

OPEN SOURCE PARTNERSHIPS

Han DOLS

Business Development &
Entrepreneurship Section

KT GROUP



- WHAT IS HAPPENING AROUND US?
- HOW IS CERN CONTRIBUTING?
- WHAT IS IN IT FOR YOU?



WHAT IS HAPPENING AROUND US?

HOW IS CERN CONTRIBUTING?

WHAT IS IN IT FOR YOU?



Software technology dominates

- ...Everything becomes (became?) digital
- ...Disruption of traditional industries
- ...Global access, fast scaling, all connected



Who eats who?



software

world

Open source adoption is growing everywhere

... 90% of all companies use open-source components*

... 98% of IT leaders believe OS is at least as secure as proprietary software**

... 80% of IT leaders expect to increase the use of OS software for emerging tech**

*

“State of Open: The UK in 2021 Phase Three The Values of Open.” October 2021. Open UK. Accessed August 5, 2022.

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RedHat The State of Enterprise Open Source 2022



Linux Foundation members

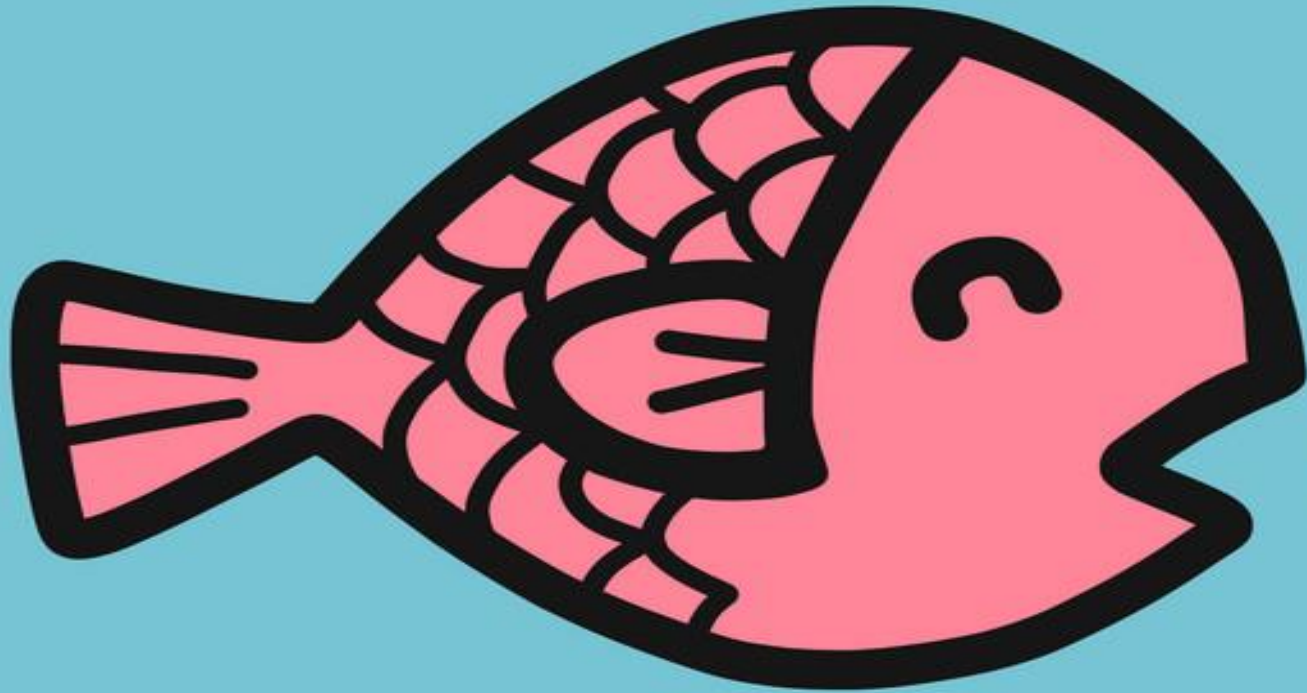
Platinum members



Gold members



Who eats who?



open source



software



world

What drives these companies?



