



# Pingvalue

White Paper 2017



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You acknowledge and agree that there are risks associated with purchasing, holding, and using Pingvalue tokens in connection with the Pingvalue's product, services, and platform developed for such products and/or services (hereafter, the "Platform"), as disclosed and explained in this White Paper and in the Terms of Sales available at <https://pingvalue.io>. If you have any questions regarding these risks, please contact us at [ico-pnngc@chaineum.com](mailto:ico-pnngc@chaineum.com).

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Note also that the ICO excludes certain groups of people such as "U.S. Person" (within the meaning of "Regulation S" of the Securities Act 1933 under U.S. law).

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# 1.

## An introduction to blockchain

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### Blockchain

A new technology is redefining the way we transact: blockchain has the potential to change the way we buy and sell, interact with government and verify the authenticity of everything from property titles to organic vegetables.

It combines the openness of the internet with the security of cryptography to give everyone a faster, safer way to verify key information and establish trust.

A blockchain is a distributed, verifiable datastore. In simpler words, it is a network of computers having an identical copy of the database and changing its state (records) by a common agreement based on pure mathematics. It means, that there is no need for any central server or agent to trust.

The blockchain is the technological base for all those names like Bitcoin, Ethereum, Hyperledger.

Bitcoin has been dominant in the cryptocurrency field for a long time. It was launched with the intention to bypass government regulations and create online payments without the need of intermediary to confirm transactions. Ethereum is another cryptocurrency project, however with much greater possibilities. It introduced the so-called smart contracts and a way to perform actions by the rules defined in the contract.

Each transaction in the blockchain is signed by the rightful owner of the resource being traded in the transaction. When new resources are created they are assigned to an owner.

This owner, in turn, can prepare new transactions that send those resources to others by simply embedding the new owner's public key in the transaction

and then signing the transaction with his or her private-key.

To order these transactions and prevent the double-spending problem, blockchains use the proof-of-work. The proof-of-work is a procedure that establishes a cost for grouping transactions in a certain order and adding them to the blockchain.

These groups of transactions are called blocks. Each block points to a previous block in the chain, thus the name blockchain. By making blocks costly to make and making sure each new block points to the previous block, any potential attacker wanting to modify the history of transactions as represented by the blockchain must pay the cost of each block modified. The bigger the network, the harder it is to perform such attack.

Blockchain could be a revolution in the way everyone – businesses, governments, organizations and individuals – work together. It provides a simple, secure way to establish trust for virtually any kind of transaction, removing the need of expensive third party and helping simplify the movement of money, products or sensitive information worldwide.

## Smart Contracts

Smart contracts are self-executing contracts with the terms of the contract directly written into lines of code: if required conditions are met, certain actions are executed.

A smart contract is stored in the blockchain network (on each participant's database) and needs to be executed by all computers within the network to make sure that the outcome is correct.

For example, let's say you want to ship a pallet of goods to your friend Bob.

You trust Bob, but you don't trust trucker Tom, who will carry your pallet. On the other hand, Tom does not trust you as well, maybe you won't pay him?

Therefore, you have to sign an agreement with Tom that you will pay for the shipment in a few days after delivery. Usually third party is involved in this process, legal papers, contracts are scanned, printed, signed. With the help of smart contracts we could define those rules in code.

You make a payment for shipment to smart contract on a day of loading. It holds payment till shipment delivery is confirmed by Bob. Then smart contract releases the payment and money is transferred to Tom automatically.

If we would have a GPS tracker attached to the pallet then we simply could eliminate Bob from this process and just release the payment automatically, when the location rule is met.

For a wide range of potential applications, blockchain-based smart contracts could offer a number of benefits:

**Speed and real-time updates.** Because smart contracts use software code to automate tasks that are typically accomplished through manual means, they can increase the speed of a wide variety of business processes.

**Accuracy.** Automated transactions are not only faster, but less prone to manual error.

**Lower execution risk.** The decentralized process of execution virtually eliminates the risk of manipulation, nonperformance, or errors, since execution is managed automatically by the network rather than an individual party.

**Fewer intermediaries.** Smart contracts can reduce or eliminate reliance on third-party intermediaries that provide “trust” services such as escrow between counterparties.

**Lower cost.** New processes enabled by smart contracts require less human intervention and fewer intermediaries and will therefore, reduce costs.

**New business or operational models.** Because smart contracts provide a low-cost way of ensuring that the transactions are reliably performed as agreed upon, they will enable new kinds of businesses, from peer-to-peer renewable energy trading to automated access to vehicles and storage units.

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SOURCES:

- <http://www.goldmansachs.com/our-thinking/pages/blockchain/>
- <https://medium.com/startup-grind/gentle-intro-to-blockchain-and-smart-contracts-part-1-3328afca62ab>
- <https://auth0.com/blog/an-introduction-to-ethereum-and-smart-contracts-part-2/>
- <http://www.investopedia.com/terms/s/smарт-contracts.asp>
- <https://www2.deloitte.com/us/en/pages/finance/articles/cfo-insights-getting-smart-contracts.html>

## 2.

### Abstract – Pingvalue today

Pingvalue is a tech startup founded in Luxembourg in 2014 that has already expanded to Belgium, the Netherlands, Spain and Italy. The company's technological and industrial capacity is supported by the high qualification of its team members. As a high-tech company, there is a clear strategy to heavily invest in R&D to increase the technology value. But having reached a first technology readiness, and found innovative and monetizable business models, it is time to go to the market and get viable market feedback on the basis of which the fine tuning of the product can begin. In the figure below the key milestones of the project are illustrated.



\*Lar Espana Real Estate: the company invests in, develops, and manages real estate properties. Its property portfolio comprises shopping centers, residential and vacational properties, office and business parks, industrial parks, and retail parks. The company has operations in Spain, Germany, Colombia, Peru, Poland, Romania, Mexico, and Brazil. Lar Espana Real Estate SOCIMI, S.A. is based in Madrid, Spain.

\*Fundeun: <http://fundeun.es/patrones/>

\*ICEX: The Spanish Institute for Foreign Trade (ICEX) is an agency of the Spanish Ministry of Industry, Tourism and Trade serving Spanish companies to promote their exports and facilitate their international expansion. For this purpose, it possesses its own financial, material and human resources.

Pingvalue's project proposal submitted under Horizon 2020's SME instrument phase 2 in the area of New business models for inclusive, innovative and reflective societies was scored as high-quality project proposal in a highly competitive evaluation process.



**Corina Cretu**  
Commissioner for  
Regional Policy



**Carlos Moedas**  
Commissioner for Research  
Science and Innovation



Pingvalue contributes to the implementation of the EU Initiative “A Digital Agenda for Europe”, as it favors innovation and European economic growth and helps citizens and businesses to take full advantage of the economic and social potential of Information and Communications Technologies, and in particular the Internet. It participates of the 5 pillars of this initiative.

1. A dynamic digital single market, as Pingvalue will be developed.
2. Interoperability and standards. The technology Pingvalue allows to generate standardization to be a unique application.
3. Trust and security. Pingvalue technology is configured to ensure user confidence and security.
4. Fast and ultra fast Internet access. Through their Pingspot, anyone who uses Pingvalue will be able to access the internet for free.
5. Research and innovation. Pingvalue is a platform in constant movement, where Research and innovation are pillars of its success.

Pingvalue is directly linked to the Priority ‘Smart growth – an economy based on knowledge and innovation’, the first priority of the Europe 2020 Strategy (Europe 2020 A strategy for smart, sustainable and inclusive growth COM/2010/2020). In particular, the innovation project will collaborate with the European Digital Society goals by promoting the ‘online dissemination of knowledge’ in a wide range of customers, from users of the App to the different business developed in this project allowing increasing their competitiveness in the global market. Furthermore, there is a need to have EU champions in many IT and industrial areas competing with the US-based companies for the world market, and concretely in the Interaction Economy revolution.

Pingvalue uses its own patented algorithms to provide relevant information at the right time with actionable items. The insights provided are based on the “Trust Social Factor”, a measure of the influential power and expertise of each member of the community.

With our intelligent engine we are able to offer citizens, businesses and cities the tool to make smart choices:

- For the individuals: A Smart Personal Agenda
- For the businesses: A Smart Management Solution
- For the neighborhoods and cities: A Smart Urban Panel

The interaction among all the stakeholders will result in relevant and personalized experiences in a world of unstructured big data, generating wealth for the socio-economic system through a win-win-win relationship.

## Today's Challenges

### People:

- Individuals suffer from information overkill.
- The information we get is often irrelevant or did not reach us at the right moment and place.
- We need to waste too much time and effort in making the best choices based on a specific (often limited!) budget.

### Products (Businesses and Brands):

- New technologies allow to collect big data but how to make sense of that data and translate it into insights and concrete actions?
- Lack of personalized customer experiences both online and offline, which often makes interactions ineffective.
- Measuring the concrete results such interactions is very difficult.

### Places (Cities/Urban Areas):

- City centers are getting empty, commercial activities are less successful.
- This brings negative consequences on the local socio-economic system.
- Making a city smart is easily said but implementing concrete plans is not so simple.

## The Solution of Pingvalue



Pingvalue is an ICT people-centric platform that aims at transforming the current economic model by enabling real-time relevant and trustworthy interactions between people and businesses/institutions.

- A Smart Personal Agenda and Digital Wallet: Relevant recommendations when and where needed & trustworthy transactions.
- A One-Stop Shop Management Solution: Know your customers better through digital interactions (Spot your Audience), and attract them to the physical stores/places with relevant communication (Spot your Target).
- A Smart Urban Panel: Brand your city, engage with citizens and visitors and co-create smart neighborhoods (smarthoods).

### Fundamental principles of our people-centric approach:

- Relevancy: through Pingvalue individuals will get what matters the most to them, when and where they need it.
- Trust: thanks to our Trust factor, people will be able to identify products and places they can rely upon.
- Accuracy: our recommendations and suggestions take into account your profile, interests, plans, and context and constantly adapt to any changes.

- Authenticity: we want the content on the platform to be transparent, and honestly judged by the community in its entirety.
- Security: we care about the protection of personal data and do our best in order to provide a secure environment.
- Recognition: we believe people should be rewarded for their real expertise and efforts in promoting the products and places they love.

#### Market:

The global Internet of Things market is doubling its growth during the period 2014 – 2018, and estimated to surpass € 300 billion by 2019 in the retail sector only. We aim to sell € 1.2 million by 2019;

The global Big Data for Business Analytics market is growing by 53% in during the period 2015 – 2019 to reach €167 billion. We aim to sell € 2.9 million by 2019

The global Mobile Advertising market is growing by 184% in the period 2015 – 2019 to reach € 196 billion. We aim to sell € 1.6 million by 2019 with ads plus sales promotions

Businesses: we target 12.8 million SMEs in Europe, with a primary focus on those dedicated to retailing, hospitality, travelling and food and beverage activities. By 2019, we aim to reach 5,285 SMES (0.04%)

#### Updated data on market potential:

- IoT Market by 2025: \$4-11T assuming 7% for retail sector = 770B  
(Source IDC + <https://www.mckinsey.com/mgi/overview/in-the-news/by-2025-internet-of-things-applications-could-have-11-trillion-impact>)
- Big Data Market by 2025: \$285B  
<http://www.businesswire.com/news/home/20160527005450/en/Global-Big-Data-Analytics-Hadoop-Market-Worth>

#### Social, health and/or environmental impact of the project:

- Economic Impact: Pingvalue allows an impact on the economic activity of the city, since the shops, restaurants, leisure places, etc., can also use the platform to attract new customers to their businesses. Pingvalue allows revitalizing the commerce of the cities, offering to the small commerce an effective alternative to the big surfaces.

- Innovations: A new type of users, with new demands and new technologies available, are pushing the introduction of new experiences. Pingvalue is feeding that demand for innovation in technology, in user experience and in business models. Other than traditional advertising methods, the campaign launched through Pingvalue are tailored to the specific interest of relevant consumers, which results in a considerably higher conversion rate. Pingvalue allows all kinds of companies to use the platform for developing new products and services.
- Competitiveness: Pingvalue helps to strengthen and increase the economic capacity of the retail and leisure sector by giving B2B customers a strategic advantage over their competitors, as they are not only provided with relevant data of the activities and interests of their potential customers but can directly target them with personalized marketing campaigns.
- Growth: Pingvalue allows to revitalize the commerce and the leisure zones of the cities, allowing the creation of new businesses and the diversification of the offer, thus contributing to the economic growth of the city in question
- Jobs: As Pingvalue contributes to the success of a cities retail sector and thus to economic growth, it will create the perfect conditions for businesses to expand and create new jobs.
- Social impact: Pingvalue app has a strong social focus on social features, which allows users to connect to like-minded people in their city and share their experiences with their social network. Citizens will thus be more integrated into their surroundings and committed to their city. Additionally, Pingvalue gives city administrations the possibility to identify active citizens and award them for their social contributions, which will foster civic society.
- Environment: Considering that with Pingvalue the content is deployed virtually, there is no physical impact on the city landscape as compared to traditional outdoor advertising with static or electronic billboards, that additionally result in energy use independently of potential customers actually noticing them or not. Furthermore, the fact that marketing campaigns are transmitted digitally and only to user with a relevant profile, in the medium term, Pingvalue will contribute to reducing the amount of physical brochures and leaflets distributed in masses, which

are responsible for a considerable amount of waste. Pingvalue is therefore in line with the trend towards green and sustainable societies. Pingvalue intends to provide smart data and pre-sales to business so that they can organize their processes and supply chain in a more efficient way. When connected to other areas of smart city platforms, like mobility, Pingvalue help to create heatmaps and flow chart of the movement of both anonymous mobile devices and registered users. Thereof, it enables a tool for better management of transport and parking services with an impact in CO<sub>2</sub> emissions.

