Blueprint on Sustainability of the EU & BR Coordinated Calls within H2020

September 2017

Trust-IT Services
Communicating ICT to markets

Table of Contents

This BluePrint Sustainability report, building on direct experience developed during EU-Brazil successful initiatives, provides elements to support sustainability paths and therefore suggests some ideas for steering research efforts from 2018 and beyond specifically in the EU-Brazil cooperation area, and for international cooperation at large.
The content herein has been distilled from recent consultations carried out with past and existing activities between European and Brazilian cooperation efforts in ICT. The BluePrint is to show the accomplishments attained to date from the funding, measure the Return on Investment (ROI) that this has brought and recommend steps that could be taken to ensure future sustainability.

A INTRODUCTION

Over the last seven years, the European Union (EU) and Brazil (BR) have granted in the region of approx. 50 M€ for investment in Research and Technological Development (RTD) activities for Information Communications Technology (ICT).

The information collected here has been through direct engagement with the coordinators of the EU-BR collaborative projects in ICT (see Annex 2), seven out of the fourteen projects have provided insights to the content of the present document as well as content drawn from the Cloudscape Brazil & WCN 2016 and Cloudscape Brazil & WCN 2017 panel sessions, organised at CSBC in Porto Alegre and São Paulo, respectively, within the framework of the EUBrasilCloudFORUM Project[1].

The EU and Brazil entered into diplomatic relations in 1960. This gave way to numerous transatlantic agreements, among which the Framework Cooperation Agreement (1992) and the Strategic Partnership (2007). The latter endorsed collaboration in RTD for the very first time. At its very heart lay the objectives of encouraging, developing and fostering RTD activities by providing financial support in fields of strategic and mutual interest, one of which to be specifically identified was ICT.

The resulting coordination calls, which began in 2010, have already produced some practical results. Today four calls in ICT have been launched, with 20 projects receiving funding for innovation in relevant key topics for both regions (see Table 1). Additional initiatives have been put in place to support the consolidation of EU-BR joint-innovation, focusing on collaboration in emerging innovation topics (see *Table 2 Other EU-BR initiatives*).

[1] EUBrasilCloudFORUM is funded by the European Commission under the Cooperation Programme, Horizon 2020 grant agreement No 689495.

B EVIDENCE FROM SUCCESSFUL PROJECTS

Co-operation between Europe and Brazil in ICT Research and Innovation (R&I) has had a positive mutual impact and shows encouraging signs of future success. The countries share socio-economic objectives and have been working together to improve social inclusion and employment prospects, with a number of EU companies investing in Brazil and the benefits that this entails.

The projects included in the collaborative calls launched thus far have produced **meaningful results, within a wide range of research fields** including **biodiversity and health** (e.g. EUBrazilOpenBio January 2011-December 2013, EU Brazil Cloud Connect - October 2013 to January 2016, and PodiTrodi - September 2011 to November 2014) and technological areas such as **connectivity** (helping populations in rural areas in the EU and Brazil gain access to internet), **observation** (monitoring of forests) and **security** (improving trust when moving to the cloud), as well as innovative big data services and programming models to help build applications with high social and economic impact (e.g. EUBraBIGSEA – January 2016 to December 2017 – applications for traffic and urban planning), to name a few.

The calls have aimed to encourage **business partnerships between innovative SME and research consortia** from Europe and Brazil, where possible. The projects have promoted networking and paved the way for future consolidated and potentially fruitful partnerships. For the very first time, in the EU-BR 4th call, two Brazilian SMEs joined international consortia, to enable them to join forces with their European counterparts favouring international and cross-sector collaboration, a national priority.

This has also had a positive impact on results in various key areas with positive repercussions on both economies.

Some relevant evidence has been selected and is presented in the following in a succinct way.

EVIDENCE 1 ICT ASSETS BEING USED BY NON-RELATED ICT SECTORS

ENERGY

Developments in **High-Performance Computing (HPC) are being used by industry players in the energy field in areas**, such as wind, biomass and geophysics, by implementing them in simulation software. The technology allows high performance simulation of energy-related problems in Brazil and Europe, and helps companies improve their simulation codes. This allows in better predictions and consequently better risk management (HPC4E project – December 2015 to November 2017).

