

# **Why Open Source Is Good For Your Economy**

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# Professorship of Open Source Software

- Professor of Computer Science
  - For software engineering and open source software
  - At the computer science department of the engineering faculty
- Previously held research positions at ...
  - SAP Labs (Silicon Valley) leading the open source research group
  - UBS (Swiss Bank, Zurich) leading the software engineering group
- Previously worked in development at ...
  - Skyva Inc. (supply chain software, Boston) as software architect
  - Bayave GmbH (on-demand business software, Berlin) as CTO



# Professorship of Open Source Software

- At the computer science department
  - Also teaches in information systems at FAU
  - Led by Prof. Dr. Dirk Riehle, M.B.A.
- Core research and teaching areas
  - Open source software
    - Governance and license compliance
    - Open source strategies
    - Open source business models
  - Inner source software development
    - Program management, project management
    - Quality assurance and security
    - Transfer pricing and intellectual property
  - Artificial intelligence techniques in applications

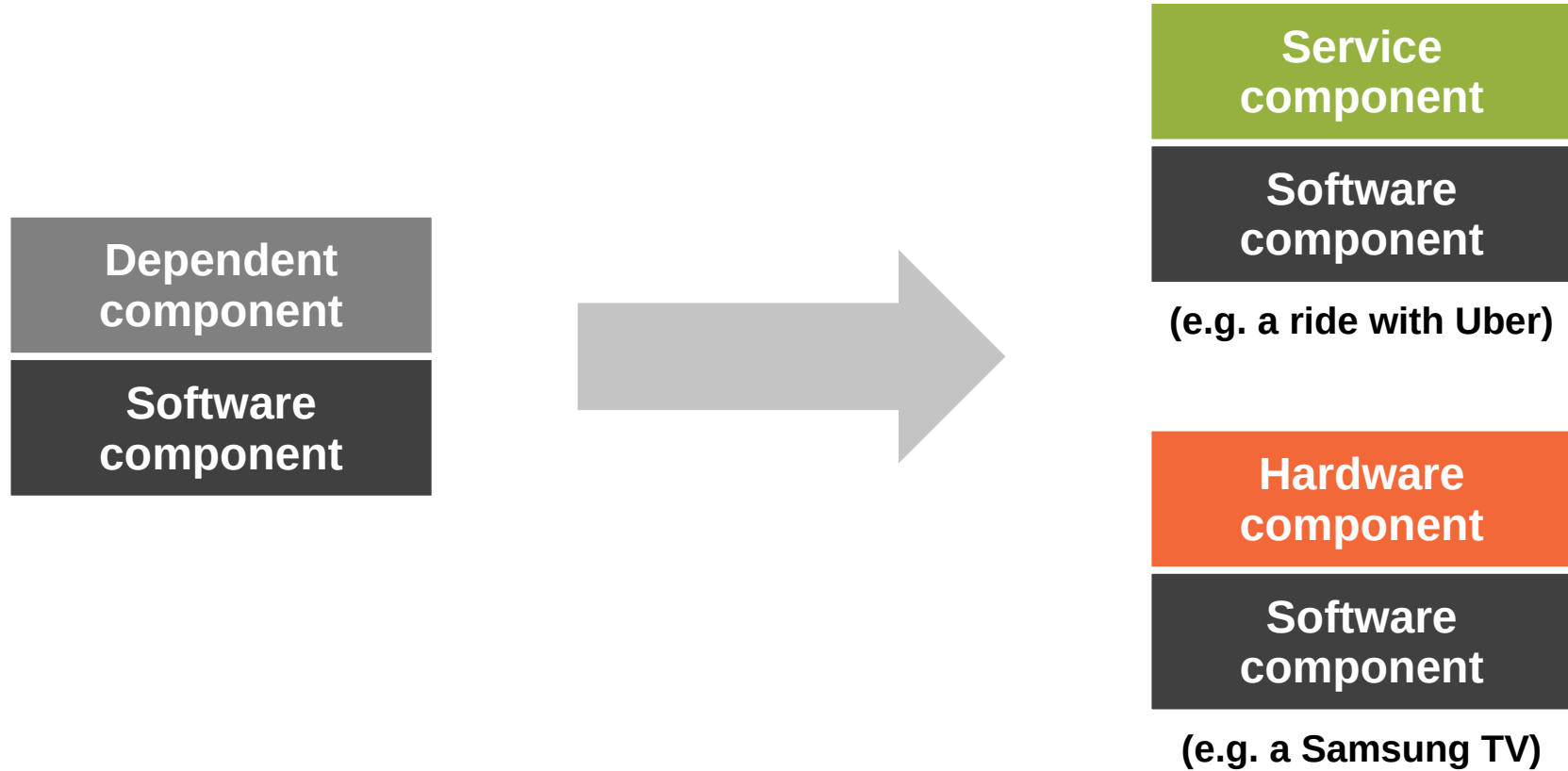


# Software is eating the world

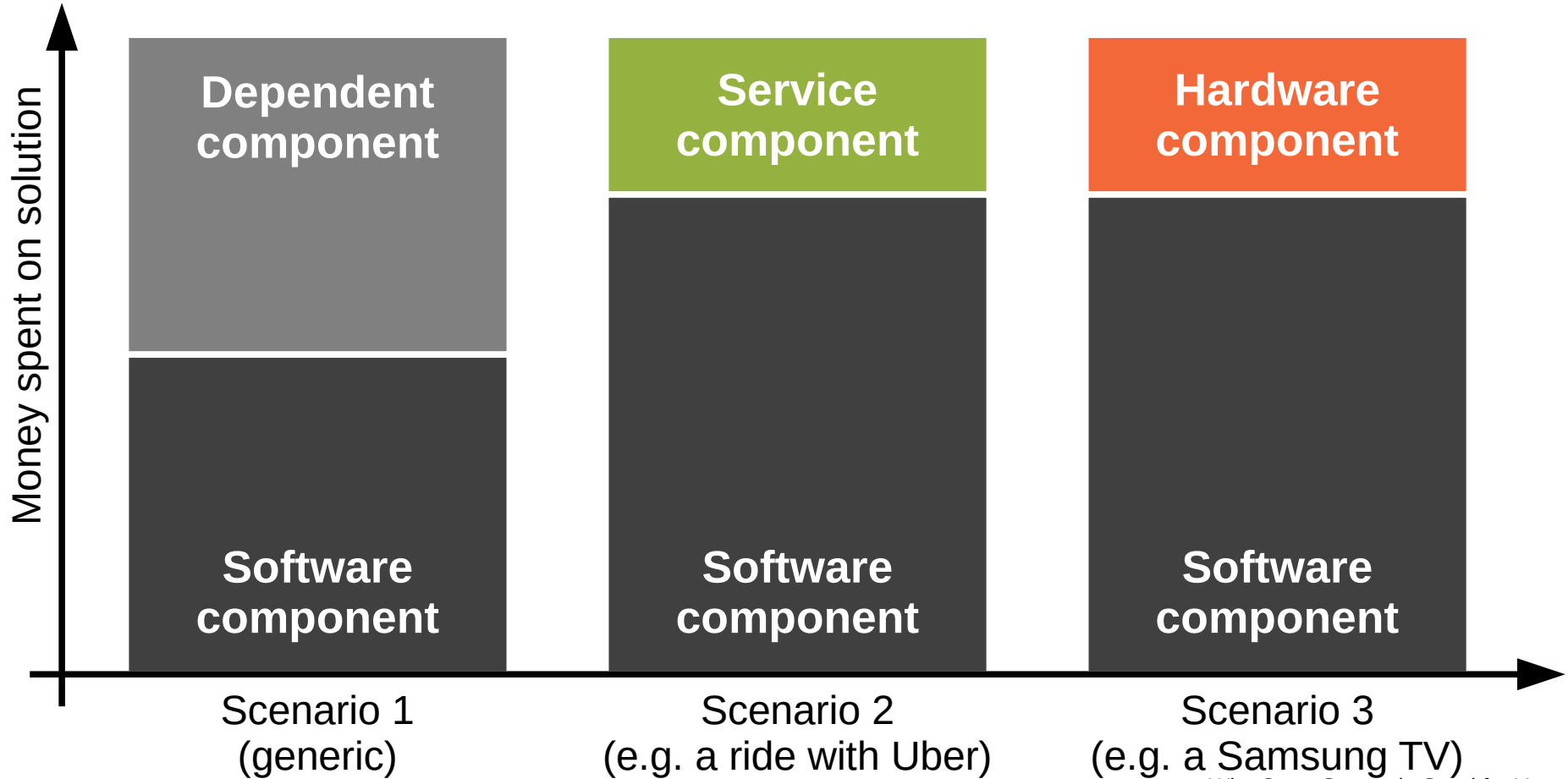
WSJ, 2011-08-20



# Products And Services Are Built From Components



# Pricing Power 1 / 2



# Pricing Power 2 / 2

- Monopolist
  - No alternative, complete dependency
- Vendor lock-in
  - Some alternatives, but switching costs

# Problems with Vendor Lock-in

- High total cost
  - High license fees
  - High customization costs
- Slower innovation
  - Missed or late product or service innovation
  - Missed or late windows of opportunity
  - No or late reaction to changing markets
  - Limited predictability of future capabilities
- Higher operational risk
  - What to do if a vendor goes out of business?

