

**Genova Smart Week 2016**

# **Open Service Platforms**



**26 May 2016**  
**ragnar.bergstrom@ec.europa.eu**  
**european commission**  
**net innovation**

*"Our citizens want the **best the internet can offer**, they want an internet that is **safe and accessible** to everybody. This is not a reality in Europe today."*

*"There is even more work to do to achieve a truly connected digital single market. A market where every consumer is able to **enjoy digital content and services** - wherever they are in the EU, including government services. It means every company should be able to share and sell its wares to a market of 500 million, using seamless online channels."*



# Open Service Platforms

- Emergence of **multivendor solutions, no vendor lock-in**, reduce the market power of incumbents, lower the barriers for market
- **Interoperability**, data compatibility and portability
- **Competition** among providers leading to faster service development,
- **More innovation** by establishing innovation ecosystems independent of proprietary technology, cost reductions and quality increase.
- Open source better supports **data privacy and security** and integrate more easily with existing systems, including proprietary

# Why are OSPs coming? And why now?

- Today complex large systems are developed in large collaboration
- To function and be effective, large collaborations need a common licensing
- Less and less revenues come from licensing software
- Therefore industry friendly open source licenses become the norm (*Examples include: Drupal, FIWARE, ...*)

Opening up the platform layer is just more effective.



FIWARE

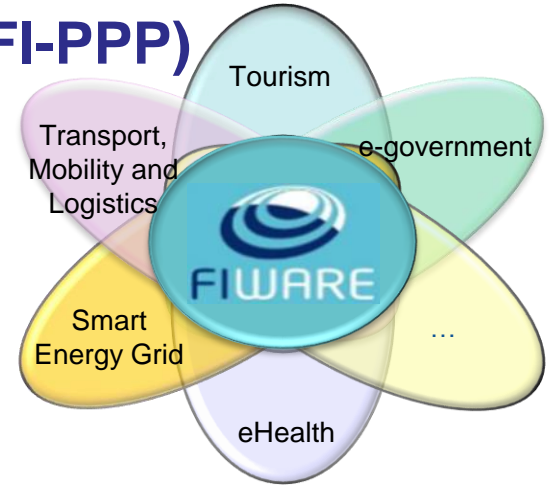
Open Service Platform  
[www.fiware.org](http://www.fiware.org)



G A M E C H A N G E R S

# Future Internet Public-Private Partnership (FI-PPP)

- ◆ *Goal: capture opportunities derived from the new wave of digitalization of life and businesses*
- ◆ *Strategy: build a sustainable innovation ecosystem around open standards supporting development of smart applications in multiple sectors*
- ◆ *Born local (Europe) but with global ambition*



EC provides funding:

Pan-european dimension

Industry driven, major industry players involved

## FACTS:

**2x € 300 million**  
INVESTMENT BY THE EUROPEAN COMMISSION & PROGRAMME PARTICIPANTS

**158** PARTNER ORGANIZATIONS AND COMPANIES  
**68%** INDUSTRY SHARE IN THE PROGRAMME  
**18** ACADEMIC INSTITUTIONS

**23**  
COUNTRIES REPRESENTED (2 FROM OUTSIDE EUROPE)

Open APIs for Open Minds



- **Open Service Platform for smart digital services**

- 42 generic software components
- Open specs, open sources ref implementation
- Covering IoT, big and open data, cloud computing, ...

- **Open, sustainable Innovation Ecosystem**

- 1000 startups and SMEs
- Large industry
- 2500+ developers
- 800+ mentors & coaches
- 50+ cities

**#SmartCities**

**#SmartAgrifood**

**#SmartIndustry**

**#Smart\_?\_**



# FIWARE beyond Europe

A map of Europe is visible in the background, showing various countries and cities. The map is slightly blurred and serves as a background for the text.

