



Ecosystem infrastructure for smart and personalised inclusion and PROSPERITY for ALL stakeholders

## **D102.2: Complementary report on Report on business, market and financial payment models and community currency**

Project Acronym	<b>Prosperity4All</b>
Grant Agreement number	<b>FP7-610510</b>
Deliverable number	<b>D102.2-3</b>
Work package number	<b>WP102</b>
Work package title	<b>Detailed Demand Supply Transaction Modeling</b>
Authors	<b>Vivian Vimarlund</b>
Status	<b>Final version</b>
Dissemination Level	<b>Consortium</b>
Delivery Date	<b>23/03/2017</b>
Number of Pages	<b>23</b>

## Keyword List

Inclusive infrastructures, Supply-Demand Chain, Intellectual property, conclusions.

## Version History

Revision	Date	Author	Organisation	Description
1	23/03/2017	Virmalund	JIBS	Reviewed and finalized. Comments from the evaluators taken into consideration

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## Executive Summary

This deliverable, D102.2-3 contains a complementary report according to the comments from the reviewers (review 2 of P4A in March 2016). It focusses on to more specific discussions of the supply chain, the added value, intellectual property issues and the presentation of a summary of the most important challenges an inclusive platform needs to fulfill to achieve sustainability in a two sided market.

# 1 Overview

## 1.1 The Vision (why Prosperity4All)

Prosperity4 focuses on developing an infrastructure that allows a new accessibility *Ecosystem* to evolve that sustains self-rewarding collaboration, reduces redundant development, lowers costs of assistive services and technology for individuals with disabilities, and that at the same time stimulates an increase of the market and penetration internationally<sup>1</sup> The final vision of the project is to develop in “*an inclusive Ecosystem enabled by the infrastructure to deliver the optimal matching between supply and demand or services for individuals with disabilities and functional needs*”.

## 1.2 How can Prosperity4All achieve this vision?

ICT-based innovations, as well as e-services and assistive technologies, are globally described as one of the major driving forces to innovate the society because its potential contribution to improve quality and access to services, and to engage individuals in decisions related to their own wellbeing (European Commission, 2013 and 2014; OECD, 2011). The development of inclusive infrastructures and platforms, as the ones P4A project aims to develop, is expected to influence the digital transformation as it has occurred in all the sectors of the society in which services are and will be delivered digitally. The development of an inclusive Ecosystem implies also an evolution of the market from a one-sided market to a two-side market in which providers of services and technological innovations serve two distinct users groups (producers and consumer of services) generating value for each other at the same time. This new paradigm demands the understanding and development of frameworks, policies and guidelines that facilitate to achieve the vision.

In this complementary report we describe the supply chain, the value added of a supply chain, the IR issues that can be of relevance to consider, and present also a summary and conclusions of the main pre-requisites for effective design as well as to achieve sustainability in a two-side inclusive market that support social inclusion of persons with disabilities. The conclusions presented are of relevance for to achieve sustainable growth of an ecosystem and its infrastructures including ours. .

The contribution of this complementary report to the whole project is both theoretical and practical. The theoretical contribution includes definitions, descriptions and development of an a-priori theoretical framework to be used in future analysis of the consistency of the solutions developed.

The practical contribution is expressed in a presentation of facts and issues that influence the market and the context and its potential effects for the creation of a sustainable market for P4A.

Further, this complementary report contributes also with knowledge to the global architecture with the identification of requirements, and issues of key relevance for an inclusive infrastructure that

