



GENERAL PROJECT REVIEW CONSOLIDATED REPORT

Grant agreement (GA) number:	780229
Project¹ Acronym:	WAZIHUB
Project title:	Accelerating Open IoT and Big Data Innovation in Africa
Type of action:	IA
Start date of the project:	01/05/2018
Duration of the project:	39
Name of primary coordinator contact and organisation:	Abdur RAHIM (FBK)
Period covered by the report:	from 01/11/2019 to 31/07/2021
Periodic report/Reporting period number:	Final
Date of first submission of the periodic report (if applicable):	21/10/2021
Amendments (latest AMD concerning description of the action)²	31/03/2021 (AMD-780229-11)
Date of meeting with consortium (if applicable):	Not applicable
Name of project officer:	Jorge SANTOS
Name(s) of monitors:	<ul style="list-style-type: none"> – ELDERT VAN SCHAGEN <ul style="list-style-type: none"> • Symponea BV • Shell • KPMG – Euphraith Muthoni Ileri MASINDE <ul style="list-style-type: none"> • European Comission • Central University of Technology, Free State • Bloemfontein

¹ 'Project' means the same thing as 'action'.

² Only amendments to the description of the action (DoA; AT21) are relevant for general project reviews since they always have to be carried out against the latest version of the DoA

1. Overall assessment

1. Overall assessment
Project has fully achieved its objectives and milestones for the period.
2. Significant results linked to dissemination, exploitation and impact potential
<p>Project has delivered exceptional results with significant immediate or potential impact (even if not all objectives mentioned in the Annex 1 to the GA were achieved).</p> <ul style="list-style-type: none">• Design and development of the two WAZIHUB innovation competitions, with partner hubs in 6 countries.• 14 “champion” startups incubated in our program. • 13 Webinars have been organized to support the entrepreneurs for capacity building.• Organization of 2 more boot camps in Uganda and Tanzania, leading to a total of 15 boot camps.• Many training and prototyping sessions.• Promotion of the program through various communication channels.
3. General comments
<p>WaziHub organized more than 100 IoT training sessions, trained more than 1000 African young talents, distributed more than 200 IoT development kits, and supported 80+ startups to prototype their IoT solutions. WaziHub is building an African IoT open platform and ecosystem in collaboration with more than 10 TechHubs4. All in all very good!</p>
4. Recommendations concerning the period covered by the report
<p>The project has been managed well, from a technical point, a financial point and it has attracted many start up's and users. Social media were well used, but maybe social influencers on a technical level would have been helpful</p> <p>.</p>
5. Recommendations concerning future work, if applicable
<p>In spite of a long list of partners in the Hubiquitous project, it is hard to find ready-made boxes of the Wazihub parts and prices of all the sensors and delivery times. It is recommended to have a more commercial attitude and have a list of components and simple user instructions for a number of applications.</p> <p>Currently, it is focused on start-ups to put things together, but the project has progressed far enough to directly address the end-users of these products as well. There are some Application Business Boxes, but it is not yet a commercial offering to the end-users.</p>

2. Objectives and workplan

1. Is the progress reported in line with objectives and work plan as specified in the DoA? If there are significant deviations, please comment.	Yes
<p>Overall, both the documentation and the presentation by the Project Implementation Team indicate that this project was a great success with many of the planned targets being exceeded. Furthermore, there are some unique and impressive elements that were brought on board, such as:</p> <ul style="list-style-type: none"> # Meaningful and tangible involvement of African partners - for instance, the decision to manufacture sensor boards in Kenya is quite commendable. # Leveraging many social media avenues to reach a large audience. # Creation of a clear, sustainable path with the previous (WaziUp) and future Wazi-ubiquitous projects and creation of a non-profit organization to continue the legacy of the Project. # Design and development of the two WAZIHUB innovation competitions, with partner hubs in 6 countries. • 14 “champion” startups incubated in our program. • 13 Webinars have been organized to support the entrepreneurs for capacity building. • Organization of 2 more boot camps in Uganda and Tanzania, leading to a total of 15 boot camps. • Many training and prototyping sessions. # Promotion of the program through various communication channels. 	
2. Are the objectives of the project still scientifically and /or technologically relevant?	Yes
<p>Yes, the Internet of Things is only starting now. The combination of elements offered by Wazihub (sensors, Processors, Hub's and communication methods), will give it a excellent strat for the future</p>	
3. Are the critical implementation risks and mitigation actions described in the DoA still relevant?	Yes
<p>6 Critical implementation risks and mitigation actions give a good list of risks foreseen (11) and unforeseen (13) and a good overview of how these risks can be mitigated</p>	
4. Have the pilots/case studies started to showcase innovative results as described in the DoA?	Yes
<p>They published 2 magazines with all 50 IoT applications in Africa, also many of these are listed in their report D3.15_WaziHub's highly innovative products and services showcase.</p>	
5. Have the ethics deliverables due for the current period been adequately addressed and approved?	Yes
<p>Care has been taken that the project attracted also female participants. (about 30%). All aspects of ethical behavior have been taken into account.</p>	
6. Have the comments and recommendations from previous project reviews been taken into account?	Yes
<p>The project addresses now a wide range of application areas and involves many start-ups and universities. Good use has been made of all the social media's.</p>	

