass, warum also noch Fun?
  - Normale User kapieren das eh niemals, warum also Crypto versuchen verständlich & nachvollziehbar zu gestalten?

# vorbereitung 4/4

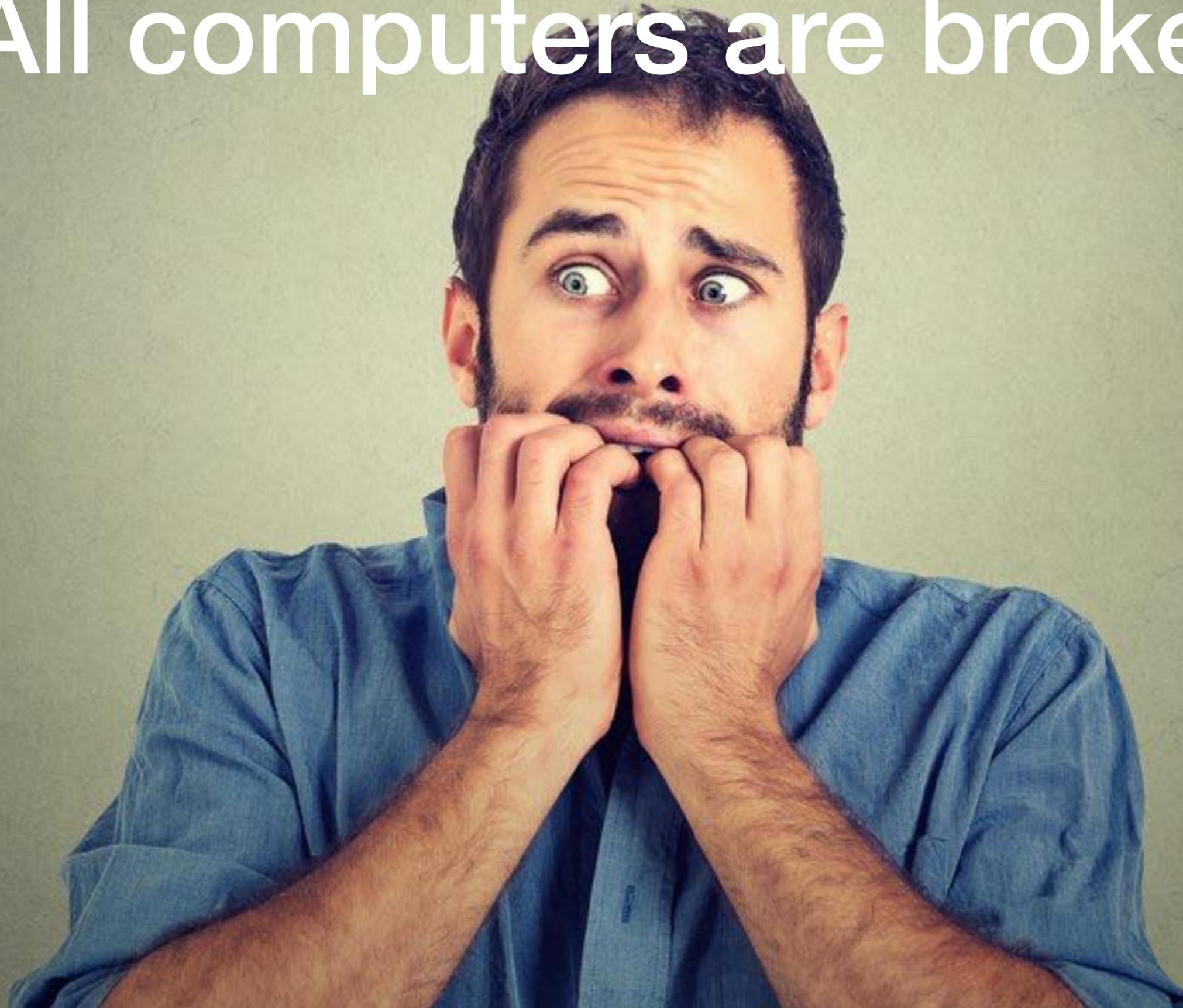
## Besondere Schwerpunkte:

- **Status Quo:** Is everything lost? — All Internet Things are broken (AIAB).
- **Verbreitungsparadox:** Metcalfe's Law & Reed's Law, The Power of Fun & Enjoyment for Tool-Adoption (e.g. Pokémon Go)
- **Ethical Design:** Decentralized, Private, Open, Interoperable, Accessible, Secure, Sustainable
- **Designing Fun:** Guidelines & Principles to build Beauty of Interaction, Addictive Controls & Tool-Identity

**Status Quo:**  
**a lot of stuff is broken**

hey, sounds like a possibility for c.h.a.n.g.e.

