Private Public Partnership Project (PPP)
Large-scale Integrated Project (IP)

D.32.6.1 Engagement of the FIWARE contributors

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Executive Summary

The Bounty Hunting program was designed to increase the participation and engagement of external contributors in the development of FIWARE technologies. It represents one of the first steps of the transition process to turn FIWARE into an open source community, showing developers how they can contribute. Therefore, the program encouraged and rewarded contributions by developers and security researchers who helped make FIWARE online environment more secure. The total award budget added up to €80.000 - but only a very minor part of this budget was used for awarding developers' contributions. The program was published in June 2016 on the FIWARE.org-webpage, in the FIWARE online community Mobilize.io as well as promoted several times by seven different hubs which are part of the iHub network. When realizing that promotion and communication activities were not as fruitful as foreseen, the organization team decided to increase the award money per bounty. This changed structure was promoted in October 2016 with a social media campaign using an interview with Jose Manuel Cantera - Technology Expert from Telefonica. However, just one more bounty could be solved after installing and promoting this changed award structure. The final number of solved bounties adds up to five contributions in total – not even 10% of the foreseen 80.000 EUR were used to award bounties.

1 Introduction

ihub.eu EEIG is the successor of I3H project, which aimed at creation of a European network of Internet Innovation Hubs (I3H), web entrepreneurs, mentors, investors, students, academia, industry and public sector innovators. The network members together accelerate the transformation of FIWARE technology to create service and applications for the new generation of the Future Internet technologies, addressing the needs of European citizens, companies and society. iHub.eu was established in October 2015 and it gathers 9 innovation centers, accelerators and incubators that work together to foster innovation.

Within the project "Engagement in the FIWARE Community of the FIWARE contributors" that contributes to improvements of enablers developed by FI-Core beneficiaries, iHub.eu members engaged and mobilized its network arising from the I3H project and beyond to contribute in enlarging the number of developers being aware of and working with FIWARE. Activities such as promoting the program within FIWARE community events and / or conferences, publishing it on the online community platform (Mobilize), sending emails to mailing lists and personnel contacts have been performed by the various iHub.eu members.

The goals of the project are summarized here:

- Design required processes/ mechanisms for FIWARE Bounty Program execution
- Elaborate and publish program forms, website and brochures
- Disseminate FIWARE Bounty Programme, reaching out to +2.000 people
- Engage developers in contributing to FIWARE platform
- Organizing quality check of executed enabler improvements (bounties) and awarding developers

2 Approach

The iHub.eu associated member IPN incubator (Coimbra, Portugal) was chosen as active partner for the design and management of the Bounty Hunting program, while the dissemination and communication of the program was made by all iHub.eu members with IPN backup.

IPN incubator is a private, non-profit institution created in 2002 on the initiative of Pedro Nunes Institute (IPN) and the University of Coimbra aiming to support for the early stages of new innovative, technology-based or advanced services business projects. Priority projects are spin-offs arising from the University of Coimbra and startups that ensure a strong connection to the university environment, whether through students, faculty or RTD activities.

iHub.eu management stayed responsible for the payment part of the project, as the project was supposed to have many bounty awards that would need payment. This task was executed by the liable iHub member European Innovation Hub (Berlin, Germany).

Seven iHub.eu members were involved for promotion of the program towards their networks. Besides IPN Incubator and European Innovation Hub those hubs supported bounty program promotion: INiTS (Vienna, Austria), BOLT (Malaga, Spain), Faubourg Numérique (Picardie, France), ABC Accelerator (Ljubljana, Slovenia) and JIC (Brno, Czech Republic)

The extended network has been engaged to enhance the communication and reach.

To achieve the goals, project members leveraged their strengths:

- Reputation in the ecosystem: every iHub member is an active incubator, accelerator or innovation center in their ecosystem and has shown results in the past. Hence, having Hubs as facilitators brings in the trustworthiness aspect.
- Established connections have been used to approach relevant companies in an efficient way. This includes startups in their portfolio, beyond the portfolio, corporate partners, Smart Cities

- Existing channels: iHubs utilized the online (Twitter, Facebook, Linkedin) and offline channels that they know in their ecosystems in a way that allows them to target relevant people.