- **Mexico** – installations operating, cooperation projects
- **Brazil** – installations operating, policy action plan
- **US** – partners with NIST on standardisation and Global City Teams Challenge



# FIWARE Foundation

## Founders Forum

- 1 June 2016, Vienna
- One-day FIWARE Foundation Founders Forum
  - Open the foundation and show its workings
  - Present and attract new members beyond the 4 founders
  - Introduce to potentially new members
- C-level event.



**And FIWARE is the core of the journey  
Engine of innovation for cities**

**All cities**

# Thank you!



FIWARE

# Definitions are important

**Service platforms** are the software layer in ICT system architectures between the infrastructure and the application layer. They facilitate the development and operation of digital services.

**Open service platforms** are developed and maintained in **open source** and are **open to collective innovation**. They provide **open, public, royalty free specifications and an open source reference implementation**.



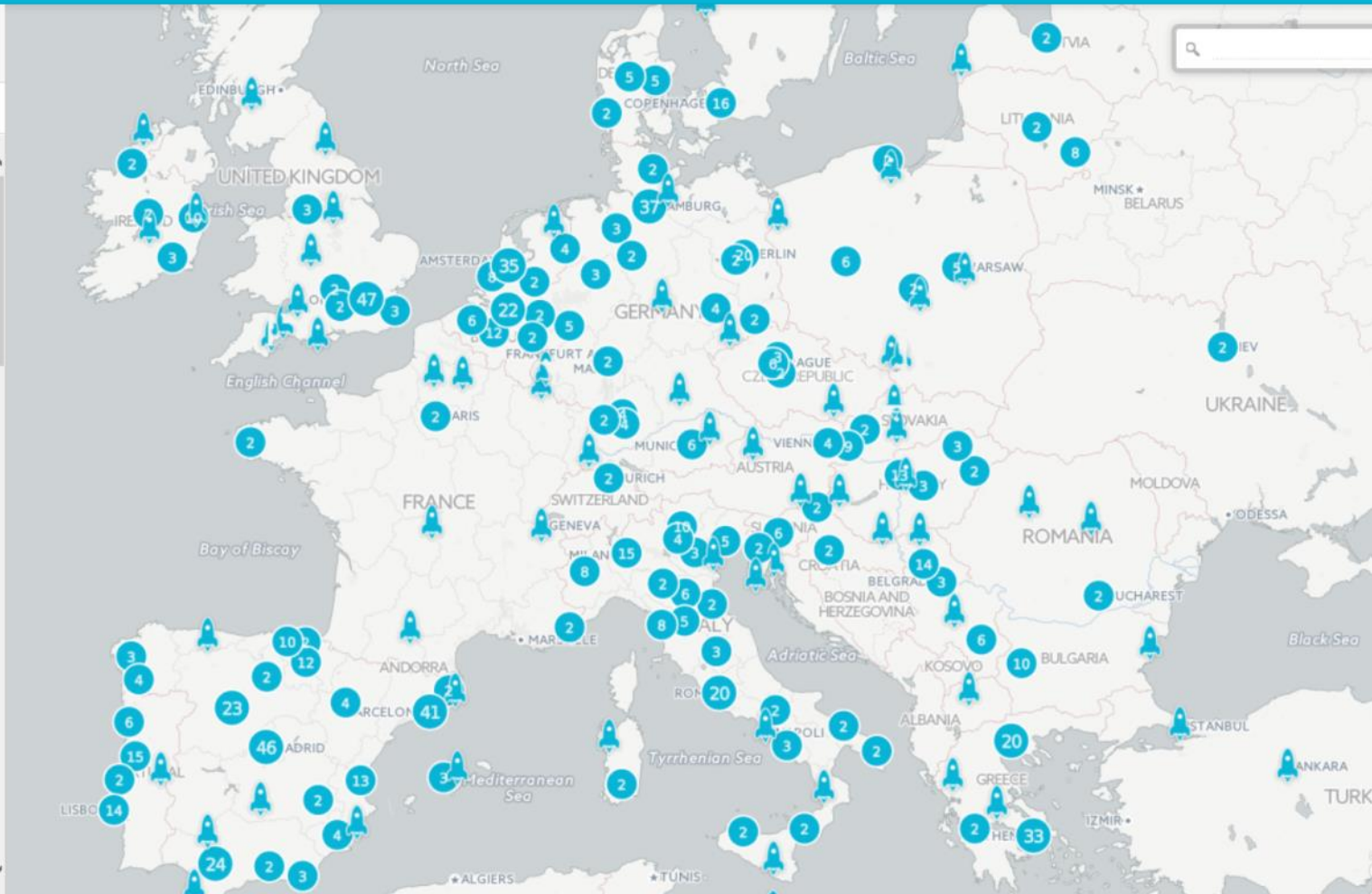
0:03 / 2:18



Filters

SMES 975

- 2015 Legend
- 3DCityPlanner
- 3D CLICK
- 3D Manufacturing of Ortho-pro...
- 3D METal PArts Software Manu...
- 3D Meteo
- 3DModelComposer
- 3D Print for Graphic piXel Paint
- 3D Print Health Product Custo...
- 3D Printing Modelling Platform...
- 3D-REVOPRINT
- 3D ROB0tics 1Ntegration LABs
- 3DStock.eu - thematic stock...
- 3dVET