All computers are broken?



# All computers are broken!

## Attack Scenarios

	w/o Interceptor	with Interceptor
Lost Device	?	✓
Police Raid/Unlocked Device Stolen	✗	✓
Targeted Attack	✗	✓
Audio/Video Bugging	✗	✗
Physical Access (Shipping/Border Checkpoint)	?	?
1984-style Total Communication Surveillance	✓	✓
Backdoored Interceptor	n/a	✗

hackt@~\$ busenz-record --delay=3 -d 30 elite.gif

hackt@core:~\$ u | hackertyper.sh -g -f -s 200; ./hack.exe | google.com

# CRYPTOWARS!!111

```

0 [||||| 30.8%] 1 [||||| 30.2%] Tasks: 94; 2 running
Mem[|||||] 727/3697MB Load average: 1.38 1.44 1
Sup[|] 0/2047MB Uptime: 3 days, 10:05:46
Bat[|||||] 199.4%(A/C) Hostname: core

```

USER	PID	NI	S	CPU%	MEM%	TIME+	Command
root	2889	0	R	23.0	0.6	15:34.96	/usr/bin/X -nolisten tcp :
n	3005	0	S	8.0	0.4	3:24.87	xfce4-terminal --geometry=
n	19267	0	S	4.0	0.2	0:16.08	mpd
n	21396	0	S	3.0	0.1	0:11.17	/bin/bash ./pipes.sh
n	3002	0	S	2.0	0.8	1:57.12	/usr/bin/compiz --replace
n	19984	0	S	2.0	0.1	0:24.66	ncmcppp -c .ncmcppp/config
n	3437	0	S	1.0	10.4	11:04.40	/usr/lib/aurora/firefox
n	18917	0	S	1.0	0.1	0:12.29	tmux
n	18029	0	S	1.0	0.0	0:16.19	lua 3spooky
n	22263	0	R	1.0	0.1	0:11.22	htop
n	3626	0	S	0.0	0.5	1:00.43	/usr/lib/aurora/plugin-con
n	18818	0	S	0.0	0.0	0:08.00	cmatrix -bsu 9
n	3024	-11	S	0.0	0.1	0:35.10	/usr/bin/pulseaudio --star

Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nice +F9K



Exploit-the  
VIRUS /  
DROPPER 7  
Nation's data:  
H4x0r -HoM3-  
\*127.0.0.1\*  
+WARNING+ "Illegal\_Network\_Connect  
-== You are at the point of  
Your Activities:Will\_be\_Keylogged\_and  
Sites: https://sites.google.com/site/1

U L P  
L q C  
R s j  
6 r h  
2 r u y  
/ / Q  
p k J  
> H 7  
2 0  
L 2  
U X  
Z u  
J y  
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B C /  
q S  
K & 0  
% S  
B q  
T )  
U + (

4:29/4:58 Hearts Burst Into Fire Vol: 22  
[playing] Bullet For My Valentina (2008-01-23)

Playlist items, length: 57 minutes, 11 seconds ; remaining: 4

Time	Artist	Title	Filename	Album
4:27	Bullet For My	Screen Ain't Fire	Screen Ain't Fire	Screen Ain't Fire
4:03	Bullet For My	Eye On The Stone	Screen Ain't Fire	Screen Ain't Fire
4:38	Bullet For My	Hearts Burst Into Fire	Screen Ain't Fire	Screen Ain't Fire
4:38	Bullet For My	Making The Deal	Screen Ain't Fire	Screen Ain't Fire

# Why we do not give up!



We need to protect Communication (i.e. E-Mail),  
because it won't go away!

