



Peter Moehring
October 2017

Security Network Munich
Where industry, research and users work together

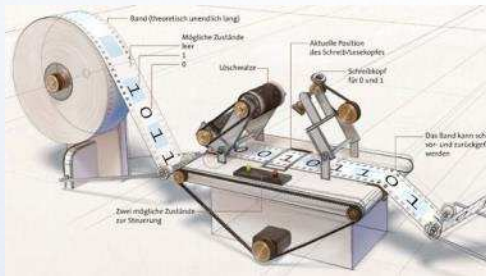
www.it-security-munich.net

WIR GRATULIEREN!

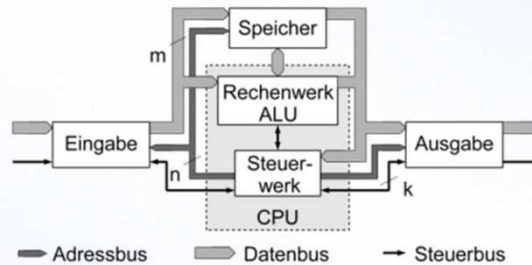


Alles Turing?

Turing Machine



Von-Neumann-Computer



IBM PC



iPhone



1936



1949



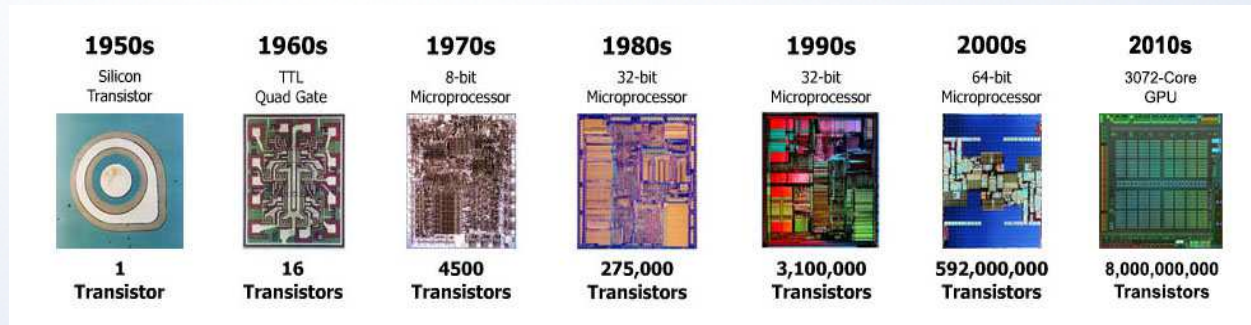
1981



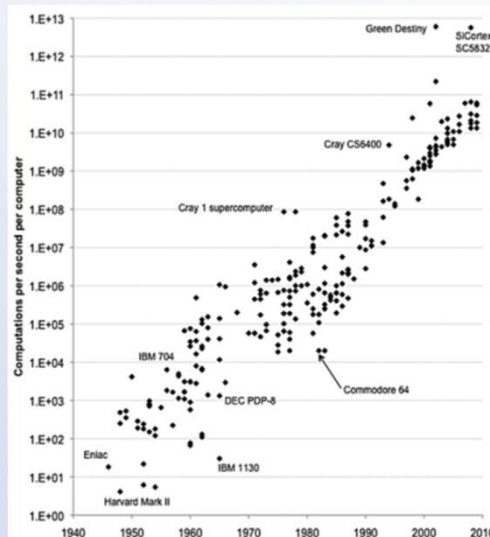
2007



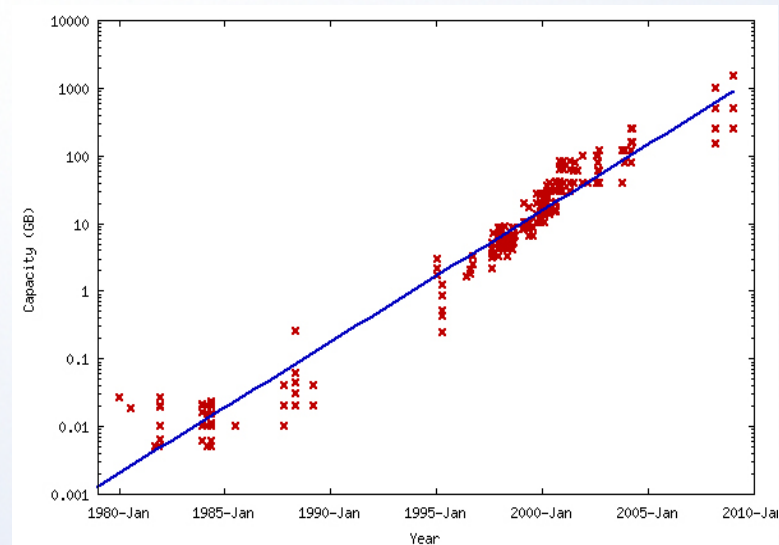
Moore's Law



Size ↓



Computation power ↑



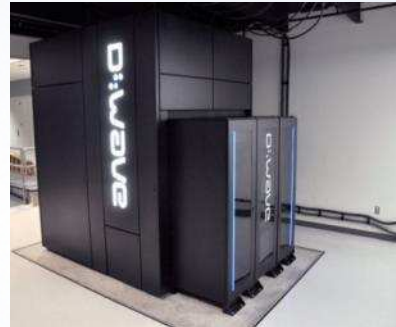
Memory ↑

Security by Physical (Quantum) States?