3. Impact

1. Does the work carried out contribute to the expected impacts detailed in the DoA?	Yes
The project has an impact on all main areas like agriculture, Wildlife, forest, Health, Smart Cities, and Industries.	
2. Does the work carried out follow the plan detailed in the DoA to enhance innovation capacity, create new markets opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, address industrial and/or societal needs at regional level or bring other important benefits for society? Give information on the relevant innovation activities carried out (prototypes, testing activities, standards, clinical trials) and/or new product, service, reference materials, process or method (to be) launched to the market, if any.	Yes
Over 50 prototypes have been piloted and tested in the 5 focus areas. The reports and magazines give a detailed description of these pilots.D 5.3 Final technical report gives a detailed description as well as the references to websites and forums for even more details.	
3. Does the work carried out contribute towards European policy objectives and strategies and have an impact on policy making?	Not applicable
4. Does (or will) the work carried out have an impact on SMEs?	Yes
SME's are involved at the heart of the project.	
5. Have the beneficiaries reached gender balance at all levels of personnel assigned to the action? If not, have the reasons been explained in the periodic report?	Yes
over 30% of the participants are female, including in management positions of the new startups.	

4. Implementation

1. Has the project been efficiently and effectively managed?	Yes
As has been shown by the large amount (over 50) of prototypes and pilots.	
2. Is the management of the project in line with the obligations of beneficiaries (including ethics and security requirements, risk and innovation management if applicable)?	Yes
D5.7_Project Final Result gives a clear overview of how these items are addressed	
3. Is the contribution of each beneficiary in line with the work committed in the DoA? (applicable only to multibeneficiary projects)	Yes
As shown in the latest financial reports.	
4. Have the beneficiaries disseminated project results (foreground) in scientific publications as planned in the DoA (including the deposition of publications in open access repositories)? Do they include a reference to EU funding?	Yes
All projects disseminated, websites, social media, etc. contain a clear reference to the EU funding of the project.	
5. Have the beneficiaries disseminated and communicated project activities and results by other means than scientific publications (social media, press-release, the project web site, video/film, etc) as planned in the DoA? Do they include a reference to EU funding?	Yes
In all publications, web, social media, etc. it was made clear that EU funding was an important part of the project.	
6. Has the plan for the exploitation and dissemination of the results (if required) been updated and implemented as described in the DoA, in particular as regards intellectual property rights? Is it appropriate?	Yes
D5.7_Project Final Result gives a clear overview of the exploitation plan	
7. Has the data management plan (DMP) (if required) been updated and implemented? Is it appropriate?	Yes
D2.6_IoT open Data Management give a clear description of the IoT open data plan	
8. Have the proposed institutional changes been appropriately promoted?	Yes
the next step is the Hubequiton project. see Hubiquitous.eu	