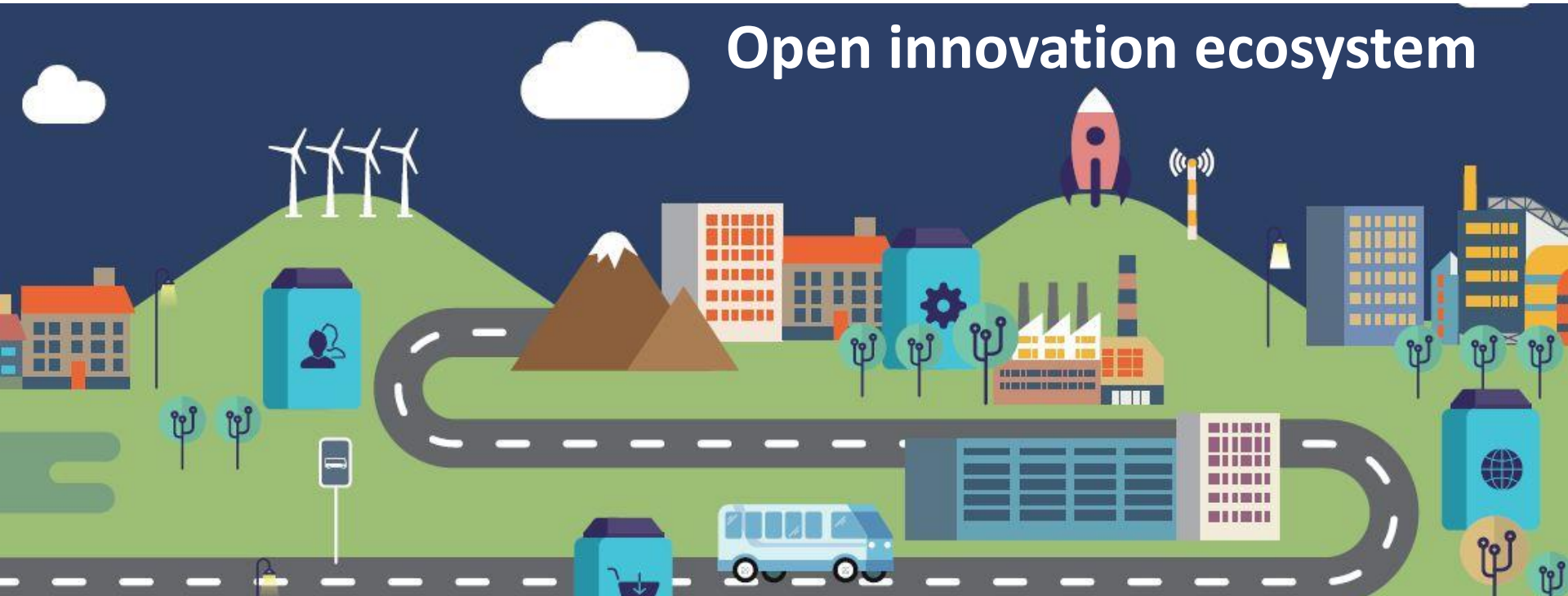


A SUSTAINABLE  
ECOSYSTEM  
AROUND  
SMART DIGITAL  
SERVICES  
INFRASTRUCTURES

# FIWARE Smart City Value Proposition

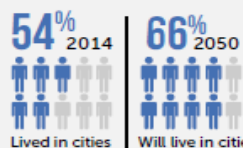
1. Open Standard Platform
2. Linked Open Data
3. Ecosystem of Cities
4. New services and applications

Open innovation ecosystem



# SHAPING CITIES AND THEIR ECONOMIES

smart cities - smart regions- smart world



**2.5 BILLION**

additional people are expected to live in cities by 2050

**↑ INFRASTRUCTURE RESOURCES**

HOW WE DO MORE WITH LESS?

HOW WE ATTRACT BUSINESS AND INNOVATORS?



**DATA CAN CHANGE AND SHAPE CITIES AND THEIR ECONOMIES**

#### EFFICIENCY

Government data available online saves time and endless repetition, also helping to identify actionable intelligence.

#### CITIZEN CONNECTION AND TRANSPARENCY

Publishing data demonstrates government transparency and builds trust and relationship with citizens.

#### INNOVATION

Revenue and savings can come from the applications built on shared data.

#### REACT, PREDICT, PLAN

- Trends and behaviors.
- Insights into historical patterns.
- Better informed policy and planning decisions.



**DATA**  
multiples sources

OPPORTUNITIES FOR USING OPEN DATA

Free for anyone to access, use and share.



CREATING AN ECONOMY OF DATA

Paid-for third party data from businesses can create an economy of data.





## ECONOMY OF DATA ECOSYSTEM

### ACTORS

#### PUBLISHERS:

Those who make data available freely or at a cost.