Europe Spotlight 2023

Exploring the State of European Open Source Innovation, Opportunities, and Challenges

September 2023

By Colin Eberhardt, Graham Odds, and Matthew Dunderdale
Scott Logic

Foreword by Gabriele Columbro,
General Manager, Linux Foundation Europe

~1000 respondents

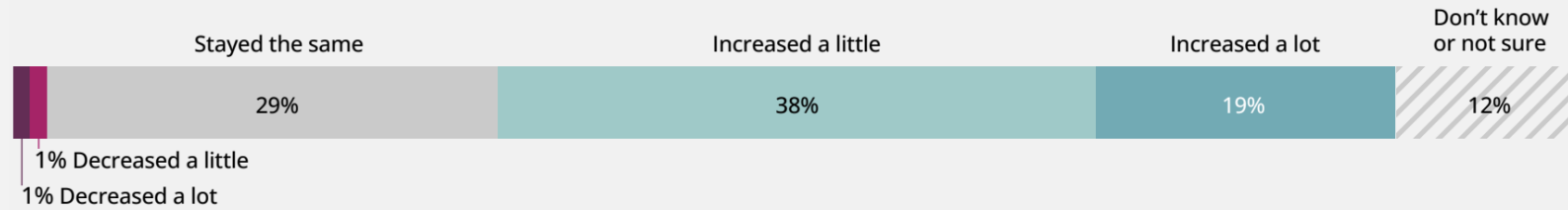
~40 different European countries

Sectors:

- technical
- scientific
- manufacturing
- public sector
- information technology
- education
- telecommunications
- finance
- insurance