**So why & where did we fail?**

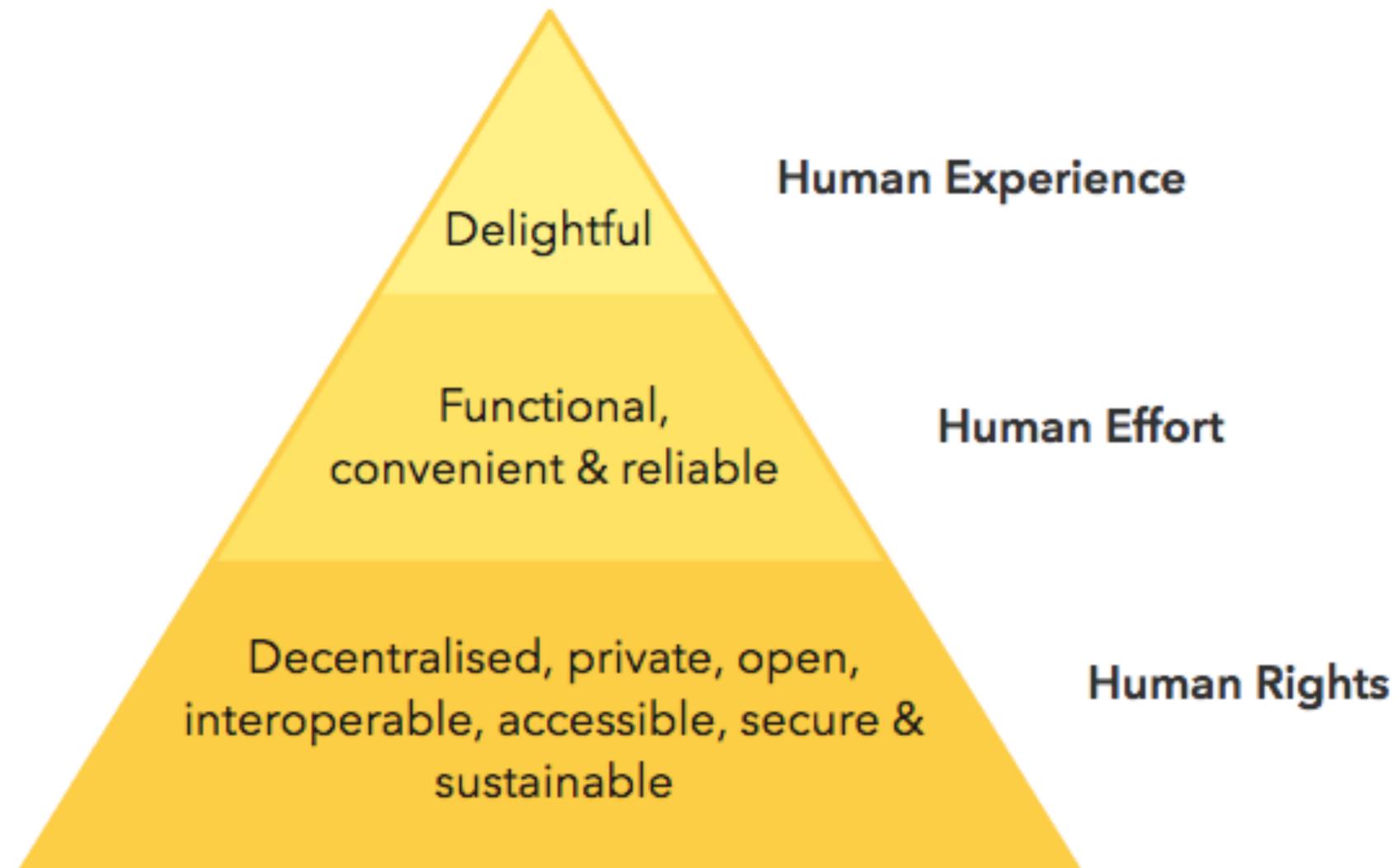
# Ethical Design

a new standard & manifesto for designers of software

**ind.ie** 

# Ethical Design

## Respect



Source: <https://ind.ie/ethical-design/>



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## Human Rights

Technology that respects human rights is decentralised, peer-to-peer, zero-knowledge, end-to-end encrypted, free and open source, interoperable, accessible, and sustainable.

