# Why Robotics needs Open Source Communities

Philippe Krief, PhD
Director, Research Relations



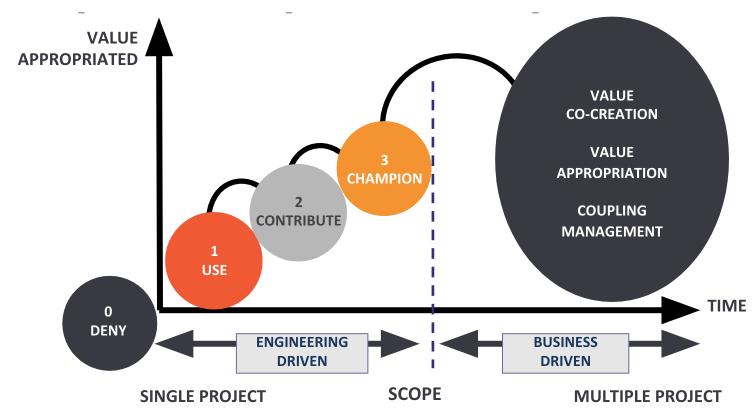
ROS industrial, December 12, 2019







# **Adoption of Open Source practices**







"No company can realize the IoT on its own... Within the Eclipse Community, through the contribution of many IoT developers, tools and standards are created on an open platform that many companies can benefit from for their IoT applications."

Stefan Ferber, CEO, Bosch Software Innovations



Internet of Things Landscape 2016 Applications (Verticals) **Vehicles** Enterprise Home Industrial Internet Personal Healthcare Machines Wearables Automation **Automobiles** CHANGERCAN O'Devices I bekin STANLEY AUGMEDIX WERSUS Ameio VITAlconnect Newson CATERPILLAR SIEMENS @ BOSCH INRIX @ waze AUTOMATIC SIVAR HERE Q Q view Omim Senseonics Pressured VIVIEY ATRETRIP Sotera Roadin N icontrol SAVANT @ecovent @ecobee CLUTRON CIRVING SOME SOME CONTROL CIRVING SOME CONTROL STREETLINE desh Zobe novdy Automile CAEDEN MOTIV textronics Mostes Programs (Telefracking Elementon PRISTINE V Energy breider Itron enlighted Sourcity MAN JAWBONE # fitbit TOMTOM & GARMIN HIS FIT BASIS Trilliant enevo SENERNOC Bushely uclid Theatro P PRISH SETLARS hIHU OSOutsmert Sentialo e.on Microsoft Band ATLAS mapmy of fitness & RunKeeper IMBAL (B) PHUNHARE NOMI VARIABLE UCIC SHE SOND ENERGYSAVVY CHARLOPOINE amigo LifeBEAM & ATHOS lark senSonia WHOOP strill THE VALUE OF THE STATE OF THE A Payments / Loyalty PayPal ( shopify - Square Verifone payever belly Supply Chain Withings Skinson Tracker Proposition and Thyric beam & (as a shooker ciright a LevelUp of Decree Fleetmotics Impiny X VILOC Omnil SkyBitz QUANTITUS proteus Gingerio Health EarlySense XX XXTHRU TORONGO VESSY Deddi SMARTORIVE Telogis assetpulse W WEFT Smart Office Ano Times eyemen & Close AthereTech II AliveCor Fermin I Hall Switch TEGO REBRA GSUP PEROBEIO RE CONTROL Robin XORA Entertainment EB eventboard Family Robotics SONOS PRAZER @doppler labs Onucleus (IV HALO Glow amazonrobotics ABB OCLEARPATH Agriculture HARVEST rethick (1) ROLI Narrative soundhawk Good Night Lamp\* FILIP ( bellabeat adapt N Ag Leader ONFARM DVCNO ARQUE OCCU Electric 20 Objects immeural normal menboby Ovuline Sivescribe IUIIY ROBOTEX SEMPIRE LIQUID ROBOTICS Smartfield affimilk Zook- Canada SSPENSA FLine tempo automation" OPENREV Sports Elderly S SELECTE XCOR Infrastructure Industrial Wearables September 1 STRAVA WESTER BABOLAT PRELOTON XT 1SS NDAQRI porsoble TACHYUS Miss OELTAV Smart MEM ZEPP WAREES INFOMOTION COCON ONI Weiften MAKTES COXOCY MANAGEMENT NOON DIE SMARTSTRUCTURES TUMASENE SERVICIONE SERVICIONE SERVICIONE Samples COLF XIEN ---Platforms & Enablement (Horizontals) **Platforms** Software **Full Stack** Printing / Scanning BOSVRO Someon (SEUROTECH Predix Axeda Dosper  $\circ$ Project Tango (intel REALSENSE (III) # Avla Networks ThingWerx Developer stratasys occipital approximatterport TEBBEL TESIN.IO kyroam A I Seeso M2MO Dippar \* Particle theThi formlabs 😿 Carbon & BotFactory KONEKT WOOM @ SensorCloud ( Ne ARACOSM shapeways\* **S** sculpteo COVISINE S AUTODESK SEECONTROL Analytics Athingsquare \* BSQUARE splunk > Sumologic Surreatoccase Id Content / Design KAAZINE X DTempo UPTAKE amazon alexa THALMIC And EMOTIV LEAP M2M WiSilica InnoPath Sketchfab Thingiverse GRABCAD A AUTODESK Sensor Networks machineshop GiloT arrayent 35 SUSTEMES api.a placemeter SAFECAST SSTMo **Building Blocks Partners** Software Hardware onsultants / Services Incubators Retail Processors / Chips QUALCOMM TOSHIBA TEXAS Atmel ARM amazon Walmart Highway LG SIEMENS NO THE Movidius WAVE AMOP M-Bus OMO MIWA É 🔯 🗿 📭 LEMNOS Labs IBM Walson IoT Platform loT platforms in 2018 Atmel INSTRUMENTS LIBERIUM psikick Qualtre BOLT Manufacturing MEMSIC VALENCELL Petasense MERREY Skyetek mCube eoxconn flex **Funding** Alliances KICKSTARTER Charging JABIL PEGATRON Q CO V STARRY ALLIANCE COMO CONSORTI ID Cotopart DE WiTricity AngelList Laird Alialia & Fibocom goTenna Gainspan Cocer Caltair Weaven Shumavox AMPY ## BlackBerry © Matt Turck (@mattturck), David Rogg (@davidjrogg) & FirstMark Capital (@firstmarkcap)

