

Open Source, Open Collaboration



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By the Numbers

350+

Projects

275+

Members

1500+

Committers

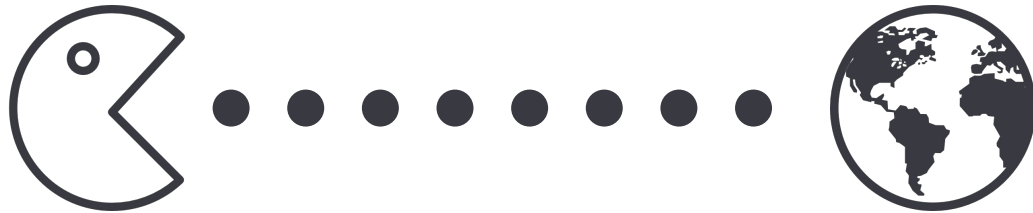
30

Professional Staff

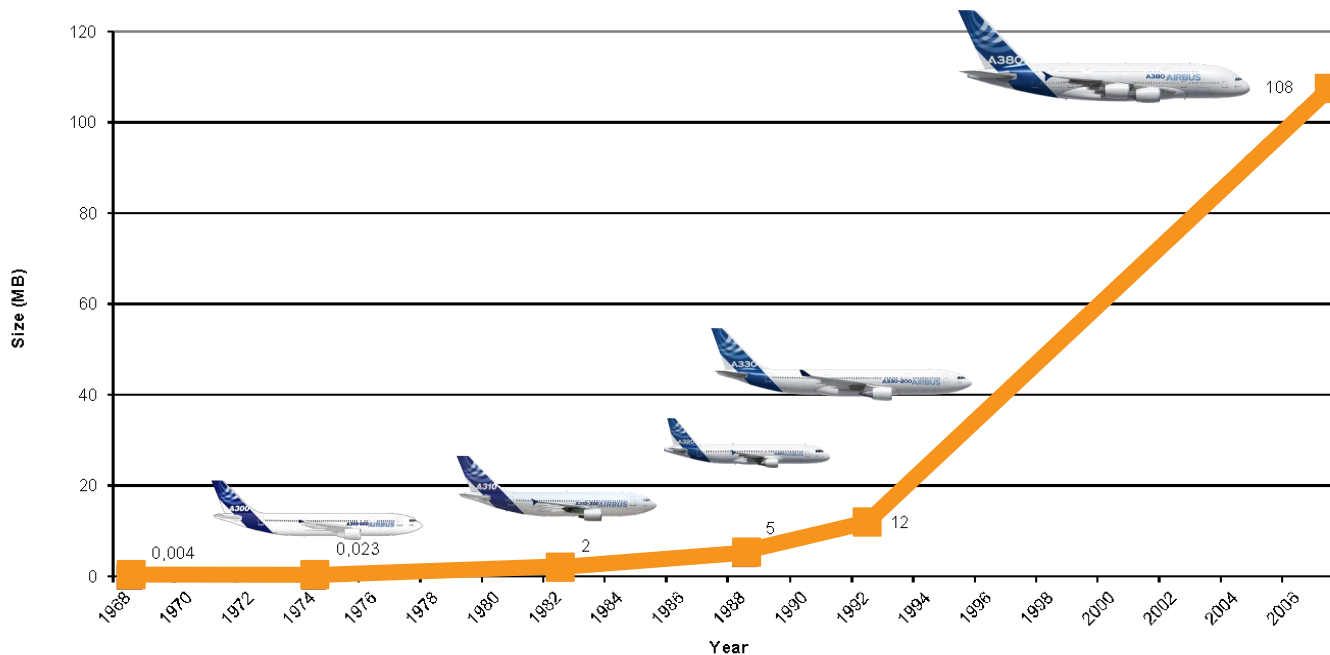


**The Platform
for Open
Collaboration**

Software is eating the world



Software Embedded on Airbus Aircraft



[illegible]