HEALTH

Easily-used, Portable-Technology platforms assist researchers and clinicians to reach an immediate diagnosis and discrimination of infectious diseases (such as Dengue, Malaria, HIV, Chagas) in geographic regions with poor or low-density medical infrastructure of high socio-economic importance. This has a clearly beneficial impact on citizens who will benefit from a quicker accurate diagnosis and, consequently receive medical attention sooner. This asset is being further developed in several ongoing projects that are supporting the sustainability (PodiTrodi project - September 2011 to November 2014).

BIODIVERSITY

The Biodiversity scientific community has been benefiting from access to rich data infrastructures (reports, graphics, maps, and many others) to carry out quality analysis (EUBrazilOpenBio project – June 2011 to September 2013). By deploying a hybrid e-Infrastructure of open access resources, the European and Brazilian scientific community are now able to access an even greater biodiversity knowledge base, achieved through the integration and shared use of appropriate computing resources. The e-infrastructure has been integrated in existing EU and Brazilian developed frameworks and resources (e.g http://splink.cria.org.br, http://biogeo.inct.florabrasil.net, http://openmodeller.sourceforge.net)

EMERGENCY & CRISIS MANAGEMENT

The development of a software solution, with a special focus on incidents in industrial areas & large-scale events (RESCUER project – October 2013 to October 2017) enables support in emergency & crisis management. This allows a clearer picture of the incident to be re-constructed and positively effects human life (economy & environment).

The Comitê de Fomento Industrial de Camaçari (COFIC – Camaçari Industrial Promotion Committee), the biggest industrial park in the South of equador, is interested in putting the system into operation. A Brazilian software company (a RESCUER project partner) has adopted the configurable framework of the mobile application developed in the project in several other applications. On the European side, a software company (also a RESCUER project partner) had already included several of the RESCUER features in their commercial products.

EVIDENCE 2

CREATION OF A SPECIAL INTEREST GROUP (SIG)

Through the active discussions between principal actors in Europe and Brazil on cloud computing carried out by the EUBrasilCloudFORUM initiative, a **Special Interest Group within the Brazilian Computing Society (SBC SIG) on precisely the topic of Cloud Computing was created** for the first time during the second half of 2017. The founding members are European and Brazilian experts in ICT from different sectors, who will work together to discuss Cloud Computing solutions for both regions and provide a structure for the research community in the forthcoming years.

EVIDENCE 3

IMPROVED TRUST IN CLOUD COMPUTING

A variety of factors can inhibit the take-up of Cloud technology and, primarily, security, privacy and loss of control are top challenges needing addressed. **Assets from projects have helped improve trust in cloud computing,** to an extent not possible before, enabling secure computation. New cloud platforms have been created, on open source platforms, to support secure resources and facilitate the development of applications: e.g. an orchestrator for secure, docker-based containers (SCONE); a secure content-base routing communication platform (SCBR); modules for managing secure computation and storage resources in OpenStack (SecureCloud project – January 2016 to December 2018).

EVIDENCE 4

NEW MIDDLEWARE FOR CLOUD FEDERATION

A new middleware for the federation of clouds (Fogbow) was designed and implemented, as a toolbox to develop complex distributed applications on top of a federated cloud infrastructure which enabled the implementation of three complex applications (EU Brazil Cloud Connect project – October 2013 to January 2016). In addition, this project supports large-scale federation, which

will strengthen its position as an open source solution for cloud federation. This has favoured the development of **several use cases** that are being employed by a potentially large community of users, which will provide adequate funding to sustain these services.

EVIDENCE 5

IMPROVEMENT OF BIG DATA ANALYTICS

New components to support a QoS architecture that predicts resource consumption of Big Data Analytics applications in order to pre-allocate and dynamically adjust virtualised infrastructures. The improved performance and the better usage of resources, together with a sound framework for implementing privacy policies, advanced programming layers and data services support the users in developing and using applications that combine different types of data and processing elements to successfully tackle the challenges of big data and overall ease the applications development process. The LEMONADE analytics platform for visual creation and execution of data analysis workflows will be included in the RNP service offer to Brazilian researchers. (EUBra-BIGSEA project – January 2016 to December 2017).

EVIDENCE 6

NEW FEDERATED TESTBEDS FOR FUTURE INTERNET

A new test bed was developed and is being used by universities and research centres, to integrate major infrastructures in Brazil. This framework will also integrate other testbeds, and consequently create a large-scale, worldwide platform. This platform, equipped with a new set of services, will help prepare the next-generation of researchers to deal with the challenges of the current Internet (FIBRE testbed project – June 2011 to July 2014 & FIBRE). This infrastructure would enable computer-networking researchers and other projects and initiatives, as well as companies and users, to programme their own networks in a large-scale virtual laboratory. It is also actively contributing to the OMF6[2] development, a generic framework which enables the definition and orchestration of experiments using shared resources from different federated testbeds.