2.1 Timeline

Even though the project theoretically started January 2016 there was no clear approval until May to publish and disseminate the FIWARE Bounty Programme. Hence, the efforts till end of April were related to the design and preparation - clarifying roles within iHub.eu and beyond, discussing objectives and the setup and developing a communication strategy. In May, we started to execute the project: launched the F6S bounty hunting program website, interactive tutorials, started communicating with developers and startups, and participated in events where we promoted the bounty hunting program.

2.2 Target Groups

In general, we defined two target groups for the Bounty Hunting program: developers and startup entrepreneurs. For companies that work with FIWARE already, we focus on the bounty hunting award money. For companies, that are not familiar with FIWARE yet, we first introduced FIWARE and its benefits, as well as the FIWARE bounty hunting program. Furthermore, developers were targeted through specific events: hackathons in France, Romania and Slovenia and FIWARE Accelerators closing events/ conferences

2.3 Incentive Structure

At the initial stage of the program the Bounty activities were divided in two type of bounties:

- FIWARE Bounty permanent: security and library topics
  - General Security Improvements (Critical Risks: 500 EUR, Lower / Medium Risks: 50-250 EUR)
  - Libraries to ease development with FIWARE (Complete GE convenience library – 750 EUR; Simple library with limited functionality – 250 EUR)
  - Contributions to the FIWARE developers' resources (Contributions to the FIWARE Tour Guide Application: 250 EUR; Blog articles, or presentations shared under proper Creative Commons licenses (API clarifications, hacks, experiences, best practices, …): 75 EUR)
  - Code Contributions to a FIWARE GEri (Intermediate Complexity: 250 EUR; Advanced Complexity: 500 EUR)
  - New Capabilities for Orion Context broker (750 EUR)
  - New Capabilities for IDAS (300 EUR)
  - New Capabilities for Cygnus / Cosmos (750 EUR)

- FIWARE Bounty temporary: specific actions/ issues open within FIWARE platform

However, in August 2016, FI-Core decided to eliminate the "temporary" bounties and have only permanent bounties.

2.3.1 Change in Incentive Structure

A change in the incentive structure was initiated in October 2016 with a goal to make the program more attractive to participants. In particular two key elements were targeted:

A. Increasing the bounty amounts, and
B. Making participants come back and contribute again to improve FIWARE technologies.

Participants who came back to solve a different task for the second time, would receive twice the bounty amount earmarked for that task. Participants who came back to solve a different task for the third time, would receive thrice the bounty amount earmarked for that task. The amounts were capped at 3 times the initial bounty amount earmarked for the specific task.

This change in incentive structure was done in conjunction & with the approval of Telefonica.

The changes were promoted via the FIWARE Press Office channels as well as through various social media channels of the individual iHub Nodes.

3 Executed promotion activities

3.1 General communication

Main entry point for the program was the FIWARE-website fiware.org. The program was explained and promoted on the website starting in June 2016 with a dedicated sub-page in the developers' area of the FIWARE-page. On top of a general description of the program a detailed description of every single bounty activity was permanently published on the page. With a direct link to the F6S-application page interested developers could easily start their application process for their active contribution to different FIWARE enablers.

This page was promoted continuously by the FIWARE press office via Twitter, Blog and Facebook. Those posts were constantly shared by all seven iHub members.

On the same page on fiware.org a Hall of Fame displayed the developers who solved bounties already. This was meant to motivate developers to work on FIWARE enabler improvements and appear on this page, too.