- Elektronische Zündschlüssel (EZS)
- Notkündschlüssel (NK)
- Elektronische Getriebekontrolle (EGK) bzw. ABS
- Motordruckregler (MDR)
- Elektronisches Wasserpumpenmodul (EWM)
- Variable Ventil Drive-C PBA (bzw. VVD)
- Elektronic Stability Program (ESP)

☐ Fernstudium
☐ Studienrichtung

**Mercedes S-Class, Infotainment Subsystem, 20 Mio. LOC
50 – 100, networked, ECUs**

**90% of
automotive
innovations are
from software**

Software matters to industry

DAILY TECH



Science

Boeing 787 Sees More Delays Thanks to Brake System Software

[Shane McGlaun \(Blog\)](#) - July 15, 2008 1:30 PM

CNN World

SEARCH

POWERED BY Google

HYBRID VEHICLES

Toyota: Software to blame for Prius brake problems

February 04, 2010

WIRED

A Cyberattack Has Caused Confirmed Physical Damage for the Second Time Ever

KIM ZETTER SECURITY 01.06.15 5:30 AM

A CYBERATTACK HAS CAUSED CONFIRMED PHYSICAL DAMAGE FOR THE SECOND TIME EVER



**“Every
industrial
company will
become a
software
company”**

-GE CEO Jeff Immelt

http://www.ge.com/ar2013/pdf/GE_AR13_Letter.pdf



**“Every software
company is an
open source
company”**

**-Mike Milinkovich,
Eclipse Foundation**

But what is “open source”?



Software Freedoms

- **Freedom 0** -to run the program, for any purpose
- **Freedom 1** - to study how the program works, and change it to make it do what you wish
- **Freedom 2**- to redistribute copies
- **Freedom 3** - to distribute copies of your modified versions to others



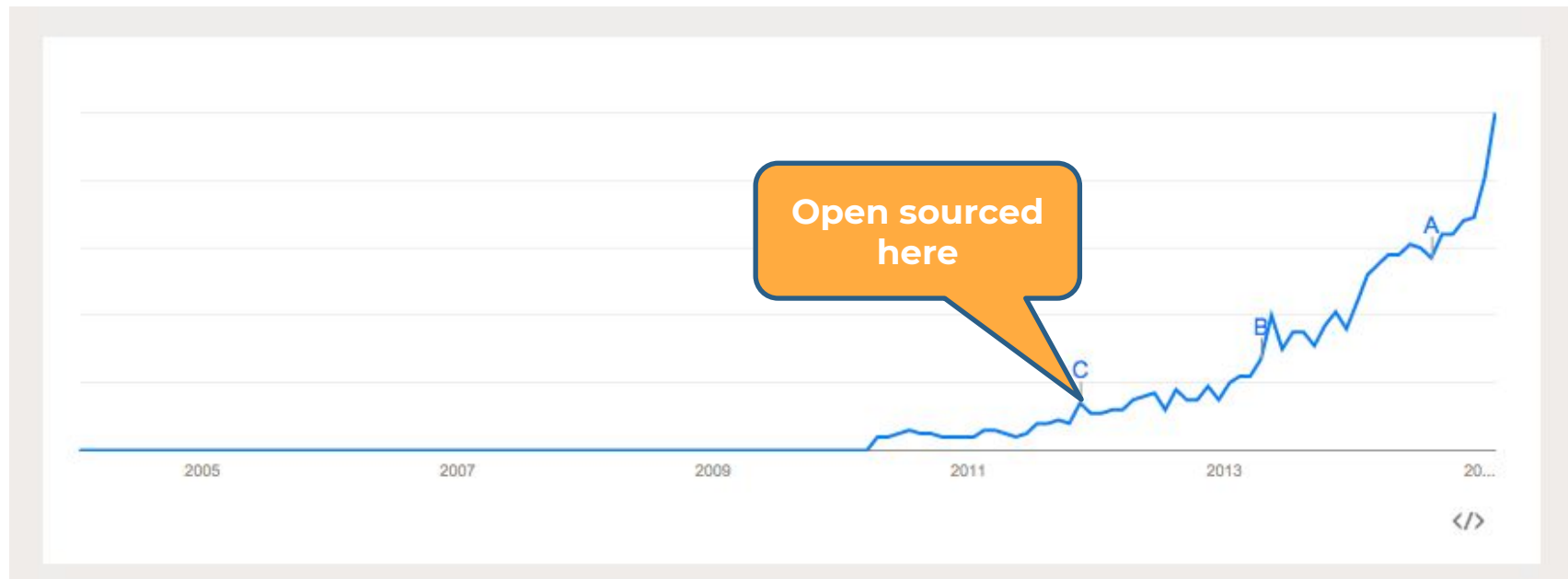
Why open source?