FIRSTMARK

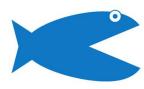
### Playing the Platform Game

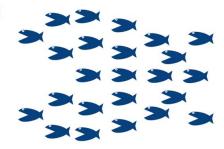
... and Win

Big fish eat small fishes



... but small fishes can build swarms





Bosch Software Innovations GmbH | INST/CSS/BSV-OS | 27.04.2017







## **Lesson learned #1**

Why would you need Open Source Communities?

Because an Open Source community is a way to **become competitive** against bigger fish

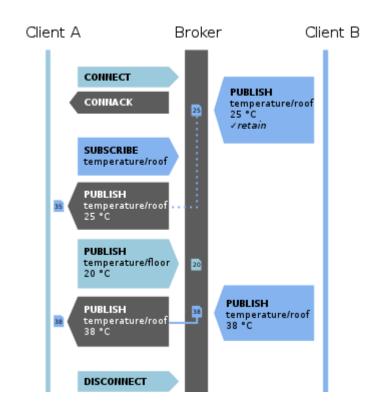






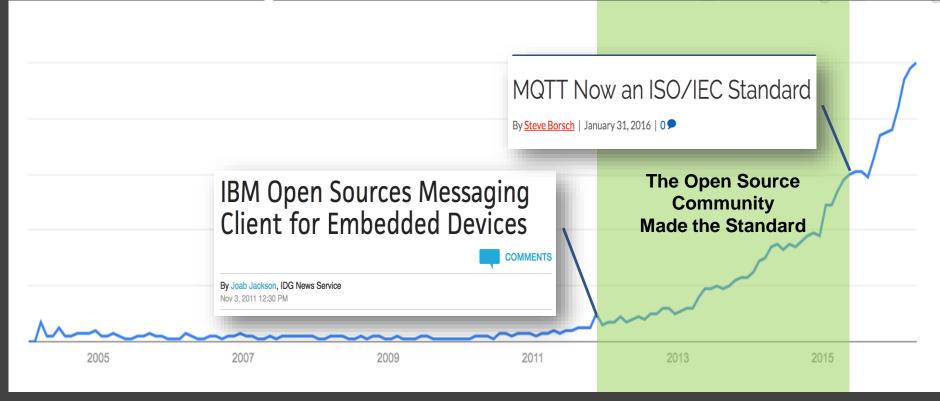
Invented by IBM and Arcom back in 1999





By Simon A. Eugster - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=70622928

# **MQTT Google Trend**





## **Lesson learned #2**

Why would you need Open Source Communities?