- Public services: Pingvalue will open a direct communication channel between city administrations and their citizens, allowing them to know more about their needs and wishes. It will also comprise various monitoring and management features, which will enable cities to conveniently provide public services through one platform; Pingvalue will, therefore, be an important step towards the creation of Smart Cities.

In terms of value for money, Pingvalue is:

1. Economic. Users have free Wi-Fi throughout the city through the pinspot points, which means that they are permanently connected to Pingvalue and generate a permanent data traffic that is exploitable for the brands and local environments. Economic movement is generated and there is the possibility of dynamizing territories and generating new businesses. Opportunity for users and SMEs to earn money for content sharing; collaborative economy; revenue sharing of third-party advertisers; same tools for all stakeholders in the platform; private-public collaboration.
2. Efficient. Pingvalue transforms the current economic model by enabling real-time relevant and trustworthy interactions between people and businesses/institutions. Pingvalue is an inclusive solution for Big and Smart Data.
3. Effective. Pingvalue enables generates on-demand and personalized relationships for users.
4. Equitable. Pingvalue ensures that the benefits of technology are equitably distributed, as they can be applied to all people who have a Smartphone.

5. Social Return On Investment (SROI). Pingvalue allows access to technology to people with small economic possibilities through Pingspot. Pingvalue thus becomes a social app, since it is open to any type of user.
6. Sustainable. The technology developed by Pingvalue will generate revenue and profits for the company through a unique model that cannot be compared to other players in the market. Even in the presence of new potential competitors in the future, Pingvalue would continue to generate income since it would be better positioned.
7. Scalable. Having no direct competitors, only partial app, and having a lower price, Pingvalue will generate profits for the company starting in 2020 and increasing them regularly in the absence of direct competitors.
8. Project to invest. Pingvalue generates new demand and allows me to increase the price by absorbing a part of the current market, so we can get investors. EU global challenges.

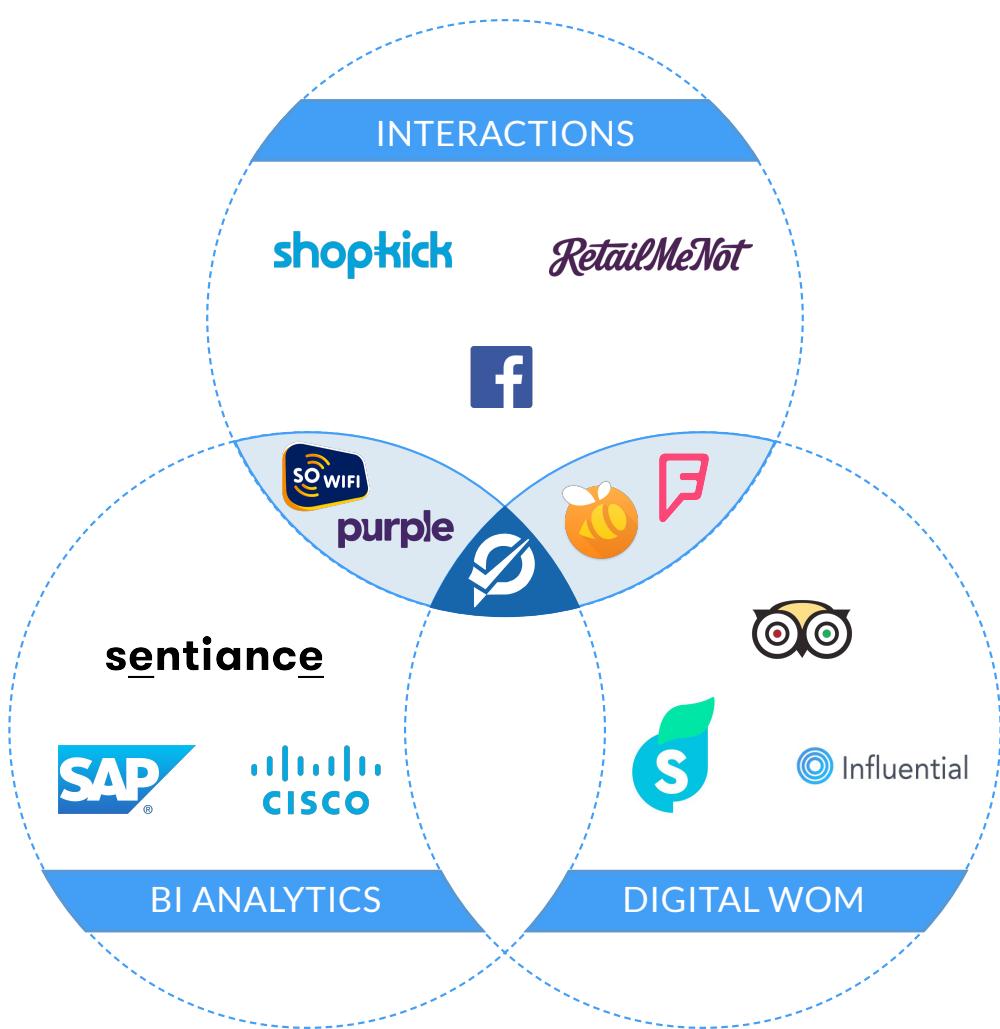
## Competitive/Collaborative Landscape

Instead of speaking about competitive landscape, we would like to speak about possible collaborators. There are different players in the market that are focusing on one or more of the aspects that Pingvalue addresses. We can divide the features offered by Pingvalue in 3 big groups:

1. Interactions: Interactions among users and between users and businesses, including offers and promotions. Examples of platforms created with this purpose are Facebook, Shopkick (<https://www.shopkick.com/>), and RetailMeNot (<https://www.retailmenot.com/>). They put businesses in contact with potential customers and offer special promotions and rewards.
2. Digital Word of Mouth: It is often said that customers are the best salespeople, this is why many platform exists where users share

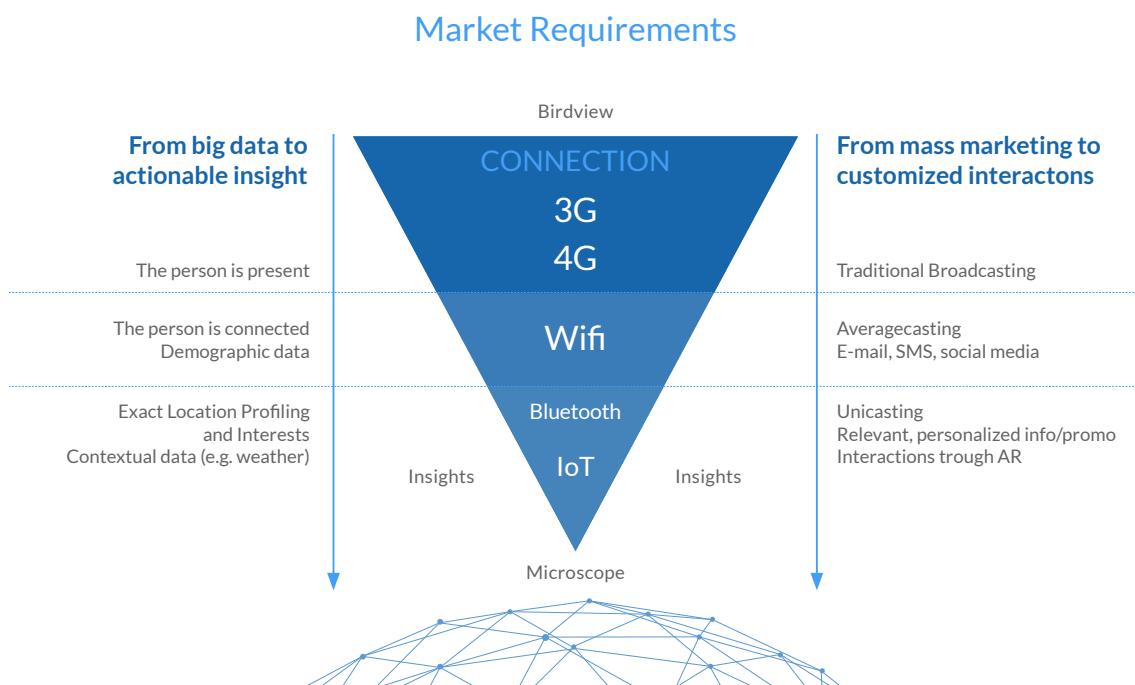
with the community their experiences and opinions relating to places, activities and businesses. Users are sometimes even chosen by businesses as ambassadors to help them attract new customers in a more transparent way. Examples of this are TripAdvisor, SocialSeeder (<https://www.socialseeder.com/>) and Influential (<https://influential.co/>).

3. Business Analytics: Nowadays various companies claim to provide businesses with smart data that can help them operate in a more effective and efficient way. Examples are big companies such as Microsoft, Cisco, and SAP and newest players such as Sentiance (<http://www.sentiance.com/>). The difficulty is in making those metrics actionable and allowing businesses to clearly measure the results of their activities.

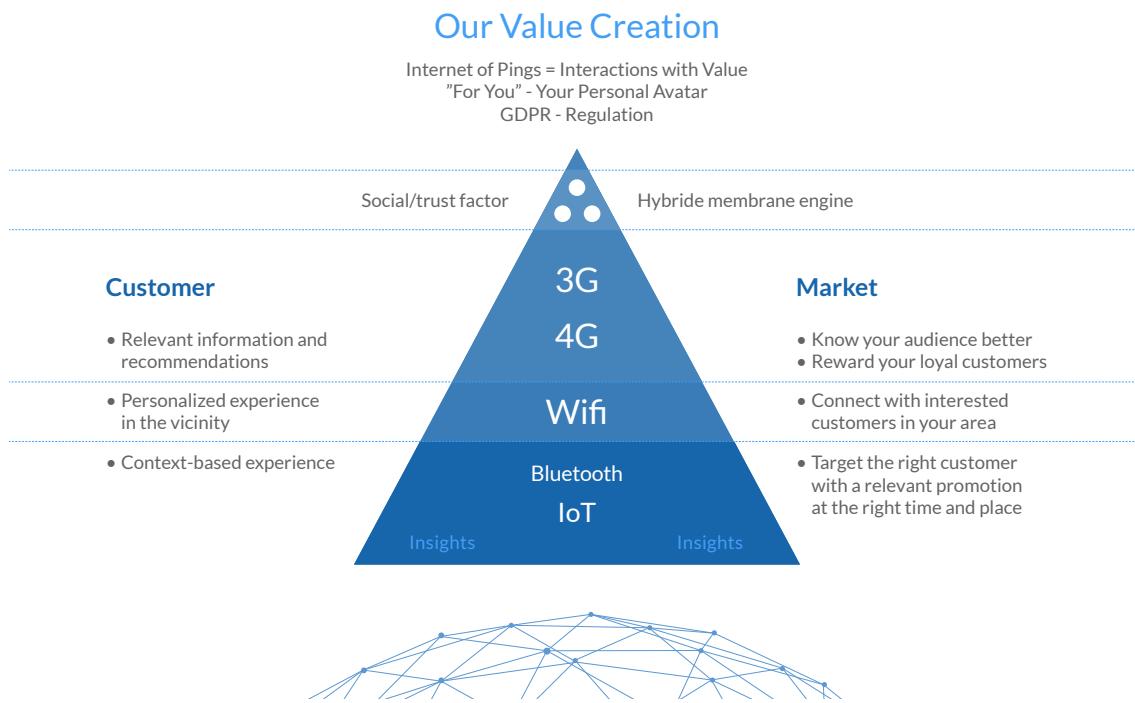


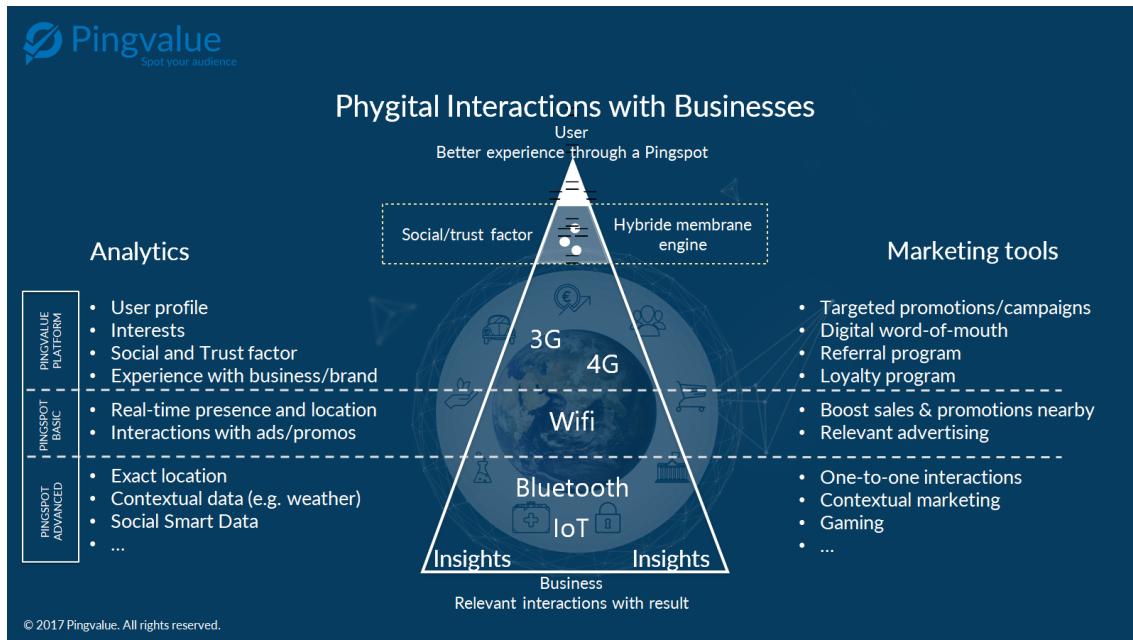
## 2.1 – What are Pingvalue goals?