Classical Computer:
either 0 or 1

vs.



Quantum Computer:
can be 0 or 1 or both

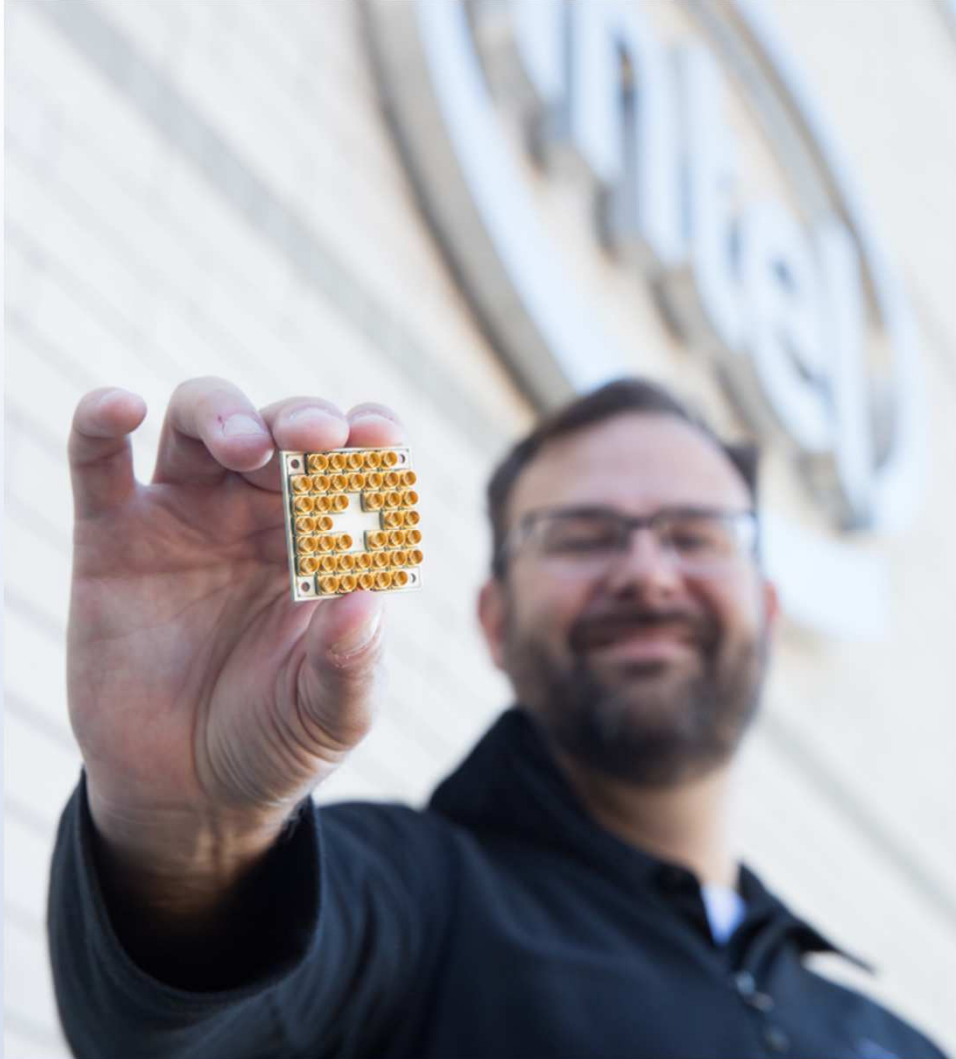
vs.



Neuronal
networks:
„Copy“ brain and
build own artificial
intelligence

Advantage: Very fast for
certain tasks like shortest
path problems, decryption,
prime factorisation...