Because an Open Source community is a great vehicle to **gain visibility** and **recognition** 





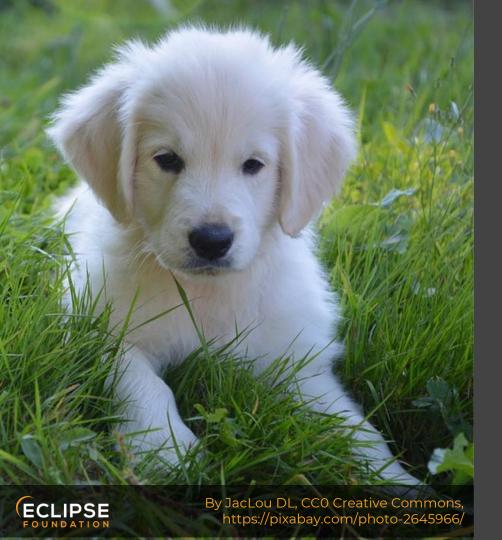


Who is using OSS in his products?

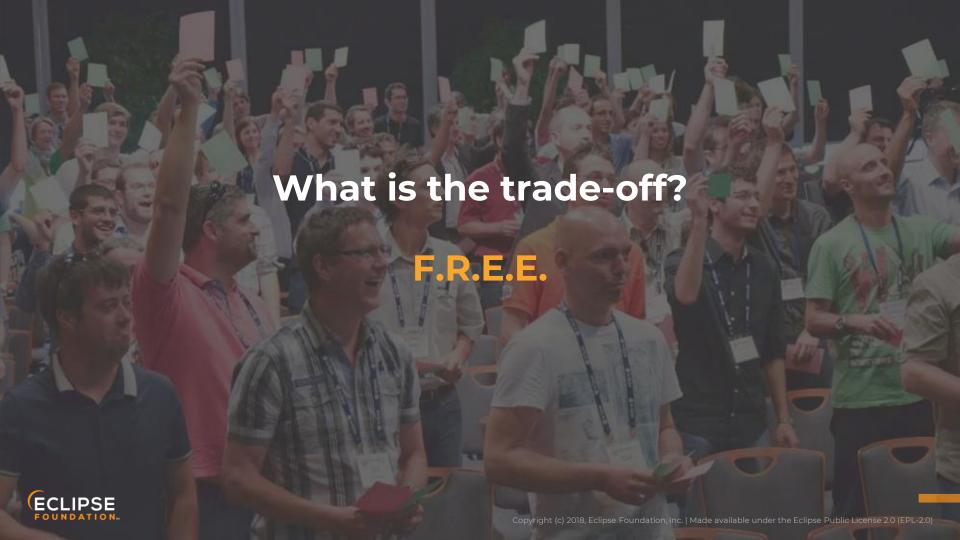
80-90%

According to Forrester & Gartner <a href="https://www.gartner.com/newsroom/id/801412">https://www.gartner.com/newsroom/id/801412</a>





# Who is a Good Open Source Citizen?





# R like Respect your Community





# E like Embrass your Community Go to conferences, Organise local events, Interact with User groups Meet other communities











### **GitHub** is how people build software

We're supporting a community where more than 40 million\* people learn, share, and work together to build software.

#### October 2007

First commit

#### San Francisco

Headquarters

#### 100 million\*

Repositories hosted

\* As of August 2019

We're working hard to build a supportive, welcoming place for users and GitHubbers alike.

Learn more about our commitment to diversity and inclusion.

#### Careers

Come help us make collaboration even better. We've built a company we truly love working for, and we think you will too.

#### Press

Leadership

Developers from all around the world are building amazing things together. Their story is our story.

# Publishing is NOT the Open Source Silver Bullet



# The Platform for Open Innovation and Collaboration

The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable and commercially-friendly environment for open source software collaboration and innovation.

360+

Projects

1500+

Committers

280+

Corporate Members

**30** 

Professional Staff



# The Platform for Open Innovation and Collaboration

The Eclipse Foundation provides our global community of individuals and organizations with a mature, scalable and commercially-friendly environment for open source software collaboration and innovation.

1.5M+

Downloads / m

5M+

**Active Users** 

2M+

Unique Visitors / m

**360K** 

Newsletter subscribers

### **Eclipse Foundation Strategic Focus Areas**







**IoT Cloud Platform** 

**Edge Computing** 

**Industrial IoT** 



### **Eclipse in Motion**

openMobility





openADx

openGENESIS

#### **Tools**









AI3HT OE

#### **Eclipse Foundation**















is launching an Industrial Robotics Working Group in collaboration with:









For more information, please contact:

- Gael.Blondelle@eclipse-foundation.org
- Marco.Jahn@eclipse-foundation.org



**Kind Reminder!** 

**Open Source** 

is a **Journey**, not a destination

# ECLIPSE

# Community