In today's world, the majority of the companies is operating within the 3G/4G connection (ecommerce). This has led to the problem of physical stores getting emptier and emptier. With wi-fi, companies have found a way to attract back customers to the physical stores. However, wi-fi only allows to gather some general data about the customers connecting to it and is just a channel of mass communication. Thanks to the bluetooth and IoT technology, communication has become more targeted and the quantity and quality of insights that can be generated has increased. There is a need in the market to reach specific customers with personalized interactions and to translate big data into actionable metrics, to basically transform communication into interactions. The different types of connections allow for different types of insights and marketing actions: the smaller the reach the more precise the insights and the more targeted the marketing actions (from presence to profiling, from traditional broadcasting to unicasting = personalized and interactive). In this way, businesses and institutions can go from a birdview to a microscope view on their customers, knowing better who they are and what they are looking for, and interacting with the right people at the right time and place.



These interactions occur instantaneously, generating big data and Smart data that can be used to offer new services to citizens, while businesses benefit from being able to offer their services on demand and in real time. With Pingvalue, we aim to transform the way in which consumers relate to businesses and their socio-economic environments. The platform offers an innovative tool that allows interactions between customers and businesses and generate new marketing tools and measurement of return on investment marketing (ROIM) actions. Pingvalue reverts the triangle exploiting more of the latest technologies (and less of the other ones) to reach smaller and smaller audiences (up to one-to-one interactions) with more targeted recommendations. Communication becomes interaction (IoP), as customers are able to provide feedback and make their own decisions based on the input received. This translates into more relevant insights for market players (businesses and institutions), which can use them to make their marketing actions even more compelling. In the end, consumers/citizens get an individualized, tailored experience made "for him/her", based on his/her unique profile, interests, needs and wishes. Pingvalue serves as a personal avatar helping consumers/citizens to find (through the social and Trust Factor) the people, products, places, promotions, etc. that are relevant to them. No more information overkill: the Social/Trust Factor acts as a filter that allows useful data to pass through but stops irrelevant information.





In this process, the Pingspot serves as a touch point for phygital interactions.

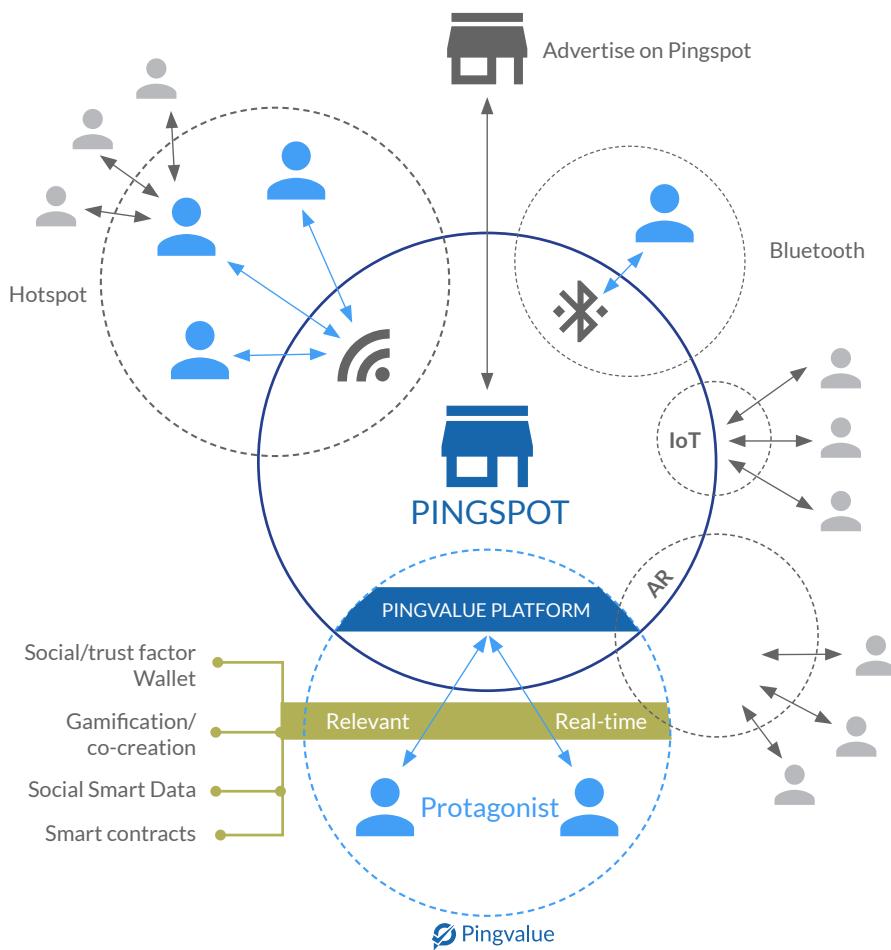
A “*Pingspot*” is a Pingvalue hotspot, which not only brings free wi-fi connection for customers, but also serves as a portal for businesses.

- A channel for a business to create a direct contact with current and potential customers present in the area. Thanks to physical mapping of foot traffic and in-depth customer analytics on profile and interests accessible from the Pingvalue dashboard, Pingspot owners can know their customers better, being at the right place at the right time with the perfect message.
- Visibility for a business’ products, services, and promotions without the need of downloading an app. These are shown on the Pingspot splashpage when the user registers to get free wifi connection. Online promotions and incentives published through a Pingspot attract customers to the physical storefront. The Pingvalue platform allows then the business to maintain such customer relationships and inspire return visits.
- An extra source of revenue from advertising of other businesses/brands on the splashpage of the Pingspot. The Pingspot owner can give the permission to other businesses and brands to publish content on the splashpage and will earn 30% of the revenue derived from advertising.

Users interacting with the content will also be rewarded with the same revenue share percentage for helping the business gain new customer through a referral system and positive word of mouth.

- Free wi-fi with an added value: a way for the customers to easily discover interesting deals and explore the nearby area for a total experience.

A Pingspot can be equipped with bluetooth, augmented reality, and IoT technology to make the customers' experience even more entertaining and provide businesses with extra channels of interactions (and sources of smart data).



In the Interaction Economy the differentiating factor is not knowledge, but rather the rate at which we do new and valuable things with that knowledge. Rate of adjustment is crucial and is driven by the interaction of three elements: initiators, partners, and information. Initiators start interactions; they are exploring or are already committed to a strategy for producing value. Partners are those with whom the initiators must interact to create economic value creation. Partners may take the

form of customers, associates, employees, superiors, suppliers, and/or allies, that is, anyone who must participate for value to occur. Information is timely, relevant knowledge. The quality of the interactions between these elements is the competitive frontier in the Interaction Economy. (<http://guowitz.com/2012/12/the-interaction-economy/>)

## 2.2 – What are Pingvalue objectives?

### Advantages for Users (People):

- Relevant suggestions when and where you want them, matching your personal interests;
- No information overload, no push approach, no irritation;
- Peer2peer advice from “people like you” that you can trust;
- Your personal guide to nearby experiences that are relevant for you (People, Products, Places, Promotions, Events etc.)
- Creation of wishlists to get recommendations for planned purchases and activities based on specific timeframe, location and budget (and connected to your personal/business agenda);
- Access to discounts and possibility to earn credits as rewards for loyalty to your favorite places and brands and positive word-of-mouth.

Today: Discovering Experiences Nearby (Places, Products, Promotions)

Tomorrow: Relevant Personalized Guide

Vision: Smart Personal Agenda

### Advantages for Businesses (Products):

- Visibility through word-of-mouth between Pingvalue members;
- Smart data analysis of audiences, (real visitors or simple passers-by) thanks to the Cisco CMX integration;
- Analysis of target group behavior and trends for better marketing decisions, to engage with customers before, during and after their

experiences (also useful for new market test);

- Reward loyal customers through credits and loyalty programs, getting insights on how these rewards are used;
- Measure real conversion through Return On Investment (ROI) and Return On Marketing Investment calculation, and compare performance with the industry average (benchmarking);
- Adjust strategies and anticipate behaviors, which allows businesses to perform in a more effective and efficient way (e.g. improved stock management and waste management, reduced costs).

Today: Insights on Visitors, Digital coupons and Coupon Analytics

Tomorrow: Spot your Audience, Spot your Target

Vision: Smart Management Solution

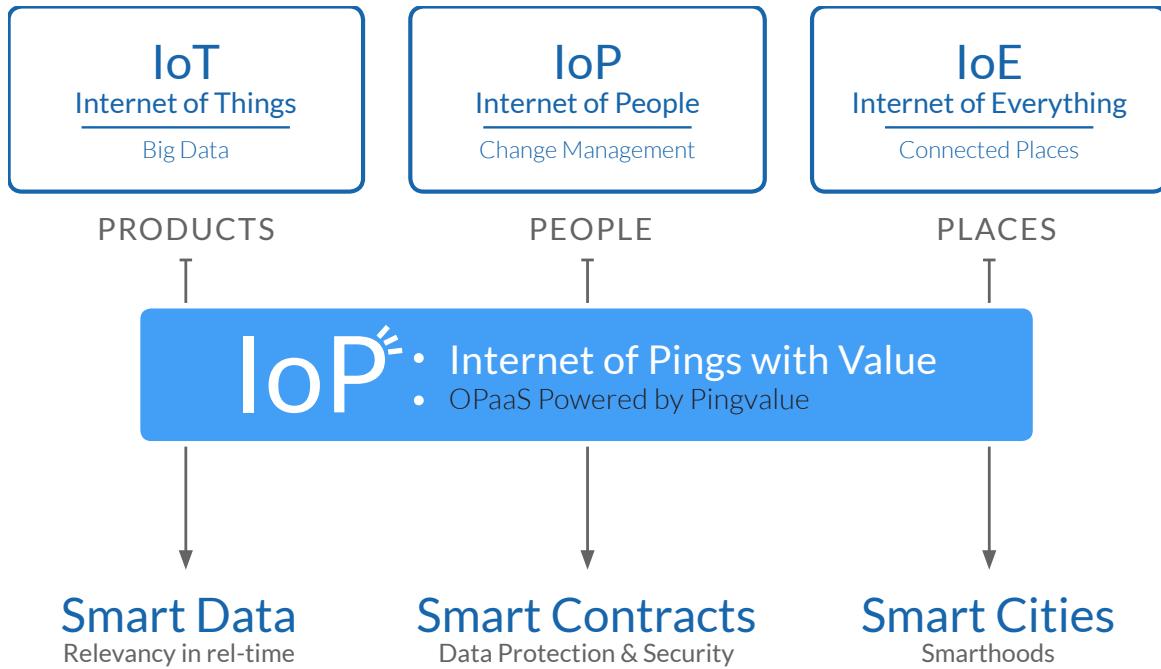
#### Advantages for Cities (Places):

- Actively brand the city to citizens, visitors and other stakeholders.
- Let people discover relevant experiences in the nearby area, allowing them to get out the most of what the city has to offer.
- Get smart data in real-time on the different types of audiences that are present in the city, in order to be able to reach them with relevant information and suggestions.
- Attract people back to areas which are not so popular anymore, ensuring visibility of organizations and businesses by the right audience and fostering commercial activities. Which results in the co-creation of Smarhoods (smart neighborhoods).
- Manage the different factors involved in a city from one single platform, from mobility to energy, waste management etc.

Today: Letting citizens and visitors discover experiences in the city

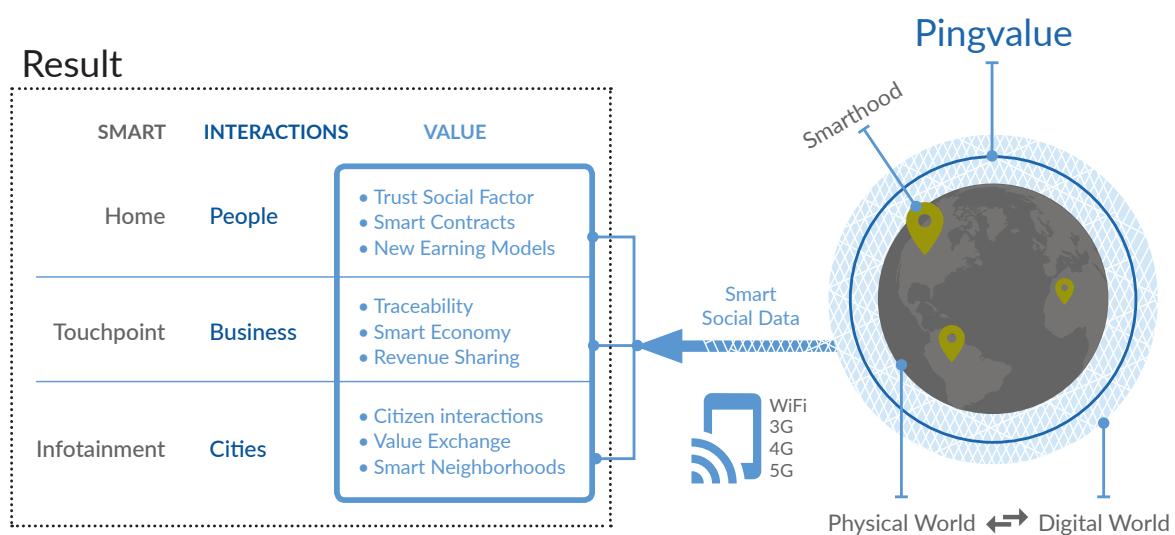
Tomorrow: Branding your City

Vision: Smart Urban Panel



Better living in a new, sustainable socio-economic system

Current approach:	Anonymous Mass-Communication	- Minimum result
Pingvalue approach:	Quantum Micro-Communication	- High effectiveness



What is the core user? (People, business, institutions)

## People

- Students
- Young Professionals
- Household Buyers
- Bloggers

Where are the private members to be found and how will Pingvalue address them?