5. Resources

<p>1. Were the resources used as described in the DoA and were they necessary to achieve its objectives? If there are deviations from planned budget, have they been satisfactorily explained? Have they been used in a manner consistent with the principle of sound financial management (in particular economy, efficiency and effectiveness)?</p>	<p>Yes</p>
<p>Deliverable number Deliverable name Status Comments</p> <p>D1.6 Technical training and tutorial materials (beta) Accepted</p> <p>D2.2 Deployment of IoT smart village model (beta) Accepted</p> <p>D2.4 Deployment of the multi-cloud environment (beta) Accepted</p> <p>D2.5 IoT open data management plan (alpha) Request for revision Redo figures 2, 3, 4 and 5. The ones currently in the document are unclear.</p> <p>D2.6 IoT open data management plan (beta) Accepted</p> <p>D2.8 Software tools for testing and maintenance (beta) Accepted</p> <p>D3.5 Report on capacity building for entrepreneurs, developers, startups, and partners (beta) Accepted</p> <p>D3.6 Report on capacity building for entrepreneurs, developers, startups and partners (gamma) Accepted</p> <p>D3.8 WAZIHUB accelerator program results and achievement (beta) Request for revision The table of contents contains bookmark errors, this needs to be fixed. Further, general language editing of the document is required.</p> <p>D3.9 WAZIHUB accelerator program results and achievement (gamma) Accepted</p> <p>D3.11 Status report on testing, co-design, and development of high potential IoT products and services (beta) Accepted</p> <p>D3.12 Status report on testing, co-design and development of high potential IoT products and services (gamma) Accepted</p> <p>D3.14 WAZIHUB highly innovate products and services showcase (beta) Accepted</p> <p>D3.15 WAZIHUB highly innovate products and services showcase (gamma) Accepted</p> <p>D4.4 Proven accelerator growth- hacking, business model, and local market sustainability (beta) Accepted</p> <p>D4.5 Proven accelerator growth- hacking, business model, and Accepted</p> <p>Deliverable number Deliverable name Status Comments</p> <p>local market sustainability (gamma)</p> <p>D4.7 WAZIHUB IoT ecosystem partnership database in software tool with a web interface (beta) Accepted</p> <p>D4.8 WAZIHUB IoT ecosystem partnership database in software tool with a web interface (gamma) Accepted</p> <p>D4.10 Progress report on communication, dissemination, innovation competition, and sustainable ecosystem creation (beta) Accepted</p> <p>D4.11 Progress report on communication, dissemination, innovation competition, and sustainable ecosystem creation (gamma) Accepted</p> <p>D5.3 Periodic Report Year 2 (Final report) Accepted</p> <p>D5.7 Project final results Accepted</p> <p>Annex 2</p> <p>Expert opinion on milestones</p> <p>Milestone number Milestone name Achieved Comments</p> <p>MS1 Development kit and training materials for kick-off accelerator program Yes</p> <p>MS2 Users response and requirements for platform deployment Yes</p> <p>MS3 Kick-starter campaign for the IoT LoRa development kit for promotion Yes</p> <p>MS4 Running instance of smart village and multi-cloud platform Yes</p> <p>MS5 WAZIHUB smart village and multi-cloud platform operating in full phase Yes</p> <p>MS6 Define the model of the accelerator program and kick-off the implementation Yes</p> <p>MS7 Define the IoT ecosystem and start implementation Yes</p> <p>MS8 20% achievement of all four KPIs defined in section 1.1 Yes</p> <p>MS9 60% achievement of all four KPIs defined in section 1.1 Yes</p> <p>MS10 100% achievement of all four KPIs defined in section 1.1 Yes</p>	

Expert opinion on deliverables

Deliverable number	Deliverable name	Status	Comments
D1.1	Adaptation requirements based on the user's response, feedback and preference (alpha)	Accepted	no comments
D1.2	Adaptation requirements based on the user's response, feedback and preference (beta)	Accepted	no comments
D1.3	IoT LoRa development kit (alpha)	Accepted	no comments
D1.4	IoT LoRa development kit (beta)	Accepted	no comments
D1.5	Technical training and tutorial materials (alpha)	Accepted	no comments
D1.6	Technical training and tutorial materials (beta)	Accepted	no comments,
D2.1	Deployment of IoT smart village model (alpha)	Accepted	no comments
D2.2	Deployment of IoT smart village model (beta)	Accepted	no comments
D2.3	Deployment of multi-cloud environment (alpha)	Accepted	no comments
D2.4	Deployment of multi-cloud environment (beta)	Accepted	potential useful deployment
D2.5	IoT open data management plan (alpha)	Accepted	open data is at the heart of this project
D2.6	IoT open data management plan (beta)	Accepted	no comments
D2.7	Software tools for testing and maintenance (alpha)	Accepted	no comments
D2.8	Software tools for testing and maintenance (beta)	Accepted	no comments
D3.1	Design of WAZIHUB accelerator program	Accepted	no comments
D3.2	DIY, workshop, training and coaching materials for the accelerator (alpha)	Accepted	no comments
D3.3	DIY, workshop, training and coaching materials for the accelerator (beta)	Accepted	no comments
D3.4	Report on capacity building for entrepreneur, developer, start-ups and partners (alpha)	Accepted	no comments