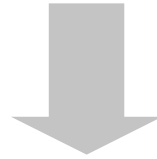


# Which Economy Benefits Most?

Rank ↕	Organization ↕	Sales (B\$) ↕	FY ↕	Market cap (B\$) ↕	Headquarters ↕
1	 Microsoft	86.6	2017	601	Redmond, WA, US
2	 Oracle	37.2	2017	205	Redwood City, CA, US
3	 SAP	23.2	2017	117	Walldorf, Germany
4	 Salesforce.com	8.4	2017	69	San Francisco, CA, US
5	 VMware	6.7	2017	48	Palo Alto, CA, US
6	 Fiserv	5.3	2017	26	Brookfield, WI, US
7	 Adobe Systems	5	2017	84	San Jose, CA, US
8	 Symantec	5.4	2017	19	Mountain View, CA, US
9	 Amadeus IT Holdings	4.3	2017	25	Madrid, Spain

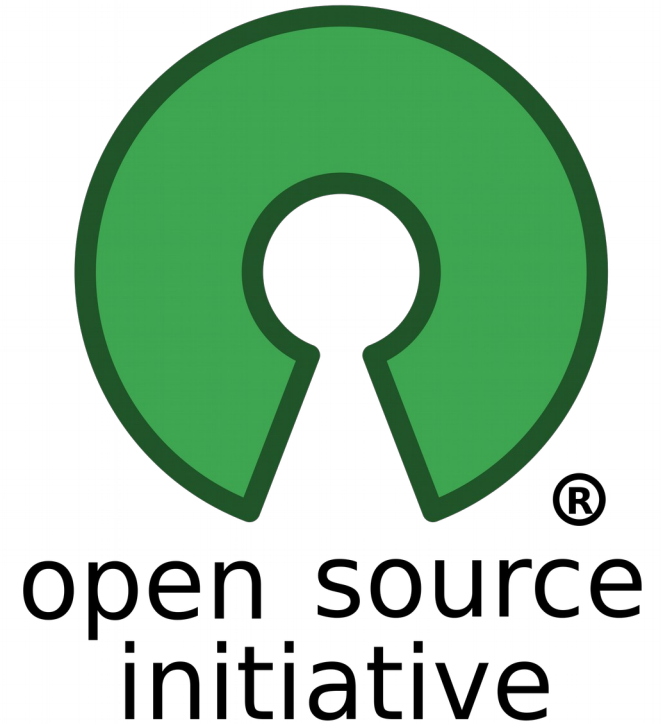
[1] [https://en.wikipedia.org/wiki/List\\_of\\_the\\_largest\\_software\\_companies](https://en.wikipedia.org/wiki/List_of_the_largest_software_companies)

# Open Source to The Rescue



# Open Source Definition

- Open source software is **software** whose license fulfills
  - Ten specific requirements [1]; these include
    - Free (of cost) to use
    - Free access to source code
    - Free to modify to meet one's needs
    - Free to pass on to other parties
- Open source development is a **collaboration process**
  - “With the following characteristics
    - Transparent process
    - Distributed peer review
  - And these resulting qualities
    - Better quality, higher reliability, and more flexibility of software
    - At lower cost
  - An end to predatory vendor lock-in”