<sup>1</sup> <http://gpil.net/prosperity4all>

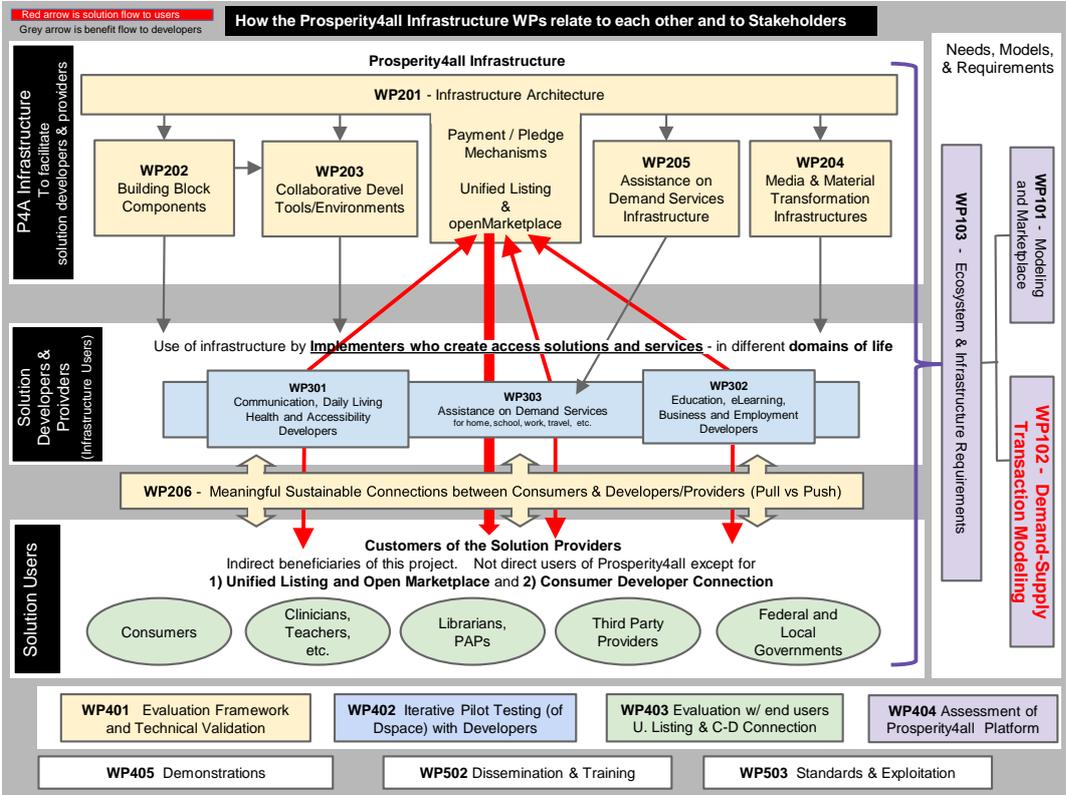
focuses on people with disability in an European context. The main outcomes of the report, can be replicated globally, this is because the issues and solutions suggested are of general interest and match common issues and goals identified for individuals with disabilities. It is important to note that in this report, we do not focus on one specific country, with some specific rules or for some specific types of organizations or disabilities. Our conclusions and suggestions are, intrinsically generic, and aims to show alternatives that can be used in inclusive infrastructures as P4A globally. In future studies it will be necessary to analyze to what extent regulations, different levels and types of disabilities, legal and historical variations, as well as cultural differences influence the context, the infrastructure and the market.

### 1.2.1 Specific DoW and WP objectives

This complementary report is organized in three main parts that present additional and complementary knowledge with the ambition to match the comments from the reviewers. Questions answered are related to the following issues:

- The supply chain and example of components an order system that support a flexible supply chain
- Requirements for successful supply chain optimization and value added
- IPR issues (e.g., relating to open source policy) strategies proposed
- How to ensure sustainability
- Summary and conclusions of the knowledge sampled

Figure 1: Overall Picture of Prosperity4all



## 2 Method

Data for this complementary report has been sampled in different steps and with different aims. At the first step, after the last review meeting, we collected information about policies and guidelines used and applied at the EU-level with the aim to acquire knowledge and understanding on how social security policies and insurance policies influence the delivery of services for people with disabilities in the Members States. We also reviewed reports and publications available no earlier than 2014 that discussed issues and needs of to include individuals with disabilities in the society. At the second step we used the knowledge sampled in a report written by Vimarlund, et al 2014 for the P4A project, in which issues that affect the sustainability of two-sided market. We further asked to colleagues with expertise in informatics, innovation and renewal, supply chain and intellectual property issues and that were involved in similar EU ´supported projects. At the third step we reviewed scientific publications available in English during a period of two years (2013 – 2015) to validate the outputs presented in this complementary report. We have also interviewed representatives from associations for disable individuals in five EU-countries (Sweden, Netherlands, UK, Lativa and Finland) and sampled information about the kind and areas of services they consider can support social inclusion.

### 2.1 Definitions

**Disability** A person is considered to have a disability if he or she has a long-term physical, mental, intellectual or sensory impairment which, in interaction with various barriers, may hinder his or her from full and effective participation in society on an equal basis with others [11]. *Definition of Disability according to Convention on the Rights of Persons with Disabilities (CRPD) and EU.*

**Infrastructure** Something that this is constructed to support a greater entity or system. The GPII is an infrastructure (the Global Public Inclusive Infrastructure (GPII)). The DeveloperSpace is part of that infrastructure.

**Ecosystem** A complex system of interacting entities that depend on each other and, in balance, support each other's existence. Ecosystems involve competition and predation, but in balance the whole ecosystem works or collapses. The Access community of developers, customers, funders, and policy person etc - is an ecosystem.

