5.2 Business Model Details

A series of business models were identified in the first deliverable.; In this report we identify pros and cons and consequences for the ecosystem. The section provides a synthetic overview, in table format and offers some few conclusions in terms of which benefits and constraints have to be considered because of consequences for the business ecosystem.

Table 18: Business Model Pros and Cons

Business model	Pros	Cons
Brokerage	Customers can find several different services and products in one place The broker is seen as trustworthy by customers Logistics, payment transactions etc. are provided by the broker The broker can combine the business model with for instance advertising, transactions	The broker has to engage two or more groups of stakeholders Without one stakeholder group, the other one cannot be engaged Transactions are probably needed to be fulfilled in order to gain revenue
Advertising/ Affiliates	Gives customers the possibility of using a service for free Can be combined with other business models Interesting if you have many customers Can be targeted to your customers Possibility to reach more customers through other actors The customer is exposed to advertisements that might be in their interests	Information sources can be seen as less trustful by customers Too much advertising can be annoying for customers Have to reach a lot of users to be interesting to advertisers The website can be seen as less trustworthy due to advertisements

Infomediary	Gives customers the possibility of using service for free Gives the owner access to valuable information Can be combined with other business models	The owner needs to be trustworthy and needs access to data The customer can find it sensitive to share certain type of data The “right to be forgotten” must be addressed
Subscription	Accessibility for the customer The owner can easily predict the demand The owner has a recurring revenue Access to customer information	The owner has to create a lasting value The model does not suit every customer segment
Community	Gives the customer access to a network of people and clout Recurring revenue (paid membership can be an option) Access to customer information Can be combined with other business models	The owner has to create a lasting value The owner probably has to gain revenue through another business model

Transaction Based (Utility)	The customers pay for what they use Low barrier for buying Can be combined with other business models The customer gets access to a global market and 24-hour availability The customer gets lower prices and more to choose from The owner does not need to set up a store etc. It is easy for the owner to gather customer information	Revenue is difficult to estimate for the owner The customer has lost the availability to verify product quality Trust and risk issues The owner and the customer have to deal with security threats as well as cultural and legal issues
Freemium	Minimum barrier for entry of customers Viral marketing Easier to sell the premium version to a "free" customer than a new one The owner gets access to free beta testing Large number of users can support other business models	The owner has to define the difference in value between free and premium version The owner has to find a balance between free and premium users The customer do not get access to the premium version without paying
Crowd-Funding	The owner receives funding from multiple sources The users get early access to new solutions A diverse set of actors/users can contribute The owner can get access to knowledge that cannot be found in-house	Insecure or unreliable funding Need to engage the crowd

A business model is often defined as "*a new unit of analysis, offering a systemic perspective on how to 'do business' encompassing boundary-spanning activities (performed by a focal firm or others), and focusing on value creation as well as on value capture"* (Zott et al, 2011) and includes several components. One of them are the payment alternatives that can be used. In the next section we deliver an analysis of the business models mentioned above and its respective payment model. They are closely related to each other and influence alternatives to demand and supply services in an inclusive ecosystem.

5.3 Functional Package / Business Model / Payment System Implications

The comparison used the following principles:

√- Check Minus – Not recommended. The business model or payment system does not fit well with the underlying functionality and/or the drawbacks would significantly and negatively impact the adoption of the functional package if this approach was taken. This approach may still be workable but will offer some challenges.

√ Check – Acceptable. The business model or payment system may not be completely optimal for the functional package but the approach may work well for some of the elements within that functional package or with specific user groups or under specific situations. Both the pros and cons need to be weighed to determine if this approach is best.

√+ Check Plus – Recommended. The business model or payment system seems to be one of the best options for the functional package. More than one business model or payment approach may be equally optimal and either multiple options supported or the best of the best (√++) selected.

