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Thought leadership from Atos

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***white  
paper***

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**Economy  
of Internet  
Applications**

IT is challenged to find new and additional value in using platforms and data in different ways driven by the ever faster changing business and consumer scenarios. This is forced by the explosion in valuable consumer services and associated commercial models. The resulting new business models blur the traditional industry borders and question the commercial models as they are known today.

Supported through cloud computing adoption, growing social networks and an explosion in mobile device adoption, the Information and Communication Technologies (ICT) Industry further explores the value of data, in an effort to monetize and capitalize on the wealth of data, the 'data gold'. Especially we see a growing interest in the data generated by collaborations between business partners and the value that is derived from connecting together data owned by any given partner in the chain.

Nowadays a huge amount of data is collected, sometimes without a defined outcome of quantifiable value for either a consumer or business. The Internet of Things concept; leveraging data gathered by sensors embedded in countless devices will further strengthen the richness of information that can be generated from transactional platforms. And on top of these different sources of data coincide with the emergence of Big Data Management and new data analytics technologies, increasing the probability of finding meaningful insights from huge amounts of data generated by myriad applications and sensors.

This White Paper describes the Atos view on this topic, starting with the economic theory behind it, showing the taxonomy of possible business models and giving some thought-provoking impulses on how to investigate and extend the value of data without violating the consumer's privacy.

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# Economy of Internet Applications

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#### About the Atos Scientific Community

The Atos Scientific Community is a network of some 100 top scientists, representing a mix of all skills and backgrounds, and coming from all geographies where Atos operates. Publicly launched by Thierry Breton, Chairman and CEO of Atos, the establishment of this community highlights the importance of innovation in the dynamic IT services market and the need for a proactive approach to identify and anticipate game changing technologies.

# Multi-sided Markets

## Market Dynamics

Increasingly businesses in all industries have to cope with dynamic and unstable markets that are influenced by globalization, continuous mergers and acquisitions, disruptive innovations and adaption to customer preferences while at the same time complying with ever-evolving legislations. All of this has to be done in an extremely competitive market which is putting unprecedented pressure on reducing cost and the time to market for new products and services.

This pressure evolves to completely reorganized value chains in different markets, making the value creation process change from a linear, supplier-customer relation to one where multiple stakeholders cooperate in an ecosystem model to generate value. This ecosystem view on value generation differs from the traditional, linear supply chain models in many ways; one of the main differences being that value can be found in addition to a traditional product-for-money exchange, moving to a new model in which

collaboration of different types of stakeholders in the ecosystem can generate overall positive gains for the ecosystem as a whole, without diminishing the prospects for any of the players. One of the ways to reach this everybody-wins-scenario is through the collaboration between the stakeholders.

This is a practice becoming more and more visible all over the world. Especially after the rise of Web 2.0, people learned to perceive value in voluntarily giving information to communities; blogs, social networks and others, while at the same time are able to derive information from those sources for their own personal good.

With this change in information sharing and using now becoming a undeniable trend in the behavior of the consumer, it is only natural for businesses to start behaving in a similar way, while counting on participating consumers at the end (and beginning) of the value chains. This change creates the required conditions for new application-types using an existing concept: the transactional platforms.

## Two-sided Markets

In traditional business, relationships often have a supplier-customer nature (1:1), money flows in one direction while goods or services flow in the opposite direction. In the economic theory of the two-sided markets (see Figure 1), the value flow is made possible by a platform, which combines two different markets (referred to as Side 1 and Side 2). A value exchange is established by introducing the platform between the different categories of the market participants. There are various examples like credit card platforms (linking the merchants and customers), broadcasters (linking the advertisers and consumers) or gaming platforms (linking the developers and gamers).

The more the adoption by both sides of participants grows (in a balanced way), the more valuable the platform becomes. If the participants positively influence each other in their growth this is called the 'network effect' (see also Figure 1). This network effect moves the price/quantity relation in a positive direction for both market sides; for example the more people are using a certain gaming console, the more it attracts developers to create new games, which in turn attracts more gamers to buy this console and games for it.