The bounty program was also made public to the FIWARE community members with two messages published on the FIWARE online community mobilize with 1,4k members:

09.06. – 1,4k recipients – 419 viewed

05.07. – 1,4k recipients – 250 viewed (after two hours)

3.2 Specific communication

In October 2016, we conducted an interview with Jose Manuel Cantera - Technology Expert from Telefonica, to create original content to promote the Bounty program. The blog post covering the interview can be found here: goo.gl/TociWc

The interview involved questions about the benefits of FIWARE technologies in general as well as specific questions about the FIWARE Bounty Program. It ends with a strong call to action to join the bounty program and improve FIWARE Technologies.

The resulting blog post was then promoted by the FIWARE Press Office as well as the individual iHub nodes using various social media channels for maximum reach.

3.3 Promotion material

In addition to an extensive list of different online communication activities (see below), we have developed a brochure for distribution on specific events and meetings. An example is presented below:

The FIWARE Bounty Programme is aimed at encouraging and rewarding improvements in security, performance and quality of FIWARE Open Source technologies.

Rewards

We recognize and reward participants who help us improve FIWARE open source technology by reporting vulnerabilities in our services or by resolving specific issues. Monetary bounties are pre-defined per type of bounty and are based on risk, impact, and other factors. Keep in mind that this is not a contest or competition.

Visit our website to check what kind of documentation you will need.

Application Form

Where to apply?

Website   fiware.org/bounty-programme/

E-mail contact   lorem@ipsum.com

www.fiware.org

FIWARE Bounty Programme

Application period open for
Permanenly Open Bounties

Bounty Shortlist

Prize Money Overview

Task / Complexity	1st Contribution	2nd Contribution	3rd Contribution & Beyond
General Security Improvements Task: Discover and fix bugs which will cause security problems in FIWARE GEris.			
Critical	500 €	1000 €	1500 €
Medium / Low	50 - 250 €	100 - 500 €	150 - 750 €
Libraries to ease development with FIWARE Task: Create libraries (written in the most popular programming languages) intended to make FIWARE developer's lives easier.			
Complete GE convenience library	750 €	1500 €	2250 €
Simple library	250 €	500 €	750 €
Contributions to the FIWARE developers' resources Task: Different contributions intended to outreach developers are foreseen here.			
FIWARE Tour Guide Application	250 €	500 €	750 €
Blog articles / Presentations	75 €	150 €	225 €
Code contributions to a FIWARE GEri Task: Contribute to the codebase of a FIWARE GEri by providing code (a patch) which fixes a bug or implement a feature marked as 'welcome contribution' in the GEri backlog.			
Advanced complexity work item	500 €	1000 €	1500 €
Intermediate complexity work item	200 €	400 €	600 €
New capabilities for Orion Context Broker Task: Implement full CORS support (POST, PATCH, PUT) for Orion Context Broker.			
Medium	750 €	1500 €	2250 €
New capabilities for IDAS Task: Implement a library to connect Arduino devices to the UL 2.0/MQTT IoT Agent.			
Low	300 €	600 €	900 €
New capabilities for Cygnus / Cosmos Task: Support for Parquet format in Cygnus.			
Medium	750 €	1500 €	2250 €

3.4 Communication in specific countries

All iHub.eu network members promoted the bounty program in their local ecosystems. Below is a selection of individual activities of core iHub.eu members; the remaining members have also applied their networks for communication.

a) BOLT (Malaga, Spain):

- Promoted Bounty Program in person at several technology events / conferences (e.g. Smart City Expo 2016; FIWARE day University of Sevilla)
- Shared the message with 99 startups (3-10 employees)
- Promoted Bounty Program in FIWARE day University of Sevilla
- Posted messages into several social network feeds (e.g. Facebook)

b) Faubourg Numérique (Northern France) (FbN)
- Several posts on social media channels: Twitter, Blog post on Fbn Website)
- Promotion at FIWARE Hackathon organized by FbN (39 attendees)
- Bounty Program promotion in FIWARE Conference Amiens organized by FbN (50 attendees)
- Promotion at the Saint-Quentin French Tech Expo (3,500 visitors)
- Promotion at the GDG meetup Saint-Quentin (15 attendees)
- Blog Post on Faubourg Numérique website