- **Better, smarter business**
 - **Save costs, faster time to market, improve quality**
- **Enables collaboration**
 - **Consistent sharing of IP**
- **Rapid adoption of technology**
 - **It is free and easy to access**
- **Scale**



A current example

Google Trends for “MQTT”





**KEEP CALM
AND
INNOVATE**

Innovation

- **Permissionless innovation**
- **Innovation through integration**
- **Far higher levels of experimentation**

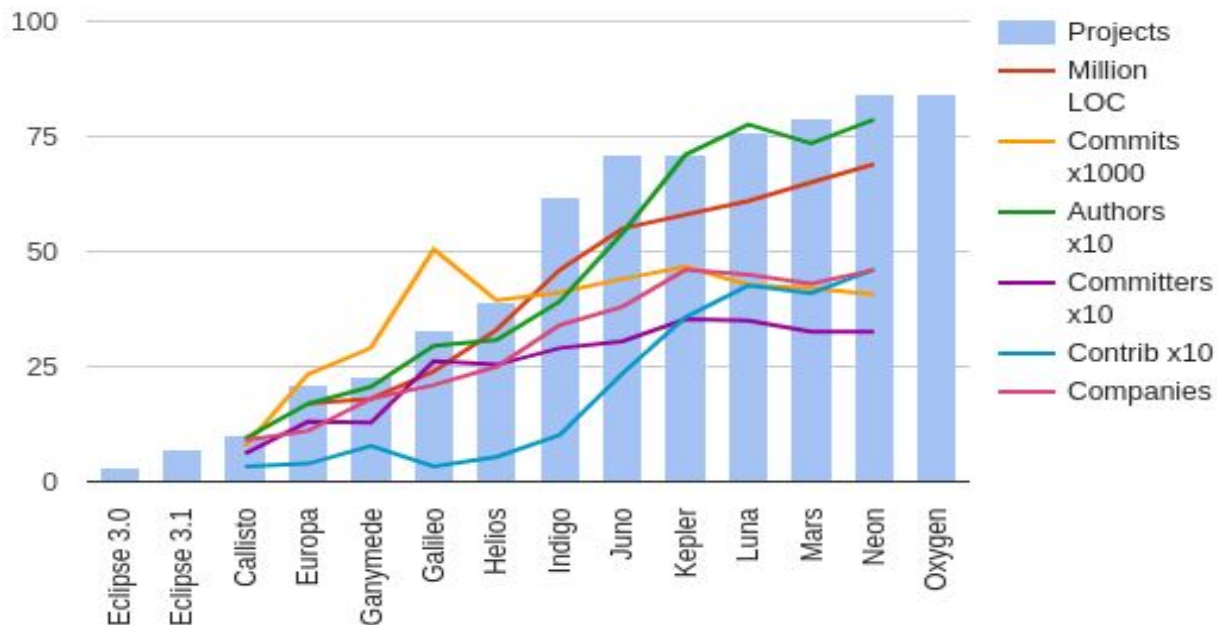
Open source questions

- Is Open Source chaotic?
- How does development *really* work?
- What is this “Open Source community”?
- How do you manage community contributions?
- How do you plan in Open Source?
- Isn't open source going to infect our intellectual property?
- Why would we open source our assets?