**Platforms.** A platform is a group of technologies that are used as a base upon which other applications, processes or technologies are developed

**Two-sided or Multi-side markets** enable direct interaction between two (or more) distinct types of customers". They are characterized by bringing together two or more interdependent groups of customers and supplies by creating value through network effects.

**Social inclusion** is defined as social acceptance of people with disabilities within school, work and community settings. This means that the individual (1) have a sense of belonging in a social network within which they receive and contribute support, (2) that they experience a valued social role, and (3) that they are trusted to perform that social role in the community

### 3 The supply chain

An inclusive infrastructure, as the ones that will be supported by the Developer Space (DS) needs to support a flexible supply chain model that must meet unexpected demand changes and even immediately respond to demand peaks and long periods of low workload. This supply chain model will need to be characterized by adaptability, which is the capability to reconfigure internal processes in order to meet a customer's specific need or solve a customer's problem. This kind of model is typically used today by service companies that focus on handling unexpected situations and emergencies. Due to the nature of such events, customers appreciate not only the speed of a supplier's response, but also its ability to tailor solutions to their needs.

Ensuring flexibility needs, however, four main capabilities the supply chain for the DeveloperSpace has to have. They are: extra capacity of critical resources, rapid-response capability, technical strengths in process and product engineering, and a process flow that is designed to be quickly reconfigurable.

The success of this kind of supply chain model demands also that companies joining the DeveloperSpace should keep critical resources (for example, pumps for companies that provide flood recovery services, or metal machining equipment for spare-parts manufacturing) available on stand-by. This may even require pooling of critical resources—including with those of competitors—because these companies address unexpected situations that could easily result in demand exceeding capacity, and it is not economically feasible to have unlimited capacity.

An important requisite for an inclusive infrastructure is consequently to facilitate an environment of strong collaborative relationships with all suppliers and guarantee companies promises, inventory and capacity to produce the services and goods they declare to be able to produce. Further, a flexible supply chain model need to be designed in a manner that ensure a well designed order, entry process and a system that ensure the proper understanding of the customer's situation and requirements. To do this, a key requirement is to offer multi-model systems, or multi-language systems. Examples of the components of an order entry process that should be accessible by potential customers and administrated by the DeveloperSpace either direct or indirect, are presented in the table below:

*Table 3: Example of components an order system that support a flexible supply chain*

<b>N.</b>	<b>Event</b>	<b>Input</b>	<b>Output</b>	<b>Description of activities</b>
1	Client registration	Customer details	Request or eventual limitations due to different levels of disabilities	Users requests and needs are updated on the database
2	Client submits a demand for a service	Service specifications and details	Alternative providers and technologies used to deliver the service as well as information about the payment model used for every specific individual	Requirements task is uploaded on the business infrastructure
3	Qualified suppliers offer the service	List of suppliers, information of payment alternatives, capacity to deliver on time, ability to	Service specification and details	Requirements task and corresponding tools are made available to the client

<i>N.</i>	<i>Event</i>	<i>Input</i>	<i>Output</i>	<i>Description of activities</i>
		deliver the service in different formats		
4.	Service supplier deliver eventual documentation	Instructions, manuals or other information of relevance at the moment to upload the service	Requirements specification and documentation translated in different languages of delivered in different formats	Client receives requirements specification and documentation
5	Clients requests further information on task details	Task detail inquiry, information about previous evaluations etc	Further clarification	Client receives questions and provides feedback to the suppliers
6	Client makes payment	Secure Payment using alternative systems	Payment or transfer of money	Client has funds required for buying the service  Suppliers are informed and funds transferred supplier account
7	Client submits complaints or suggestions/evaluations about the supplier	List of complaints/suggestions with answers delivered over the time	Feedback from administration of the business infrastructure in case some actors should need to be excluded from the infrastructure	Complaints or suggestions are put into consideration and necessary adjustments made... Information is available to the two sides of the market

Further, an inclusive infrastructure as the ones supported by the DeveloperSpace presupposes an integrated and collaborative supply chain in which exists and that the following requisites are achieved:

*Transparency:* Complete view of the supply chain and a flexible and integrated value chain networks

*Communication:* Information available to all supply chain members simultaneously, virtualized processes and virtualized customer interface

*Flexibility:* Natural development of collaboration depth to capture intrinsic supply chain value through Industry collaboration as a key value driver

*Responsiveness* Real-time response on planning and execution level (across all tiers to demand changes) and full implementation of a wide range of digital technologies the cloud, big data, the Internet of things etc.