It respects and protects your civil liberties, reduces inequality, and benefits democracy.



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## Human Effort

Technology that respects human effort is functional, convenient, and reliable.

It is thoughtful and accommodating; not arrogant or demanding. It understands that you might be distracted or differently-abled. It respects the limited time you have on this planet.



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## Human Experience

Technology that respects human experience is beautiful, magical, and delightful.

It just works. It's intuitive. It's invisible. It recedes into the background of your life. It gives you joy. It empowers you with superpowers. It puts a smile on your face and makes your life better.

# Designing Fun

where is the fun in cryptotools?

**useful**

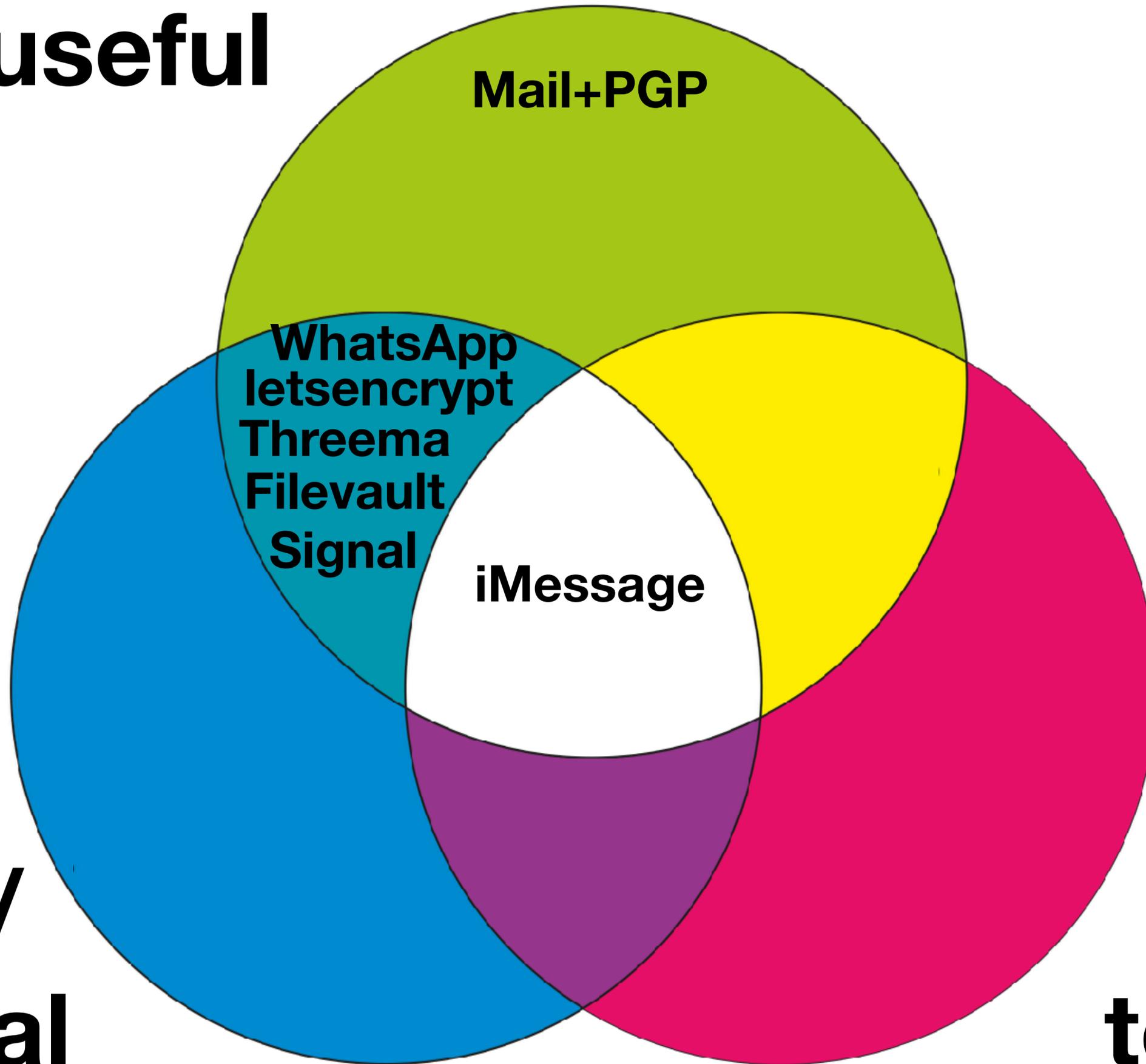
**Mail+PGP**

**WhatsApp  
letsencrypt  
Threema  
Filevault  
Signal**

**iMessage**

**usable /  
functional**

**fun  
to use**



from functionality  
to functionality

cute != fun

Too often fun is a „glued on“ property  
and interfaces smile.

Enjoyment should not be an  
afterthought and fun does not  
have to be cute.

# designing for fun

Fun-filled experiences are playful and liberating  
— they make you smile.

Fun-filled experiences break from the ordinary

Fun-filled experiences bring satisfying feelings of pleasure  
for body and mind

Fun is also tied to mental challenges such as solving problems, playing  
music, and discovering something new.

designing for fun is „fun-in-doing“

# what can you do?

Think about ways in which technology can be designed to produce more fun for users.