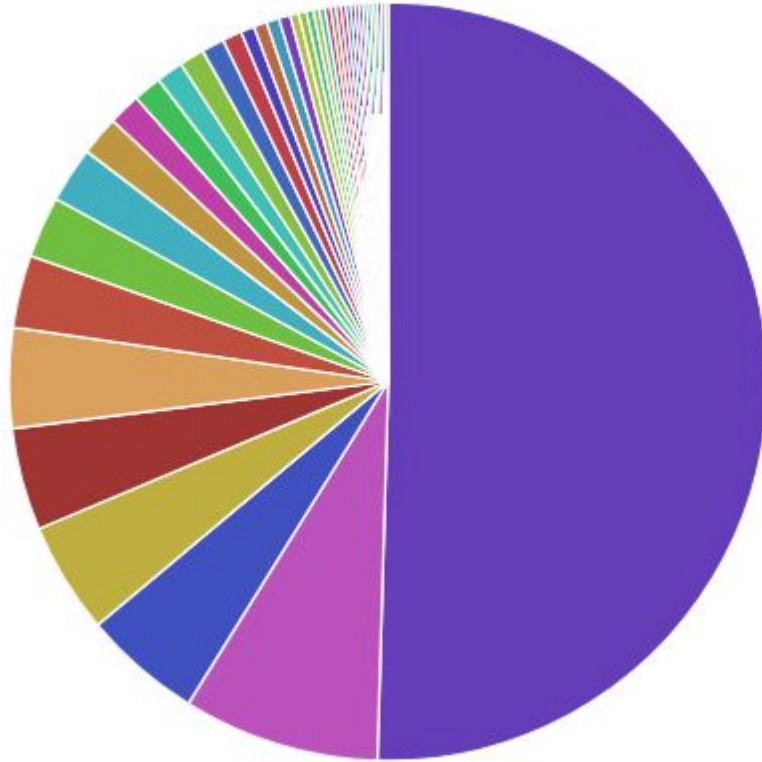


Simultaneous Release Metrics



Predictability





- > Independent
- IBM
- Eurotech
- Ericsson AB
- Red Hat, Inc.
- Codenvy, S.A.
- Business Systems...
- Robert Bosch GmbH
- itemis AG
- Diamond Light So...
- TypeFox GmbH
- Lablicate GmbH
- SAP SE
- CEA LIST
- OBEO
- Innoopract GmbH
- IncQuery Labs Re...
- vogella GmbH
- Sierra Wireless
- Gradle Inc