- Students: social media, parties & events (especially if free)
- Young Professionals: social media, exclusive events
- Household Buyers: mainly shops/physical places (and online, but not necessarily on social media)
- Bloggers: social media, events related to fashion, food, travel

Private members will be addressed both through online presence (social media, SEO optimization, blog) and offline activities (presence at events, billboarding & leafleting, promotional campaigns with special offers/prizes). Private members can be addressed directly or through the business members, which will bring their already existing community of consumers/users on the platform.

## Businesses

- Entrepreneurs
- Small business owners
- Medium Size Retailers
- Top Retail/Brand Management

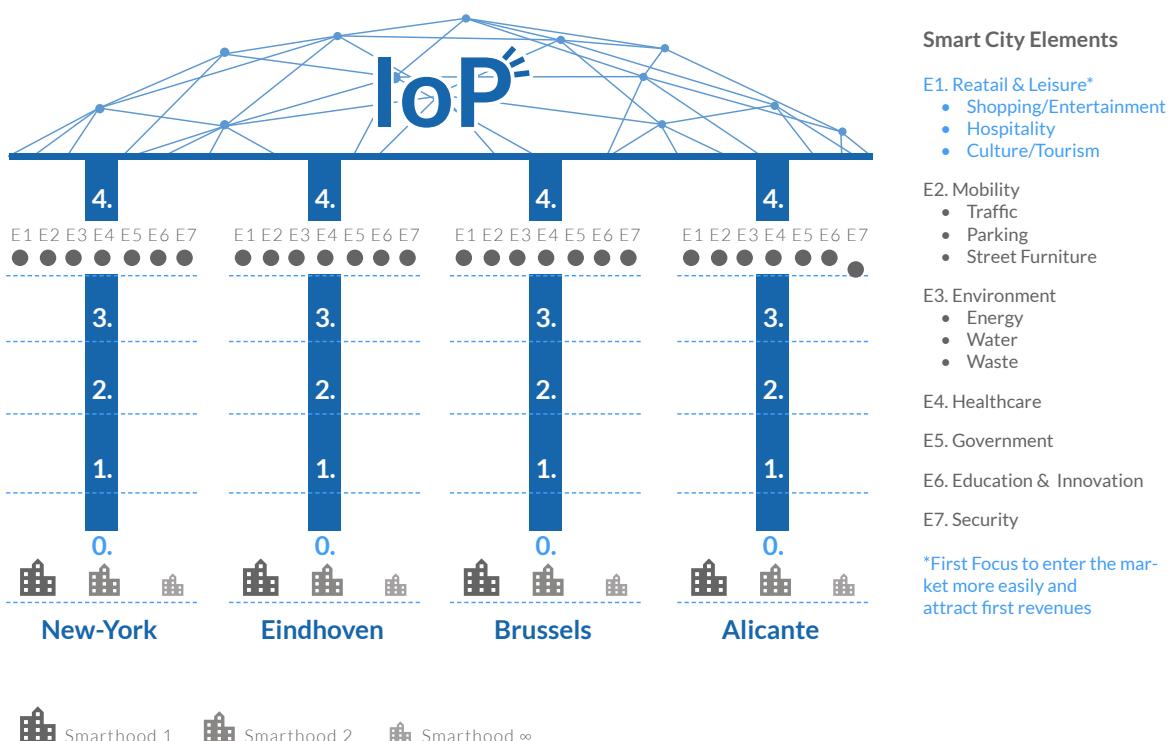
Where are the business members to be found and how will Pingvalue address them?

Business members are mainly to be found on websites, social media (e.g. Facebook) and professional platforms (e.g. LinkedIn). For top retail/brand management, websites covering news and trends in their market (e.g. publication of articles, papers, presentations) are also an important channel. Talking about offline, business members are to be found at events, expositions,

and conferences related to the industry where they are operating.

As with private members, business members will be also addressed via a combination of online and offline activities: ads on relevant social media and websites, publication of articles and papers, presence at local and international conferences/events, networking and direct sales. Small/medium businesses will be attracted through physical visits/direct sales or by getting management of retailers/brands on board, which will promote the use of Pingvalue in own distribution networks and points of sales.

## Cities



Pingvalue offers two indispensable elements: a new communication channel between retail customers and businesses and the development of relevant content for them to support their specific needs and attract them to local retailers. Mobile is an indispensable element of any modern advertising strategy. The existence of a new interactive channel between a city's citizens and its businesses and organizations is a very attractive element for them since they can directly reach specific customer groups and adjust contents to their personal profiles and interests. Pingvalue has conducted a multitude of interviews with advertising companies and all of them have insisted on the need to reach the potential consumer. Through Pingvalue, businesses could

potentially reach out to everyone in a city.

### Private customers(B2C):

B2C customers are represented by a city's retail customer, potential customers being current and future smartphone users with a range of all ages. Here we can differentiate some type of B2C users with different needs/expectations:

- «Generation C» users, aged 16-34, Connected digital natives demanding new mobile experiences and ways to express themselves with strong social interaction. They want to share everything they do and they can create influential behavior in others. They need not only to see relevant content but create it, so part of that experience must let them do that and give tools to share.
- General retail customers. With Pingvalue, businesses will be able to attract local potential customers to their shops without the use of expensive outdoor advertising. Individuals in this segment are mainly interested in knowing as much as possible about a place in which they are, to have immersive experiences, and to let others see and comment their social and free time activity. They can share new place of interest with their friends, such as shops and restaurants because people tend to follow what their friends can recommend rather than general recommendations.
- Citizens and even visitors will also find, in Pingvalue, a quick access to information from public Administration that will save time and money. Tourist offices may, for example, advertise some relevant information no matter if they are open or close, for example, or get access to purchase tickets for a public event, etc.

B2C customers will not only come from retail and leisure but from various sources.

- OTT: The strategy is to work with OTT (Instagram, Pinterest, Facebook, etc.) providing an SDK (Software Development Kit). They have hundreds of millions of users already.
- Pingvalue: Pingvalue will promote the APP.
- B2B: Users coming from vertical projects will be invited to keep using

Pingvalue based on their social network features and cool user experience.

The retail and leisure sector, advertising sector, public administrations and culture organizations are all included in this category. Retail needs to engage customers and ensure that their experience is pleasant, which will foster future sales and long-term brand loyalty. For cities, the retail and leisure sector is an important channel to engage citizens as well as a way to generate income

### Examples of use cases:

JOURNEY PHASE	DISCOVER	ENGAGEMENT	USER	REFERRAL
USER STORY	 	<p>They both have time before the flight and are shown some relevant recommendations based on their Pingvalue interests and ratings. Also, notified of their visit via the Pingvalue dashboard, local retailers at the airport can see that loyal customers are in the area that have an interest in their products.</p>		
CUSTOMER TRIGGERS	<ul style="list-style-type: none"> <li>Looking to save money</li> <li>Looking for inspiration of great experiences</li> <li>Free wifi available</li> </ul>	<ul style="list-style-type: none"> <li>Wants relevant and trusted reviews, and recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>Wants to be valued as a customer</li> <li>Customer wants to get relevant experiences.</li> <li>Customer wants to save money.</li> </ul>	<ul style="list-style-type: none"> <li>Customer wants to share a great experience.</li> <li>Customer enjoys relevant recommendations and is keen to get more.</li> </ul>
TOUCH POINT WITH PINGVALUE	<ul style="list-style-type: none"> <li>Free Pingvalue Wi-Fi with login.</li> <li>Local Pingvalue connected businesses and promotions are shown.</li> <li>Brussels Airport app is downloaded from app store.</li> </ul>	<ul style="list-style-type: none"> <li>Nearby places are seen on Pingvalue</li> <li>Coupon generated on app</li> </ul>	<ul style="list-style-type: none"> <li>Voucher saved to wallet</li> <li>Customer browses nearby recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>Trusted reviews added to Pingvalue.</li> <li>Ratings and more recommendations are generated.</li> </ul>
TOUCH POINT WITH BUSINESS	<ul style="list-style-type: none"> <li>Pingvalue connected local business promotions are viewed on Wi-Fi Hotspot.</li> <li>Airline coupon used and loyalty program joined.</li> </ul>	<ul style="list-style-type: none"> <li>Customer views products, reviews and any running promotions.</li> <li>Customer now connected to business through coupon use.</li> </ul>	<ul style="list-style-type: none"> <li>Customer now connected to business through loyalty system.</li> <li>New business is generated as customer visits shop after seeing a relevant recommendation.</li> </ul>	<ul style="list-style-type: none"> <li>Customer advertises and recommends business to relevant social circle.</li> <li>Products are reviewed and shared with other potential customers.</li> </ul>
VALUE-ADD BY PINGVALUE	<ul style="list-style-type: none"> <li>Pingvalue highlights local products and promotions through the Hotspot.</li> <li>Partner app is recommended to user.</li> </ul>	<ul style="list-style-type: none"> <li>Customer base grows as Pingvalue highlights local relevant business.</li> <li>Real-time data of loyal and potential customers is available for business.</li> </ul>	<ul style="list-style-type: none"> <li>Coupon notification sent to nearby customer.</li> <li>Happy customer builds online connections to the business.</li> </ul>	<ul style="list-style-type: none"> <li>Trusted feedback is generated for business.</li> <li>Client reach grows for the business as products are rated and shared.</li> </ul>

JOURNEY PHASE	DISCOVER	ENGAGEMENT	USER	REFERRAL
USER STORY	 	 	 	
CUSTOMER TRIGGERS	<ul style="list-style-type: none"> <li>Looking for time-saving seamless integration, speed of use, and inspiration of great products.</li> <li>Wants relevant and trusted reviews.</li> <li>Wants to be valued as a regular customer.</li> </ul>	<ul style="list-style-type: none"> <li>Customer wants to share a great experience.</li> <li>Customer wants good value for money.</li> </ul>	<ul style="list-style-type: none"> <li>Customer wants to share a great experience.</li> <li>Customer looking for similar experience in local area.</li> </ul>	
TOUCH POINT WITH PINGVALUE	<ul style="list-style-type: none"> <li>Free wifi with Pingvalue login</li> <li>Pingvalue app is downloaded from app store.</li> </ul>	<ul style="list-style-type: none"> <li>Current promotions are viewed.</li> <li>Nearby products are viewed by client after downloading app.</li> </ul>	<ul style="list-style-type: none"> <li>Coupon creation and use.</li> <li>Local products for nearby places viewed by customer.</li> </ul>	<ul style="list-style-type: none"> <li>Pingvalue is explored by customer. Local products, promotions and places are viewed and/or saved.</li> </ul>
TOUCH POINT WITH BUSINESS	<ul style="list-style-type: none"> <li>Pingvalue connected business offers preferred customer promotions.</li> <li>Business is focused on customer with free wifi.</li> </ul>	<ul style="list-style-type: none"> <li>Customer views products, reviews and any running promotions.</li> </ul>	<ul style="list-style-type: none"> <li>Customers use coupons.</li> <li>Customer now connected to business through interaction.</li> </ul>	<ul style="list-style-type: none"> <li>Customer advertises and recommends business to relevant social circle.</li> </ul>
VALUE-ADD BY PINGVALUE	<ul style="list-style-type: none"> <li>Pingvalue highlights products and trusted reviews to a valued, visiting customer.</li> </ul>	<ul style="list-style-type: none"> <li>Pingvalue highlights local businesses that are related to the customer interests.</li> </ul>	<ul style="list-style-type: none"> <li>ROI generated, customer preferences and interests captured and available for future coupon generation and Marketing.</li> <li>Customer base grows as Pingvalue coupon is used.</li> </ul>	<ul style="list-style-type: none"> <li>Colleagues can easily access and discover the same promotions.</li> <li>Client reach for business grows as a new customer uses Pingvalue.</li> </ul>

JOURNEY PHASE	DISCOVER	ENGAGEMENT	USER	REFERRAL
USER STORY	 	 	 	
CUSTOMER TRIGGERS	<ul style="list-style-type: none"> <li>Looking for time-saving seamless integration, speed of use, and money saving opportunities.</li> <li>Wants relevant and trusted reviews.</li> <li>Wants to be valued as a customer and have **loyalty rewarded.</li> </ul>	<ul style="list-style-type: none"> <li>Customer wants to share a great experience.</li> <li>Customer wants good value for money and to be valued as a returning customer.</li> </ul>	<ul style="list-style-type: none"> <li>Customer wants to share a great value for money.</li> <li>Customer wants to share a great experience.</li> <li>Customer looking for similar experience in local area.</li> </ul>	
TOUCH POINT WITH PINGVALUE	<ul style="list-style-type: none"> <li>Coupon use for Pingvalue users</li> <li>Pingvalue app is downloaded from app store.</li> </ul>	<ul style="list-style-type: none"> <li>Current promotions are viewed.</li> <li>Hotel products are viewed by client.</li> <li>Loyalty card** use is rewarded.</li> </ul>	<ul style="list-style-type: none"> <li>Coupon creation and use.</li> </ul>	<ul style="list-style-type: none"> <li>Pingvalue coupon used.</li> <li>Pingvalue is explored by customer. Other products, promotions and places are viewed and/or saved.</li> </ul>
TOUCH POINT WITH BUSINESS	<ul style="list-style-type: none"> <li>Promotions are viewed</li> <li>Business is seen as a place to save money.</li> <li>Business products and promotions viewed by new customer.</li> </ul>	<ul style="list-style-type: none"> <li>Pingvalue connected business offers loyal customer promotions.</li> <li>Customer views products, reviews and running promotions.</li> <li>ROI is fed back to Hotel Pingvalue dashboard.</li> </ul>	<ul style="list-style-type: none"> <li>Customers use coupons.</li> <li>Customer coupon use interaction feedback to business on Pingvalue dashboard.</li> </ul>	<ul style="list-style-type: none"> <li>Customer return visit.</li> <li>Positive online review.</li> </ul>
VALUE-ADD BY PINGVALUE	<ul style="list-style-type: none"> <li>Pingvalue connected business creates interaction with a valued customer.</li> </ul>	<ul style="list-style-type: none"> <li>Pingvalue *coupons aimed at loyal customers.</li> <li>**Loyalty card feeds back to dashboard and ROI is calculated.</li> <li>Other products and services are shown to new customer.</li> </ul>	<ul style="list-style-type: none"> <li>ROI generated and customer preferences captured.</li> <li>Customer base grows as Pingvalue coupon is used.</li> </ul>	<ul style="list-style-type: none"> <li>Colleagues and friends can see customer using Pingvalue to get great deals at The Dominican.</li> <li>Client reach for shared promotions reaches</li> </ul>

## 2.3 – What are Pingvalue innovations?

The world is moving to a co-creation model, with individuals becoming protagonists of the new socio-economic approach.