At the heart of all this activity sits the digital supply chain, and will be the key to the operations of every member joining the infrastructure. Indeed for many companies and organizations the supply chain *is* the business, because it possibility to extends the vertical integration of all corporate functions to the horizontal dimension, knitting together relevant players — the suppliers of raw materials and parts, the production process itself, ware houses and distributors of finished products, and finally the customer — through a network of social technologies, overseen via a central broker, and managed through an overarching data analytics engine.

### 3.1 Requirements for successful supply chain optimization and value added

The infrastructure' supply chain shall synchronize all partner interactions, different technologies and integrate them well. The value added of the supply chain will come from:

**Technologies that allow synchronization of data:** Being able to synchronize data among the various enterprise operating units and trading partners in the supply chain will extend companies current investments and deliver greater value without added risk.

**A high-speed, reliable data transport.** While there are many services available today, supply chain synchronization requires very high performance, excellent scalability, and guaranteed message delivery.

**Enforced security and governance policy:** With so many partners potentially writing data to the supply chain and taking sensitive data from it, security considerations are paramount. The synchronization tools must have strong security, including state-of-the-art encryption that is fast enough not to interfere with real-time data delivery. Ongoing governance of the relationships and operating policies must be strictly enforced and constantly monitored for conformance.

**Quick connection of major business application provider solutions:** Clearly, for the coordination to occur, the solution must be able to plug into all major supply chain management solutions (SCM), ERP manufacturing packages, supplier relationship management (SRM) solutions, customer relationship management solutions (CRM), logistics pipelines, carrier data systems, and transportation planning systems (TPS). In addition, it must be capable of integrating any legacy or custom planning, manufacturing, distribution, and accounting systems into the supply chain infrastructure. To do this, the solution must make available a large set of connectors or a service-oriented architecture (SOA) so data can flow seamlessly between dissimilar business application provider technologies. It is critical for this to enable and include integration with smaller partners whose partner-facing software might have been written in-house or whose technology expertise and capability may be limited.

**Business process management:** Business process automation, standardization, exception monitoring, and reporting are necessary to properly disposition actionable data. Process automation for timely exception management of actionable data will reduce required human intervention to resolve routine operational events. Ongoing monitoring of process performance and efficiency will guide continuous improvement projects to reduce bottlenecks that impede data movement among supply chain components. Dynamic process adjustment, for successful optimization of rapidly changing variables, will permit process control optimizing the Supply Chain.

**Intelligent data presentation and visualization capabilities:** Supply chain events requiring intervention must be presented to the appropriate level of management in a concise and actionable form. It is equally important to assure action notifications are exception driven and in direct response to defined operations metrics. The use of key performance indicators (KPIs) and scorecards can greatly assist executive management with risk mitigation by monitoring the health of the strategic components of their supply chain. A good solution presents the data in a dashboard or in a portal. Alarms and alerts should be designed to appear as high-visibility items that immediately attract attention.

### 3.2 IPR issues (e.g., relating to open source policy) strategies proposed

Building collaborative infrastructure environments to encourage innovation in patentable technology provides demand different challenges than those found in the realm of copyrightable material. The infrastructure offered by the DeveloperSpace should be designed to encourage a free exchange of information and ideas that produces well-documented benefits for collaborators. But this may come at the cost of foregone patent rights, as the disclosure of information can limit options to patent. If the goal is open access, though, some argue that the predisposition toward the public domain is an important element.

Achieving openness in inclusive infrastructure as the ones offered by the DeveloperSpace, may, however, requires an infrastructure that is designed to accommodate flexibility in the management of intellectual property but also some restrictions to open access because placing a technology in the public domain, removes the leverage a patent owner has. The mayor challenge is how to balance IP-management and enabling collaboration at the same time.

When designing a strategy for inclusive infrastructure that support two-sided markets as the ones developed in the P4A project, it is therefore necessary to consider the complexity in the negotiation of the results of products derived from collaboration between multiple actors and, many times, the absence of rules, guidelines or praxis, to transfer IP from one product to another. Previous reports have shown that many innovations fail because their contributions to intellectual capital are not established. If the innovations are protected by a patent, trademark or any other intellectual property right (IPR) inefficiencies that affect both sided of the market can appears because the absence of information about the value and the right to transfer that value from one product to another.

Any management process requires the design of policies to guide and define the limits and powers in the decision making taken by stakeholders involved in or joining an infrastructure. The management of IPR in inclusive infrastructures as the ones the DeveloperSpace will support, according to a recently EU-report, should include, among other things:

1. - *Description of the contribution of the different actors*: Clear state the contribution from each participant and its value and property rights if they already exist. In some cases it will also be necessary to indicate indemnity clausules and the identification of measures to ensure the protection of intellectual property of intangible assets arising the different actors that join the DeveloperSpace.