Contribution

- Reduce Costs
- Influence Direction
- Attract Talent





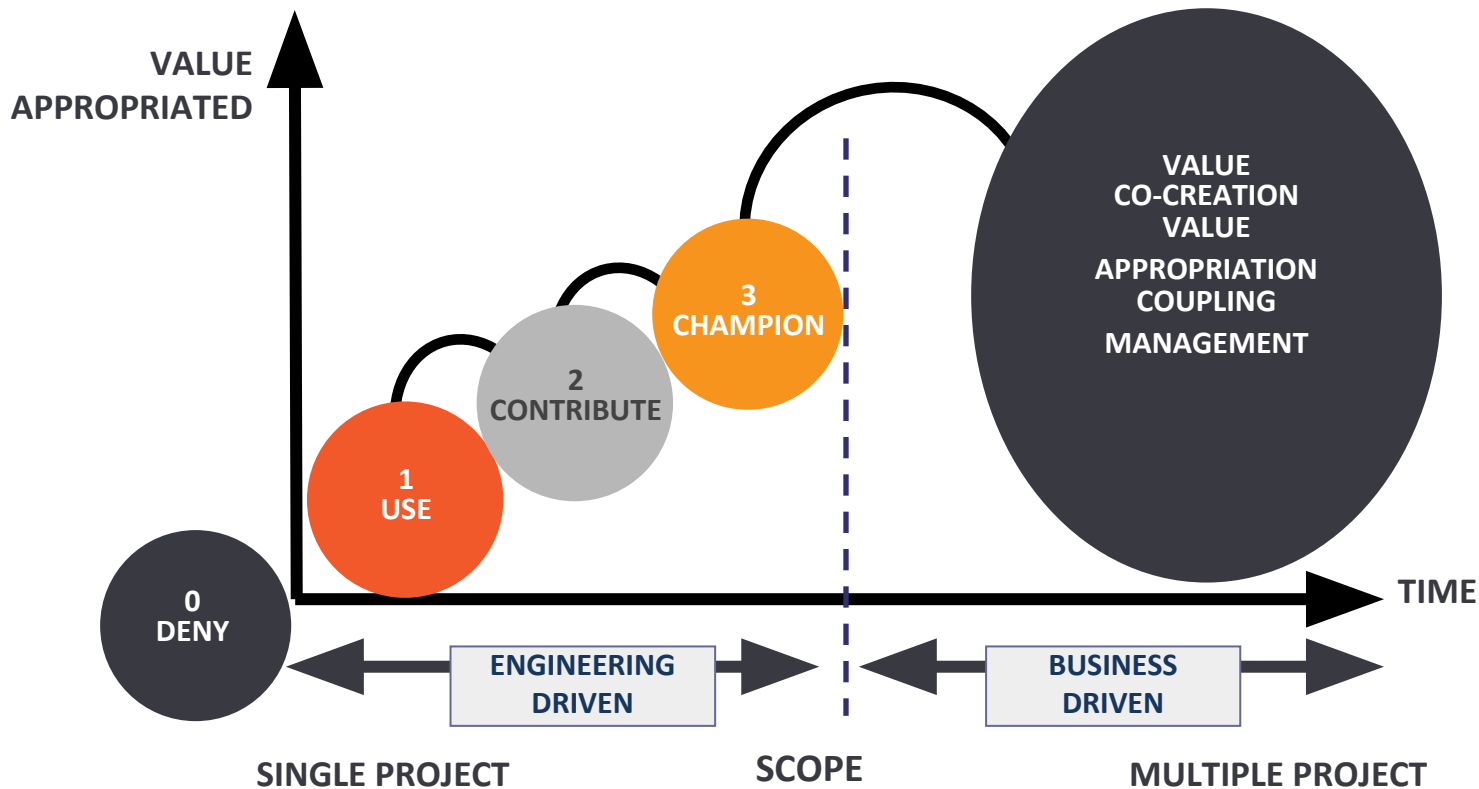
Free....
...just like
puppies

By Lucie Tylová, Westik.cz - Westieinfo.com - soukromý archiv, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=4782396>



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(EPL-2.0)

Open Source Maturity Model



Building blocks for Innovation and Collaboration Requires:



Infrastructure



**Community
Development**



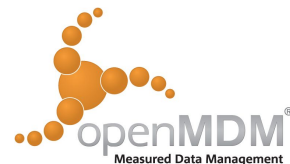
**Process &
Governance**



**IP Management &
Licensing**



Eclipse Working Groups



Eclipse Working Groups



To create the open Internet of Things

Validated by Industry Leaders



"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



BOSCH

Invented for life



Governance & Process



IP Management & Licensing



Community Development



Infrastructure



2.4M

lines of code



36

projects



280+

developers



140K

monthly
visitors

Member Companies



The 3 IoT Software Stacks



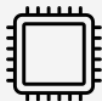
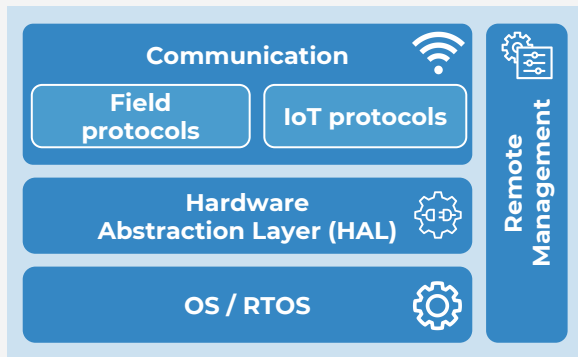
SECURITY