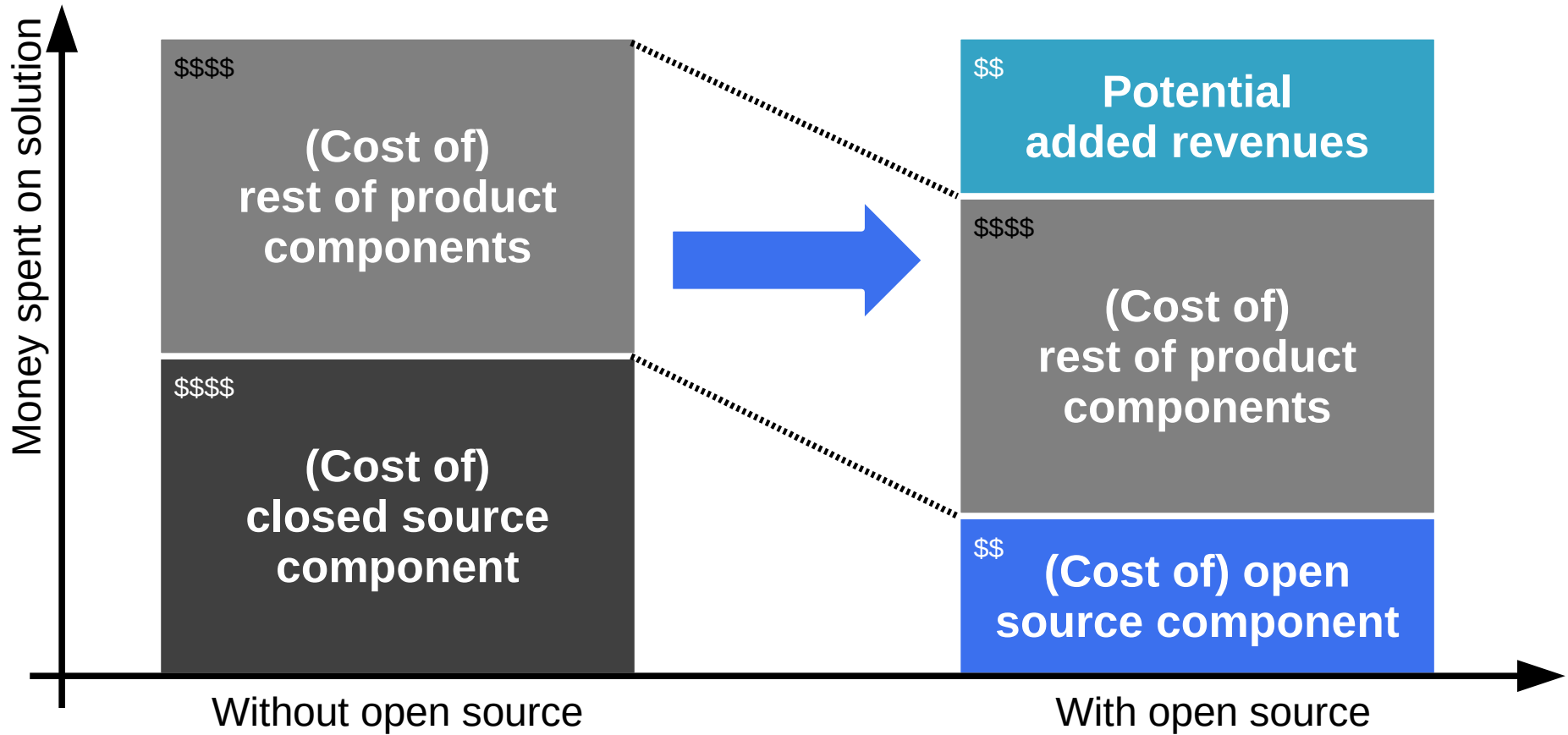


[1] Please see <https://opensource.org/osd>

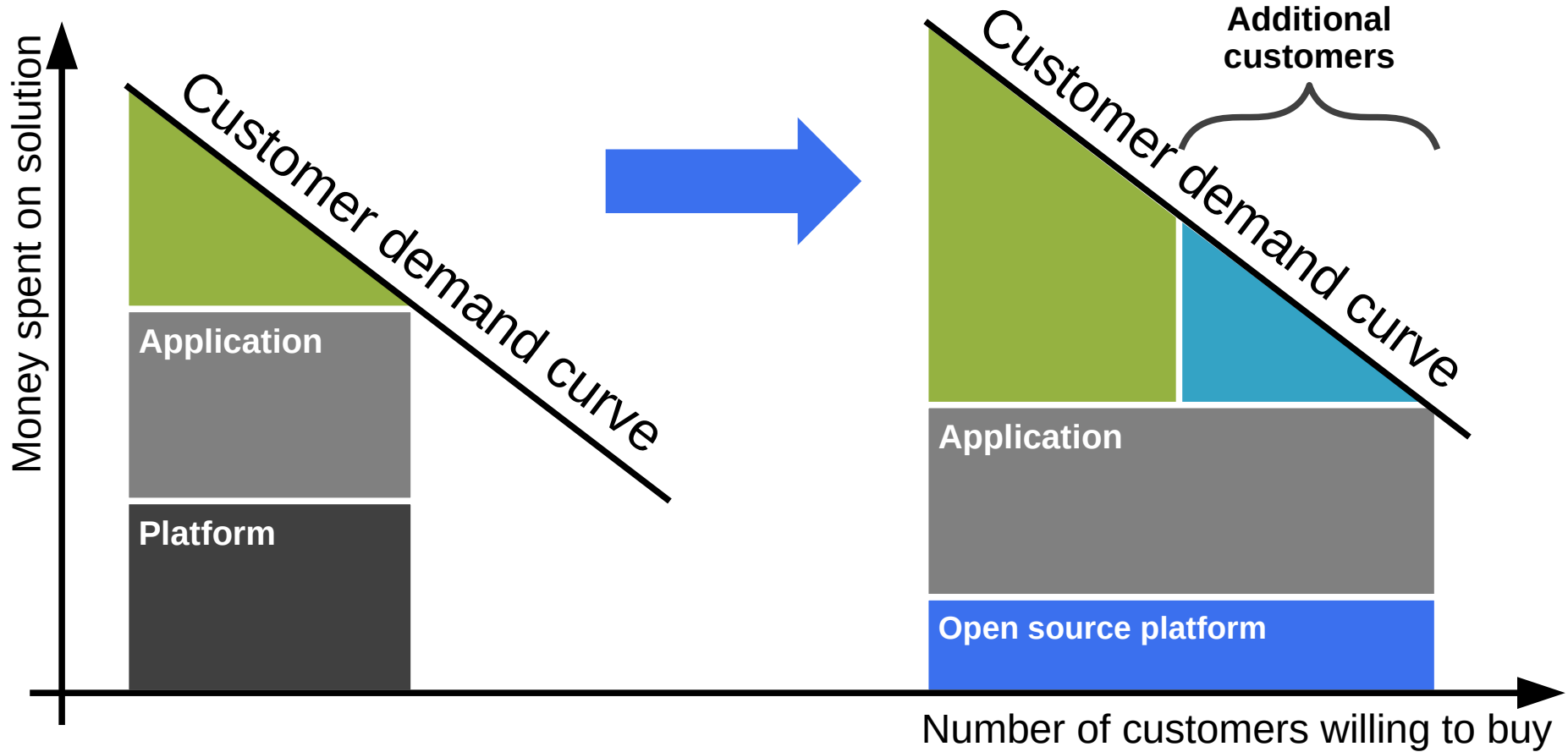
# Open Source Foundations

- An **open source foundation** is
  - a **non-profit organization** (foundation, consortium)
  - with the purpose of **sponsoring, managing and/or performing the development** of
  - **non-differentiating open source software**
  - made available to foundation members and **the general public**
- Typical members of an open source foundation are
  - Software vendors
  - Service providers
  - Consulting firms
  - Software users