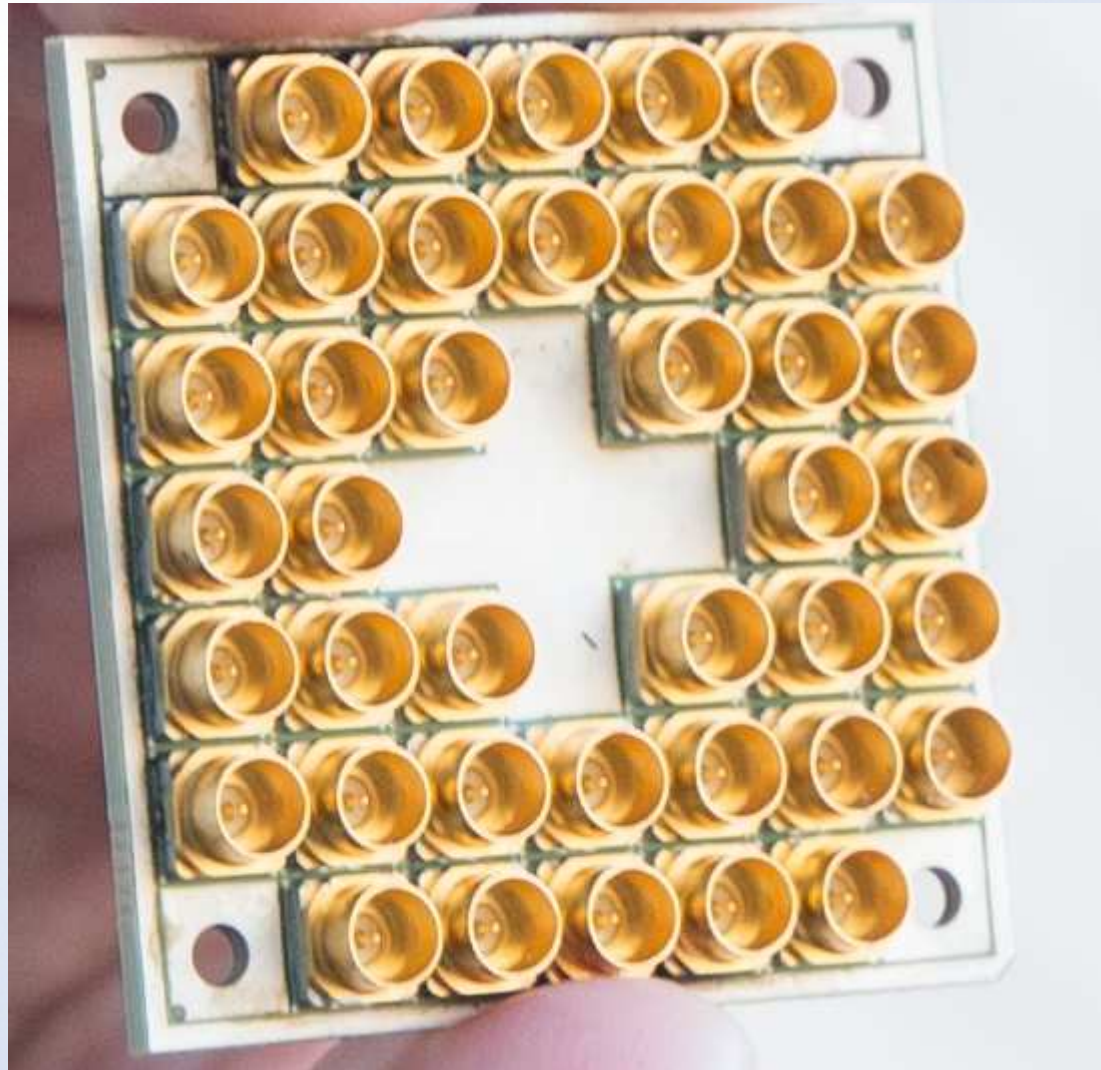
Intel Quantum Chip



Jim Clark
Intel's Director of
Quantum Hardware
With superconducting
Test chip

October 10, 2017

Intel Quantum Chip (17 Qubit)