EVIDENCE 7

AN ENTRY POINT FOR EU-BRAZIL COLLABORATION IN CLOUD COMPUTING

The EUBrasilCloudFORUM marketplace was created with a collection of all outputs and players regarding ICT, since international co-operation between Europe and Brazil started. The marketplace displays **the value of using cloud-based services** and demonstrates how the results of EU-BR collaborations have impact on and are useful to bigdata, cloud, IoT, HPC and many other sectors.
The marketplace is a live tool, which collects:

- **EU-BR Cloud computing research**: Detailed factsheets and contact information about projects funded so far.
- **European and Brazilian SMEs and Startups:** List of industry players (mostly SMEs and StartUps) from both regions, whose ICT services have been innovating both regions economies and improving the sector's competitiveness.

[2] https://fibre.org.br/tag/omf6/ FIBRE's technical Committee decided unanimously for OMF6 as the new Control Framework to be adopted by FIBRE. The cOntrol and Management Framework (OMF) is a suite of software components, which provides management, control, and measurement tools & services to users and operators of networking testbeds.

- **Stakeholders**: list of European and Brazilian experts behind EU-BR collaborative research in ICT, or companies whose services on Cloud and related technologies (IoT, Big Data, etc) are innovation economies from both sides of the Atlantic.
- **Documents & Reports**: with insights on how both regions are working for the development of a joint ICT market.
- **Technological Assets:** Services, tools and software components resulting from past EU-Brazil collaborative research projects and from EU-BR industry players are also included in this section.

EVIDENCE 8

CLOUDSCAPE BRAZIL & WCN EVENTS

After four editions, the series of **Cloudscape Brazil Events** have provided the perfect forum for Policy makers, and Research and Industry representatives from Europe and Brazil to debate on hot topics in Cloud computing and ICT co-operation. These have helped shape cloud developments in Brazil and Europe, by providing insight into current market trends, highlighting the challenges which can slow down the mainstream adoption of cloud services and the best practices to address them, which has now become an integral **part of the Socidade Brasileira de Computação (SBC – Brazilian Computing Society) annual event agenda. Combined with Cloudscape Brazil series,** the 2 editions of the **Workshop of Cloud Networks** brought together well-experienced researchers, engineers, and practitioners from academia, industry and government to discuss and help advance the state-of-the-art of research in the emerging area of cloud-based networks and applications.

As the concepts behind cloud computing have evolved from academic conversation to an economic reality, it is important to take a scientific approach and constantly refine this based on the latest advances in technology and lessons learnt in the field. Through the continued efforts with Cloudscape, it is renowned for bringing together the interested parties technical constituencies to work on advancing the common knowledge. Both events already held have helped create of rich and meaningful partnerships between experts from both regions, across different sectors, supporting the creation of a truly-engaged, EU-BR community in ICT, ready to address the challenges that this sector is facing. Cloudscape has also provided the opportunity to create a SIG on cloud computing as seen in Evidence 2.

C ENGAGED END-USERS

A wide variety of different stakeholders from different sectors are already using the assets developed within the framework of the EU-BR collaborative projects.

Evidence gathered from groups of engaged end-users is reported below.

GROUP END-USER 1 Public Administration

Members of the **public administration** are also the end users of some of these assets. RNP uses Fogbow from the EU-Brazil Cloud Connect project to support an experimental cloud computing IaaS service based on the federation of private clouds belonging to Rede Nacional de Pesquisa e Ensino (RNP – Education & Research National Network) and its clients from research and educational institutions. In addition, the outputs of the FIBRE testbed project, to later become a self-sufficient initiative known as FIBRE, are also being used by RNP.

Public institutions from different sectors, like the Brazilian Instituto Nacional do Semiárido (INSA – Semi-arid National Institute) are discussing the possibility of supporting a service for the collaborative estimation of evapotranspiration, which is part of one of the use cases developed by a EU-BR project. Fiocruz (a **health sector foundation**) is negotiating with the Brazilian Health Ministry to obtain support for the LVL use case. Many clinicians are now able to quickly, easily and accurately diagnose diseases in remote geographic areas thanks to the PodiTrodi project.