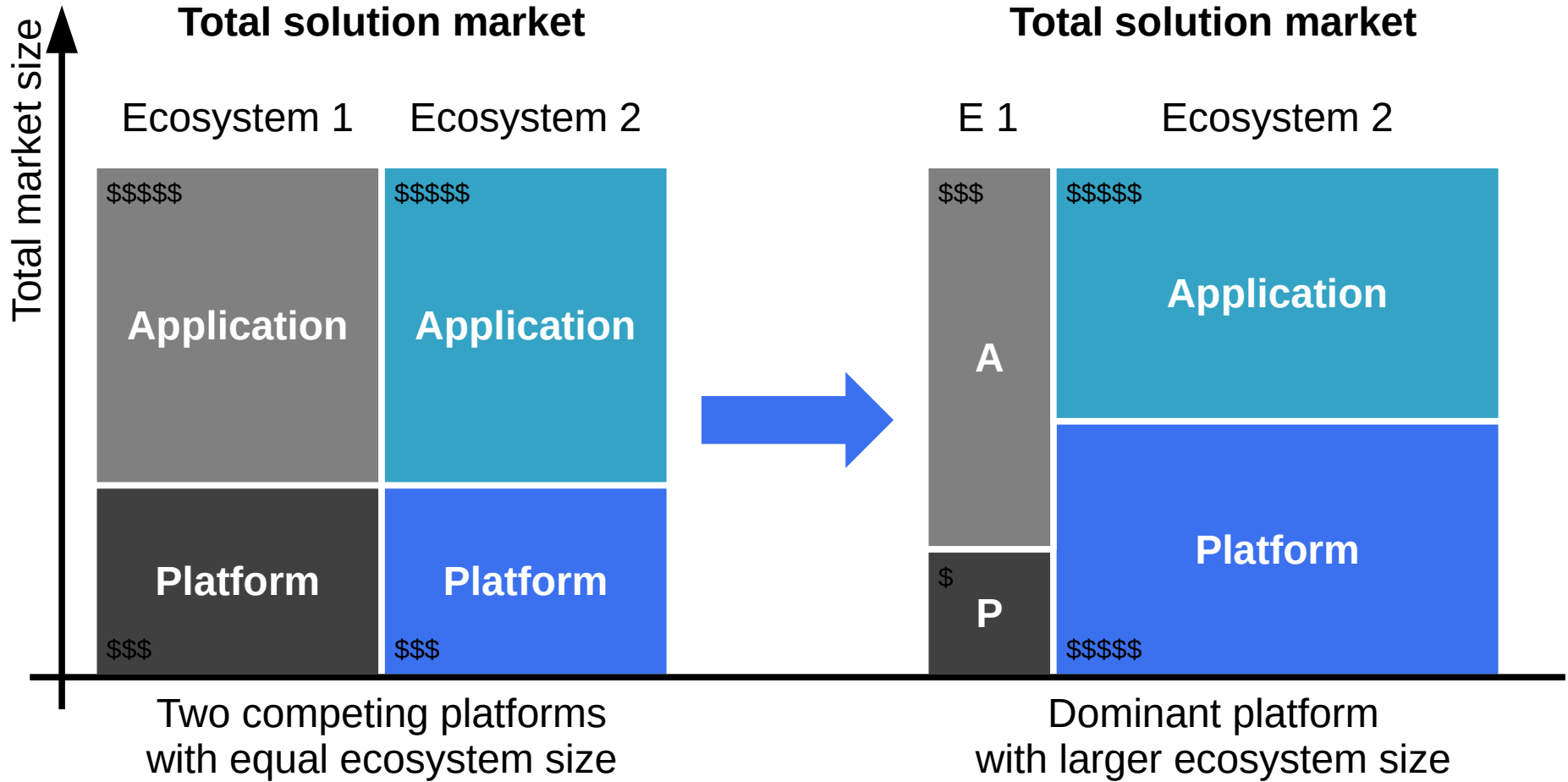
# 1. Increase Share of Wallet



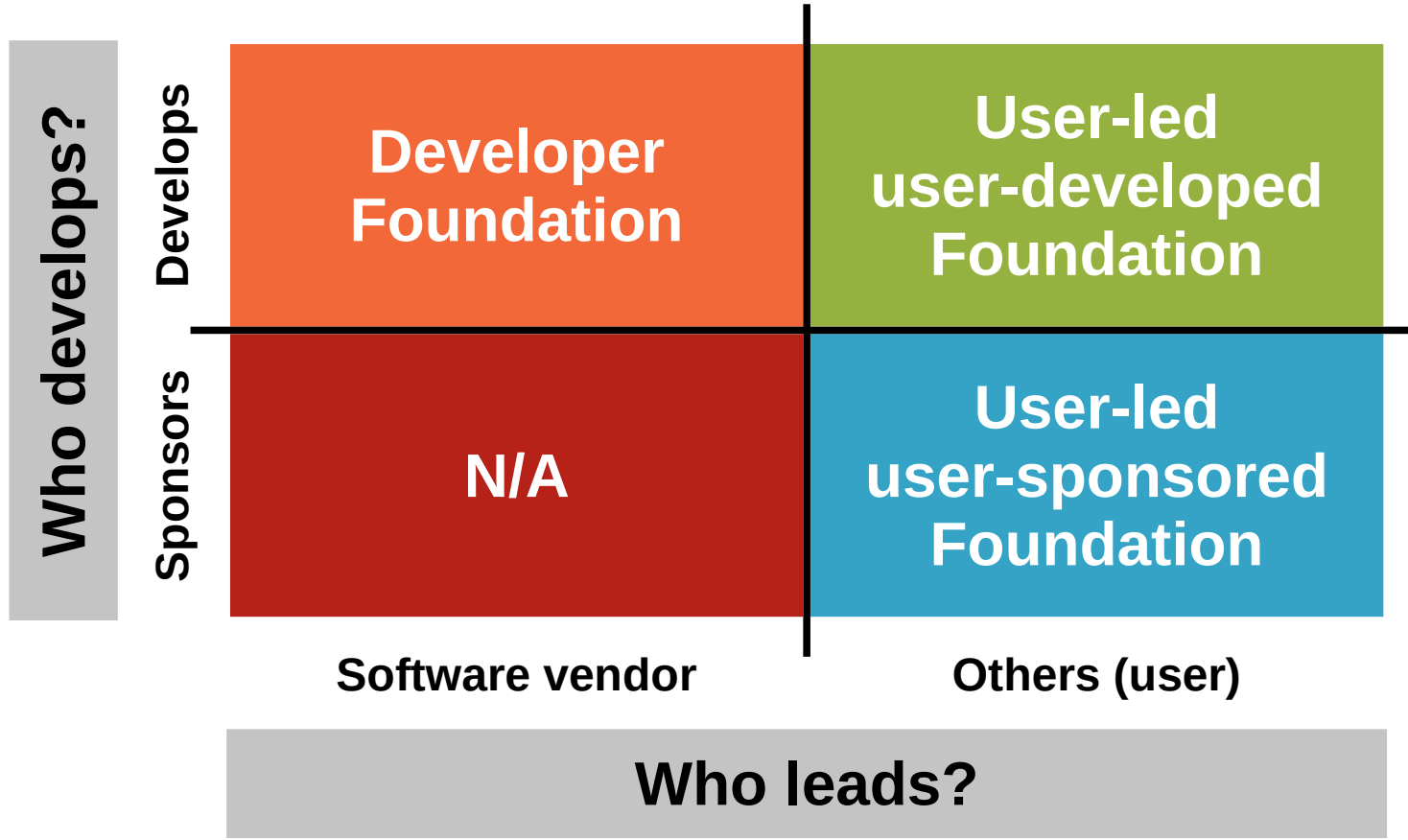
## 2. Reach More Price-Sensitive Customers



# 3. Grow Addressable Market



# Types of Open Source Foundations





# Three Examples of User-led Open Source Foundations



<b>Name</b>	Kuali Foundation	openMDM IWG	openKONSEQUENZ
<b>Industry</b>	Higher education	Automotive	Energy
<b>User-led</b>	Yes	Yes	Yes
<b>User-developed</b>	Yes	No	No
<b>IP regulations</b>	Owns	Does not own	Owns