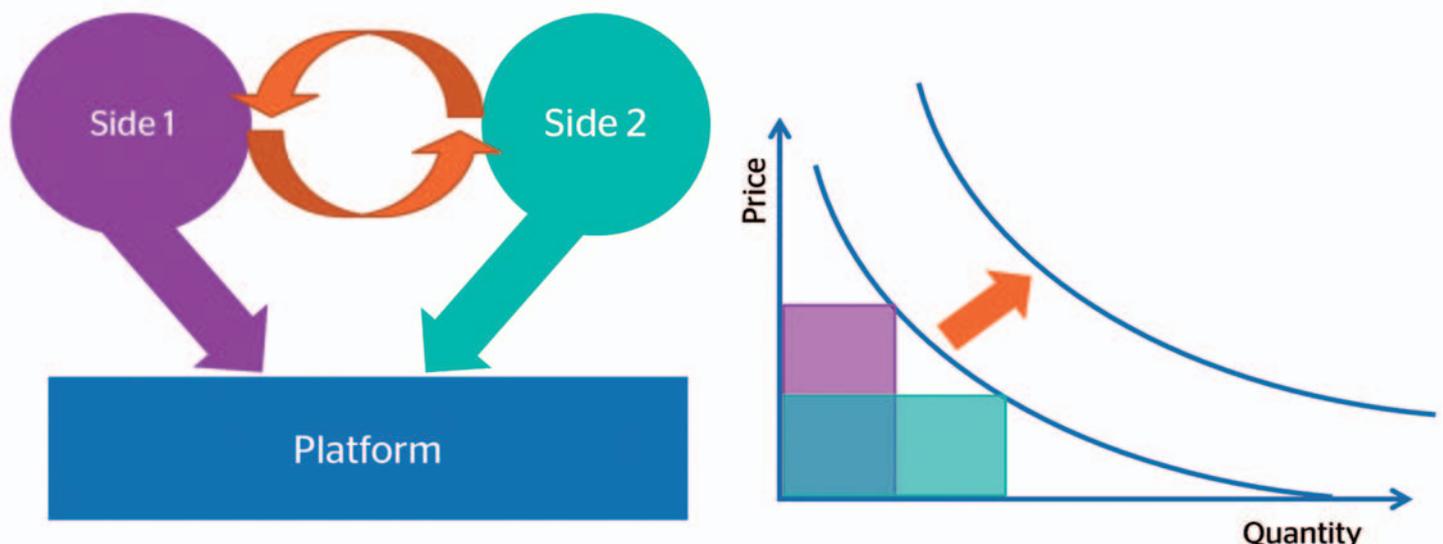


Figure 1: The 'network effect' influences the demand curve

Based on the economic theory of two-sided markets [1], most communities are grown by keeping the consumer access free of charge (this is called the Freemium model of Internet services). By growing the user population rapidly, the market participants gain value through the network effect. Thus the demand increase is in this case not only influenced by traditional dimensions like price, quantity and quality, in addition it is influenced by the other side of the market as well.

This theory can also be applied to Social Networks. In these platforms the users do not pay for access. As a result the classical micro economic demand increase is significant bigger (Figure 1 right side). The cost for the user is not a monetary expense, rather a willingness to allow the platform to reuse its personal data, on an anonymously aggregated or individualized basis.

The theory of the two-sided market also proves that a platform has to deliver a certain level of monetized value (the platform capital) to the market sides to enable the network effect. With other words you cannot start such a platform by providing only a Freemium model to each side, even if this would grow the two sides very fast. Ignoring that fact resulted in the monetization problems of many Internet platforms.

## Multi-sided Markets

When dealing with information-based platforms the presented concept of two-sided markets can evolve into multi-sided markets.

The collection of data through transactional and social platforms can bring multiple use cases for different stakeholders into the same information domain. These platforms will bring the ability to cross-link data coming from different contexts and create value from such linkage. An activity that creates more value than the mere sum of the values that can be derived from each market individually. These platforms can evolve into real value networks or ecosystems in which one business in one market stimulates the business in another market by sharing anonymous information and, eventually, the customer access. The upside is the trust can be built slowly step by step in sharing more and more information. The downside is that trust and the entire new value can be destroyed by one single unwanted privacy violation of consumer or business data.

Consumer behavior is a major source of value in the multi-sided platforms and is also of interest for the other market participants in the same sector, but more easy to share with market participants of the other side or other sector. Nevertheless it is a challenge to balance privacy, user experience and business value.

These value ecosystems will not only influence the collaboration between the competitors in one market, but will also force a cross sector collaboration based on shared information. The multi-sided markets will transform into what we call the Multi-purpose Transaction Systems.

The collection of data through transactional and social platforms can bring multiple use cases for different stakeholders into the same information domain.

[1] JC Rochet, J. Tirole, Two sided markets: a progress report – The RAND Journal of Economics, 2008 Volume 37, Issue 3, pp. 645-667- Wiley Online Library

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# Business Model Taxonomy

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## A Taxonomy of Business Service Models for Multi-purpose Transactional Systems

The adoption of the right business model is essential for these platforms to flourish. Stakeholders on all sides of the markets, as well as the platform owner itself, must have the right incentives. Only in the case of generated value for all participants an ecosystem of values becomes alive. In essence the value of a two-sided market - or a multi-sided market here, is not only defined by the amount of money charged by the platform, it is defined by the services or the information exchanged in between the participants of the different markets.

In identifying the alternative business models for Multi-purpose Transactional Services, we look into the Internet business models as a source for solutions. Like in other sectors, the current Internet business has different contracting models that are continuously evolving. These range from traditional fixed pricing models, subscriptions and usage or transaction-based fees to the more recent like the Freemium, assurance or success-based models.