#### USERS:

Citizens or developers that create services with open data made available by others in a common platform.



#### ENABLERS:

Those who train or advise on working with open data.



Putting the technology and systems in place to allow data to be monetized.



### APIS ARE THE KEY

APIs enable developers, enterprises, organizations, cities, suppliers and partners to share and leverage data services of others and more readily create new products, applications and services.

### DATA HUBS

#### BRINGS TOGETHER:

- end users
- service providers
- sensor network providers
- data providers
- developers
- government representatives.

#### GATHERS ALL THE SENSOR DATA.



### SMART CITY MARKETPLACE PLATFORM

SC data services from different partners can be exposed, priced, monetized and consumed

#### THE FIWARE BUSINESS FRAMEWORK

Management and monetization of different kinds of digital assets involving multiple partners.



**TM FORUM APIS:**  
Product Catalog, Ordering, Inventory, Party, Customer, Billing, Usage

**FIWARE Business Framework Components:**  
Store GE, revenue-settlement-and-sharing-system, (new) APIs Orchestrator



## OPEN DATA ENVIROMENT



Enhancing Agile Data Opennes.



### PUT DATA ONLINE AS A PLATFORM FOR INNOVATION

**Data Governance:** strategies, policies, processes and standards driven by city goals.

#### Sustainability and Scale:

Data Publishing: constancy and consistency.  
Automation: APIs + Data Management tools.