2. - *Agreements and / or confidentiality statements* Inclusive infrastructure need to clear indicate how scope and users could be protected by way of confidentiality agreements. Of crucial importance is to make accessible information about which kind of guidelines to protect personal data that can be used as input in development processes or at the moment to transfer services are used for the providers of the services. This is a special interesting demand in the case of multi-homing alternatives.

3. - *Influence of IPR for business models* Companies, organizations or SME that own any kind of copyright, quality certificates or orders, normally include this costs in their business models. How commercialization transfer will be followed up in the case of open source products have to be, at least, discussed. Optimal should an agreement or praxis be developed to avoid future inefficiencies either in the availability of the services or in the price of the service.

*Policies and guidelines* have to be seen as a starting point to negotiate the results of co-producing new services and to establish the minimum requirements and conditions to do technology transfer processes possible and generic. Inclusive infrastructure as the ones supported by the DeveloperSpace should also need to have a long-term strategy to ensure sustainability of the infrastructure and of the market.

### 3.3 Ensuring sustainability of the infrastructure

There is not yet significant experience on the assessment of competition cases involving inclusive infrastructures for individuals with disabilities. Sustainability of an inclusive infrastructure for persons with disabilities will need to find alternative for three main challenges.

*First*, and despite the increased interest for the offer virtual services for persons with disabilities, standard single-sided markets where sellers interact directly with buyers, at one or more levels of the supply chain is still the most common solution to deliver services. Examples of two-sided markets can be found in the area of intermediation services such as matching and employment agencies, service vouchers networks and often consist of numerous, relatively small firms that offer specific services as the small companies that offer services previously offered by municipalities. No previous experiences can be used as baseline to improve or correct inefficiencies and failures.

*Second*, the literature on inclusive infrastructures and how the business of the infrastructure should be created, builds on the older literature on network effects in non-intermediated trade (e.g., Katz and Shapiro, 1985) and, in particular, on indirect network effects (e.g., Chou and Shy, 1990; Church, Gandal, and Krause, 2002). Agents (such as sellers) are assumed to do not compete with each other to be matched with agents on the other side (such as buyers, consumers or users). Further, agents in the case of the ones joining the DeveloperSpace are assumed to offer open source products. No consideration are taken to the fact that even open source products and services demand some costs for development, further improvement and renewal.

*Third*, most of the theoretical work in inclusive infrastructures is still nascent. Most academic contributions have only recently been published in scientific peer-reviewed journals and they are not always empirically based. Empirical research is lacking. The very few available studies address specific issues of security for a software infrastructure. More general empirical research is indispensable. It is therefore of relevance to suggest concrete policies concerning how micro and macro factors as well as political strategies, regulations and other differences in the member states will be handled by the DeveloperSpace to avoid they influence the sustainability of the infrastructure .

Some examples of these issues are:

- *Political issues*: Privacy concerns which could harm the suppliers' ability to use user's information for delivering effective services and networking. There is today a rising concern about the use of social networking technologies for illegal conducts such as the unauthorized spread of national security information, money laundering or similar that can restrict or impose additional or cause users to leave the service.
- *Taxation issues* are also important as the under nature of business legation and online applications can force the payment of double fiscal obligations depending where the service has been contracted.
- *Economic*. Fluctuations in the economy and market can affect the numbers of users seeking for services. Depending on the season some services can be demanded in different quarters of the year. Even winter respective to summer season can influence the demand of services because people possibility to spend more or less time on the Internet.
- *Currency exchange* fluctuations as a consequence of entering international markets with more depth and higher costs of doing business globally regarding places to rent, equipment, staff, transaction costs, etc.
- *Social users* can be worried about privacy politics and its effectiveness at the moment to search for specific services
- *Cultural aspects* related to selection of providers can be different and based on different rules. For instance, in some countries can be allow to publish a picture of the individual who offers a specific service, in other countries can be prohibited.
- *Technological trends*. There is also tendency of requesting accessibility anytime anywhere and this is where mobile application is also becoming a key factor for internet services. The constant development of new technologies impacts the growth of the industry, as new solution and opportunities appears, especially for information security and data protection. As the infrastructure supported by the DeveloperSpace will be growing in its membership and adding new services, upgrade of systems are require while accommodating actual and anticipated charges in the service to overcome possible capacity constraints.
- *Ecological or Resilience* aspects ensuring that natural disasters or other catastrophic occurrences should not interfere the access to the services,
- *Legal Multi-jurisdictions*, intellectual property rights, and confidentiality have to be ensured both for producers and users.
- *Privacy* data protection ensuring the providers will follow the user's specific country rules and not just general basic rules.