In this new era, Pingvalue offers smart personalized solutions through an OPaaS - in compliance with the latest General Data Protection Regulation (EU) 2016/679 GDPR - facilitating relevant and balanced interactions in the physical and digital world among the different stakeholders involved

→ WIN-WIN-WIN result!

- **Prediction and recommendation models:** The Pingvalue patented algorithm allows to identify similar profiles and predict the needs and interests of users. Relevancy is constantly redefined for each single individual based on past and current search queries, activities, and interactions on the platform. Big data is therefore transformed into smart small data.
- **New socio-economic system based on Trust Social Factor:** Real activities, knowledge and skills of all parties (people, businesses, and cities) contribute to provide a reliable score of one's expertise and honesty. Different from other platforms, this score is used to attract real valuable users from business side, and to interact with real similar people from user side. The individual is central and the rules of this new socio-economic system are constantly redefined based on a democratic model, but controlled by the Social Factor computing algorithms in complete transparency and trust to facilitate change management.
- **New earning models:** Thanks to the Share Economy and through Smart Contracts based on the blockchain technology, all parties involved will be able to exchange and earn money in a transparent way. Individuals will finally be rewarded for their interactions with businesses and institutions.

**Result:** Pingvalue serves as a personal guide in today's fast changing world in order for people to get the best experiences and relevant information. It allows businesses/brands to effectively interact with the right audience of customers, therefore being more successful. Last but not least, it helps administrations to better interact with citizens and visitors.

In order to comply with the GDPR, we are working with the Commission nationale pour la protection des données CNPD in Luxembourg and with Parell in the Netherlands.

## Main platform features

- **Social Factor:** a scoring system (with algorithms patented in Luxembourg) which measures the expertise and credibility of every single user on Pingvalue through gamification. It is based on the user's activities/interactions and on the feedback received by others from the community. It is calculated based on three elements:

**Activity:** it refers to interactions with available content (like and share) and the following of other people and businesses/brands; it counts for a small percentage of the total score.

**Skill:** it refers to the active creation of content, for example by uploading products or writing reviews; it counts for a bigger percentage of the total score.

**Knowledge:** it is defined by the feedback received from others, and has the greatest impact on the final score calculation.

Based on their Social Factor score, users can grow through different levels, earn medals and be recognized by the rest of the community for their actual contributions.

The Social Factor also plays a role in determining which type of information could be relevant to the individual user, for more accurate recommendations (which will eventually lead to higher conversion into sales).

- **Trust:** The higher the Social Factor score, the bigger the impact of the user's activities and his/her trustworthiness on specific topics.

For example: having a high Social Factor related to specific areas of interest (e.g. wines) means having a better knowledge on the content that you are sharing related to that interest (e.g. the picture of a prestigious bottle of wine from South Africa with a scoring of 5 stars). You will therefore earn even more points for your Social Factor. The same holds true when commenting on content shared by other users: as an expert (with high Social Factor), you will earn more points for that comment. The user who shared the content will also earn more points

than if the person who commented it had a low Social Factor score. Even in the case of publishing a negative review (e.g. on a bad wine or a bad experience in a restaurant) the Social Factor will be taken into consideration: if the user who published the review can be recognized as an expert in that field, then his/her contribution is more credible and realistic, which will let him/her still earn points. If the review was published by somebody who has no clue about wines or just wants to denigrate a business, (with no similar feedback from other users) then this action can also be punished by subtracting points from the current Social Factor score. This is a way to protect the reputation of businesses (or organizations) as well, and at the same time providing a more realistic picture on the kind of experience that you can expect as a customer in a specific place (avoiding both positive and negative opinions that do not correspond to reality). This results in a reviewing system based on trust where even businesses and cities can be “judged” based on their performance according by expert customers.

- **Social Smart Data:** The Social Smart Data tool allows to facilitate decision making both for the present time and for future planning of advertising actions based on historical trends in order to reduce the level of uncertainty and risk in a given geographical area.

The use of this tool make it easier to transform the information into present actions as well as future planning related to the advertising strategy. Likewise, it allows to correct deviations from what is planned, and even concerning past behavior, by being able to analyze the historical trends.

Identifying search trends and evaluating the optimum alternative as well as its supervision and control in order to be able to determine the mix of appearance of programmatic advertising (future advertising) and suggested advertising regarding the trend suggested at a given time (online, Social networks + google trends). This mix will be implemented using machine learning techniques.

#### Data Sources:

- Social Networks: publications on Social Networks such as Twitter, Facebook, YouTube, Instagram, Foursquare... geolocalized and determining influencers or top contributors.
- Google Trends: establish what is trending in a specific area and which

searches are related to trends.

- Google AdWords: allows to obtain related searches to a reference keyword, along with historical statistics regarding values such as average CPC, level of competence, or monthly search volume to help with decision-making.  
([https://developers.google.com/adwords/api/docs/guides/targeting-idea-service#use\\_case](https://developers.google.com/adwords/api/docs/guides/targeting-idea-service#use_case))

#### Features:

- Multilingual Sentiment and Emotion Analysis: classification of data obtained (Data Sources) in terms of emotions (based on Ekman's basic emotions) or polarity (positive or negative). Before that, crossing data against a language detection system will establish the language dictionary that will be used.
- Pingvalue integration:
  - Combination of own information of pingvalue with the Data Sources: Social Factor, Product Strength...
  - Google Analytics Demographics and Interests data could let us understand and compare with insights from our Pingvalue audience composition in terms of gender, age and categories of interest.
  - Detection of Pingvalue's user: to increase accuracy in advertising, using Interests set at Pingvalue's profile and Pingvalue recommender system.
  - Info we could use for better targeting the audience:
    - Weather (there are lots of open APIs, for example accuweather): online weather and forecast.
    - Air Quality
    - Events on a specific area: concerts, festivals, elections, sports...
    - News: political, finance, terrorist attacks...
    - Transportation means info: airports, railroad...

## 3. Pingvalue architecture

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### 3.1 – Token Pingcoin (PCO)

Pingcoin (PCO) is an utility token offering advertising capacity and data analytics for holders in the Pingvalue ecosystem. Advertisers can pay their announcements in fiat or PCO (Pingvalue will compensate the fiat orders by acquiring the corresponding tokens from the exchange).

It can be also used to reward the actors in the Pingvalue platform for the interactions and transactions among themselves.

PCO can only be used by members of the Pingvalue community. PCO cannot be used outside Pingvalue Platform.

PCO value will likely be correlated with the traffic volume and the number of users. The number of users is not only related to the traffic around Pingspots, but also includes new users reached through the referral/sharing system applied on adverts. The PCO value will likely be driven by the increase/decrease of the adoption of the pingspot and the number of users continuously.

These Pingcoins can be stored and use through a Personal Digital Wallet linked to each Digital Id which is unique to each actor in the Pingvalue platform. Pingcoins will be managed by users and businesses through the Smart Wallet within Pingvalue.

## 3.2 - Functionnalities & Rewards

Utility & Reward for:

- Platform interactions earning system linked to Social and Trust Factors



Transactions made using PCO will automatically benefit from a 5% discount on the applicable price (in fiat currency), e.g. a product sold for 100 euros will also be sold for an amount of POC equal to 95 euros (according to the POC/FIAT conversion rate applicable as of the date of the purchase). Basically when Pingcoins are used instead of fiat currencies for transactions, a discount of 5% on the total cost is applied. This holds true for payments from all types of stakeholders (users, businesses, brands, cities...) in order to stimulate the use of Pingcoins by making it more advantageous.

The PCO will function as a smart-contract owned by each single user that offers 6 use cases:

### 3.2.1 - Payment for advertising in Pingspots

Advertisers can pay Pingvalue in Pingcoins to publish adverts on Pingspots (Pingcoins can be bought through the Smart Wallet).

### 3.2.2 - Rewards for Pingspots owners

Pingvalue pays back in Pingcoins the predefined revenue percentage to the owner of the Pingspot where adverts are published.

### 3.2.3 - Referral system

Pingvalue pays back in Pingcoins the predefined revenue percentage to users who shared with other people adverts published on a Pingspot (in this way, the user becomes him/herself a mobile Pingspot, with the ability to reach a broader audience in different locations, attracting new users).

### 3.2.4 - Users as salespeople through smart contracts

Pingvalue pays users in Pingcoins for bringing on the Pingvalue platform businesses that are willing to install a Pingspot at their place and/or advertise on existing Pingspots (buying a subscription for the related dashboard).

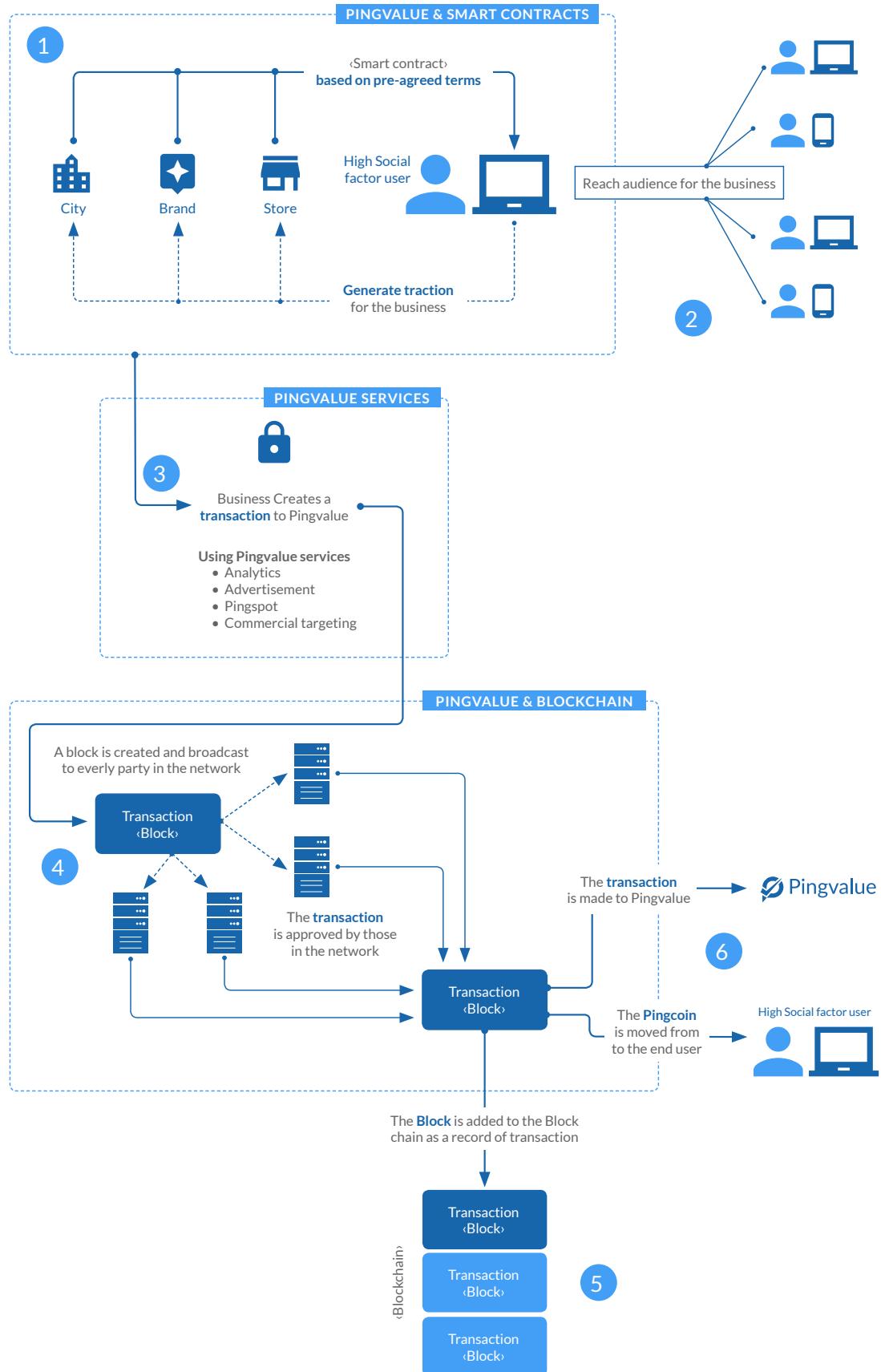
### 3.2.5 - Sale of smart data

Businesses can use Pingcoins to buy from Pingvalue small smart data related to Pingspots.