# Advantages over Plain Open Source

- Clear intellectual property situation
  - Clarifies intellectual property situation (trademarks, patents, licenses)
  - Helps ensure good open source governance (“IP cleanliness”)
  - Allows for proper legal representation in the courts
- Improved longevity and survivability
  - Makes software people-independent (somewhat, “bus factor”)
  - Establishes good corporate governance, collaboration rules
  - Increases attractiveness of software ecosystem to developers

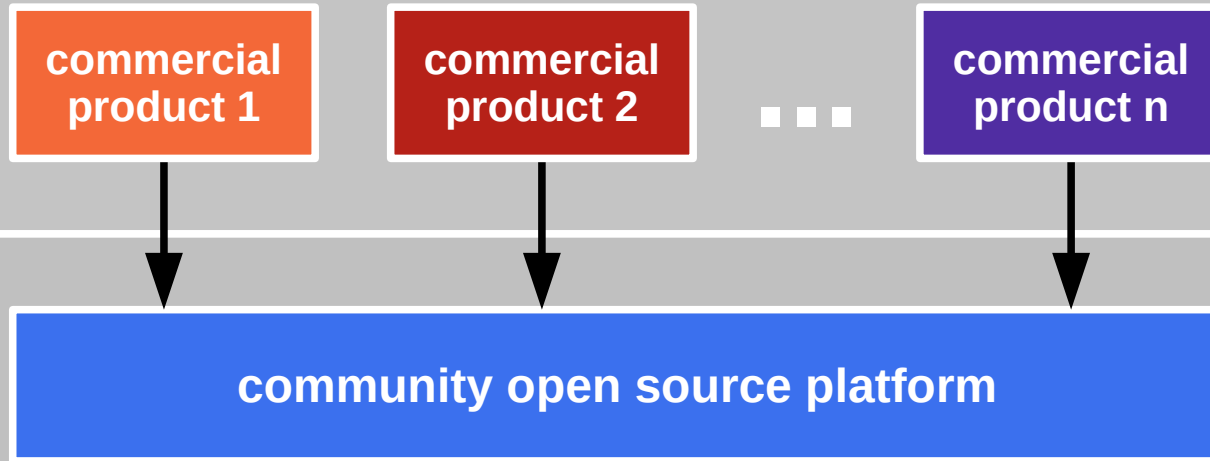
# Advantages over Traditional Consortia

- Established framework
  - Increasingly well-understood legal and governance framework
  - Increasingly well-understood collaboration behavior
- Resulting benefits
  - Faster creation at lower cost, less friction, more trust
  - More legal and collaboration predictability
  - Easier to get skilled developers and firms
- Ultimately, higher likelihood of success

# Software and Services Ecosystem

- The goal of an open source user-led foundation is
  - To establish a **software ecosystem**
  - In which **vendors and suppliers** can provide products and services
  - On an **equal playing field**
  - Thus **preventing vendor lock-in**.

## Commercial Products and Services



## Community Open Source Software

# Other Industries / Possible Complications

- Oil and gas
  - State-owned and private players, confounded by political issues
- Tourism
  - Centralized state-run services and many small private players
- Healthcare
  - One single-payer healthcare system per country, possibly
  - Cf. openIMIS initiative on open source insurance management
  - Many other open source healthcare systems / software

# Why Open Source is Good for You

- Open source foundations help...
  - Keep potential monopolists in check
  - Thereby foster innovation
  - Give local industry a chance
- User-led open source foundations help...
  - Avoid dominance of software industry
  - Keep pricing power with established companies
  - Allow local industry to compete on strengths

# Consequences for Public Policy

- Support developer foundations
  - To avoid dominance of Silicon Valley
- At present, mostly helping to self-help
  - German companies often have no grasp
- Scope is the overall software industry
  - About \$1.3 trillion market capitalization in 2016
- Support user foundations
  - To avoid dominance of software industry
- At present, mostly means waking up users
  - Still prevalent attitude is that “we buy software”