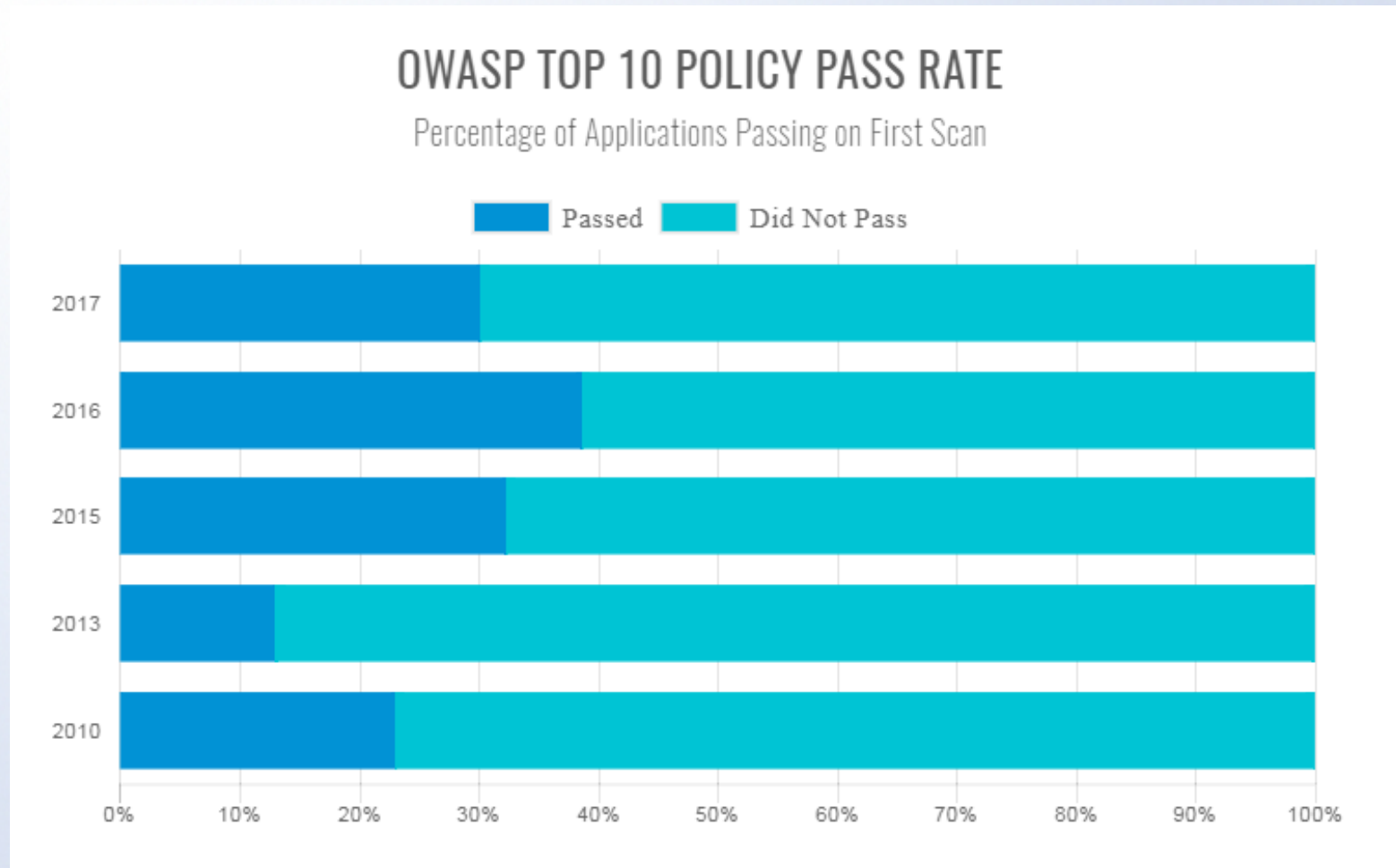
Software enlightens Hardware



Indispensable Software

ITK-Markt Deutschland*	Marktvolumen (in Mrd. Euro)				Wachstumsraten		
	2014	2015	2016	2017	15/14	16/15	17/16
Summe ITK + CE	153,2	157,8	159,3	161,4	3,0%	1,0%	1,3%
Consumer Electronics	10,2	9,6	9,2	9,2	-5,3%	-4,4%	-0,5%
Summe ITK	143,0	148,2	150,1	152,2	3,6%	1,3%	1,4%
Informationstechnik	77,8	81,1	83,7	86,0	4,1%	3,3%	2,7%
IT-Hardware	22,5	23,5	24,0	24,0	4,5%	1,8%	0,1%
Software	19,1	20,4	21,6	23,0	6,6%	6,2%	6,3%
IT-Services	36,2	37,2	38,1	39,0	2,6%	2,7%	2,3%
Telekommunikation	65,2	67,1	66,4	66,2	3,0%	-1,1%	-0,2%
TK-Endgeräte	9,3	11,3	10,6	10,7	22,0%	-6,1%	1,0%
TK-Infrastruktur	6,3	6,5	6,6	6,6	2,5%	1,7%	0,7%
Telekommunikationsdienste	49,6	49,3	49,2	48,9	-0,5%	-0,3%	-0,6%

Almost any software is vulnerable



Where is the problem?