#### Security and Privacy.



### DATA SHARED ACROSS CITIES TO SUPPORT WIDER INNOVATIONS



CO-CREATION



COLLABORATION



SHARING



### SERVICES BUILT ON TOP OF DATA

# Your developments are future-proof

- **TECHNOLOGY:** FIWARE is not static, it evolves. Open & meritocratic Open Source Community → FIWARE Foundation
- **FIWARE ECOSYSTEM:** Neither static – nor closed! Providers, developers, users, cities, you ... – changing, growing & improving day by day!
- **SERVICE PROVIDERS:** several new FIWARE commercial nodes
- **MARKET:** Customers are taking-up the apps & services and with it FIWARE technology

# WHAT IS FIWARE?

The FIWARE platform provides a rather simple yet powerful set of APIs (Application Programming Interfaces) that ease the development of Smart Applications managing context information (e.g. connecting to the Internet of Things, carrying out information processing and Big Data analysis on the Cloud). They offer reusable and common shared functions serving multiple use cases in various sectors. The specifications of these APIs are public and royalty-free. Besides, an open source reference implementation of FIWARE components is publicly available so that multiple FIWARE providers can emerge faster in the market with a low-cost proportion.

**DATA** **Data/Context Management**  
The enablers easing access, gathering, processing, publication and analysis of data at large scale, transforming it into valuable knowledge available to applications.

# CLOUD

## Cloud Hosting

The fundamental layer which provides the computation, storage and network resources on top of which services are provisioned and managed.

## Interface to Networks and Devices (I2ND)

The enablers making it easy to take the most of underlying network infrastructure capabilities.

## Advanced Web-based User Interface

A set of enablers that make it easy to incorporate 3D & Augmented Reality capabilities in web-based user interfaces, plus the most efficient backend middleware ever.

# WEB IU

# SECURITY

## Security

The mechanisms which ensure that the delivery and usage of services is trustworthy and meets security and privacy requirements.

## Internet of Things (IoT) Services Enablement

The bridge where FI services interface and leverage the ubiquity of heterogeneous, resource-constrained devices in the Internet of Things.

## Architecture of Applications / Services Ecosystem and Delivery Framework

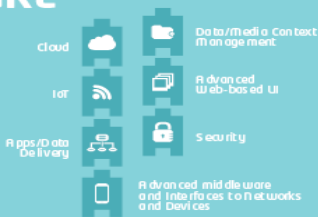
The framework to co-create, publish, cross-sell and consume applications/services, addressing all business aspects.

# INTERNET OF THINGS

# NET WORK

# FIWARE REFERENCE ARCHITECTURE

Set of components (Generic Enablers) that eases the creation of Smart Internet Applications by providing APIs that are public and royalty free, supported by open source reference implementations. They offer reusable and common shared functions serving multiple use cases in various sectors. They are available and ready to use in the FIWARE Catalogue.



# WHAT DOES FIWARE OFFER?

## 2 FIWARE Lab

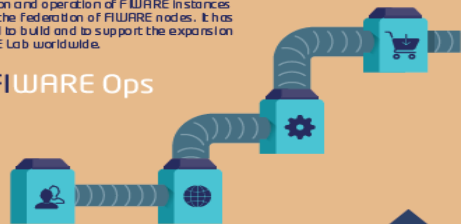


The FIWARE Lab is an example of FIWARE Instance available as a free experimentation environment where developers can build their applications using available FIWARE GEM Instances, or dedicated instances they can deploy on their own. It not only allows them to experiment with FIWARE technologies, but test and showcase their applications with real data and users, making it easier to draw the attention of potential customers and investors.

# FIWARE Operations

FIWARE Ops is the suite of tools that will ease the creation and operation of FIWARE instances based on the Federation of FIWARE nodes. It has been used to build and to support the expansion of FIWARE Lab worldwide.

## FIWARE Ops



# COACHING AND MENTORING

The FIWARE Accelerator Programme, co-funded by the European Commission, provides mentoring and distributes a total amount of 80 million euros among the most innovative and SMEs projects with a higher potential.

8

80  
MILLION EUROS  
1,000 to 2,000  
COMPANIES  
10 TO 100

FIWARE Accelerate

FIWARE  
The open source platform



Program already selected 545 Data Hub's as following

But FIWARE is only the first step to the future of your project, we need you to join us and be part of the new digital revolution that is coming!