GROUP END-USER 2 Universities and Research centres

Brazilian **universities and research centres** have integrated a major testbed infrastructure that they plan for more members to join, creating a truly worldwide infrastructure. In addition, **the public sector and society in general** will have access to new biodiversity data and cross-mapping tools to carry out ecological niche modelling experiments or collect critical information on species (e.g. http://openmodeller.sourceforge.net & www.catalogueoflife.org, and http://inct.florabrasil.net/ respectively).

GROUP END-USER 3 Large Industry

Large Industry is exploiting these new infrastructures and has shown interest in the results of many projects. Examples include software producers and companies that deal with highly sensitive data and want to increase the security of specific components.

GROUP
END-USER
4

Energy Players

In the **energy domain, big players** such as Total, Repsol, Petrobras and Iberdrola are already putting the solutions developed in the HPC4E project into practice. This brings the project halfway to ensure the sustainability of its assets through use by industry.

Despite high interest, some organisations mentioned that they might not have adequate hardware/software or IT resources to exploit some of the new assets developed by projects. It is probable that more industry players would adopt projects assets, were these assets to take developed taken the account users' needs into consideration.

GROUP
END-USER
5

SMEs

SMEs have also been benefiting from EU-BR collaboration. Thanks to Cloudscape Brazil events, SMEs have been able to promote their business, form new partnerships with their counterparts and researchers on the other side of the Atlantic and share their experience on how policies can be adopted to support them better. The EU-BR marketplace developed by the EUBrasilCloudFORUM project promotes tools and best practice to help SMEs use the cloud and enables companies to find partners across the ocean. It also helps them promote their success stories using cloud services and/or developing cloud technologies.

Moreover, SME project partners (e.g. Software companies), of EU-BR projects, have implemented features in their commercial products that were developed thanks to international collaborations. A step further in the market innovation by providing products/services more sustainable to users' needs.

D THE CHALLENGE OF MEASURING RETURN ON INVESTMENT (ROI)

To ascertain the ROI in monetary terms for all the assets and services developed from the investment is a known challenge. Nevertheless, it is clear that the assets, created thanks to the EU-BR collaboration, have the potential to create a positive impact on a large community of users, as these can have a number of applications and be used in different sectors (health, agronomy, agriculture, environment…). These assets also speed up some processes, allowing the organisations to improve efficiency in terms of services provided. The larger the number of users, the more significant the impact and a higher ROI in terms of tangible benefits.

As part of the effort in developing a sustainability blueprint we have tried to list and describe the role of many factors simultaneously influencing ROI.

FACTOR 1 IPR

When measuring ROI, a consideration that these assets face is the intellectual property rights. As they were developed by international consortia from different sectors with distinct business models, it is challenging to clearly distinguish how the financial ROI will be distributed if these services are launched to market.

It may also be challenging to calculate the ROI of that asset itself but a different but complementary analysis could be made, namely the impact these assets can have on the country's economy. For example, by using more secure processing techniques on the cloud, it might not reduce the direct costs of computing resources (it may even have the opposite effect) but it will decrease the impact of cyber-attacks in a country's economy. Having data protected can prevent potential attacks that would compromise organisations' businesses.

FACTOR 2 Not just financial ROI

ROI is not only about financial return. The transatlantic projects have improved international cooperation between European and Brazilian institutions, creating a base of contacts for future collaboration, even not related to EU-BR calls. These projects have enabled new cooperation agreements to be established and, namely, one between Centro de Referência em Informação Ambiental (CRIA – Environmental Information Reference Center) and RNP, a fundamental partnership that will ensure the sustainability and continuous development of EU-BR project assets.

FACTOR 3 Data Assets & Tools

Some project outputs are being implemented and made self-sustainable, bringing innovation to certain sectors and supporting stakeholder work and being contacted by players neither from Brazil and Europe (e.g in other South American counties). Other assets are available in public repositories, under proprietary or BSD license, for copy, redistribution and modification but retain copyright notice and the names of the original authors. Overall the data-usage statistics available in infrastructures created thanks to this collaboration, demonstrate an obvious growth of the number of records used (from 4.6 million records in 2012 to 8.7 million records by September 2017, and an additional 61 data providers, according to the EUBrazilOpenBio project). This has enabled the refinement of both data and tools from partner infrastructures, while consolidating existing resources at the same time.