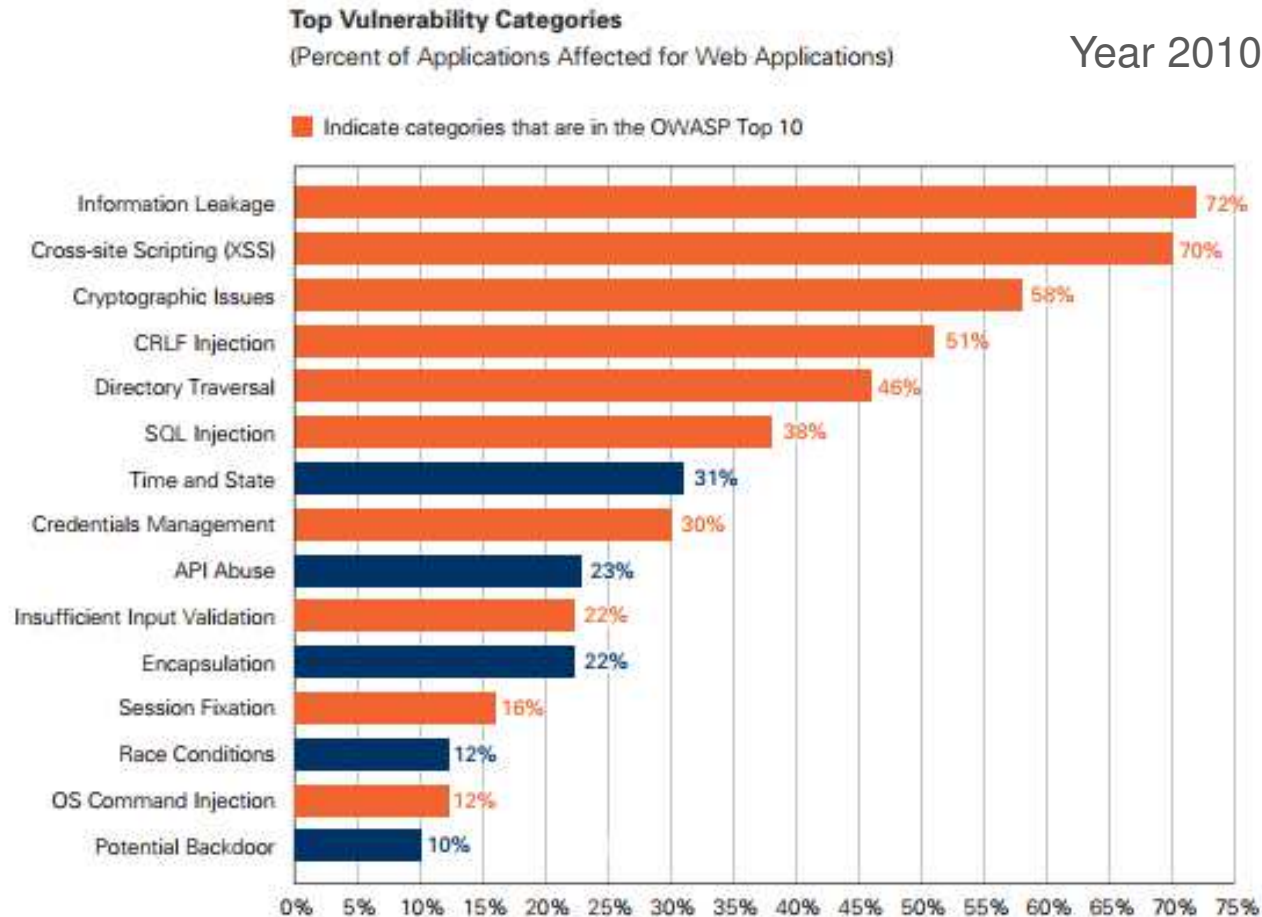