Welcome to FIWARE  
Welcome to progress

# FIWARE Academy

The FIWARE eLearning Platform is a good place to start. Here you will find webcasts, tutorials and other training material about FIWARE Generic Enablers.



# FIWARE Mundus

Paving the path to a Global Ecosystem

With the growth of the FIWARE ecosystem, cooperation opportunities are increasingly arising all around the globe, as well as the need to share the knowledge of FIWARE and establish new FIWARE Lab nodes. FIWARE Mundus aims to facilitate the growth of a global ecosystem by mobilizing policy makers and innovation initiatives in EU regions and countries outside Europe, where the uptake of Future Internet technologies can rapidly occur and have a real impact on local markets. Current leads include a dozen of EU and international regions including Mexico, Chile, Brazil, US, Canada, and some African countries.



6

# FIWARE INNOVATION HUBS

To encourage the growth of European digital economy, FIWARE enables European business hubs to enrich their services and to accelerate the creation of a new Internet-based business. The starting point is the initial network of EIT ICT Labs nodes. New Hubs have been selected to expand the reach of FIWARE technologies, so that as many companies as possible can have an easy first contact with FIWARE and take full advantage of it.



# CITIES AS ENGINES OF INNOVATION

Making a city become "smart" means the organic adoption and further development of a common set of standard APIs, data models and open data platforms which will ultimately fuel city-driven innovation and transform cities into hearts of economic growth and enablers of sustainable well-being of citizens. Thanks to the FIWARE open standard platform and the sustainable ecosystem around FIWARE Lab, cities can make their Open Data available to cities, communities and developers worldwide for free experimentation based on open licenses.



# A fine selection ....

- <https://watly.co/> - contact Marco Attisani ([marco.attisani@watly.co](mailto:marco.attisani@watly.co))
- [www.nicetrails.com](http://www.nicetrails.com) – contact Bernat Cuni ([hello@cunicode.com](mailto:hello@cunicode.com))
- <http://8fit.com/> - contact Pablo Villalba ([pablo@8fit.com](mailto:pablo@8fit.com))
- <http://www.connecterra.io/> - contact Yasir Khokhar ([yasirk@connecterra.nl](mailto:yasirk@connecterra.nl))
- <https://www.atooma.com/> - contact Fabrizio Cialdea ([f.cialdea@gmail.com](mailto:f.cialdea@gmail.com))
- <http://www.dnaphone.it/en/smart-analysis/> - contact Alessandro Candiani ([alessandro.candiani@dnaphone.it](mailto:alessandro.candiani@dnaphone.it))
- <https://www.psious.com/en> - contact Xavier Palomer Ripoll ([xavier@psious.com](mailto:xavier@psious.com))
- <http://www.loveandrobots.com/shop/collections> - contact Emer O'Daly ([emer@loveandrobots.com](mailto:emer@loveandrobots.com))
- <http://www.everimpact.org> – contact Mathieu Carlier ([mc@everimpact.org](mailto:mc@everimpact.org))
- <http://www.inreception.com/> - contact Egidio Criscuolo ([egidio@criscuolo.pro](mailto:egidio@criscuolo.pro))
- <http://www.zebra-telemedicine.com/> - contact Helio FERNANDEZ ([hefernan@vub.ac.be](mailto:hefernan@vub.ac.be))
- <http://www.alzhup.com/Reta/en/> - contact Rafael ESPINOSA ([respinosa@alzhup.com](mailto:respinosa@alzhup.com))
- <http://www.umanick.com/en/> - contact Emilio Gallego ([emilio.gallego@umanick.com](mailto:emilio.gallego@umanick.com))
- <http://www.ususty.com/> - contact Daniel G. Nemet ([dan@ususty.com](mailto:dan@ususty.com))
- <http://www.intoino.com/> - contact Marco Bestonzo ([besto@intoino.com](mailto:besto@intoino.com))
- <http://rowanalytics.com/> - contact Steve Gardner ([steve@rowanalytics.com](mailto:steve@rowanalytics.com))
- ....