Business models will not only be based on money exchanging hands, but value that is exchanging ownership. In two-sided markets it is common to keep one of the sides free (Freemium) of charge in order to stimulate enough growth to start the network effect. This is typically the case when it is necessary to attract consumers to the services and the platform behind it. Consumers are usually making their adoption decisions very much driven by pricing and choose other alternatives in case of fees charged for services.

Business models do not need to have the same revenue model for all where it interfaces. The business model that suits each participant's best interest will be a combination of different revenue models mentioned below.

## Freemium Business Models Today

Pioneered by the open source community and driven by the success of free consumer services, the most common models for consumers are the Freemium models. These models, which have proved to be extremely successful in building large communities very fast, establishing brands with a worldwide reach in weeks or months. They influence the consumers to accept advertising. But the challenge remains how to monetize these models, as similar services are just one click away. Some attempts to simply charge the consumer have failed, even resulting in a breakdown of entire platforms or brands in weeks or months.

Anderson, in his book "Free! The Future of a Radical Price" [2], suggests that the new model of doing business in the digital economy is to provide the majority of an offering for free and only charge for a part of the value created by this offering. He mentions that "Today the most interesting business models are in finding ways to make money around free. Sooner or later every company is going to have to figure out how to use free or compete with free, one way or another". The prevalence of this business model is realized in online services due to the fact that "atoms cost money, but bits are free".

Although consumers are paying substantial prices for physical products, they are really reluctant to pay for online service offerings, as demonstrated by the attempt of the media industries to switch to paid subscriptions. Users expect digital services to be available for very little or for free [3]. This expectation is reinforced by many companies (Facebook, Google, Twitter, LinkedIn, etc.) giving away much of their service offerings for free and recovering their cost in other ways.

Business Models will not only be based on money exchanging hands, but value that is exchanging ownership

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[2]Anderson C (2009) Free: the future of a radical price. Hyperion, New York

[3]Kelly Lyons, Paul Messinger, Run Niu, Eleni Stroulia, A tale of two pricing systems for services, Information Systems and E-Business Management (25 November 2010), pp. 1-24.

Anderson provides the taxonomy of current free products and services models:

- ▶ **“Freemium”** model: The content, services and software are available in multiple models of use, including a basic free offering. In this model, a small percentage of the customers pay for the service which covers the overall cost of the platform/services. Skype is the perfect example. Many applications in today's - now ubiquitous App markets or 'App Stores', pioneered by Apple as a platform to sell or make available content for its products, are also Freemium in a sense that they have a free version with less features and a paid one with full functionality.
- ▶ **Free-through-advertising** model: Content, services and software are offered for free, because advertisers are willing to pay for access to specific user communities as additional sales channel. Some examples are Yahoo's pay-per-page view banners, Google's pay-per click text ads and Amazon's pay-per-transaction affiliate ads. Consumers accept that personal data is used for one-to-one marketing.
- ▶ Traditional **cross-subsidized** model: Products and services are offered for free while they persuade customers to pay for additional services. For example, Google's AdSense product enables any web site to become affiliates to other providers who wish to advertise their products and services.
- ▶ **Low-cost** model (also known as 'Bait and Hook' model): Products or services are offered for free for a limited period or with limited capabilities. In these cases, the service or content is effectively a promotional marketing tool. Many applications are offered for free for a limited period to attract trial users who subsequently buy it (try before you buy model!).
- ▶ **Gift-economy** model: Some offerings are free because the providers gain some non-monetary value, usually recognition, out of the process. For example, Wikipedia contributors or popular bloggers provide their services as gifts to the community.

## Pay-per-Use Models Today

Pay-per-use models are now established in many areas. The user pays a price based solely on actual usage, such as price per minute calls on a landline phone. In ICT platform businesses, these models are enabled by shared, pooled and scalable infrastructures and multi-tenant applications and services. These models are not entirely new (embryonic approaches appear in the late 1970's with Grid Computing), but cost benefits combined with agility (elasticity and time to market) means they are becoming more popular now and likely to dominate the ICT industry in the future [4].

A pay-per-use model could be used in one of the sides in Multi-purpose Transactional Platforms (for instance, a business partner wishing to participate in the usage of data generated by the platform), while other sides are tied to the platform by other models or more traditional models.

## Subscription Business Model

Unlike Software as a Service (SaaS) [5, 6] that is defined as a pay-per-use model for software, the subscription business models are not based on actual usage but on a fixed fee over a period of time. The fees are incurred regardless of whether the service is consumed or not. The benefits for the provider in this type of model is that they are assured of constant source of revenue, while understanding in advance the number of subscribers to a service making capacity management a less challenging task. From a subscriber's point of view, this model is convenient if the usage of the service is constant while the pay-per-use model may be more attractive if the service is used occasionally or in volatile quantities.

[4] Foster and S.Tuecke, 'The Different Faces of IT as Service', Queue, pp. 26-34, July-August 2005.