## 4 Summary and conclusions

Developing an inclusive infrastructure for a two-side market, as the one that will be supported by the DeveloperSpace it is of crucial importance to avoid failures and to contribute to achieve the challenges that demand to offer and deliver services for to include people with disabilities in the society. In the next paragraphs we present a series of risk and challenges that need to be addressed to enhance trustworthiness and sustainability:

### 4.1 Challenges for inclusive infrastructure and two sided markets

The potential opportunities to develop smart contracts, the use of applications that support synergies between the two sided of the market and allow multi-homing alternatives demand that organizations and companies joining the DeveloperSpace solve challenges such as :

- Use and develop systems and services in line with the rules of data protection or other regulatory approaches existing at the EU-level and that there exists warning mechanism to avoid lock-in effects.
- Highlights the similarities between the principles and rules for sharing a common infrastructure as the ones supported by the DeveloperSpace and assumed to become a global system of interconnected suppliers, and internet based, and the World Wide Web, defined as a global set of resources logically interrelated by hyperlinks.
- Explain how key EU legislation, such as EMIR, CSDR, SFD, MiFID/MiFIR, UCITs and AIFMD, could be used to both provide a regulatory framework in line with the activities carried out, and to expand into new markets and extend activities
- Stresses the importance of consumer awareness, transparency and trust when using DeveloperSpace as infrastructure or when interacting with the providers joining the infrastructure.

One challenge for the DeveloperSpace will be to develop guidelines with the aim of guaranteeing that correct, clear and complete information is provided for existing and future users of the infrastructure and to allow them to make a fully informed choice in terms of how the DeveloperSpace is organized, how it operate and how it distinguish from other systems in terms of consumer protection, payment security etc. If the DeveloperSpace will not have any responsibility regarding this issues, it will be necessary to indicate who will be the responsible to guarantee that such demands are achieved (single companies, other).

### 4.2 Challenges for the design of the infrastructure

Differences in national requirements, policies and guidelines often lead to additional costs for a multi-lingual software infrastructure and influence the objectives of transparency needed to achieve a sustainable development. Some of the mayor issues that the DeveloperSpace have to face in its contact with the two sides of the market when offering services to disable individuals will be:

- *How to support* signatures, invoices, and reporting and registration procedures. These issues are of special significance because the systems adopted by the public authorities in one country do not recognize technical solutions in place in other member states This has a

consequence an increase of the transactions costs for the supplier or trader that offer a service at the EU-level.

- How to access *data from public authorities*. An electronic interchange of information or data concern rules on handling, storage and transfer data as well as on data protection rules and laws. What is included on the concept of “personal data” is different between different countries. For instance, IP- addresses are handled different in different member states. In Ireland IP-addresses do not constitute personal data; the opposite view can be found in Sweden. In France and Germany, IP- addresses constitute personal data in some cases but not in others.
- How to ensure *protection to private persons* which implies also differences of consent to the use of personal data. In Germany, for instance, is it necessary to have the *consent given in written form*, Sweden has a series of laws and regulations related to patient data and the transfer or interchange of it between different organizations.
- *How to ensure that the obligation to register a top-level domain or “country code top-level domains” i.e., “se” of “dk” to ensure the visibility of websites will be a code for the organizations, companies or individuals that will join the DeveloperSpace*. Search machines rank websites with top-level domain normally first on a search result than other ones. Given the importance of the visibility of the producers or suppliers a country code top-level domain constitutes a comparative advantage and an opportunity to increase trust on the providers independent if it is a national or foreign trader.
- *How to visualize that data storage requirements are achieved*: Within the EU, the Data Protection Directive prohibits restrictions on the free flow of data. The Directive however restricts the transfer of personal data from the EU to third countries that do not have an equivalent level of data protection. There are, however, some local rules at the country level in areas such as healthcare that prohibit the interchange of i.e. exchange of electronic patient information between different organizations.
- How to ensure transparency in *cross-border parcel delivery if or when mechanisms that make available information, transparency on available services and prices and price structure* cross-border are not adapted to a two-side market.
- How or who will have the role of being the “*licentiate protector or the watch dog*” that guarantee risk of abuse by suppliers, protection of individual data as well as knowledge about territorial demands documentation and guidelines, copyrights etc. are fulfilled.
- How to guarantee that information about the sustainability of services, the length of the offering, eventual authorizations for delivering services are available.
- Which key performance indicators (KPIs) and scorecards will be used to mitigate the health of the strategic components of their supply chain.
- Determine what kind of licenses are needed if any and determine if the services will be transferred with: i) unlimited rights and gives the right to use, modify, reproduce or disclose data for any purpose, ii) restricted rights limiting the use of the service to only one consumer at one time and with a maximum to the number of copies accessible or iii) if any intellectual property is the source selection process will be needed to be considered, this include data rights, and post-support.