Table 19: Business Model and Payment System Recommendations

	Business Models								Payment Systems		
	Brokerage	**Adver-tising**	**Info-mediary**	**Subscription**	**Community**	**Trans-action**	**Free-mium**	**Crowd-funding**	**Financial**	**Semi-Financial**	**Non-Financial**
Assistance on Demand	√+	√-	√	√+	√	√++	√	√-	√+	√	√
Developer Space	√	√	√	√+	√++	√+	√	√	√	√+	√++
Training	√	√+	√	√++	√	√+	√+	√+	√+	√	√-
Unified Listing	√	√-	√++	√	√+	√-	√	√	√-	√+	√++
Open Market	√	√-	√	√+	√+	√-	√-	√++	√+	√	√
Media Transformation	√++	√	√-	√+	√	√+	√+	√+	√++	√+	√
Unified Listing Database	√	√-	√++	√	√+	√-	√	√	√-	√	√+
Personalization (Ubiyu)	√	√-	√+	√	√++	√-	√-	√	√-	√+	√++
Automated Translation	√++	√	√-	√+	√	√+	√+	√	√++	√	√
Component Repository	√	√	√	√+	√++	√	√	√+	√	√+	√++
Metrics	√+	√-	√++	√+	√+	√	√	√-	√+	√+	√

The table above shown that business models and the respective payment models that seems to be more suitable are brokerage, subscription, and transaction because they allow media transformation, automated translation, personalization, and use in an open market as well as the inclusion of several metrics, financial and non-financial alternatives. Advertising seems to be a less acceptable alternative because the absence of possibility to support Unified Listing, Open Market, ULDatabase, Personalization (Ubiyu), and Metrics. Infomediary and Freemium seems to have some few packages such as Media Transformation and Automated Translation which are not recommended for this model and are not optimal to implement in this model. Crowd-Funding can be considered as important for an open market alternative, this is a model that is seems to be object for much discussion in the European community today.

5.4 Addressing common challenges

An inclusive ecosystem has to extend beyond One Nation-State, being global or at least multinational, having participants from more than one-member state. The ecosystem that aims to influence states and institutions has to contribute to economic and social development. Any infrastructure that supports the ecosystem must be a 21st century network in the sense that it harnesses some forms of digital communications tools and platforms to achieve its goals. Furthermore, participants from at least two of the four pillars of society (government or international institutions, corporations and business/enterprises or services organizations, the civil society including NGOs and NPOs, e.g. Schools & Universities) and individual citizens have to be attracted. An important issue is to be able to restrict the ecosystem to "good things" or actually help solve problems and limit the inclusiveness of all areas and can be related or associated with any kind of terrorism or criminal activities (wash money, etc.). An important issue is to not restrict the develop the ecosystem to create global public goods, because the controversy of the notion, and to stimulate economic growth and global cooperation and competition.

However, competition concerns for an inclusive ecosystem, are the same whether firms compete in two or more-sided markets on in an ecosystem that allows the participation of several different stakeholders. Firms or organizations supplying goods and services can exercise their market power unilaterally or through coordinated action with other firms. The difficulty of entry is increased in an ecosystem because of the presence of particularly strong inter-group network effects. Not only must the new entrant simultaneously convince many customers (individuals or organizations) to purchase its product or service, but it must also overcome the challenge that for many customers the value of purchasing the product or service from the established provider is likely significantly greater than from purchasing from the start-up.

The analysis of the challenges of an infrastructure for an inclusive platform becomes even more complex than it appears at first, because first-comers can not welcome entry by a competing firm or producer if this

increases variety while possibly lowering prices, and consequently, the number of individuals willing to switch between several producers.

In addition to pure market related issues in an infrastructure for an inclusive ecosystem there are a series of issues that should affect participation and transaction and consequently the sustainability of the ecosystem.

They are:

a) The ownership or its institutional arrangement

b) Different kinds of network externalities

c) Price models

d) Multi-homing vs single homing

e) Chicken and Egg

5.4.1 Ownership or/and its institutional arrangements

One necessary information for attracting stakeholders is to indicate if the ecosystem (p4 all) may be owned by a monopoly intermediary, by many small intermediaries, or by agents active on each side of the software ecosystem, such as buyers and sellers or if the ecosystem will develop another ownership model based on a series of contractual arrangement and property rights for the services offered, In such circumstances it will be necessary to identify who has the right to restrict entry on the platform to people or organizations that are not included in the arrangements and which contractual arrangements and property right will be developed and regulated.

Types of ownership will further influence the business ecosystem. For this reason, it is important to identify if the business ecosystem will be:

(1) Coincident and offers products or services on the same sides. That is the case in video games, operating systems, and payment cards.
(2) Intersecting and offers products or services that are substitutable on less than one sides as in the case of ATM networks that do not support credit cards or other cards that are not linked to the depository institution.
(3) Monopoly with no competition on any side. Although this could exist in theory, of course, it is hard to identify any industry for which this alternative could be sustainable today (yellow pages was an example for a time perhaps in some places).