[5] Alvin Lim, Microsoft SaaS: Business Myth or Reality, 008.www.ogf.org/OGF24/materials/1448/Ent01+-+GridAsia+SaaS+-+Business+Myth+or+Reality.pdf

[6] Gartner, 'Key issues for Software as a Service', 2010

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# The (R)evolution

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## The Evolution Path

For the future Multi-purpose Transactional Systems will have to accommodate an ecosystem of companies with different business interests participating in the multi-sided platform(s). This is an approach that allows for a balance between cost and business benefits for those involved, with a consequence that no single partner has to finance the entire platform.

On Multi-purpose Transaction Systems, companies from different sectors of the economy may derive different kinds of value from using the platform, and the use cases themselves may vary, requiring different contributions and business models for each player.

The Multi-purpose Ecosystems in the vast majority will consist of stakeholders with different business interests or complementary ones. This will happen because if the platforms are to be shared by competitors, information privacy issues could jeopardize shared interests of the sides and thus the potential value for leveraging the re-use of information.

Any platform that needs to include the end consumer at any point in the value chain can attract them by offering a greater user experience because of the free nature of the service, in exchange for the voluntary disclosure of some private information, such as geo-localization or preferences.

After the standardization of ERP, SCM and CRM processes, building sustainable business models based on fast growing communities in the Internet is the next big organizational challenge.

We envision that creating these business models in Multi-purpose Platforms will happen in steps, as described by a four level maturity model:

## Tailored Solutions

Most of the business ICT landscapes today are individually developed or customized solutions, operated on a customer-owned infrastructure supporting individual business processes. This variant is the one with the best end-user experience, but also produces the highest costs. The time for adoption can become a problem and changing legacy applications can produce unpredictable side effects. Opening the application to a broader consumer audience via the Internet could lead to inadequate consumption of infrastructure capacity. New rules and regulation needs can trigger demand for high maintenance and innovation budget. Ideally, this model should only be chosen by the business where the solution supports a unique selling proposition in the market.

## Multi-tenant Platforms

Forced by the upcoming re-use paradigm in software development and standardization driven by Cloud Computing, especially in terms of business support functions, platforms capable of supporting more than one tenant came into the market. The market penetration happens in waves. The first wave offered a lot of ASP (Application Service Provider) solutions during the Internet boom at the turn of the century. Today we see the second wave, driven by Cloud Computing. Enabled by virtualization and multi-tenancy cloud is now the common approach for infrastructure and at application level. Application, data and systems are strictly separated for each tenant, while system management, code and hardware are shared in order to provide cost reduction. Cloning an entire application and system for a second tenant is the easiest way to enable multi-tenant platforms. More sophisticated methods of sharing data or better information add more value but complexity too.

The Multi-purpose Ecosystems in the vast majority will consist of stakeholders with different business interests or complementary ones

### Closed Value Networks

The interesting question at this level of maturity is whether there is more to share than just the development of code, the hardware and the system operation? There is business information generated out of data collected already and ready to be shared, that is of value for different participants of Multi-purpose Transactional Platforms. Most companies are too busy to find their own value in data while not realizing the potential value of information for other platform participants outside their particular sector of industry. And there is value without diminishing the own value. Best example is the anonymized user or consumer behavior. This can be strengthened by the fast growing consumer community described already. They obtain their attractiveness and value by sharing the data collected from the user. The rules on how to share and build communities are becoming more sophisticated but still haven't reached a level feasible enough for business purposes.

There is a huge untapped potential value in existing multi-tenant platforms. By enhancing these platforms with the context broker platform and consequently collecting and sourcing context data, this potential value can be brought to life. The additional value could be for the intended purpose of the platform or for completely new purposes even in different sectors. The value networks in this case would have to be previously planned and built for specific usages, having B2B contracts negotiated on a case by case basis between the different actors.

### Consumer Community

The easiest way to build large communities is shown today in social networks. Most of the offers are free of charge to attract users in the hope of the network effect. However, monetization is still a challenge and the use for business reasons under discussion. Moreover, privacy issues arise more and more as technology usage deepens. We believe that society and business' learning curves around social networks are still going to evolve. A more sustainable development could start with established multi-tenant platforms leveraging the value of context or meta data for existing customers. There is an upside potential of leveraging the value of context data even outside the original intended sector or industry. When the conditions are ripe for a future leap into creating a consumer community fueled Multi-purpose Platforms, these will be leveraged by loosely coupled data and applications, built on top of the original platform in a flexible way to generate further insight, as much as Facebook currently opens its API for application developers to sell their own apps inside the Facebook platform taking a percent of the developers revenues.

The first and second levels are already well covered by various market players today. Multi-purpose Transactional Services begin at the third level, and future evolution will take it to the fourth level.

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# Value Network Use Cases

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To illustrate the value potential of Multi-purpose Transactional Platforms, this section provides some sector-specific examples showing the benefits for different industries. For instance, in a scenario where a car manufacturer is capable to track the place, speed and time of each vehicle and plot those in a remote management platform, the information generated has an additional intrinsic value and could be used, for example, in:

- ▶ an aggregated way for marketing studies that reveal potential for new retail stores or for infrastructure build outs;
- ▶ to push the sale of consumer goods during fuelling;
- ▶ to support and create tariff variants in car insurance rates;
- ▶ to generate intelligent traffic forecasting;
- ▶ to investigate driver behavior.