Pingcoins will be managed by users and businesses through the Smart Wallet within Pingvalue.

### 3.2.6 - Discount benefits

Transactions made using PCO will automatically benefit from a 5% discount on the applicable price (in fiat currency), e.g. a product sold for 100 euros will also be sold for an amount of POC equal to 95 euros (according to the POC/ FIAT conversion rate applicable as of the date of the purchase). Basically when Pingcoins are used instead of fiat currencies for transactions, a discount of 5% on the total cost is applied. This holds true for payments from all types of stakeholders (users, businesses, brands, cities...) in order to stimulate the use of Pingcoins by making it more advantageous.



1. On the platform, entities such as Cities, Brands, Stores can setup a Smart contract with users (for example users with a high Social Factor that the business/institution would like to have as customers/ambassadors). These Smart contracts will always be based on pre-agreed terms of both parties on actions and corresponding rewards.
2. The goal is for these users to help improve the business by reaching larger audiences through a referral system and thus creating more customer traction (Social Selling). In the long run this could also lead to an increase in the business' revenues.
3. Through the Pingvalue Platform, the business can use several services Pingvalue has to offer for a specific service cost.
4. The service transactions will be paid using Pingcoins through blockchain technology. This by creating a transaction (Block) and broadcasting it to everyone in the Network for verification.
5. After everyone has verified the transaction with the blockchain system, the block will be added to the blockchain.
6. At this point the transaction will be completed and sent to Pingvalue. The user that was involved in the Smart contract with the party, will then receive a share of Pingcoins as reward for his/her efforts.

## Open-Loop Coins

Pingcoins that are not related to a specific business/brand/city and that can be used within the community.

Those Pingcoins are generated by the users themselves, whether by buying them or by earning them thanks to their interactions with value in the Pingvalue platform.

A way users could earn Pingcoins is by successfully bringing businesses on the Pingvalue platform. The user will get in Pingcoins 10% of the revenue that Pingvalue makes from the dashboard subscription plan chosen by the business.

Those Pingcoins can be used for peer to peer transfer between users to send gifts to family and friends.

## Closed-Loop Coins

Pingcoins that are given by a specific business/brand/city and that can be used only within the same ecosystem (eventually also only on specific products/services):

- Coins given by a business or brand as a reward to loyal customers which can only be used to purchase products/services in that same business or from that same brands;
- Coins given by a public entity (district, city, region or country) to smart citizens (those who have interacted in a positive way according to a specific public entity) which can only be used to purchase products/services in that same ecosystem defined by each public entity.

**How it works:** After completing the profile with all the info required, the user is automatically assigned a Personal Digital Id to comply with KYC requirements. Also, a personal unique QR code is created for each person.

He/she can start participating into loyalty programs offered by businesses/brands of his/her choice. When participating into a loyalty program, the user needs to scan the personal QR code after paying, and the Pingcoins will be added to its digital loyalty card (in the Wallet). The amount of Pingcoins that the user earns for each euro (or other currency) spent depends on the settings defined by the business/brand itself (e.g. 10 Pingcoins for 1 euro spent, or a percentage on the 1 euro which then is translated into the amount of Pingcoins).

### Examples:

- Restaurant XYZ gives loyalty Pingcoins that can only be used back there (maybe only on a specific range of products).
- Fast food chain gives Pingcoins that can be used on any product in any restaurant of the same chain restaurant only in Benelux.

Example could be found in many other sectors such as clothing & accessories, hospitality, mobility (e.g. parking companies, airlines), entertainment (e.g. event organizers), etc.

- Coins given by a city to be spent in a network of businesses/organizations

within the same city (or with the city administration itself). Examples:

- As a citizen, I could be rewarded for my good behavior (e.g. using public transportation, reducing energy consumption) with Pingcoins to be used for the city library, to go to the city swimming pool, to buy garbage bags...
- As a tourist, I could buy a gift card from the city to use Pingcoins for specific events, activities (e.g. museum, amusement parks...), restaurants or shops that have an agreement with the city.



## Use Case

THE UNIVERSITY STUDENT	INTERACTION → INCREASE SOCIAL FACTOR	TRANSACTION → REWARDS IN PINGCOIN
At the end of day John decides to spend the last part of his afternoon with his friends. He contacts his friends online and while using social media, he sees a Pingvalue advert.	—	—
Pingvalue advert is shown on social media platforms	—	—
The Student registers on Pingvalue	—	Pingvalue provides 1000 Pingcoins to use for first time signup
Student finds a promotion from a local store	Likes, follow place	—
Student shares promotions with friends who click on it	Likes, follows, product coupons	Pingvalue provides 2 Pingcoins to student
Friends register in Pingvalue using Facebook	Likes, follows, follow places, producte coupons, likes own user page, follows on own user page	Pingvalue provides 1000 Pingcoins for first signup and 2 for FB account
Student and friends go to pub and buy a drink and food using coupons	Product coupons redeemed	Pingvalue provides 3% of discount value to users in Pingcoins
Student and friends share their activity on Twitter	Rating, reviews	Pingvalue provides 2 Pingcoins each to use
Student creates a new place and asks it to join Pingvalue and benefit from being on the platform	content co-creation	—
New place claims the page and becomes a new customer	Likes on own user page	Pingvalue provides 1000 Pingcoin to student

### 3.3 - Security

An explanation of the elements put in place to ensure security within the system some solutions we can consider are:

- Detecting when user interactions are not genuine, and then, block its capacity to request/s
- Creating a solution to log a device by its ID and detecting if 2 user use the same phone to get double coupons.
- Using an anomaly detection algorithm to detect whenever a user is trying to abuse of the system (liking then disliking right after only to get the coupon, etc..). When the conditions of the promotion/marketing campaign, allow it, coupons could be activated for users only 24h after they saved them in the Smart wallet. This will create a sentiment in the user that will push him to go to the shop creating a passive remarketing strategy (like fidelity cards). Furthermore it will secure the fact that the user will not be able to abuse from the system.

#### **Contingency plan to ensure system availability 24 hours a day for 7 days a week.**

The contingency plan will document all the necessary steps to ensure the stability of the platform, and what to do in each case of minor and major problems. Common maintenance routines and common problems solutions should be documented. In the worst case scenario, the system should be able to be recovered from a catastrophic disaster (loss of all data stored in the cloud) in less than 3 hours. Furthermore, the infrastructure will be highly-available using a standby synced in real-time site ready to take the load if a major issue happens to the main site.

**An important aspect is that the Pingvalue platform will ensure its compliance with the new GDPR (General Data Protection Regulation) that will be applicable from May 2018. This will be done in collaboration with the Dutch company Parell and with the Luxembourgish CNPD (Commission Nationale pour la Protection des Données).**

## 4. Roadmap

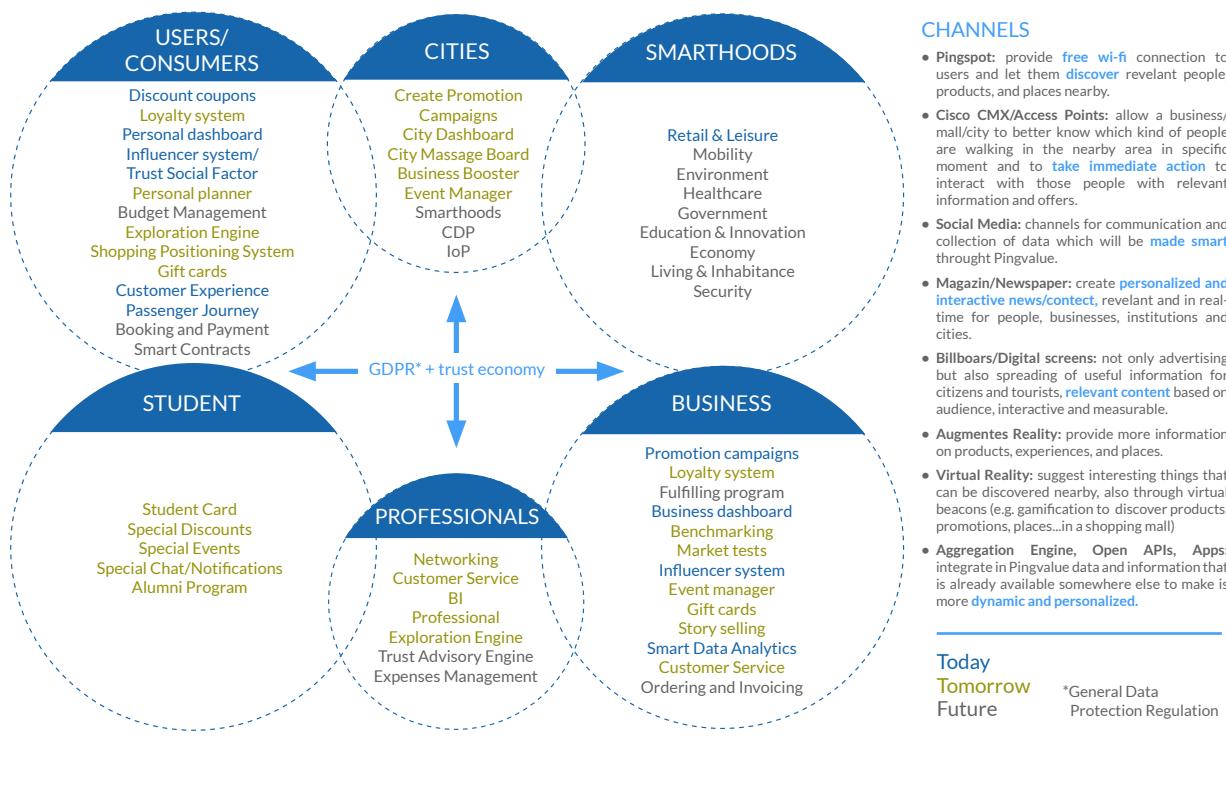
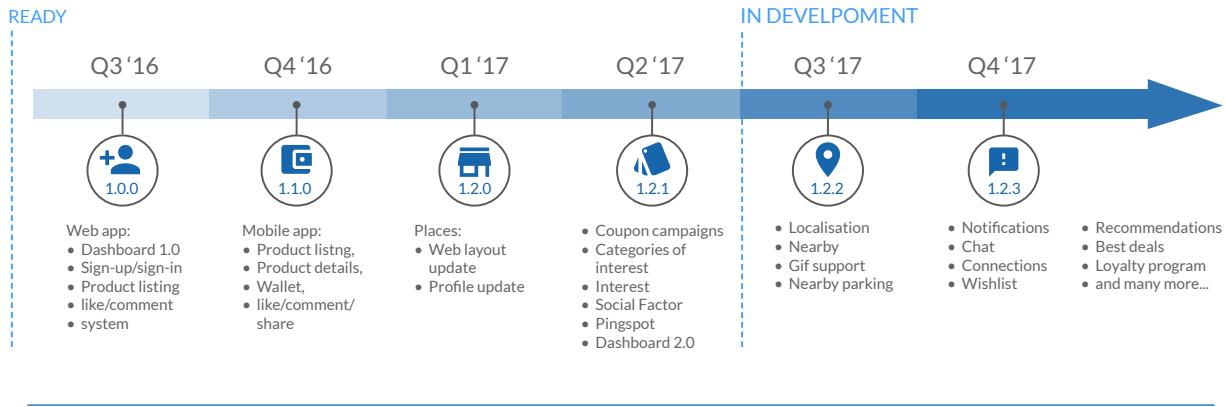
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### 4.1 - A presentation of the current status of the project

- Business:
  - Smart Data: Pingvalue Dashboards for:
    - Social Data: easy to monitor social media trends
    - Social Smart Data: with profiles of users/consumers in Pingvalue thanks to interests, demographics, interactions
    - Benchmarking for businesses: APIs and Machine Learning for revenue by business category, smarthood, customer profiles
    - Pingspot: to strengthen the interaction among people and businesses/organizations in real time/real location
    - CMX: higher level of interaction by monitoring heat maps, consumer flows, and smart data generated by Pingvalue
- Drivers:
  - Know who your potential customers are
  - What they recommend/ dislike about your business
  - How your business is performing against your competitors nearby
  - Identify business opportunities in your sector that are trending in other Smarthoods
  - Activate campaigns in real time/real location with consumers based on affinity, interests and moments of truth in the customer journey
- Creation of Marketing and Communication Campaigns:
  - From mass customization to micro-targeting, and one2one

- Real measurement of Return on Insights: who is interested in the business campaigns => Possibility to activate them through Pingvalue and more sales tools
  - Real measurement of Return on Conversions
  - Campaigns and Sales linked to Loyalty Card
  - Spill-over effects: users/persons as social sellers for the business, brand
- Private:
- Personalized Recommendations and Promotions
    - Around me: Discover interesting places and promotions a stone's throw away, wherever you are.
    - Personalized recommendations based on wishlist: Fill in a list of things you would like to buy, places you would like to see, activities you would like to do... Pingvalue will search the best options for you.
    - Digital coupons: Save digital coupons and get immediate discounts on favourite products and activities.
    - Wallet: Keep all your loyalty cards in one single digital wallet and get automatically recognized as a loyal customer.
  - Influencer and Reward System
    - Inspiration: Explore ideas from peers with similar interests, read trustworthy reviews and get inspiration.
    - Social Factor: Get recognized for your real expertise and genuine contributions and become an influencer.
    - Rewards: Get rewarded the way you deserve by your favourite brands and businesses for your positive word-of-mouth and support.