ONTOLOGIES

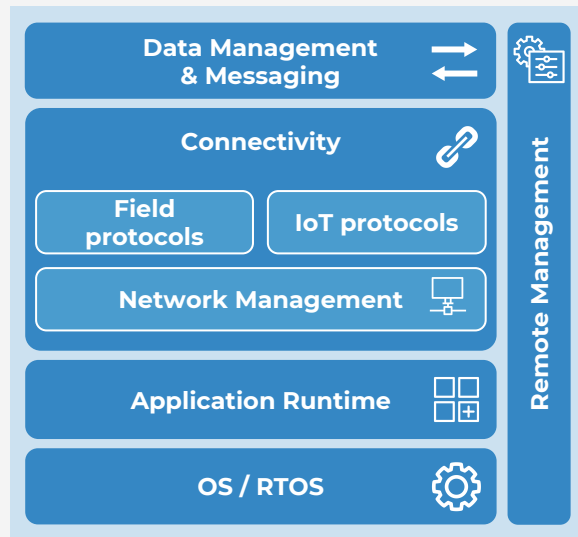


TOOLS & SDKs

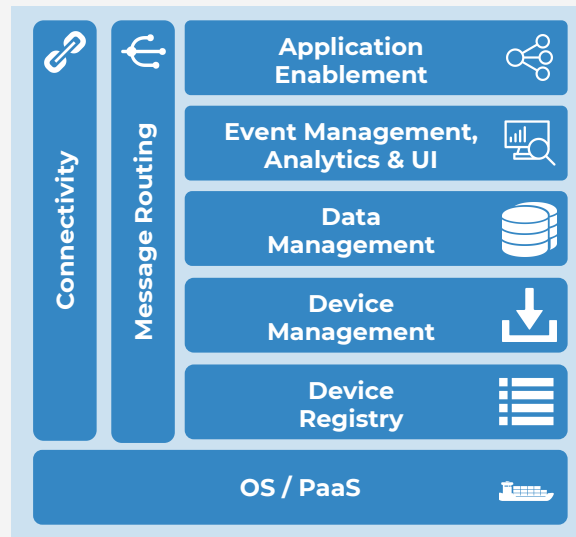


CONSTRAINED DEVICES

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GATEWAYS AND SMART DEVICES



IOT CLOUD PLATFORM

Eclipse IoT Ecosystem



OEMs

Software Vendors

IoT HW Manufacturers

Goals

- Achieve **interoperability** in **Industry 4.0** thanks to open source technology
- Enable **on-premise** deployments of IoT platforms (vs. public cloud)

- Provide **commercial support** for Eclipse IoT technologies
- Promote the value of open IoT ecosystems through **testbeds**

- **Device Management**
- Establish Eclipse IoT projects as **reference implementations** of IoT standards (e.g. LWM2M)

Examples



SIEMENS



redhat.



influxdata

cloudera



CONTACT
Software

AZUL
SYSTEMS



Eclipse IoT Ecosystem



Telcos

- Grow their **consumer IoT** and **Smart Home ecosystems**
- Promote IoT cloud **interoperability** through open standards (ex. **OneM2M**)

IT Services Companies

- Provide **support and services** around Eclipse IoT technology

Research Institutes

- Partner with Eclipse IoT member companies on **IoT research projects** (ex. Smart Cities)
- **Disseminate** the results through Eclipse IoT projects

Goals

Examples



itemis

V2COM



fortiss



Eclipse IoT Open Testbeds focus on working solutions featuring open source technology and commercial solutions

IoT industry needs to showcase working solutions and the ecosystem(s) needed to build them

<https://iot.eclipse.org/testbeds>

Asset Tracking Management

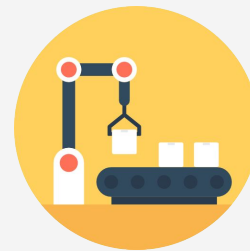


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Production Performance Management



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 **EUROTECH**
Imagine. Build. Succeed.

A large, glowing incandescent lightbulb is the central focus of the image. The bulb is tilted diagonally, with its base at the bottom left and its tip at the top right. The filament is visible and glowing with a warm, orange-yellow light. The text "Parting thoughts..." is overlaid in a large, white, sans-serif font across the middle of the bulb. The background is a dark, solid color, possibly a deep blue or grey, which makes the glowing bulb stand out.

Parting thoughts...



Software competence is the key to digital transformation



Our future is being built on open source



Engage, Experiment, Educate



Thank-you!

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