5.4.2 Different kinds of network externalities: Inter-group and cross-group

Network externalities are said to exist when consumer utility in a certain market depends (usually, in a positive way) on consumption of the same good or service by other agents and are affected by the specific price applies to that side.

Inter-group network externalities do not depend on consumption of agents in the same class (for example, consumers of the same product), but on consumption of different, but "compatible", agents on an opposite side of the ecosystem.

For example, in joining an intermediation (or exchange) service ecosystem, a buyer will take into account the number of potential sellers using the same software, in addition to the price she should pay influencing in this manner the pricing patterns across both sides of the market. A practical example is the number of readers of a newspaper or magazine (or the audience of a TV broadcast) that tends to attract advertisers and the number of customers of a shopping mall tends to attract the suppliers of products to be sold there.

Cross-group network externalities act to intensify competition and reduce infrastructure profits. In order to be able to compete effectively on one side of the market the infrastructure needs to perform well on the other side (and vice versa). This creates a downward pressure on both sides compared to the case where no cross-group effects exist.

5.4.3 Pricing in a multi-sided market

The crucial difference between pricing instruments in business ecosystems, compared with a single market. is that inter-group network externalities are less important with per-transaction charges. At the same time charging on a per-transaction basis may be an excellent entry strategy for a competing ecosystem infrastructure. This is because to attract one side of the market to the ecosystem does not first have to get the other side "on board". On the contrary, if an agent has to pay only in the event of a successful interaction, then that agent does not need to worry about how well the platform will do in its dealings with the other side.

The pricing structure used in the business ecosystems should, however, depend as much on the cross-price elasticity as on the relative sizes of the multi-sided network effects. An infrastructure for an inclusive ecosystem should in principle in order to attract one group of users, offer mechanisms to subsidize other group of users. Whether a business ecosystem is trying to achieve a dominant position on one or both sides of the market, or competing against several others ecosystems, it faces the problem of attracting both sides of the market simultaneously. In such circumstances a series of pricing instruments should to be used depending on the range of pricing options available.

For instance:

- *Lump-sum basis.* That is, a tariff that does not explicitly depend on how well the ecosystem performs. One example is Windows OS, which is generally sold at a posted price.
- *Tariff as function of the performance on the other side*. One example of this practice is a TV channel or a newspaper that makes its advertising charges an increasing function of the audience or readership it obtains (to do this there must be a credible third party which can accurately estimate audiences).
- *Actual interactions* or sign credible contingent contracts making payments dependent on subsequent participation and transaction levels. Complicated contracts obviously have the potential to extract consumer surplus more fully, but in some circumstances could also make a dominant firm much more susceptible to entry and thus greatly limit profits. For instance, a potential intermediary could attract all buyers by promising to make large payments to them if it fails also to attract all sellers away from the incumbent intermediary.

It is, however, possible that the price structure to get both sides on board and optimize usage of the software ecosystem become asymmetric with prices on one side substantially above those on the other side. Moreover, it can be possible that different producers or organizations choose different beneficiaries and thus subsidize consumers and charge developers. The opposite, should be that developers receive subsidies and consumers pay to join the network as in the case of multiplayer games.

5.4.4 Adhesion pattern and double user problem (Multi-homing vs. single-homing)

Whenever there are several providers of the same type of services or products, customers on each side of the market may choose to subscribe to one provider only ("*single-homing*") or to several providers ("*multihoming*"). The concept of multi-homing covers both subscribers to all available providers ("full" multi-homing) and to more than one (but not all) of them -- partial multi-homing (clearly this distinction does not arise where there is a monopoly solution).

Multi-homing can be more easily observed when fixed costs of joining for instance a software ecosystem are low or absent. For example, if per-transaction fee is the more significant cost element for merchants, more than one credit card will likely be accepted for payment by the same business. On the contrary, if consumers pay only a fixed subscription fee, they will tend to use a single credit card, especially if credit cards offer comparable services and have similar degrees of acceptance among merchants.

However, adding multi-homing makes the analysis of the whole ecosystem considerably more complex and demands the adoption of different subscription policies both within and across sides of the market depending on preferences and possible differentiation among providers' offers. It is important to note that the presence of multi-homing on one side, influences the degree of competition (Rysman 2007). Whether agents at both sides of a market participate in ecosystems or just one has important implications for market power. Monopoly situations and in single markets alternatives leads to high prices being charged to the multi-homing side and becoming from a social welfare point of view not totally efficient.