In sum, the software infrastructure that the DeveloperSpace will use will need to support:

- Signatures, invoices, reporting and registration procedures based in multimodal solutions for both customers and suppliers
- Registration of top level domain and country code
- IP addresses protection, due to the fact that IP addresses are considered in some countries being personal data
- Databases with consent given written forms in several languages due to the fact that some countries
- Information of services, prices and price structure as well as the mechanism and regulation at each country.
- Databases with licentiate protectors or brokers (connected to the watch dog networks) to guarantee risk of abuse by suppliers, protection of individual data
- Databases and intelligent agents that allow comparison between services offered and type of organization that offers them in the case of multi-homing.
- Rules and policies that control the quality of the services in the case of swap, barter, trade rent or share services with each other.
- Availability of dashboards and alerts to capture inefficiencies in the supply chain process
- Eventual IR issues and the relationship between licenses, use and consumption of the services and the dichotomy of being both open source services produced by single suppliers in a competitive market.

*Finally, the development of sustainable infrastructure will demand a shift in consumer behavior.*

Classical economic theory argues for consumers being “homo economicus”, purely motivated by rational monetary considerations. However, different areas of technological and service advancements have shown that reasonable innovations take longer than expected to reach widespread acceptance, despite their proven usefulness. This paradox is generally explained by consumer resistance to change learned purchasing behavior. Habits and attitudes toward existing services can increase the resistance to change and may prevent consumers from being open to innovations i.e., to demand the services offered at the DeveloperSpace if they believe that they have right to get them for free from the government. It will be therefore necessary to even influence moral norms to shift a whole society towards new scenarios and to the idea of co-operation and/or self-management.

At a more general level, one of the most common issues is, however, the related to difficulties to know which rules are actual in effect for cross-border transactions. The fact that the providers or traders needs to identify which rules will be applied in respect of a variety of issues including consumer rights, marketing and presentation of an offer, licensing, requirements, VAT payments, data protection and so on is without any doubt a constrain for a sustainable development of the electronic market and e-commerce. Another important issue in this regard is the absence of generic laws in the EU. This is because in some circumstances the law of the e-trader may apply for some aspects for a given transaction whereas the law of the consumer will apply for others and in some other cases the law of data protection for single individuals, which is different for different EU-countries, have to be applied regardless when and where data is transferred and processes.

### 4.3 Factors that will influence the demand of services

One out of six individuals in European Union has a minor or major disability which states that around 80 million people are not able to take part in the society and to upraise the economy because of some certain barriers to access to basic needs as education, transport, housing, healthcare, and technology. Between 2004 and 2007 the number of persons with disabilities increased by 9 million individuals. The European Commission and Member States are committed to removing barriers in everyday life and to improve the social and economic situation of people with disabilities and increase social integration. The demand of services offered or available at the DeveloperSpace will be much influenced by the following current policies:

#### **i) cultural life, recreation, leisure and sport**

The commission encourages the sports organization to adapt sports infrastructure feasible for the disabled people, and providing training to sports monitors, ensuring equal access to sport for all pupils and especially children with disability.

#### **ii) Equality & non-discrimination**

Article 1d (5), focuses on the principle of equal treatment according to this principle there should be no direct and indirect discrimination and the institutions will make effort to prove this that the people with disabilities are treated equally and them approaching this principle.

#### **iii) Work & Employment**

EU Commission is targeting to empower people with disabilities to earn their living on the open labor market [10].

#### **iv) Education and Training**

Strategies are designed by EU to encourage pupils and students with disabilities towards inclusive education and lifelong learning.

- The integration of students with special needs are given great importance by the Commission. There will be given appropriate assistance to the students who require extra support in their education such as need of some special equipment in classes or other facility.

#### **v) Social Protection and Privacy of personal data**

European Data Protection Supervisor (EDPS) will be responsible to handle complaints from the staff member with disability related issues with processing of their personal data and to listen their opinions on issues relating to the processing of information on people with disabilities in the institutions.

#### **vi) Health, habilitation and rehabilitation**

The Health insurance policy requires regular health screening examinations for serious disease for all staff members, their children and spouses.

Certain costs resulting from a disability which are not reimbursed by the health insurance, e.g. for education or specific training, care, transport, for adapting or equipping a home or car, and guide dogs for persons with a visual impairment, may be partially reimbursed through a supplementary aid for the disabled.