enjoyable interfaces can be measured by:  
challenge, curiosity, and fantasy (striving to attain goals in a context of uncertainty)

Children often link the idea of fun to challenges, social interaction, and control over their world. (self-efficacy / deutsch: „Selbstwirksamkeit“)

add the extra touches to delight and amuse users (e.g. appealing splash of color, engaging animation, pleasing sound)

# three equally important goals

provide the right functions so that users can accomplish their goals  
(task suitable functionality)

offer usability **plus** reliability to prevent frustration from undermining the fun

engage users with fun-features:  
(alluring metaphors, compelling content, attractive graphics, appealing animations,, and satisfying sounds)

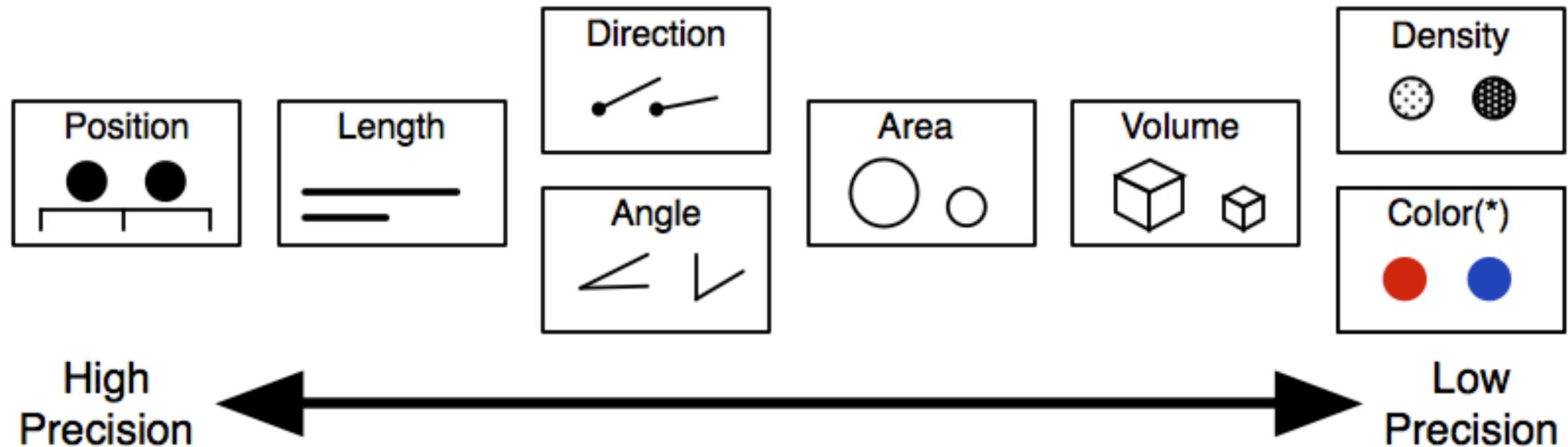
bring a smile to many users' faces

# attractive graphics

alignment and grouping is important for rapid performance

balance and symmetry are classic notions for graphic design

some color is helpful for highlighting and showing relationships



\* = only recognizable on color-capable medium

# 8 golden rules of designing UI

1. Strive for consistency
2. Cater to universal usability
3. Offer informative feedback
4. Design dialogs to yield closure
5. Prevent errors
6. Permit easy reversal of actions
7. Support internal locus of control
8. Reduce short-term memory load

# results of fun-design

When done well these techniques enable users to forget about the interface and concentrate on their tasks

Satisfying every user is really tough, so success with some segment of the population is a reasonable goal.