## 4.2 - Roadmap



## USERS

- Discount coupons
- Loyalty system
- Personal dashboard
- Influencer system Social Factor
- Personal planner
- Budget manager
- Exploration engine
- Shopping position system
- Gift cards
- Customer experience
- Passenger Journey
- Ambassadors Program
- Booking system
- Payment system
- Smart contracts
- Matchmaking program
- Sharing - earning model
- Advertisement

## CITIES

- Promotion campaigns
- City dashboard
- City message board
- Business booster
- Event manager
- Smarthoods visibility
- CDP
- IOP
- GDPR
- Cyber
- Token

## SMARTHOODS

- Retail & Leisure
- Mobility
- Environment
- Healthcare
- Government
- Education & Innovation
- Economy
- Living & Inhabitance
- Security

## STUDENTS

- Student cards
- Special discount
- Special Events
- Special Chat
- Special Notification

## PROFESSIONALS

- Networking
- Customer Service
- Business intelligence
- Professional Exploration engine
- Trust advisory Engine
- Expenses Management

## BUSINESSES

- Promotion campaigns
- Loyalty Systems
- Fulfilling program
- Business dashboard
- Benchmark
- Market tests
- Influencer system
- Event manager
- Gift Cards
- Story selling
- Smart Data analytics
- Customer service
- Ordering and invoicing
- Openloop campaign
- E-money

## 5.

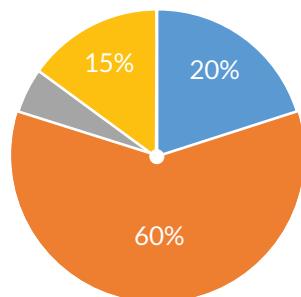
### Regulatory and compliance

---

#### 5.1 Offer allocation

Metric	Assumption
Total Planned Supply	600 000 000
Token Price	€0.0625
Percent of Tokens Issued in Private Sale	20%
Lock-up Period for Private Sale Investors	2
Percent of Tokens Issued in ICO	60%
Percent of Tokens Issued to Foundation	5%
Lifetime of Foundation	50
Percent Issued to Founders	15%
Lock-up for Founders	5
Percent of Tokens in Float Bonded by Nodes	20%
Percent of Tokens in Float Initially hodl'd	60%
Decrease in percent of Tokens that is hodl'd each year	1%

PingValue Token Allocation



■ Percent of Tokens Issued in Private Sale ■ Percent of Tokens Issued in ICO  
 ■ Percent of Tokens Issued to Foundation ■ Percent Issued to Founders

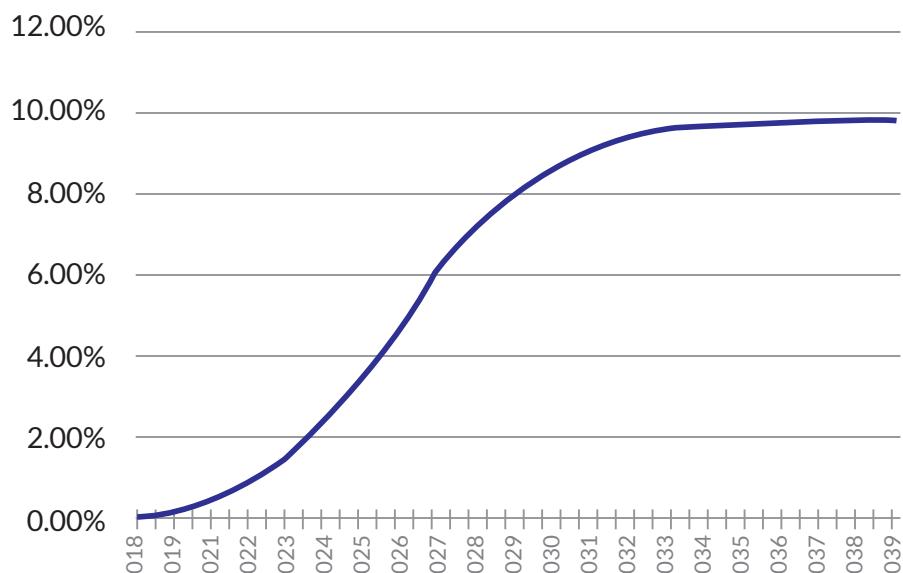
We use Fisher Model for solving for the monetary policy of pingvalue economy. We also use Chris model to estimate the global token economy and the utility function of pingvalue token in order to take into account the partial velocity of the tokens outstanding.

## Pingvalue Economy Inputs

Metric	Assumption
Average Spending on platform per Active User	€ 49,00
Cost decline over time	2%
Total Addressable Market	7 200 000 000
CAGR for Total Adressable Market (2017-2021)	2%
% of TAM for The project	10%
Velocity	10

We also assume a market penetration rate that doesn't exceed 10% of the Total addressable Market as well as a slow adoption evolution. In our model we assume that pingvalue token will reach maturity by 2040.

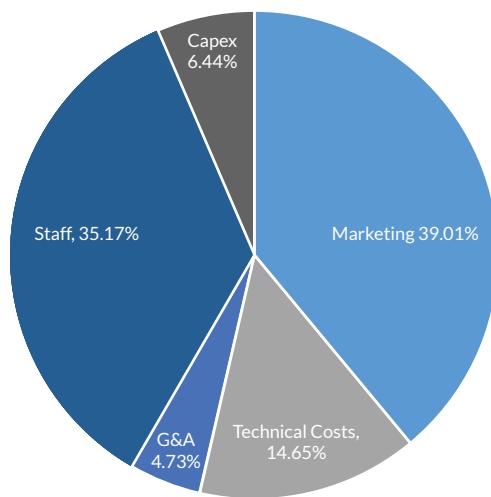
Percent Penetration of Pingvalue Each Year



Despite the fact that the project is in its later development phasis and that the adoption of the token will start in 2018. We retain a discount rate for future benefits of 40% to ensure a conservative approach in token utility function estimation. The team believes that the investor's required rate of returns must be higher than the cost of capital of a Venture capital investor.

Based on our business plan the funds raised will help the team to finance the operational expenses required to achieve the milestones based on our roadmap. The main part will finance R&D activity, wages and marketing expenses (for more details on the business plan, investors can contact the investors relation service).

#### Distribution of spending for 24 months following ICO



## 5.2 – Token roles and attributes

Pingcoin (PCO) is an utility token offering advertising capacity and data analytics for holders in the Pingvalue ecosystem. Advertisers can pay their announcements in fiat or PCO (Pingvalue will compensate the fiat orders by acquiring the corresponding tokens from the exchange).

PCO can only be used by members of the community of Pingvalue. PCO cannot be used outside Pingvalue Platform.

PCO value is correlated with the traffic volume and the number of users. The number of users is not only related to the traffic around Pingspots, but also includes new users reached through the referral/sharing system applied on adverts. The PCO value is driven by the increase of the adoption of the pingspot and the number of users continuously. This will ensure an uncapped gain of value for PCO and guarantee the token utility.

## 5.3 – Legal disclaimer

Any buyer purchasing Pingvalue's products or services expressly acknowledges technical and market uncertainties which are inherent in any business development project as presented in this White Paper (see below for risk factors) and that this project may therefore never come to fruition or may have to be abandoned, without the Pingvalue token being used. In such a case, the buyer expressly acknowledges and accepts that it will not be entitled to sue or bring any direct or indirect legal action before the courts, the arbitration bodies or any alternative dispute settlement body, either in France or abroad, against Pingvalue, its directors, shareholders, employees or subcontractors in the event of the non-performance, non-deployment or non-implementation of the project, even in cases where its Pingvalue tokens have lost some or all of their value.

In addition, Pingvalue may not be held liable for any of the following:

- (i) use of services that are not compliant with the applicable terms;
- (ii) non-performance, failure, malfunction or unavailability of the services due to a third party, the buyer, a third-party product, or the buyer's breach of its obligations;

- (iii) indirect damages such as business loss or disturbance, loss of orders, operating loss, infringement of the trade mark, loss of profits or clients (e.g. improper disclosure of confidential information concerning said clients due to failure or piracy of the Platform, third-party proceedings against the client, etc.);
- (iv) loss, disclosure or unlawful or fraudulent use of user sign ons by the buyers or third parties;
- (v) suspension of access or temporary or permanent suspension of services (in particular, arising from a request issued by an appropriate administrative or judicial authority, or notification received from a third party);
- (vi) loss, alteration or destruction of all or part of the content (information, data, applications, files or other items) hosted on the infrastructure, insofar as Pingvalue is not responsible for managing the continuity of buyers' activities, and data backups in particular;
- (vii) mismatch between the services and the buyer's needs (in particular, with regard to the sensitivity of the relevant data);
- (viii) security incidents relating to use of the Internet, concerning in particular the loss, alteration, destruction, disclosure or unauthorized access to the buyer's data or details on or via the Internet; and
- (ix) damages to systems, applications and other items installed by the buyer on the infrastructure.

## General warning

This White Paper does not constitute an offer or an invitation to sell shares, securities or rights belonging to Pingvalue or any related or associated company.

None of the information or analyses in this White Paper is intended to provide a basis for an investment decision, and no specific investment recommendation is made. Accordingly, this White Paper does not constitute investment advice or an invitation to invest in any security or financial instrument of any nature whatsoever.

This White Paper does not constitute or form part of, and should not be construed as, an offer for a sale or subscription, or an invitation to buy or subscribe securities or financial instruments. This White Paper, or any of its component parts, does not constitute the basis for, or should not be used as a basis for, or in connection with, a contract for the sale of securities or financial instruments or a commitment to sell securities or financial instruments of any kind.

The Company expressly disclaims any liability for any direct or indirect loss or damage of any kind arising directly or indirectly from:

any reliance on the information contained in this White Paper;

(ii) any error, omission or inaccuracy in said information; or

(iii) any resulting action that may be brought.

[This White Paper has been constructed in accordance with the applicable EU regulations.]

## A Pingvalue token does not represent an investment

in a security or a financial instrument within the meaning of EU Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 relating to markets in financial instruments: Pingvalue token confer no direct or indirect right to Pingvalue's capital or income, nor does it confer any governance right within Pingvalue;

## A Pingvalue token is not proof of ownership or a right of control

Control over a Pingvalue token does not grant the controlling individual any asset or share in Pingvalue or in the Platform. A Pingvalue token does not grant any right to participate in control over Pingvalue's management or decision-making set-up, or over Platform.

## A Pingvalue token is not an electronic currency

within the meaning of EU Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 relating to access to and pursuit of the business of electronic currency institutions: Pingvalue token are not accepted outside the Platform.

### 5.4 - Sales restrictions

The ICO will be opened to Eligible Investors only, as this term is defined in the Terms of Sale related to the ICO.

Documents linked to the ICO may not be transmitted or distributed to a “U.S. citizen” or to mail or email addresses in the United States of America. It is prohibited to transmit, distribute or reproduce documents linked to the ICO to or for a “U.S. citizen” or within the territories of the United States of America, in whole or in part.

To ensure their eligibility for the purchase of Pingvalue token, buyers expressly declare that they are not a “U.S. citizen” (within the meaning of “Regulation S” of the Securities Act 1933 under U.S. law), i.e.:

- (i) any private individual resident in the United States of America;
- (ii) any partnership or business organized or established under U.S. law;
- (iii) any property of which the executor or administrator is a U.S. citizen;
- (iv) any trust of which a proxy is an American citizen;
- (v) any agency or branch of a foreign entity located in the United States of America;
- (vi) any non-discretionary account or similar account (other than a trust or property) held by a trader or other trustee for the benefit of or on behalf of a U.S. citizen;
- (vii) any discretionary account or similar account (other than a trust or trust) held by a trader or other trustee, that is organized, established or (if a private individual) resident in the United States of America; and
- (viii) any partnership or company if:

- (a) it is organized or established under the law of a foreign jurisdiction; and
- (b) it is formed by a U.S. citizen primarily for the purpose of investing in securities not listed under the U.S. Securities Act, unless it is organized or established, and owned, by accredited investors who are not private individuals, trusts or properties.

## Recent regulatory actions

As mentioned above, operations of the Platform and the Pingvalue tokens may be impacted by future restrictive laws, regulations, opinions, decisions, injunctions, actions or investigations by national regulators and lawmakers.

Some regulators have already initiated formal or informal proceedings related to the regulation of ICOs and tokens, some of which are listed hereunder. This list is provided for information purpose only and do not constitute legal advice.