E SUSTAINABILITY PATHS & SUPPORT FOR FUTURE CALLS

EU-BR initiatives have produced several assets (services, tools, software components) that can benefit both industry and society at large in both regions. This will support innovation exploitation in Brazilian and European economies. The question is, how can we ensure that the assets will be taken up by stakeholders and support them in improving their business competitiveness?
Below a list of possible recommendations to be considered when preparing future EU-BR calls, which could improve their ability to generate sustainable cooperation after the funding period and increase the positive impact they can have in both regions' societies and economies.

RECOMM 1 ENGAGING WITH PRIVATE INVESTORS

A solution to ensure the sustainability of research results might come from private investors, who are identified during the proposal phase, and listed with their ensured buy-in, who could support the creation of start-ups and SMEs from EU-BR projects. This could be carried out through the definition of PPP - Public Private Partnerships that could help stimulate the market and strengthen industries dealing with data protection and cyber security.

RECOMM 2 INTEGRATING PROJECT ASSETS INTO FUTURE RESEARCH

Project sustainability shall not focus only in maintaining components, but also in making these components an integral part of future research and listing them in the work programme call description text, to bring more added value for future tools and services. The criteria of these components would be the mutual cooperation between the two regions in the development phase.

RECOMM 3 CREATING COMMON LEGAL FRAMEWORK

A common legal framework between Europe and Brazil, namely on data portability, protection, cybersecurity, privacy, free flow of data, to stimulate and develop and environment that encourages the use of these technologies for the Digital Single Market.

RECOMM 4 WORKING CLOSELY WITH END-USERS

Working closely with the end-users, to create solutions that will fit their needs, will speed up the adoption of the tools and services developed. The quicker the response and accurate the service need, the bigger the financial return and sustainability will be. Precise roles within the proposal identification phase of the end-user would be paramount.

RECOMM 5

SUPPORTING THE CREATION OF AN ECOSYTEM FOR COLLABORATION

Favour the development of an ecosystem of start-ups and other industry players to find partners across the Atlantic, to favour collaborations from the very onset.

RECOMM 6

INVOLVING INDUSTRY AND ENGAGING IN OTHER NOVEL FORMS OF COLLABORATION

Inclusion of industry from the beginning of the project is crucial when moving tools and service results from research and innovation to the marketplace. Engaging with industrial players to allow them to play an active role either as end- users or service providers would maximise impact. Future EU-BR consortia should have a better balance of Industry representatives, not exclusively from ICT, on future EU-BR projects. The involvement of industry is a key to ensure the sustainability of assets beyond the end of funding.

RECOMM 7

EXPLOITING THE POTENTIAL OF ICT AS AN ENABLER OF INNOVATION ACROSS SECTORS

Promote the message "ICT as an enabler of innovation", not only in the ICT sector but also across different sectors. The involvement of end-users or service providers not only from the ICT sector, in future consortia, will support innovation across different sectors and, consequently, provide more benefits for both countries' economies and societies. It is important to create value, wealth, business, and improve the quality of life for citizens.

RECOMM 8

REDUCING GAPS IN KNOWLEDGE AND PROVIDING TRAINING

The lack of knowledge and IT skills on cloud computing laws, data protection, taxation, cyber security and other ICT topics, from players from both ICT or other sectors, has been compromising the adoption of cloud computing and other ICT services, especially by SMEs and start-ups (the back bone of the European and Brazilian economy). Communication and marketing strategies have to be developed, to show society, the benefits of using these technologies.

Provide practical training to exchange educational tips on Market Readiness Levels (MRL) and Technology Readiness Levels (TRL) and what these mean, to support a more consolidated market uptake, this could be part of the policy dialogue that takes place annually. Support towards managing Service Level Agreements (SLAs) and Procurement models, assets already established in past EU projects that can be leveraged upon as well as ideas around a *Commons Credit Model* such as the one implemented at the NIH [3]where cloud computing is provided as a **scalable cost-effective infrastructure** could be implemented in Brazil.

[3] Source: https://datascience.nih.gov/sites/all/themes/datascience/conferences/2016/INITIAL%20IMP%206%20KOMATSOULIS%20AHM%20Credits%20Second%20Session_508.pdf
George A. Komatsoulis, PhD

RECOMM 9

ENSURE THE DEFINITION & GOOD BALANCE OF PRIORITIES IN BOTH REGIONS

Select topics that can **influence national digital agendas** in member state countries and on both sides of the regions and may have a socio-economic impact, engage a wider group of stakeholders and support the creation of a common DSM. Include in these ICT calls other strategic areas of scientific cooperative which will capitalise the effort and better support cross-sectoral development in both regions: **marine research, bio-economy, renewable energy, health, nanotechnologies, research infrastructures, sustainability, smart cities, industry 4.0 and climate change** are some examples.