# Thank you! Questions?

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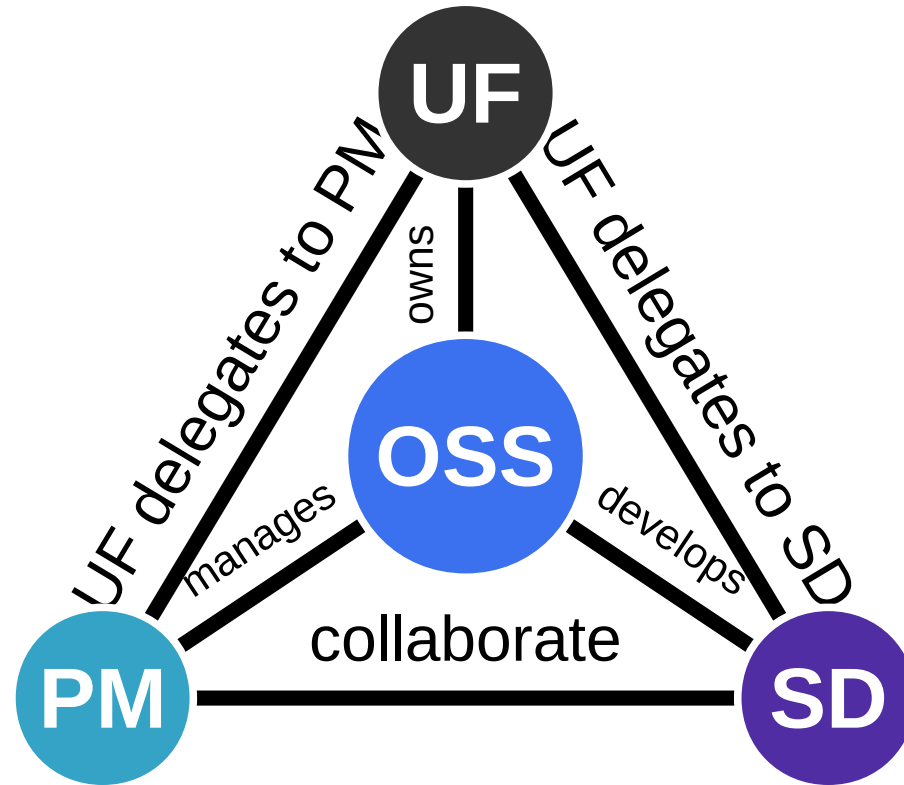
[dirk@riehle.org](mailto:dirk@riehle.org) – <http://dirkriehle.com> – [@dirkriehle](#)



# Credits and License

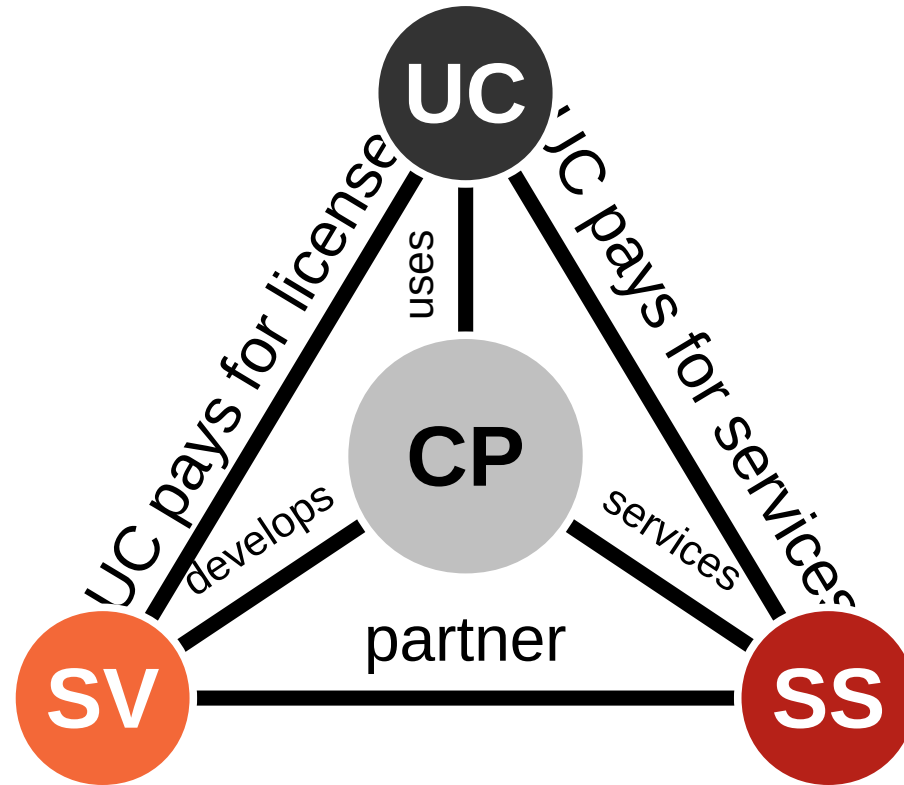
- Original version
  - © 2019 Dirk Riehle, all rights reserved
- Contributions
  - ...

# Community Open Source Software



UF = User foundation  
PM = Project management  
SD = Software developers

# Commercial Products and Services



UC = User company  
SV = Software vendor  
SS = Services supplier

# Challenges for User Foundations

- Dysfunctional relationships between users
- Not enough sustaining members for user foundation
- Users underestimate complexity of software

# Problems and Solutions

- (Abuse of) copyright and patents → Solved by license
  - A good license contains patent provisions
- (Abuse of) trademarks → Solved by foundation
  - Foundation clarifies access to and usage rights of trademarks
- (Abuse of) social leadership → Can be solved by foundation
  - If necessary, the foundation can employ project leaders
- (Abuse of) process control → Solved by foundation
  - Through by-laws, the foundation can define a proper development process
- (Abuse of) other IP rights → Solved by foundation
  - Foundation can also own other critical IP rights (e.g. domains)

# Innovation and Commoditization