Furthermore, requests were received from local technical universities to organise "hands on" workshops on FIWARE IoT related enablers. FbN also made sure that all the local active developers using FIWARE (10-15 persons) are well aware about the bounty program.

c) JIC
- Emails sent to relevant startups that could participate in the bounty program
- Promoted on FB groups of Technical University in Brno (300 views)
- Included the bounty program in JIC Newsletter (> 100 people reached)
- Promoting via email to technological universities.
- Did a direct promotion tour to own startups (10 startups reached)

d) INITS
- Shared it on FB page, shared with individual accounts on FB, Linkedin, Twitter (> 10.000 developers reached)
- Made FIWARE- event-organizers spread the word using their mailing lists
- Promoted the bounty program to several of their FIWARE startups

e) ABC Accelerator
- Several posts on social media channels: Twitter (842 impressions), Facebook (640 users reached), etc.

- Promotion at IoT Conference Slovenia in November 2016 (350 attendees)
- Promotion at BDTN FIWARE Hackathon (32 participants)

f) IPN Incubator
- Several posts on social media channels: Twitter, Facebook (653 users reached), etc.
- Promotion email IPN Incubator mailing-list (all companies)
- Promotion at SOUL-FI conference City-of-things (http://soul-fi.ipn.pt/city-of-things/) (120 attendees)
- Promotion as a Speaker at StartupOlé event in Salamanca (600 attendees)
- Promotion on a DevOPs Conference (200 attendees)

g) European Innovation Hub
- Shared in European Pioneers & European Innovation Hub channels (Blog, Facebook, Twitter)
- Promoted on FB for 3 weeks as pinned post (first post on page). Reached out to more than 300 people.
- Blog post together with IPN interviewing Telefonica Technology Expert: Promotion of the same via FIWARE Press Office and on social media channels.
- Promoted Bounty Program in person at several technology events / conferences: Data Natives Berlin / EclipseCon 2016 / Smart City Expo 2016
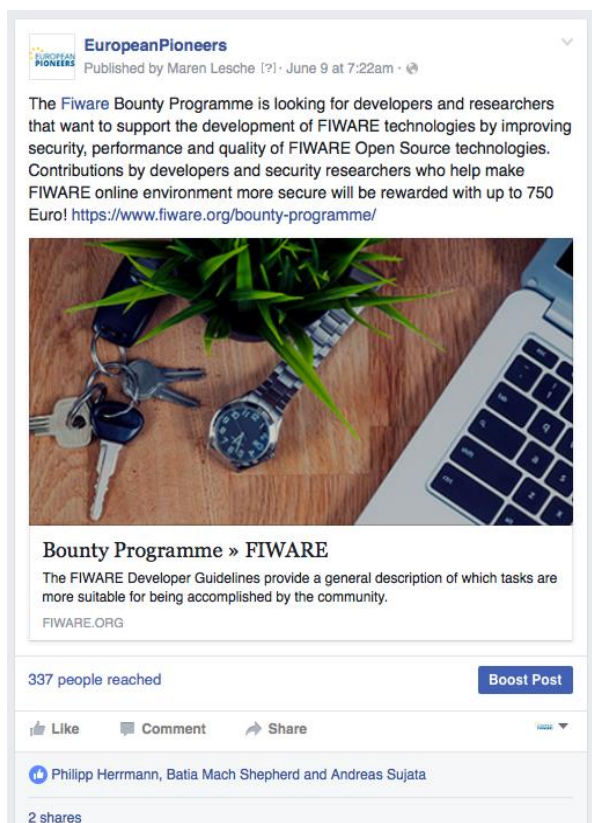
Twitter: EuropeanPioneers shared the official posts of FIWARE

In the most active period of the year 20 Tweets reached overall 14.000 accounts and created 45.000 impressions:

CONTRIBUTORS

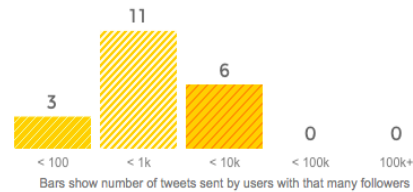|	Tweets	RTs	Impressions
Flware	4	12	38.6k
EUPioneers	1	0	1.4k
CreatiFi_FI	1	0	1.2k
FABulous_FI	1	0	698
evamaurina	1	0	520
DigitalMalaga	1	0	516
ICT_Hungary	1	0	479
LeonorLrc	1	0	456
MoniqueCalisti	1	0	434
Lauroka	1	0	260
stephanevialle	2	0	242
ppamplona84	1	1	207
HSundmaeker	1	0	146
LaurentChivot	1	0	84
maxime_mularz	1	0	60
tomasN_list	1	0	39

bounty fiware

ESTIMATED REACH

14,608
ACCOUNTS REACHED

EXPOSURE

45,307 IMPRESSIONS

Bars show number of tweets sent by users with that many followers

ACTIVITY

20 TWEETS   16 CONTRIBUTORS   10 DAYS

7 tweets

13 retweets

3.4.1   Events in specific countries

The bounty program was promoted at those events:

- April, 20-21: Net Futures 2016 @Brussels
- June, 21-22: City-of-Things conference @Delft
- October 25-27: EclipseCon 2016
- October, 26-28: Data Natives Berlin
- November, 15-17: Smart City Expo 2016
- November, 23-24: Saint-Quentin French Tech Expo
- November, 25: IoT Conference Slovenia
- December, 13-15: FIWARE Summit

4 Bounty results and approval process

4.1 Approach

The process defined to managed the bounty applications was designed together with FI-Core team:
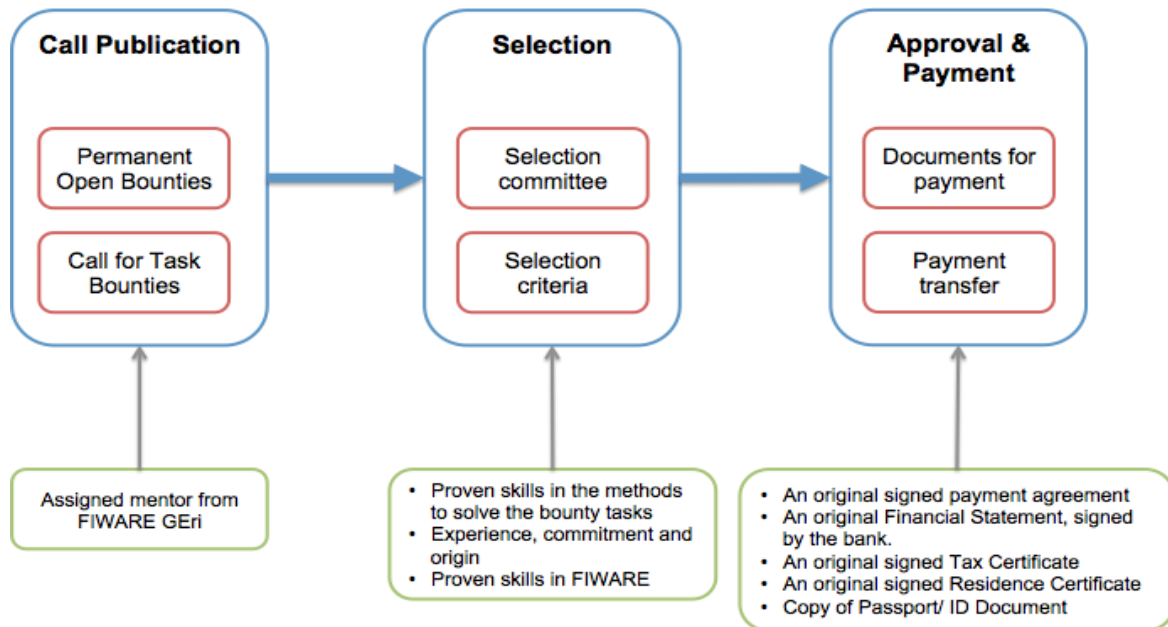
4.2 Bounty applications and approved bounties