There is room for additional value creation in other sectors. For example:

## In Retail

- ▶ Based on smart shopping, re-selling information about which consumers did not buy the product they had been searching for can make a business case for manufacturers or retailers to push promotions, ads or discounts to help close sales.
- ▶ As before, but in an aggregated fashion (not real time) to contribute to manufacturer's and retailer's market intelligence. The type of information on the current non-customers of a company can generate powerful insights for product innovation.

## In Healthcare

- ▶ Patient data via sensors collected can be used in various ways by the patient's family, the health care provider, the medical practitioner, the health insurance, etc.
- ▶ Pharmacy chains could offer loyalty discount and home delivery services of medicine goods for patients with chronic illness.

## In Transportation (Goods)

- ▶ Platforms to track vehicles for professional transportation companies could be used by insurance companies to determine aggregated level of risk for given roads or highways (robbery risk, accident risk, etc.) and to take mitigating actions to reduce overall costs associated to events.

## Public Transportation:

- ▶ Adopting smartphone integrated payment methods for automatic fare collection is 'just' a technology upgrade of the intended platform purpose. However, it creates additional information:
  - That can be used for detailed capacity planning as the detailed information time and station of begin and end of journey of passengers can be collected;
  - That could also be used by retailers operating shops in subway stations, in real time by pushing SMS ads to passengers passing by (real time, context-based), or preordering, or in aggregated way to allow for better insight into potential consumers and plan product mix at point of sale, pricing, promotion tactics, etc.

As the interests and the value generated for each stakeholder is different so are the transactions, cross-sector collaboration is poorly initiated by only sharing the costs e.g. in Cloud Computing. As a result, recent examples have shown that the value networks are not funded by the business, as they are not necessarily aware of how their own requirements may facilitate the creation of value for other sectors. But they could be identified by platforms providers as the similarities between the needs of the different sectors.

# Value Ecosystems

Due to new integration technology like the Cloud Orchestration Business (COB) [7], which makes it easy and fast to integrate different cloud services and facilities to collect and utilize context or meta data by Context Broker Platforms (CBP) [8], the additional cross-sector values can be generated very quickly at reasonable costs. As there is no direct competition for the cross-sector platform participants, the barrier to pass the permission for using these values from one partner in the network to another is lower than on single purpose multi-tenant platforms. These platforms are only capable of collecting the values seen as a commodity, as direct sector competitors tend to keep the USP values in full tailored and owned solutions clearly separated from the competition.

Managing the data ownership in value ecosystems is very challenging and requires a degree of openness, cooperation and agreed governance between the various participants.

At the start of a new collaboration based on information the core data of each participant stays clearly separated and concealed. The bridge is provided by context data collected or meta data generated in the platform which is disclosed to the partners. The business model based on the disclosed information (context and meta) has to start with simple models based on trust like a fixed fee for the first period of collaboration. If the information provides enough value for the partners the model can mature into strict and accurate cost-based model like pay per transaction. To reach this accurate model it is recommended to have some intermediate models based on pay per agreed measure, even if it's a virtual measure. If the collaboration succeeds to a certain level the exchange of the customer base in between the partners of the different sectors is the result. Exchanging the customer base will grow the business for the partners. The exchange breaks the sector barrier. This is the tenant barrier breaking sweet spot.

Managing the data ownership in value ecosystems is very challenging and requires a degree of openness, cooperation and agreed governance between the various participants.

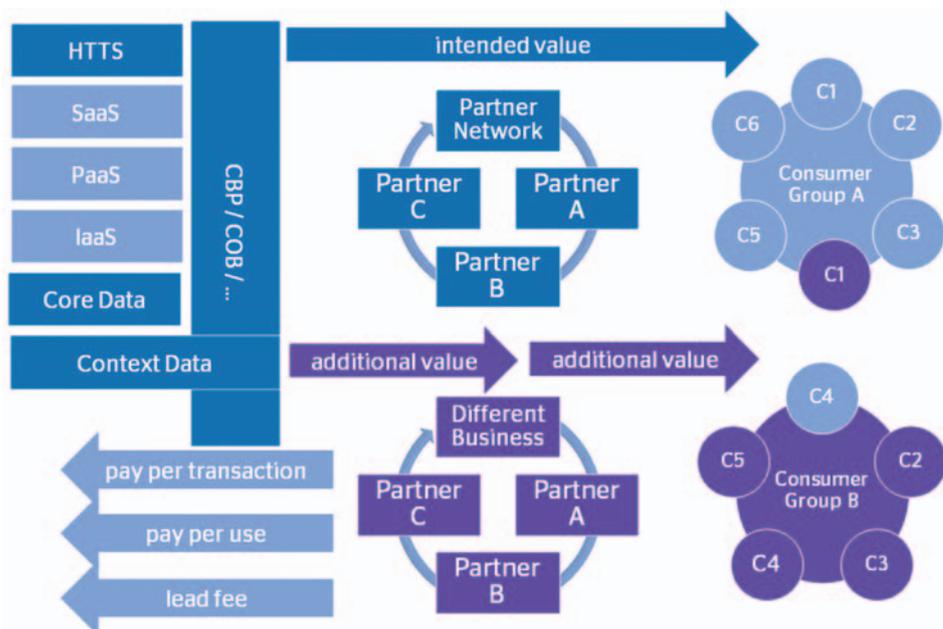


Figure 2: Open the customer via the value of your meta data generated or context information collectable