RECOMM 10

REQUIRE GO TO MARKET STRATEGY IN FUTURE GRANT AGREEMENTS

Make inclusion of "Go to Market" strategies mandatory as part of the implementation plan, at least 15 months before project conclusion, so that an exploitation plan is delivered earlier, to ensure sustainability of the project after the end of the funding period. Sustainability must be foreseen from the outset of the project. Provisions to define property rights that define how financial income is to be distributed after the funding period, should also be included, to avoid potential barriers when selling the assets.

RECOMM 11

EMPOWER ICT TO EXPLOIT THE FULL POTENTIAL OF DATA

Today's society produces massive amounts of data, requiring HPC technologies to process and transform it into valuable information. ICT players, and namely cloud providers, need to enhance their data centres, so that HPC applications can migrate to the cloud and support social development: **artificial intelligence, eHealth & energy** are some areas that would benefit from this.

RECOMM 12

ENCOURAGE PARTNERSHIPS WITH CLOUD PROVIDERS

Looking at services from a federation perspective, there are three types of partnerships that could be built with cloud providers:

- Partnerships with global companies and framework agreements with the providers;
- Partnerships with smaller customized solution providers;
- Partnerships with Cloud Service Brokers, to integrate the first two into one single portal, to help discover the kind of services consumed by users.

I ANNEX – EU-BR COLLABORATIVE PROJECTS

EU-BR Coordinated Call	Topics	Funds €	
FP7-ICT-2011-EU-Brazil	• Future of Internet; • Microelectronics and Micro-Systems; • Embedded Systems; • E-Infrastructures.	€10 M	• BEMO-COFRA • OpenBio • SecFuNet • PodiTrodi • FIBRE
FP7-ICT-2013-EU-Brazil	• Cloud Computing; • Sustainable Technologies for Smart Societies; • Applications and Services to promote Smart Societies; • Applications and Services for TV in Hybrids Environments, Radio and Bandwidth.	€10 M	• EUBrazilCloudConnect • IMPRESS • GLOBAL ITV • RESCUER
H2020-EUB-2015	• Cloud Computing, including security aspects; • High Performance Computing (HPC); • Experimental Platforms.	€14 M	• EUBrazilCloudForum • EUBra-BIGSEA • SecureCloud • HPC4E • • Futebol
H2020-EUB-2017	• Cloud Computing; • IoT Pilots; • 5G Networks.	€16 M	• Atmosphere • NECOS • 5G-RANGE • SWAMP • OCARIoT • FASTEN

Table 1 EU-BR Coordinated Calls

EU-BR Initiative	Goal
INCOBRA	Increase and enhance Research & Innovation (R&I) Cooperation Activities between Brazil and European Union R&I actors, so that both regions get the best value out of the mutual cooperation.
CEBRABIC	Supporting and connecting European research, innovation and business organisations to Brazil, thanks to an extensive network of regional innovation hubs and external service providers. Focusing on knowledge-intensive sectors, CEBRABIC will stimulate collaborative research-to-market projects, ultimately contributing to EU industrial competitiveness.

Table 2 Other EU-BR initiatives

II ANNEX – LIST OF EU-BR COLLABORATIVE PROJECTS FROM ICT CALLS

This is a screenshot of the entry page to all the EU & BR projects since Call 1 in 2010 through to the 3rd Call 2015: https://eubrasilcloudforum.eu/en/eu-brazil-cloud-research
Technological assets of services, tools and software components will be accessible on the marketplace in the Autumn 2017.

The content of the present document has been prepared by Trust-IT Services Ltd on the sidelines of the experience gained on several EU & BR funded projects and will be partly provided as a contribution to the currently running activity of the CSA project EuBrasilCloudForum. (www.eubrasilcloudforum.eu). The European Commission is the intended recipient of the document and the authors acknowledge the fact that the views expressed herein do not represent a commitment from the European Commission in any way.

Trust-IT Services Ltd.
Chase Green House, 42 Chase Side
Enfield, Middlesex EN2 6NF - UK
[+39] 050 28359
info@trust-itservices.com
www.trust-itservices.com