Shortly after publishing the bounty program online and promoting it in various iHub channels the result was the following:

FIWARE Bounty permanent (28.06)
  ● 8 applications
  ● 3 finalised applications: 1 accepted (still not payed) + 2 under evaluation
  ● 5 applications "in progress"
FIWARE Bounty temporary (28.06):
  ● 7 applications
  ● 1 finalised application
  ● 6 applications "in progress"

After giving the program a second promotion push (see above) the numbers increased:

FIWARE Bounty permanent (05.07):
  ● 24 applications out of which:

- 7 finalized: 2 accepted (under payment) + 1 rejected + 4 in evaluation by FIWARE
- 17 in progress

FIWARE Bounty temporary (05.07):
- 16 applications out of which:
- 1 finalized
- 15 in progress

After changing the structure and publishing the interview with the Telefonica Technology Expert, the status of the bounties is in the middle of December 2016:

- 29 applications in progress
- 7 applications submitted out of which:
    - 5 accepted
    - 2 rejected

The five accepted bounties came from the following entities:
- Dinamo Digitale
- Dimitrios Amaxitalis
- Secmotic Innovation SL
- HOP Ubiquitous
- Reñars Vilnis

Applications are available within F6S platform (https://www.f6s.com/fiwarebountyprogramme).

4.3 Payments

The above mentioned five applications were accepted. Three of them were paid directly after approval by the responsible FIWARE team at Telefonica. For payment, the applicants sent the documents below to IPN:

- Invoice according to local laws
- Copy of Passport/ Identity National Document
- Copy of signed Residence Certificate
- Copy of signed Tax Certificate (for companies only)

IPN checked the papers and forwarded the documents to the iHub-member European Innovation Hub. The berlin-based team then executed the payment.

For documentation reasons the above mentioned as well as the following documents were kept for each accepted bounty application:
- Application form
- Evaluation by FIWARE

When this report was created two out of the five applicants had not yet sent their payment information. The applicants received another reminder to submit their invoice and further documents within 48h sent by IPN. If both applicants submit their invoices until the end of the year, their bounty activities will be regularly paid.

5 Learnings

When the bounty program was launched, high expectations led to the decision that 80.000 EUR were reserved for bounty payments. The bounty program should be a starting point for turning FIWARE into an open source community. But unfortunately giving away small amounts of money for code improvements did not turn out to be sufficient to motivate many developers to do community contributions and to activate an open source community movement. The interest of the developer community to work on FIWARE enablers could not be raised much by promoting the program and award money for community contributions. It turned out that more information activities in general on FIWARE technology, more face-to-face activities promoting FIWARE e.g. at open source developer events and more positive role-models building great products based on FIWARE would be needed. The bounty program in its set-up could not cover all of this. Although several iHub members all over Europe promoted the program frequently, no real buzz could be created for the program. In the end, only a small part of the 80.000€ was needed.

In addition to the already mentioned reasons for the insufficient outcome a few more possible reasons for this low interest should be considered when planning follow-up activities to engage the community:

- We learned that engagement of developers needs a face-to-face approach. Intensive and frequent participation at events where open source developers are present would be needed. This was not possible to cover by the available person month budget.

- The iHubs as the main partner for communication of the program have a strong footprint in entrepreneurial startup ecosystems - real developer networks are less entrepreneurial and more tech-focused and were not always reached by iHub-promotion activities.

- The project outcome shows that more effort is needed to improve the attractiveness of FIWARE for developers in some European countries where FIWARE as a tech brand is not as good positioned as in other countries. In many developer communities FIWARE is not yet known or established as a reliable technology. Therefore, the impact was still low when promoting the bounty program. In those countries developers stick with the technologies they already know. If the open source community will now be established by the Foundation and FIWARE becomes more widespread in the future, there will most probably be another scenario.