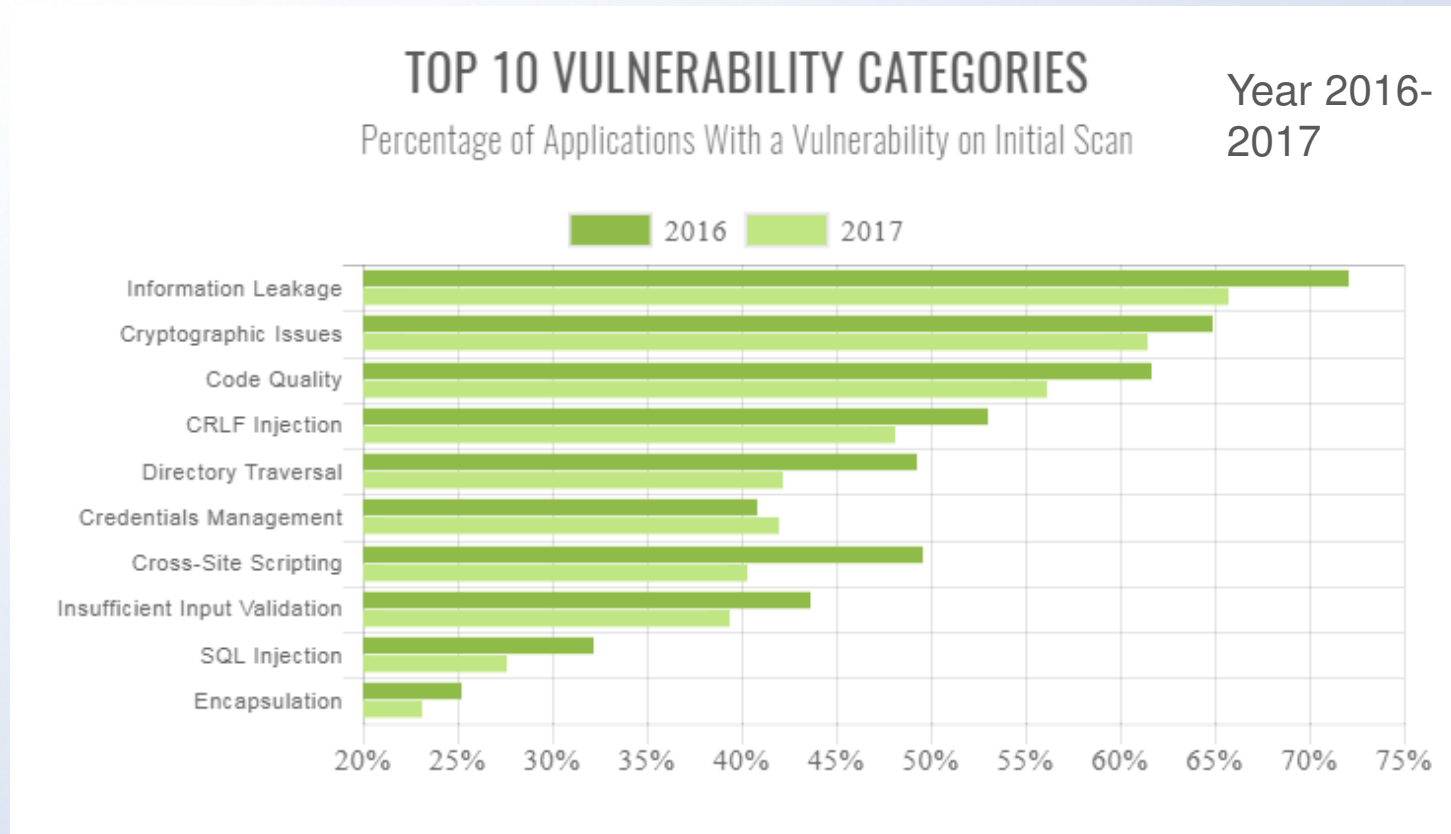