[7] White Paper Cloud Orchestration - A real business need = [http://atos.net/enus/about\\_us/insights-and-innovation/thought-leadership/bin/cloud\\_orchestration\\_a\\_real\\_business\\_need.htm](http://atos.net/enus/about_us/insights-and-innovation/thought-leadership/bin/cloud_orchestration_a_real_business_need.htm)  
 [8] Explosion context driven mobility = [http://atos.net/NR/rdonlyres/D6B0789A-BDC9-4EB4-9918-9F7078D8DB3/0/SmartMobilitybrochure\\_LoRes.pdf](http://atos.net/NR/rdonlyres/D6B0789A-BDC9-4EB4-9918-9F7078D8DB3/0/SmartMobilitybrochure_LoRes.pdf)

The goal and main principle of charging is to reach a pay per transaction model. In value networks, charging could start with a subscription fee and Freemium model for the consumer, followed by a pay per use. Key is a partner-agreed evolution of charging models to reach a certain size of the markets.

The model chosen between the business partners is independent of the model chosen by the partners in the consumer relationship.

One of the successful approaches to evolve platforms into new value areas are app markets or stores. They have brought the onetime fees down to an acceptable level for the consumer. In most cases a certain percentage of the

revenue is agreed for the platform provider to secure the platform. Some of the platforms are closed in terms of participants, with rules and regulations, especially around technical API's, that are proprietary and closed. So the provider prevents sometimes the participants from switching in between platforms (multi-homing) and achieves vendor and consumer lock-in or retention. They concentrate on applications and provide the data (sometimes) for free (e.g. maps). The value to be investigated should not be concentrated only on the application or the functions to manipulate the data. Even if this is the interface for the consumer, the real value is in the data itself or more precisely what can be done in a new context.

# Building the Business Model for Multi-purpose Transactional Services

## Criteria for Making the Concept Work

Value networks are a new approach to stimulate additional and new business and introduce a different style of business collaboration. With the 3by3 method a mix of existing methods it is easy and fast to investigate and elaborate value networks and to prove the data ecosystems.

It starts with a simple three step description of the idea. The first step describes the intended benefit of the platform for a consumer or user, as the user experience is key in each approach. The second step describes and concentrates on additional meta data or context data collectable to generate additional value. The third step describes the value for the participants.

Based on this description and inspired by the 'Board of Innovation' the revenue and value streams of at least three ecosystem participants can easily be visualized in the second phase.

In the third phase the benefits for the consumers and the business in the simplicity and control model are concluded.

The following example demonstrates the method:

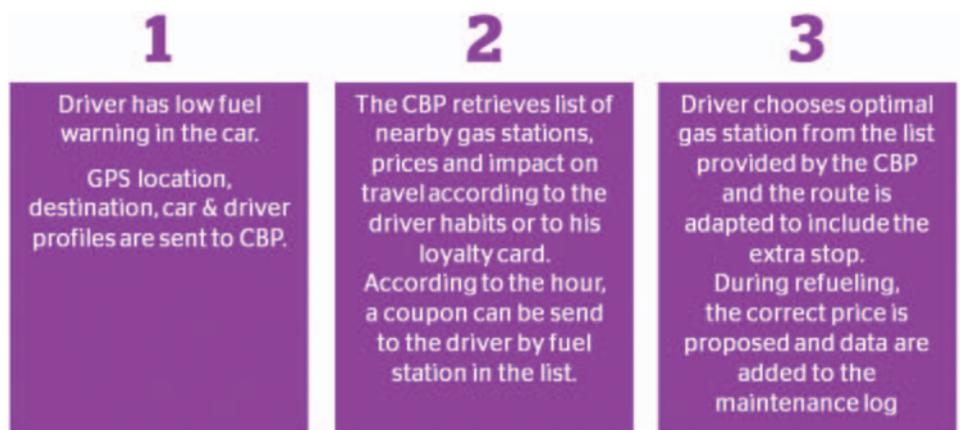


Figure 3: Three step description

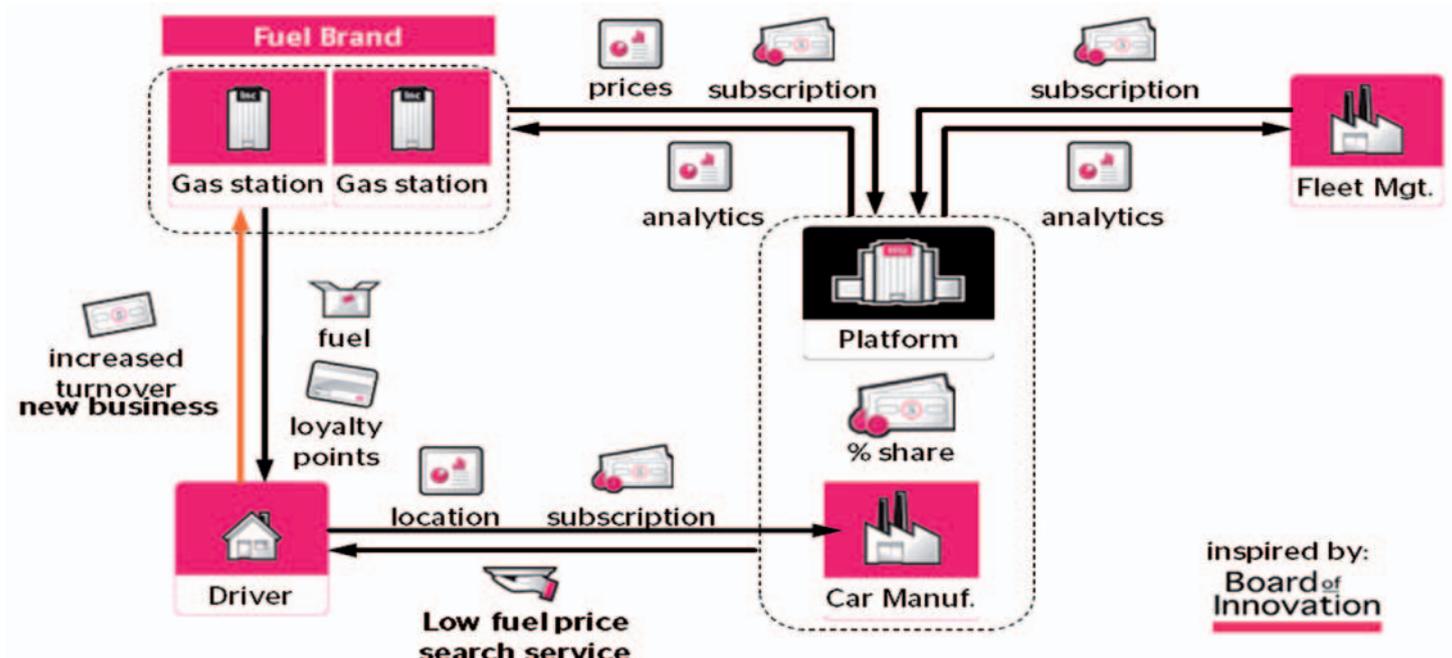
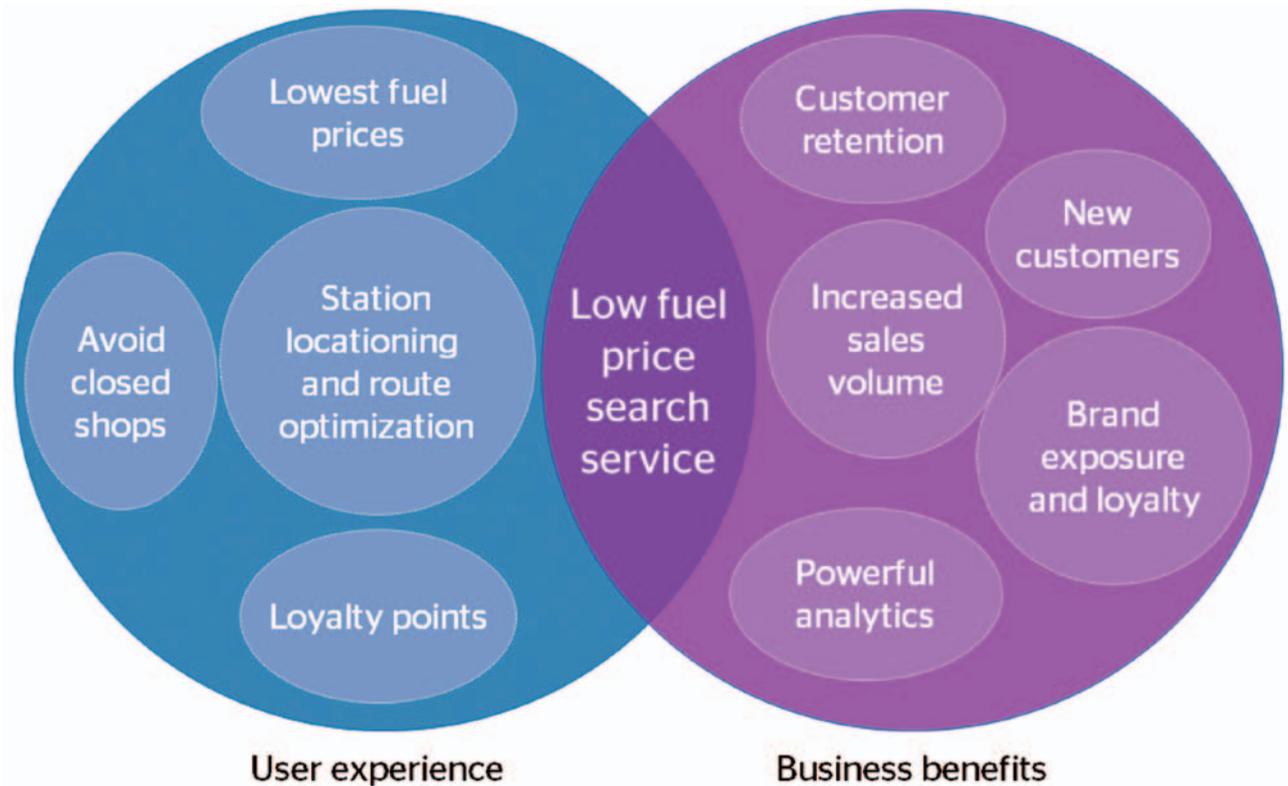