### 4.4 Potential Impacts on the market

The *European Health and Social Integration Survey (EHSIS, 2011)* shown that a significant number of individuals with disabilities are excluded from active participating in the society due to barriers that expand from the absence of support to access to education, training, working life, to issues related with discrimination and limitations to everyday activities and services. In the table below we

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present a list of barriers the EHSIS describe as key areas for social inclusion, the number of individuals across the EU that face the barriers and a description of the perceived limitations.

**Table 1 : Limitations Descriptions and Estimates (EU wide)**

Limitation Type	Number People	Share	Description
Barriers to accessing buildings	12,150,200	7.3%	Accessibility to buildings that everyone uses including workplaces, schools, offices, shops and other people's homes.
Barriers of perceived discrimination	11,359,900	6.8%	Discrimination occurs when people are treated unfairly because they are seen as being different from others. Do you feel you are treated unfairly by other people because of any of the reasons on this card? (01) Age (02) Sex or Gender (03) Ethnicity (04) A longstanding health condition, illness or disease (05) Longstanding difficulties with basic activities (06) Religion (07) Sexual Orientation (08) None of these
Barriers to education and training	12,782,900	7.7%	Formal education or training opportunities that may be available to you. This addresses formal education at a school, college or university or formal training related to a job, trade or profession.
Barriers to employment	21,632,700	13.0%	The reasons why people may not be able to do the kind of paid work that they want to. By kind of paid work we mean the type of work people can do, where or when they can work or how long they can work for.
Barriers to using the Internet	2,310,300	1.4%	Your use of the Internet.
Barriers to leisure	24,731,100	14.9%	Hobbies or interests that involve spending time with other people. For example, belonging to a club or association, or taking part in sporting and fitness activities.
Barriers to mobility	19,068,200	11.5%	Your ability to leave your home whenever you want to.
Barriers to paying for the essential things in life	9,091,900	5.5%	How easy or difficult you are finding it to pay for the essential things in life such as food, clothing, medicine, housing and transport.
Barriers to social contact	900,800	0.5%	People you feel close to. you could count on them if you had a serious personal problem. speak with any of them, either in person or by telephone, as often as you wanted
Barriers to transport	9,830,500	5.9%	Your ability to use motorised transport whenever you want to.
Grand Total	166,086,900		
<b>Potential Prosperity4All to Impact Barrier</b>			
	Negligible; not at all (0%)		
	Minimal; impact only in specific situations (10%)		
	Moderate; ICT solutions can reduce some barriers but not all (25%)		

Limitation Type	Number People	Share	Description
	Significant; ICT focus should directly address most barriers (75%)		

## 4.5 Service areas for design and considerations

The result of the interviews we performed at the EU level indicates that services offered through the DeveloperSpace could contribute to reduce barriers and stimulate social inclusion of individuals with disabilities. Barriers related to access to internet services to receive information about the labor and educational market are mentioned as the most important. Barriers related to perceived discrimination are signaled as the most difficult to reduce even when physical and social barriers should be reduced.

The interviews have also shown also some trends that can be of importance to be considered in the further development of services for social inclusion of individuals with disabilities in Europe. Examples of the most common mentioned areas are:

**Table 2: Examples of Service and Areas of interest**

Type of service	Area	Access (Both sides)	Usage (Both sides)
Services related to everyday life not delivered by national insurance systems or similar organizations i.e. order food, buy tickets, clothes, translation of documents., disability electronic parking cards, news, alerts or risks situations	Social	√	√
Brokers for assistance services i.e. transport, information, work announcements in different formats and available in different platforms	Social, Transport	√	√
Intelligent based alarm system that helps individuals to remember basic activities, i.e. take medicines, wash teethes, close the doors, turn off electronic devices, pay bills, etc.	Social	√	√
Leisure services Virtual exercises, virtual trips, films, list of restaurants and hotels adapted to disable individuals, concerts and entertainment programs available in different technical languages	Leisure	√	√
Virtual educational places adapted to people with disabilities, election materials, customized information according to different types of disability	Educational	√	√
		√	√

Note: √ indicate that the entity or the individual either access or usage of the software infrastructure.

Some services will, however, depending on the area they belong to, be offered free of charge and some other will ask to pay some fees to be accessed. In such circumstances, it will be necessary to consider

- a) If the services are complex and need interaction between several suppliers ( see the discussion about multi-homin in previous chapters)
- b) If the services can be considered as complementary and paid by an organization or social insurance or any other third party ( se alternative business and payments models)
- c) If the DeveloperSpace as infrastructure that support interaction between the two sides of the markets should need to exclude advertisements as a manner to finance the services, because some of the EU member states do not allow the inclusion of advertisement for what can be defined as social or welfare services
- d) If it will be necessary to develop control mechanisms to ensure that prices do not broke the idea to develop a non-profit eco-system.

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