Figure 19: Top Vulnerability Categories (Percent of Applications Affected for Web Applications)

Source: Veracode 2010: State of Software Security

See any major difference?



Source: Veracode 2017: State of Software Security

Debugging Software



Threat Analysis, Testing, Certifying



<http://www.spiegel.de/fotostrecke/flugzeugabsturz-vor-bali-rettung-aus-dem-meer-fotostrecke-95503-3.html>

Financial and/or physical damage to goods/people

Investigation, certification, improvement



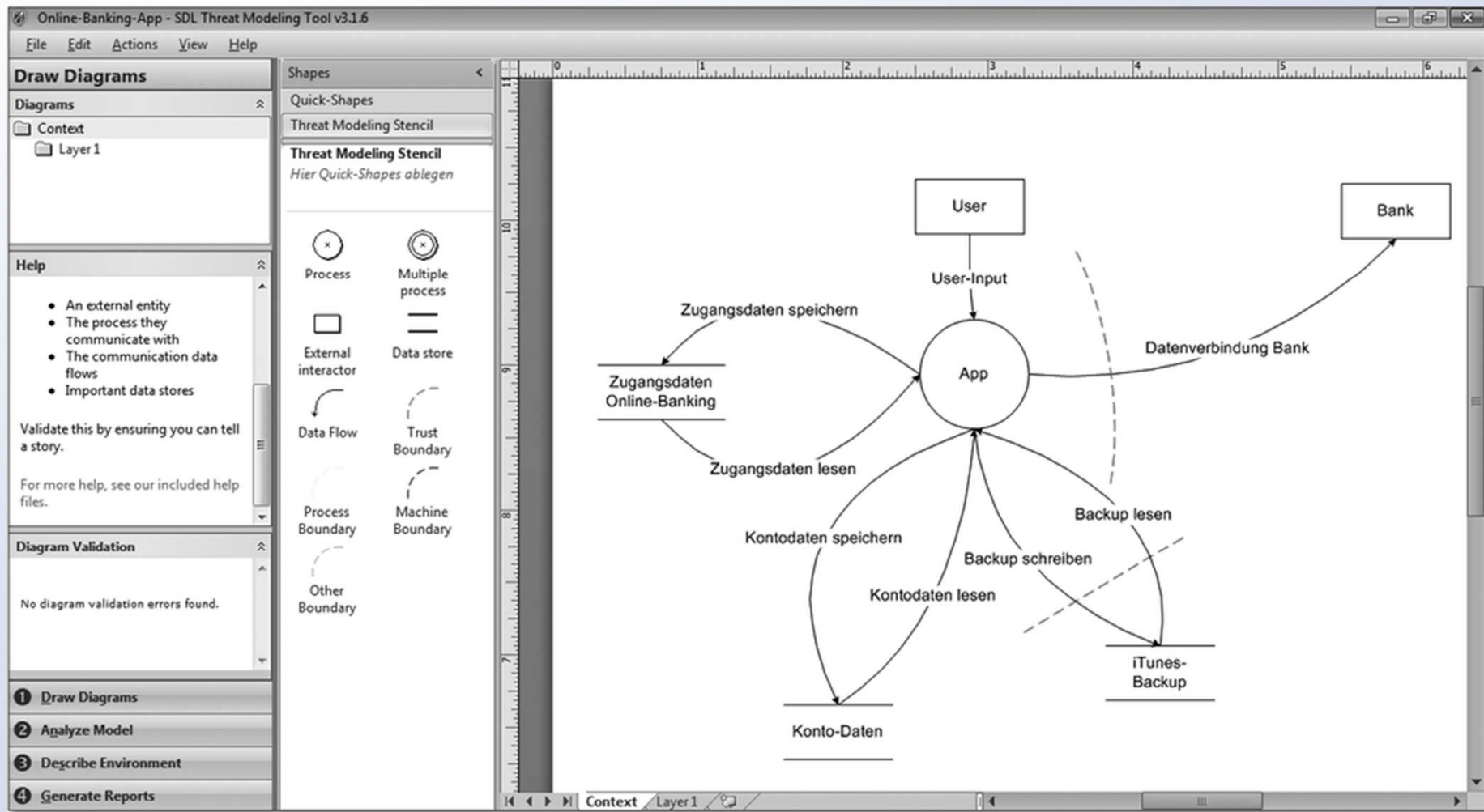
<https://www.businesscomputingworld.co.uk/bugs-versus-flaws-know-what-youre-up-against/>

Financial and/or physical damage to goods/people

Software Engineering



Security Development Lifecycle



Better Security with Open Source?

Java is the biggest vulnerability for US computers
Oracle's Java poses the single biggest security risk to US desktops, says a new report

97%: The number of scanned **Java apps in 2015 that had code quality errors**

Why is open source software more secure?

Bushwacker: "It's all available for inspection. You can build the code yourself, including the kernel. Now about backdoors in compilers, that's another story."

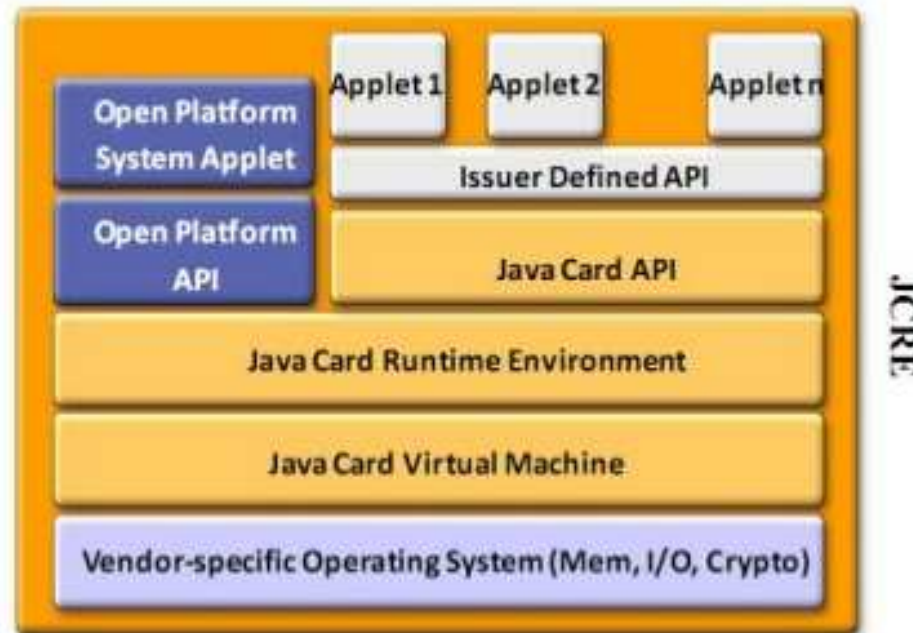
Why is the **Eiffel** programming language not more popular?

So, what is your opinion?