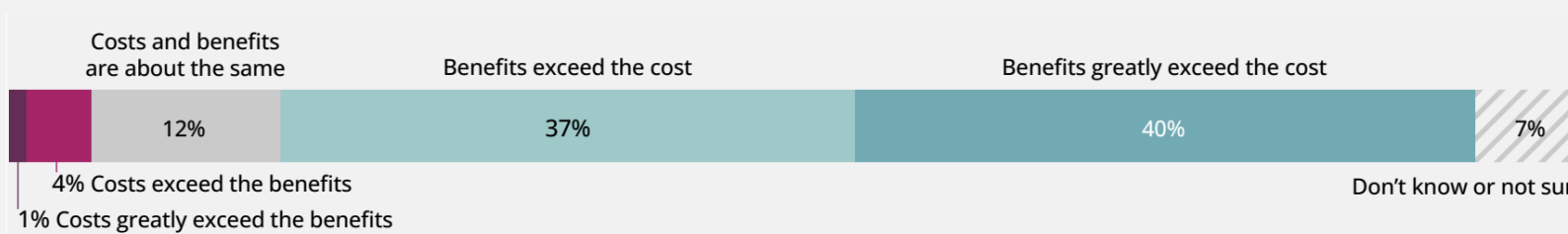


THE PERCEIVED CHANGE IN THE VALUE THAT ORGANISATIONS HAVE DERIVED FROM OPEN SOURCE OVER THE LAST YEAR



SOURCE: WORLD OF OPEN SOURCE GLOBAL SPOTLIGHT 2023 SURVEY (EUROPE), Q20, SAMPLE SIZE = 233

THE PERCEIVED COST-VS-BENEFITS RELATIONSHIP IN ORGANISATIONS' USE OF OPEN SOURCE



SOURCE: WORLD OF OPEN SOURCE GLOBAL SPOTLIGHT 2023 SURVEY (EUROPE), Q42, SAMPLE SIZE = 197

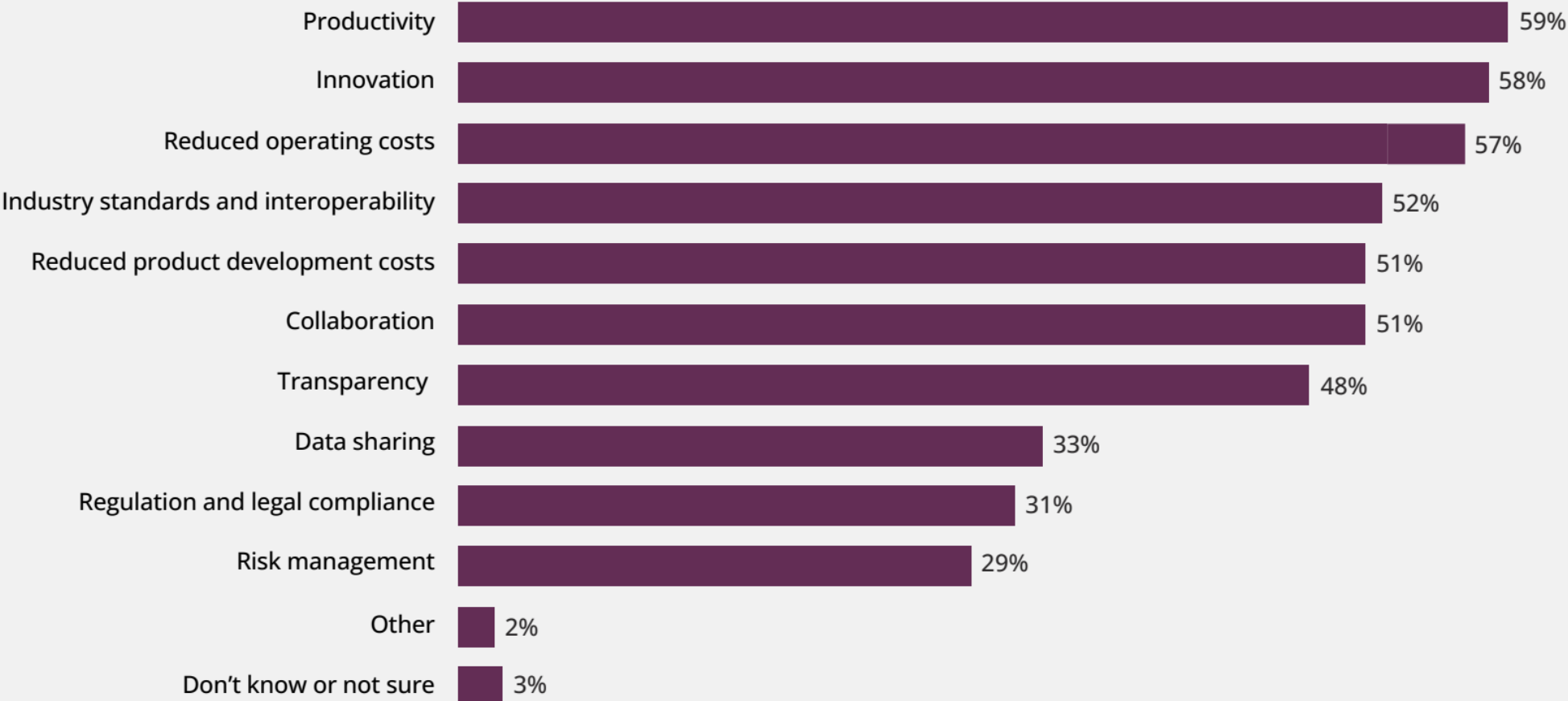
AGREEMENT OR DISAGREEMENT THAT OPEN SOURCE IS VALUABLE TO THE FUTURE OF THEIR INDUSTRY



SOURCE: WORLD OF OPEN SOURCE GLOBAL SPOTLIGHT 2023 SURVEY (EUROPE), Q37, SAMPLE SIZE = 197



ASPECTS WHERE INDUSTRIES MOST BENEFIT FROM OPEN SOURCE



SOURCE: WORLD OF OPEN SOURCE GLOBAL SPOTLIGHT 2023 SURVEY (EUROPE), Q39, SAMPLE SIZE = 197, TOTAL MENTIONS = 937



OS helps productivity, innovation & talent attraction

57% of respondents from organisations of all types indicate that the value of open source has increased over the last year, suggesting accelerating momentum.



The most widely cited benefits of open source include **improved productivity, innovation, and talent attraction.**



The business value of using open source software (OSS) is **well understood**, and that value is increasing, according to 59% of respondents.



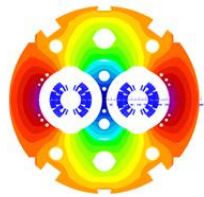
WHAT IS HAPPENING AROUND US?

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Inside world of (particle) science: obvious match



ROXIE

zenodo



CernVM-FS



BioDynaMo

Partnerships on OS **outside** physics?

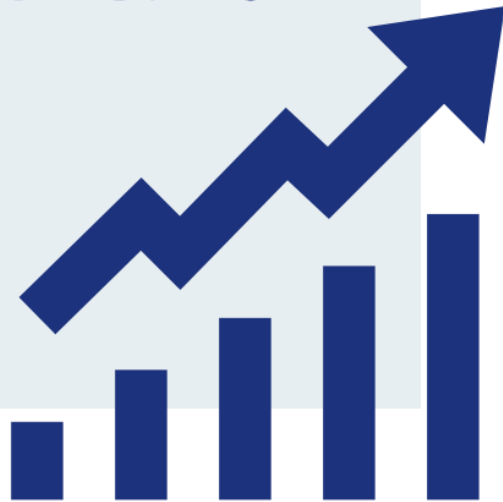
- Volvo / Zenseact → build around open source HLS4ML
- Jumptrading → build on top of open source CVMFS
- TIND → build with open source Invenio
- CEVA → build with open source HSL4ML
- Orvium → build using open source Zenodo / Invenio
- Market Surveillance → build using open source ROOT