The direct manipulation principles of rapid, incremental, and reversible actions with immediate visibility of results, also increases satisfaction and performance.

# fun like in fashion

interfaces are becoming a personal (fashion) statement\*

guidelines are not easy to get & never guarantee success, but...

there are guides for graphical style issues like symmetry, elegance, simplicity, and distinctiveness

Excellence in design is a great facilitator of fun, BUT...  
...you need to test, test, test, test, test.

Example: Apple, John Geleynse „Ingredients of Great Apps“

\* = who would have thought (Linux-Flavour A vs. Linux-Flavour b vs. Apple vs. \$OperatingSystem)

# ingredients of great apps 1

1. Delightful

2. Innovative

3. State of the art

4. Connected

5. Accessible

6. Localized

7. Designed

8. Disruptive

# ingredients of great apps 2

Delightful	Inviting, Intuitive, Engaging, Exciting, Enabling
Innovative	Revolutionary, Inspirational, Fresh
Designed	Great Design, Small Design Team, Constant Focus on Design, <b>Attention to Detail!!!!</b> <b>Solutions NOT Features</b>
Integrated	Safari, Addressbook, Connectivity, Twitter, Keychain, Accelerometer, Video, Phone, Maps, Photolib, Camera
Optimized	Performance Tuning (Analysis & Testing, Benchmarking)
Connected	Work well with other apps & hardware
Localized	Reach customers in other countries
Disruptive	

# 4 design spaces

functionality

usability

reliability

fun

# designing for enjoyment

an approach, which mainly addresses the rational and quantifiable human skills (focussing cognitive aspects only) simply does not cut it

designing products that facilitate an enjoyable user experience

for a design to be engaging and enjoyable it should be physical showing us „the works“ and provide affordances for action

designing for enjoyment is radically different from the problem of designing for ease-of-use or task fit

# 4 relational elements of experience

emotional

sensual

compositional

spatio-temporal

Users are not interested in products; they are in search of challenging experiences [...] designers need to create a context for experience.

Beauty in interaction is the core, the starting point of interaction design.

Design is not about the smile on the product, it is about the smile in the user's heart.

# rules for augmenting fun & beauty

1. Proper functioning of the product forms the basis
2. Contextual design tries to resonate with the user's character, skills, needs, mood, which in the end determine the value of interaction
3. The individual context of a user (which is unknown to the developer) influences the experiences of the user when interacting with the product.
4. Richness that covers all senses, e.g. visual, auditory, olfactory, flavoury, tactile & kinesthetic aspects supports feed-forward & feedback design
5. From the moment of installation onwards the product stimulates the user to create his story and rituals during usage.

# **10 rules to augment fun & beauty in interaction design**

# rules (1/2)

1. Don't think products, think experiences.  
Offer the user the freedom for building his/her experiences
2. Think beauty in interaction instead of beauty in appearance  
let's call this the ,aesthetics of use'
3. Think enjoyment of the experience, **not** ease of use  
make the unlocking of functionality contribute to the overall experience
4. Think actions instead of buttons  
design actions with a clear purpose of a control
5. Create different controls instead of different labels. The ,formgiving' should express what purpose a product or control serves.

# rules (2/2)

6. Metaphors suck!

create products which have an identity of their own

7. Don't hide, don't represent! Show.

Make stuff that helps to interact visible; visualize if necessary

8. Think irresistibles! Be attracted to act,

even irresistably so, through the expectation of beauty of interactions

9. Let me know how you feel.

Design a product which invites rich actions

10. Just do doing; don't think thinking

Make things work for the hands-on skills of the user

**Appearance and interaction  
need to be designed concurrently.**