Deliverable number	Deliverable name	Status	Comments
D3.5	Report on capacity building for entrepreneur, developer, start-ups and partners (beta)	Accepted	no comments
D3.6	Report on capacity building for entrepreneur, developer, start-ups and partners (gamma)	Accepted	useful report
D3.7	WAZIHUB accelerator program results and achievement (alpha)	Accepted	no comments
D3.8	WAZIHUB accelerator program results and achievement (beta)	Accepted	no comments
D3.9	WAZIHUB accelerator program results and achievement (gamma)	Accepted	no comments
D3.10	Status report on testing, co-design and development of high potential IoT products and services (alpha)	Accepted	no comments
D3.11	Status report on testing, co-design and development of high potential IoT products and services (beta)	Accepted	no comments
D3.12	Status report on testing, co-design and development of high potential IoT products and services (gamma)	Accepted	no comments
D3.13	WAZIHUB highly innovate products and services showcase (alpha)	Accepted	no comments
D3.14	WAZIHUB highly innovate products and services showcase (beta)	Accepted	no comments
D3.15	WAZIHUB highly innovate products and services showcase (gamma)	Accepted	no comments
D4.1	Plan for dissemination & communication and innovation competition	Accepted	no comments
D4.2	Definition and development of WAZIHUB IoT local ecosystem for sustainability	Accepted	no comments
D4.3	Proven accelerator growth-hacking, business model and local market sustainability (alpha)	Accepted	no comments
D4.4	Proven accelerator growth-hacking, business model and	Accepted	useful report

Deliverable number	Deliverable name	Status	Comments
	local market sustainability (beta)		
D4.5	Proven accelerator growth-hacking, business model and local market sustainability (gamma)	Accepted	no comments
D4.6	WAZIHUB IoT ecosystem partnership database in software tool with web interface (alpha)	Accepted	no comments
D4.7	WAZIHUB IoT ecosystem partnership database in software tool with web interface (beta)	Accepted	no comments
D4.8	WAZIHUB IoT ecosystem partnership database in software tool with web interface (gamma)	Accepted	no comments
D4.9	Progress report on communication, dissemination, innovation competition and sustainable ecosystem creation (alpha)	Accepted	no comments
D4.10	Progress report on communication, dissemination, innovation competition and sustainable ecosystem creation (beta)	Accepted	no comments
D4.11	Progress report on communication, dissemination, innovation competition and sustainable ecosystem creation (gamma)	Accepted	no comments
D4.12	Project website	Accepted	no comments
D5.1	Project Risk Management, IPR and Quality Plan	Accepted	no comments
D5.2	Periodic Report Year 1	Accepted	no comments
D5.3	Periodic Report Year 2 (Final report)	Accepted	no comments
D5.4	Open research data management	Accepted	no comments
D5.5	The deliverable prepares the final results and achievement of project	Accepted	
D5.6	Open data research management	Accepted	
D5.7	Project final results	Accepted	no comments

Expert opinion on milestones

Milestone number	Milestone name	Achieved	Comments
MS1	Development kit and training materials for kick-off accelerator program	Yes	no comments
MS2	Users response and requirements for platform deployment	Yes	no comments
MS3	Kick-starter campaign for the IoT LoRa development kit for promotion	Yes	no comments
MS4	Running instance of smart village and multi-cloud platform	Yes	no comments
MS5	WAZIHUB smart village and multi-cloud platform operating in full phase	Yes	no comments
MS6	Define the model of the accelerator program and kick-off the implementation	Yes	no comments
MS7	Define the IoT ecosystem and start implementation	Yes	no comments
MS8	20% achievement of all four KPIs defined in section 1.1	Yes	no comments
MS9	60% achievement of all four KPIs defined in section 1.1	Yes	no comments
MS10	100% achievement of all four KPIs defined in section 1.1	Yes	no comments
MS11	Project kick-off and details roadmap for the project	Yes	no comments