YES WE CAN



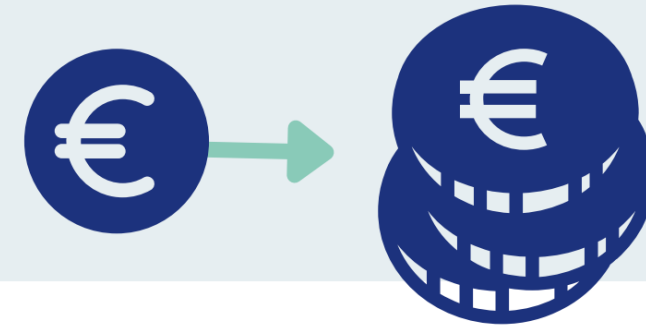
Good for EU and the CERN Member States

An increase of 10% in OSS contributions would generate an additional EU GDP per year of between 0.4% and 0.6%



European Commission's study (Sept 2022) concludes that Open Source Software is having a large impact on European economy

Investments in OSS yield a cost-benefit ratio of 1:4 - 1:10.





The OSPO will help in spotting opportunities to create more societal impact!



WHAT IS HAPPENING AROUND US?

HOW IS CERN CONTRIBUTING?

WHAT IS IN IT FOR YOU?



First International Expert Group on Market Surveillance hosted at CERN. Program explores CERN knowhow and software (ROOT) to support national banks and regulators in detecting fraud in financial markets.



DEUTSCHE BÖRSE
GROUP



EURONEXT



EUREX



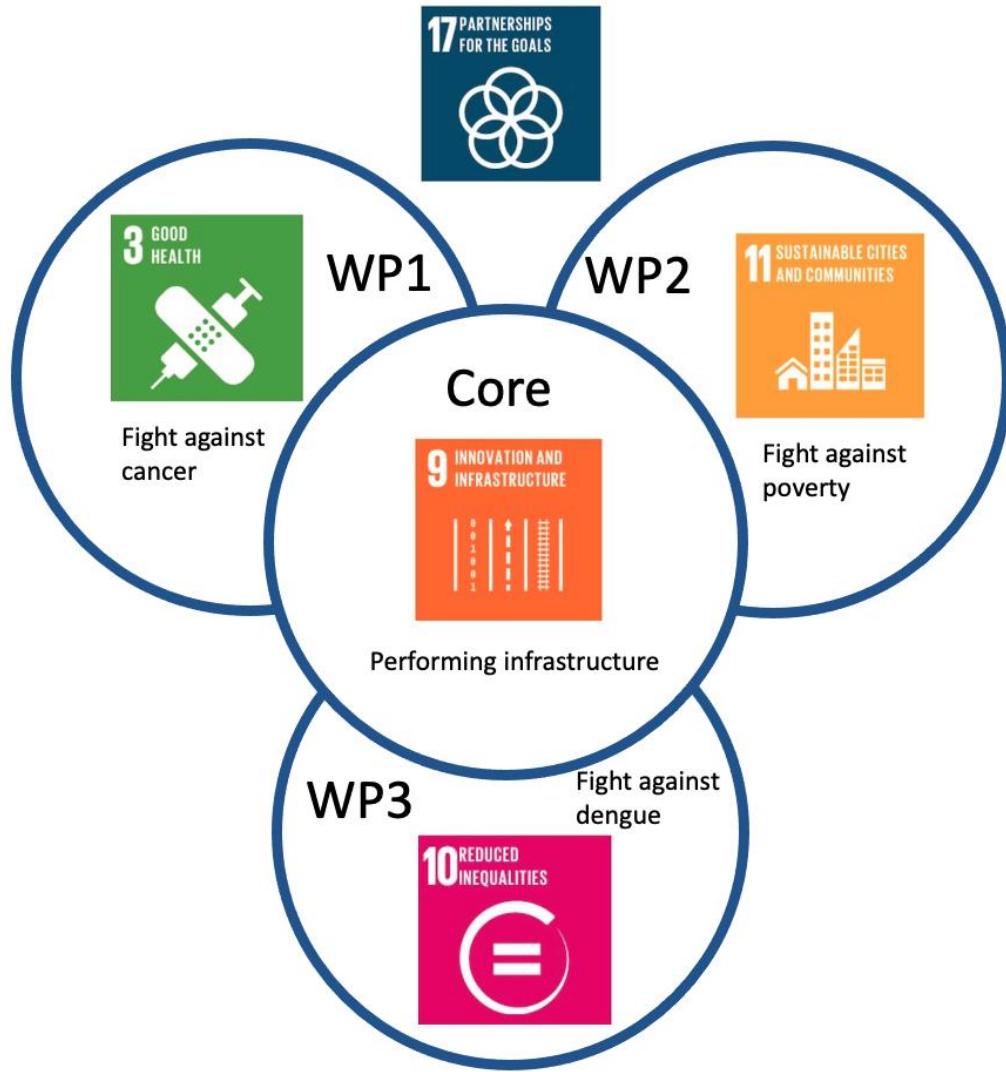
European Securities and
Markets Authority



ZENSEACT (Volvo Cars Company) teamed up with CERN on extremely fast machine learning using FPGAs.