Further, multi-homing prevailing on one side of the market and single-homing on the other often results where indirect network effects are asymmetric and mostly arise on the single-homing side. This is the situation identified in the economic literature as "competitive bottlenecks", which, in its most stylized version, boils down to full multi-homing on one side and single-homing with no exceptions on the other. In this case, as soon as the ecosystem providers manage to get enough of both sides on board, providers will be able to "tip" the market in a way allowing them to extract rents from multi-homing users. In this way, providers can cover subsidization of single-homing users willing to join the infrastructure for the ecosystem, for which providers have to compete fiercely.

Extreme homing configuration (and related rent distribution pattern) is, however, based on a series of assumptions Vannini (2008):

(i) that there is no differentiation among different providers,
(ii) that customer preferences on the same side are sufficiently homogeneous and
(iii) that customers on the multi-homing side have no bargaining power allowing them to limit rent extraction by the provider.

As to customers' preferences, there may well be some degree of *heterogeneity* within the same group, not only among customers belonging to different groups, so that single-homing and (different degrees of) multi-homing may coexist within the same group in an inclusive ecosystem.

From the social welfare point of view, it will be necessary to choose a corner solution, in terms of full participation of the more elastic buyers' side of the market and recovering costs from the price-inelastic sellers' side. In fact, a social planner will price below marginal costs, leading to an under-recovery of costs and hence an operational loss for the ecosystem as a whole. This suggests, at least in some instances regulation may be pertinent and even some compensation through external subsidies or cross-subsidization from other sources of income could be warranted. Another possibility would be to facilitate the use of more complex pricing mechanism such as two-part tariffs. Alternatively, the social planner might instruct the infrastructure to implement Ramsey pricing, that is, to set prices that optimize social welfare under a balanced budget constraint. However, these types of solutions have second-best distortionary side effects, which should be taken into account.

5.4.5 Chicken and egg problem

Which came first? This causality problem is particularly relevant for economies that depend on network externalities. Who would buy the first phone if there still is no one to call?

New mediation services are often of little value initially, because there are no actors to mediate between. Thus, a new technology or service typically follows "distinct life cycle phases of rollout and operation". The first part is the most difficult one. Because, without an initial installed base, there are yet no network effects in motion. And the more types of actors a mediating service depends on, the more daunting and complex it becomes to establish a critical installed base of each kind (retailers are not interested in joining an ecosystem with few consumers, and vice versa).

Although each case is different, there are some generic strategies to overcome this problem- They are:

i) Utilize pre-existing network externalities from other markets: If a company already has an established installed base in another market, it can use this creatively when entering a supplementary market (thereby invoking synergies in both).

ii) Cooperation and alliances: By joining forces with other players, one can benefit from interlinked installed bases and other combined assets. It also sends an authoritative signal to potential customers and partners (momentum, durability and robustness of the new infrastructure. According to Shapiro and Varian (id., at 243), one should look broadly for potential allies: *Your allies can include your customers, your suppliers, your rivals, and the makers of complementary products [and services]*.

iii) Expectation management: Expectations can easily become a self-fulfilling prophecy in markets with positive feedback. To manage expectations, you should engage in aggressive marketing, make early announcements of new products, assemble allies, and make visible commitments to your technology.

iv) Penetration pricing: To challenge established brand loyalty and lock-in, one can appeal to price-conscious consumers with a low initial price or "give-away strategies" (Stabell and Fjeldstad,

1998: 428). This strategy can also have internal benefits. With a domestic pressure to control costs, the company may develop greater efficiency and thereby institutionalize it as a competitive advantage.

v) Be good: Consumers, as is widely known, let their emotions play a major role when making buying decisions. Correspondingly, companies are increasingly letting corporate social responsibility (CSR) policies propagate into their procurement processes (e.g. environmental friendly products). Distinguishing oneself positively on such "soft issues" may therefore pose a direct competitive advantage and benefit the brand.

vi) Handle lock-in: If there already is a dominant player in the market, there are several strategies to gain foothold (Johnson et al., 2005, pp. 259-261). Leapfrogging -- instead of launching an imitation service, launch a superior alternative. This may be of particular relevance in markets with rapid technological advances, which big players tend to handle conservatively (i.e. structural inertia and longer life-cycles – focusing on robustness rather than on the technological frontier).