Figure 4: The graphical business model [9]

[9] <http://www.boardofinnovation.com/>

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Figure 5: The simplicity and control conclusion



This method makes it possible to explore the value of a platform for the consumer and the participating market actors. In the concrete business case shown above, the market actors are all car related, but you might also think of completely different sectors like Insurance. Driven by new tariffs insurance companies see value in behavioral data collected from consumers, so they are willing to participate in such a platform. The challenge is the acceptance by the consumer to use the context data collected for different purposes.

### Criteria to Evaluate New Opportunities

After the positive evaluation of an opportunity by the 3by3 method the documented business case can be presented to potential partners demonstrating the value in participating in such a network.

General criteria for business ideas to match the concept are:

- ▶ The additional investment to integrate a new partner into the value network should be small (less than 20% of the original investment to build the initial platform).
- ▶ Information to be used by additional market actors with propositions/products that are complementary to those that are already using the platform, and not direct

competitors (Rationale: In case of direct competitors the re-use is only accepted in the case of commodity services, it ends up in multi-instance platforms not in value networks).

- ▶ The level of collaboration and sharing for new partners should be chosen in a way that not every existing partner in the ecosystem has to agree first. So a clear set of rules is defined to balance the attractiveness for new partners to join and the privacy of data of the existing participants.
- ▶ Resulting in a set of already agreed approaches and a detailed discussion on an individual base, which puts the negotiation into levels. Comparable with the discussion in the case of re-use, one to agree the common functions and one to start the concrete use.

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# Conclusion

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Technology is evolving at a pace where the emergence of Multi-purpose Transactional Platforms will become more a business than an IT challenge. The challenge of assigning monetary values to insights derived from context data is key in creating value ecosystems based on multi-purpose transactional platforms.

It is obvious to investigate cross market collaboration for growth as the specialization and industrialization driven by the crisis in the last few years only concentrates on cost efficiency.

## Next Generation of Internet Based Services

Business-enabling platforms are one trigger for this new kind of collaboration. Motivating market players to collaborate on a common platform is the foundation for the next generation of Internet-based services. As this Internet application and service revolution continues, successful multi-purpose transactional platforms can unlock long term and sustainable revenue streams yet to be identified.

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# Glossary

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<b>API</b>	Application Programming Interface	<b>ERP</b>	Enterprise Resource Planning
<b>ASP</b>	Application Service Provider	<b>HTTS</b>	High Tech Transactional Services
<b>B2B</b>	Business to Business	<b>IaaS</b>	Infrastructure as a Service
<b>B2C</b>	Business to Customer	<b>ICT</b>	Information and Communication Technology
<b>CBP</b>	Context Broker Platform	<b>IT</b>	Information Technology
<b>COB</b>	Cloud Orchestration Bus	<b>PaaS</b>	Platform as a Service
<b>CRM</b>	Customer Relation Management	<b>SaaS</b>	Software as a Service
<b>DaaS</b>	Data as a Service	<b>SCM</b>	Supply Chain Management

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# About Atos

Atos SE (Societas europaea) is an international information technology services company with annual 2012 revenue of EUR 8.8 billion and 76,400 employees in 47 countries. Serving a global client base, it delivers Hi-Tech Transactional Services, Consulting & Technology Services, Systems Integration and Managed Services. With its deep technology expertise and industry knowledge, it works with clients across the following market sectors: Manufacturing, Retail & Services; Public sector, Healthcare & Transports; Financial Services; Telecoms, Media & Technology; Energy & Utilities.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. It is the Worldwide Information Technology Partner for the Olympic and Paralympic Games and is quoted on the NYSE Euronext Paris market. Atos operates under the brands Atos, Atos Consulting & Technology Services, Atos Worldline and Atos Worldgrid.

For more information: [www.atos.net](http://www.atos.net).