Collaborative R&D





BioDynaMo: modular, high-performance, agent-based simulation platform, used to simulate cells and tissue.



CernVM-FS

CernVM-FS used by Roche and Jump Trading. Industry is funding activities to help scalability and challenges with very large applications involving >1 million file.



An underwater photograph showing several pieces of clear plastic litter floating in the water. The water is dark blue and filled with many small, shimmering particles, likely microplastics. The plastic pieces are of various sizes and shapes, some appearing as crumpled bags or sheets. The lighting is dim, creating a somber and concerning atmosphere.

EU Project

Edge SpAlce EU program: extremely efficient Deep Neural Network (DNN) deployment "at the edge", used for monitoring marine plastic litter from satellites

And not just software



CERN Open Hardware Licence 2.0:
family of licences that governs the
use, copying, modification and
distribution of hardware designs.



Frankfurt Stock Exchange is using CERN's White Rabbit technology to synchronize timing in their trading infrastructure to less than a nanosecond.



Open Source

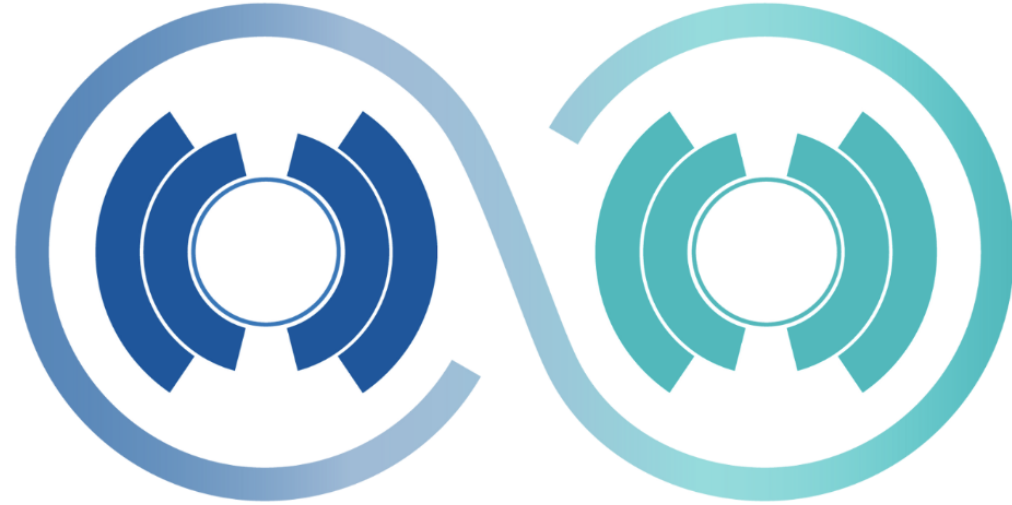
Together with KT Group
new collaboration being
shaped, to start 1.1.2024

Open Source



White Rabbit

COLLABORATION



CERN

Venture Connect

Get CERN technologies for your entrepreneurial journey.

Startup TIND: Digital archive, library management and preservation.

CERN spin-off



CERN technologies for you

In running the world's largest particle physics experiments and operating in unparalleled extreme conditions, CERN has developed unique expertise in multiple areas ranging from superconductivity, microelectronics, cryogenics, vacuum, data monitoring and management tools and much more.

Learn more about the CERN technologies available under this programme, and how it could benefit your company.



› **Structured Laser Beam** – low cost laser for ul...



› **UltraLight Cold Plate** – for cooling of power ...



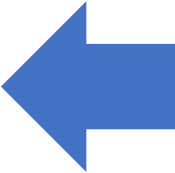
› **Single Mode Laser** – low-cost single longitudi...



› **Rucio** – services and associated libraries for...



› **White Rabbit** – precision of synchronisation f...



Open Source Software and Open Source Hardware included in CERN Venture Connect!

Conclusion

- Companies embrace OS: more productivity, innovation and talent attraction
- European Commission study: every 1 Euro invested brings a return of 4-10 Euros
- CERN has track record as OS software and hardware creator and contributor
- Many examples of partnerships with CERN OS tech outside High Energy Physics
- Open Source Partnerships help knowledge exchange, community building, funding
- OSPO & KT Group team up to help create more Open Source Partnerships: reach out!