Software for Chipcards

Java Card Architecture & Components

JAVA CARD ARCHITECTURE



AIM AND MOTIVATION



ACTIVITIES



- Events: Conferences, Workshops, Forums
- Specific Working Groups
- Dialogue: politics, institutions and academia
- Research Projects (Consortia)
- Relations: Clusters, Associations
- Exchange for experts

MCSC 2017



VERANSTALTUNGEN



TERMINE

- Sichere Industrienetzwerke: 26.10.2017, Nürnberg
- German – Japanese Security Forum: 29.11.2017, Tokio
- Munich Cyber Security Conference (MCSC): 15.02.2018, München
- Tech Days Munich: 13. / 14. Mai 2018, München
- Geplant: Fachforen mit VDMA, Mechatronik Cluster und vbw in 2018

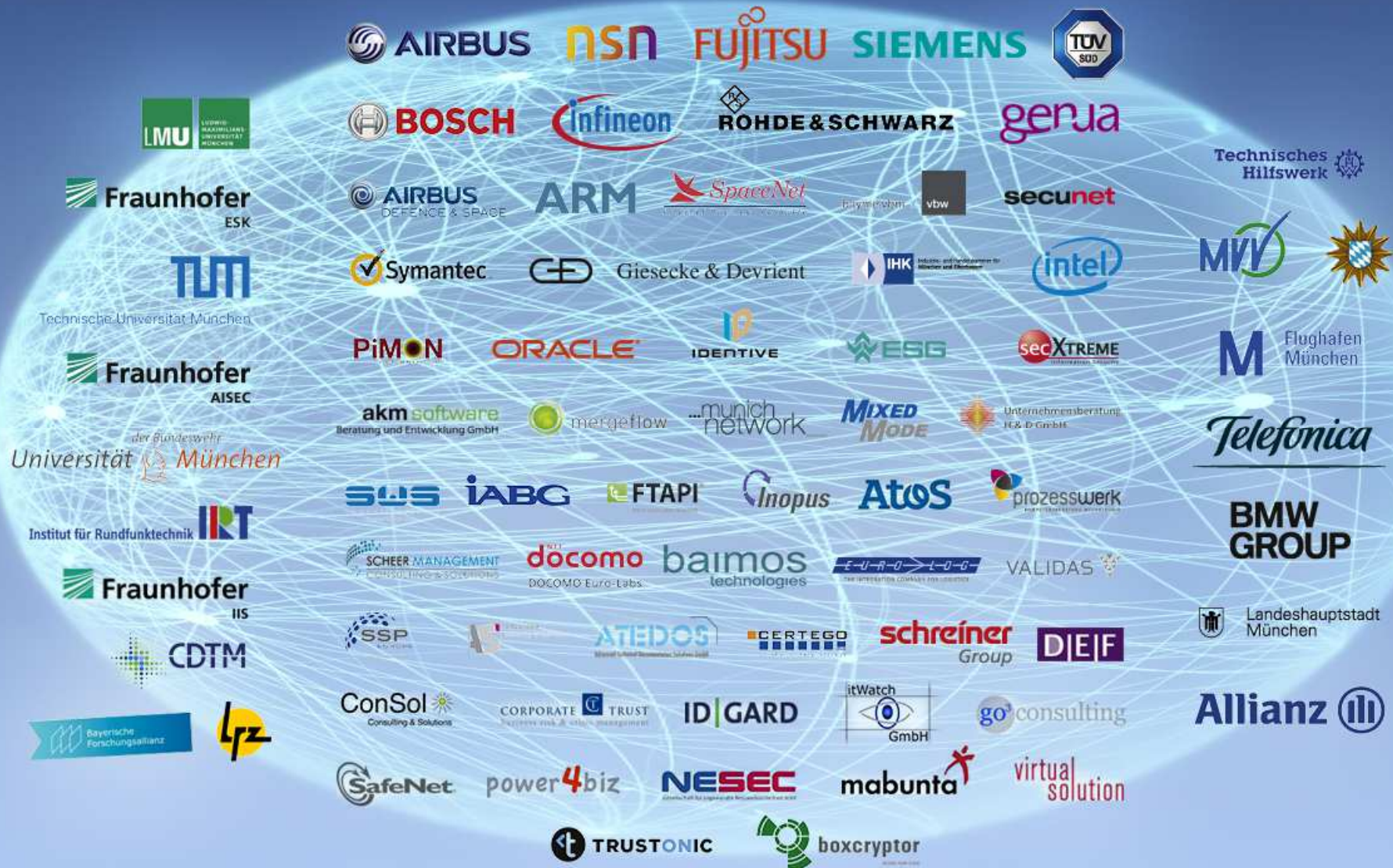
RESEARCH

INDUSTRY

USER



EMPOWERING INNOVATION



„My interest in life
comes from setting
myself huge, apparently
unachievable challenges
and trying to rise above
them.“

Sir Richard Branson

THANK YOU!