vii) Low initial access barriers: As long as other switching costs are relatively low, the required effort to join can be decisive. Therefore, the process of joining your network should be as effortless as possible. In fact, if easy enough to join, there might be no need of switching at all. Customers may join your network while keeping another foot in a competing one (e.g. many PC-users use both MSN and Skype, and buy from more than one online retailer). One should also consider "viral" recruitment of new members, which Facebook has employed successfully (with a few clicks, Facebook can send auto-generated invitations to your contacts, provided that you share login information to services like MSN, Yahoo or Gmail, or upload you contacts as a file). Likewise, one can develop strategies that stimulate viral recruitment indirectly (e.g. mobile subscriptions that allow you to call family and friends at lower rates).

viii) Active recruitment of strategic customers: In order to get the bandwagon rolling, it might be necessary to invest in active recruitment of strategic customers. This is particularly important if there are customer groups that depend on one another (e.g. retailers and consumers). It may be sensible to build up a critical mass among one customer group, before attending another (i.e. retailers before consumers). To make this process work, it might be required to make concessions (limited exclusivity, lifetime access to premium services etc.). Although often perceived as something to avoid, one can go as far as offering shares to catch a "really big fish" (which also provides incentives to the customer to expand the network proactively).

ix) Sweeteners: Besides penetration pricing and low initial access barriers, one should consider to put additional sweeteners on top. This could be in the form of gift cards to be used within the network (thereby also triggering activity within the network), beneficial access terms when joining before a given date, or "welcome gifts" (these days USB-sticks seem to be in fashion). If possible, one should make use of "cooperative sweeteners" (e.g. alliance partners willing to provide a limited set of items for free, or at a discounted price). The latter requires the cooperative party to see benefits from it, such as branding and expansion of the customer base.

x) Making customers come back: Once a small installed base is in place, it is important to stimulate activity in the network (it is less the numeric customer base that is of value, than is the actual use of the network). One strategy is to build loyalty (like providing convertible bonus points for purchases), another (complementary) is to keep the "news factor" alive (such as optional

newsletters containing special offers and announcements). This, of course, should not be overdone. Excessive newsletters can be perceived as spam, and loyalty schemes are commonly deemed bothersome.

xi) Timing and chronology: The above strategies can be used in different combinations, but not in any given order. Providing access to a premature service may result in negative attention and scare potential customers or partners away. Likewise, engaging in expectation managing before an initial "go live" can spoil the surprise effect, thereby providing the competition a free chance to develop preemptive strategies. There are no definite recipes on timing and chronology – a lot depends on the market conditions at hand. Therefore, it is important to know particularities of the market and develop contingency plans to be prepared for eventualities. Employing a bit of game theory may also be very helpful.

5.5 Different networks that should be present in an inclusive ecosystem

Networks can be categorized according to the types of problems they address or to what extent they seek to actually achieve rather than fight change. They can for instance to aim to solve "trans-boundary problems" of cross-border movement such as money laundering, pollution or drug trafficking; or "simultaneous problems" of nations experiencing similar problems in areas of education; health, welfare, urbanization, and population growth.

An inclusive ecosystem, as per definition, tries to achieve a change or to provide an infrastructure where other stakeholders sell-organize and offer different collaboration between countries on the same hierarchical level (horizontal collaboration) but at the same time possibilities to offer both pubic funded, private funded and micro financed services and goods. The different types of networks of importance for the infrastructure of an inclusive ecosystem and the role they can have in an inclusive ecosystem are described below:

5.5.1 Knowledge Networks

To develop new thinking, research, ideas and policies that can be helpful in solving transnational problems. Their emphasis is on the creation of new ideas not their advocacy. Knowledge networks should scale continuously creating new collaborative ideas, encouraging participation from individuals no matter where they live or what language they speak. The knowledge network in an inclusive ecosystem should support knowledge creation around products, services, good and disseminate ideas for open innovation and worth spreading in order to match developers' and customers' needs in a more realistic manner.

5.5.2 Policy Networks

To create government policy even though they are not networks of government policy makers, policy networks are non-state webs that include non-governmental players in the creation of government policy. They may or may not be created, encouraged or even opposed by formal governments of government institutions. However, powered by global multi-stakeholder collaboration they are becoming a material force to be reckoned with in global policy development. Their activities cover the range of steps in the policy process, beyond to policy proposals or lobbying, including agenda setting, policy formulation, rulemaking,