- The United States Securities and Exchange Commission (SEC) issued (i) a report dated July 25, 2017 stating that tokens offered by the company The DAO were securities within the meaning of the 1933 Securities Act, and (ii) an "investor bulletin" informing potential investors on ICOs.
- The United Kingdom Financial Conduct Authority (FCA) issued a statement on September 12th, 2017 warning potential investors about the risks associated with ICOs.
- The Canadian Securities Administrators (CSA) issued a "staff notice" dated August 24th, 2017 in which it states that ICOs might be governed by Canadian securities laws (knowing that tokens would, however, not always constitute securities for the purpose of such laws) or by Canadian derivative laws (if the products issued qualify as derivatives).
- The Israel Securities Authority (ISA) published a statement dated August 30th, 2017 announcing that it would organize a committee to study the applicability of securities law to ICOs.
- The People's Bank of China, together with other Chinese regulators,

issued a statement dated September 4th, 2017 prohibiting token fundraising transactions. Companies that have already launched an ICO are required to refund the tokens issued.

- The Monetary Authority of Singapore (MAS) released a statement dated August 1st, 2017 concluding that some tokens might be qualified as securities within the meaning of the Singaporean Securities and Futures Act.
- The Securities and Futures Commission (SFC) of Hong Kong made a declaration on September 5th, 2017 in which it stated that tokens may qualify as securities under the Securities and Futures Ordinance.
- The Financial Supervisory Commission (FSC) of South Korea declared, on September 3rd, 2017, that it established a “joint task force meeting” to discuss crypto-currencies regulatory framework.
- The Financial Market Supervisory Authority (FINMA) of Switzerland, in a press release dated September 29th, 2017, announced it was investigating various ICOs. The FINMA specified, in Guidance 04/2017 published on the same day, that ICOs are susceptible, depending on their structuring, to be governed by (i) AML/KYC regulations (ii) banking monopoly provisions (iii) securities and derivatives trading regulations and (iv) collective investment schemes regulations. As mentioned by the FINMA, “due to the close proximity in some areas of ICOs and token-generating events with transactions in conventional financial markets, the likelihood arises that the scope of the application of at least one of the financial market laws may encompass certain types of ICO model”.
- The Australian Securities and Investments Commission (ASIC) recently published the Information Sheet 225 as guidance about the potential application of the 2001 Corporations Act to businesses conducting ICOs. According to this document, an ICO, depending on how it's structured, could be qualified as a managed investment scheme, as a public offer and/or as an offer of derivatives.
- Abu Dhabi's Finical Services Regulatory Authority (FSRA) released guidelines on crypto currencies and ICOs dated October 8th, 2017, in which it specified that (i) existing KYC would be applicable to ICOs and (ii) some tokens, on a case-by-case basis and depending on how they are structured, may be classified as securities while others may be classified as commodities.

- The French Financial Markets Authority (AMF) launched on October 26th, 2017, (i) an ICO assistance and research program dubbed “UNICORN” to provide issuers with a framework for their ICO and to explore potential future regulatory actions, and (ii) a public consultation on ICOs, in which three regulatory options are presented: issuing guidelines on ICOs without changing the existing regulations, placing ICOs under the regime applicable to public offers of securities, or enacting a new, specific regulation for ICOs.
- The Japanese Financial Services Agency (FSA) published an investor alert on October 27th, 2017 underlying the “high risks” associated with ICOs (i.e. token volatility and likelihood of fraud) and warning issuers and investors that ICOs, depending on how they are structured, may fall within the scope of the Japanese Payment Services Act and/or of the Japanese Financial Instruments and Exchange Act.
- New Zealand Financial markets Authority (FMA) published a statement dated October 25th, 2017 on ICOs, explaining that the specific characteristics and economic substance of an ICO w

## 5.5 – Warnings on the risks inherent to the ICO

Risk of loss of access to a Pingvalue token due to loss of credentials

Until it is distributed to the buyer, the said buyer's Pingvalue token may be linked to a Pingvalue account. You can only access the Pingvalue account using the credentials selected by the buyer. The loss of these credentials will result in the loss of the Pingvalue token. Good practices advise buyers to store their credentials securely in one or more backup locations that are geographically separated from the work location.

## Risks Associated With the Ethereum Protocol

Both Pingvalue token and the Platform are based on the Ethereum protocol. Therefore, any malfunction, unplanned function or unexpected operation of the Ethereum protocol may cause the Platform or Pingvalue token to malfunction or operate in a way that is not expected. Ether, the native Ethereum Protocol account unit, may itself lose value in a similar way to Pingvalue token, and also in other ways.

For more information on the Ethereum protocol, see > <http://www.ethereum.org/>

## Risks associated with the buyer's credentials

Any third party that obtains access to the buyer's credentials or private keys may be able to use the buyer's Pingvalue tokens. To minimize this risk, buyers must protect themselves against people gaining unauthorized access to their electronic devices.

Legal risk and risk of adverse regulatory intervention in one or more jurisdictions

Blockchain technologies have been reviewed by various regulatory bodies around the world, including within the European Union. The ICO has been structured to comply with EU law applicable at the time of the offer.

The operation of the Platform and of the Pingvalue token may be impacted by the passing of restrictive laws, the publication of restrictive or negative opinions, the issuing of injunctions by national regulators, the initiation of regulatory actions or investigations, including but not limited to restrictions on the use or ownership of digital tokens such as Pingvalue tokens, which may prevent or limit development of the Platform.

Given the lack of crypto-currency qualifications in most countries, each buyer is strongly advised to carry out a legal and tax analysis concerning the purchase and ownership of Pingvalue tokens according to their nationality and place of residence.

## Risk of an alternative, unofficial Platform

Following presales and development of the original version of the Platform, there is a possibility that alternative platforms may have been established using the same open-source code and open source protocol that underlies the Platform. The official Platform may find itself in competition with these alternatives, unofficial platforms based on Pingvalue tokens, which could potentially adversely impact the Platform and Pingvalue tokens.

## Risk of a lack of interest in the Platform or distributed

## applications

There is a possibility that the Platform may not be used by a large number of companies, individuals and other organizations, and that there may be limited public interest in the creation and development of distributed applications. Such a lack of interest could impact on the development of the Platform and, therefore, on the uses or potential value of Pingvalue tokens.

### Risk that the Platform is not developed

The main right associated with Pingvalue tokens is the right to receive rewards associated with specific actions on the Platform. The value of the Pingvalue tokens is therefore heavily correlated with the existence of such Platform, which has not yet been implemented. Pingvalue tokens may lose part or all of their value if the Platform is never fully developed.

### Risk that the Platform, as developed, does not meet buyer expectations

The Platform is currently under development and may undergo significant redesign prior to its launch. For a number of reasons, not all buyer expectations concerning the Platform or Pingvalue tokens' form and function may be met on the launch date, including changes in design, implementation and execution of the Platform.

### Risk of theft and piracy

Hackers or other malicious or criminal groups or organizations may attempt to interfere with the Platform or the availability of Pingvalue tokens in several ways including, but not limited to, denial of service attacks, Sybil attacks, mystification, surfing, malware attacks, or consensus-based attacks.

## Risk of error in the source code

The distribution of Pingvalue tokens to each purchaser may be adversely affected by various human and technical errors in the source code of the Smart Contract or in the source code of the escrow accounts mentioned above.

## Risk of security weaknesses in the Platform's core infrastructure software

The Platform's core software is based on open source software. There is a risk that the Pingvalue team, or other third parties, may intentionally or unintentionally introduce weaknesses or bugs into the core infrastructure elements of the Platform, by interfering with the use of, or causing loss of, Pingvalue tokens.

## Risk of weakness or exploitable breakthrough in the field of cryptography

Advances in cryptography, or technical advances such as the development of quantum computers, may present risks for crypto-currencies and the Platform, which could result in the theft or loss of Pingvalue tokens.

## Risk of a mining attack

As with other decentralized cryptographic tokens and crypto-currencies, the blockchain used for the Platform is vulnerable to mining attacks, including but not limited to, dual-expense attacks, powerful mining attacks, selfish mining attacks, and critical competition attacks. Any successful attack poses a risk to the Platform, the expected performance and sequencing of Pingvalue's markets, and the expected performance and sequencing of Ethereum contract calculations. Despite the best efforts of

the Pingvalue team, the risk of known or new mining attacks exists.

## Risk of the Platform failing to be used or adopted

While Pingvalue tokens should not be considered an investment, their value is bound to change over time. This value may be limited if the Platform is not sufficiently used and adopted. In such a case, there could be few or no markets at the Platform launch, which would limit the value of Pingvalue tokens.

## Risk of a tight market for Pingvalue token

There are currently no exchanges or trading facilities on which Pingvalue tokens can be traded. If such exchanges or trading facilities do develop, they will probably be relatively new and subject to poorly understood regulatory oversight. They may therefore be more vulnerable to fraud and default than the established and regulated exchanges that exist for other products. Should exchanges or trading facilities that represent a substantial part of the Pingvalue tokens trading volume be involved in fraud, security failures or other operational problems, the failures of such exchanges or trading facilities may limit the value or liquidity of Pingvalue tokens.

## Risk of an uninsured loss

Unlike bank accounts or accounts in other regulated financial institutions, funds held through Pringvalue or the Ethereum network are generally uninsured. At present, there are no public or private insurance agents providing buyers with coverage against a loss of Pingvalue tokens or a loss of value.

## Risk of winding-up of the Company's project

For a number of reasons including, but not limited to, an unfavorable fluctuation in Bitcoin value, an unfavorable fluctuation in Pingvalue tokens value, the failure of business relationships or competing intellectual property claims, Pingvalueproject may no longer be a viable activity and may be

dissolved or simply not launched.

## Risk of malfunction in the Platform

The Platform may be impacted by an adverse malfunction including, but not limited to, a malfunction that results in the loss of Pingvalue tokens or market information.

## Unforeseen risks

Crypto-currencies and cryptographic tokens are a new, untested technology. In addition to the risks stipulated above, there are other risks that the Pingvalue team cannot predict. Risks may also occur as unanticipated combinations or as changes

## KYC (Know Your Customer) Procedure

As part of the Know Your Customer procedure (KYC), anyone wishing to acquire PCOs will have to provide Pingvalue Company with the KYC documents and/or information requested at the dedicated ICO website prior to purchasing PCO.

## Applicable law and jurisdiction

This White Paper and any contractual relationship arising in relation with the products and services sold by Pingvalue are governed exclusively by French law, Pingvalue's commitment being subject to this clause.

The Parties agree to seek an amicable settlement prior to bringing any legal action. Failing this, any dispute, of any nature whatsoever, will be brought expressly before the courts of Paris, as no document can effect a novation or waiver of this jurisdiction clause.

## Appendices

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### Appendix 1 - Introduction to the team

The entire team is composed of 30 people across Luxembourg, Belgium, the Netherlands, Spain and Italy. The R&D team alone counts 18 people mainly based in Spain, with the rest of the team focusing on Business Development, Communication, Marketing and Sales.

#### **CEO (Chief Executive Officer)**

#### **Mr. Luciano Scatorchia**

- Responsible for the group general management
- 30+ years of experience in Marketing and Logistics, with a strong focus on technology development. Previous experiences as:
  - General manager in food and beverage industry
  - Consultant for EU; Katoennatie; Vos Logistics; NS-Cargo in the area of purchase and process for cargo companies
  - Entrepreneur in the Logistic Sector/ICT with a proven track record creating and managing companies:
  - NWM Uithoorn as Director of Marketing and Sales operations
  - GTS Multi Logistics, founder and owner
  - Added Logistics, founder and owner

**CSO (Chief Strategist)****Mr. Jose Vuelta**

- Responsible for Business Strategy and Partnerships
- 15+ years of experience in Operations, Business Development and Marketing.  
Previous experiences as:
  - Logistics at DHL for IBM
  - Manager at Ricoh EMEA
  - Spin-off Solar Energy at CUPA
  - Entrepreneurial ventures for Diageo, the Founder Institute, ICT Startups, Ashoka and Cherie Blair Foundation

**CTO (Chief Technology Officer)****Mr. Jose Leon**

- Responsible for the R&D Software Development Team
- 25+ years of experience in ICT and R&D. Previous experience as:
  - Owner at Qadram Software
  - Partner, Director of Engineering and Branch Director at Embarcadero Technologies

**Advisors:****• Christophe David - CFO DOMRAIDER:**

Christophe not only graduated from a business school with a degree in international management but he also has a degree in accounting. During his career he has worked in innovation businesses and consultancy as well as setting up of companies. In 1998, Christophe set up Zencod, a company developing hardware crypto accelerators, which he sold to Thalès in 2004. Always motivated by highly ambitious entrepreneurial challenges, his encounter with DomRaider was a natural. The enthusiasm was shared and immediate. Always a leader, he is now the guarantor of investments and fundraising.

- **Jed GRAN - CEO Peermountain:**

Jed Grant, MBA, is the founder and architect of Peer Mountain ([www.peermountain.com](http://www.peermountain.com)) and CEO of KYC3 ([kyc3.com](http://kyc3.com)). He is adjunct professor at the University of Luxembourg where he lectures on KYC & AML/CFT compliance and a founder and director of Sandstone, a boutique business intelligence consultancy. His non-profit activities include founding member and executive vice-chair of The Institute for Global Financial Integrity asbl, a board member and head of the Governance Group at Infrachain asbl, and board member at the American Chamber of Commerce in Luxembourg. Prior to these activities Jed held senior positions in technology, finance and security related organizations including Artemis, the International Civil Servants Credit Union, Computacenter, and NATO.

- **Marco HOUWEN:**

Before getting involved in the Blockchain and Virtual Currencies industry, I founded LuxCloud S.A. in 2010. A market leading provider of cloud service brokerage enablement. We globalized the business model, with offices in Palo Alto and Singapore. As the CEO, I was responsible for all aspects of the business, my major focus lied in the business development, the roll-out of our strategy globally and the investor relationships.● Laurent Leloup – Founder Chaineum

- **Videa Mike – Founder Questus Solutions:**

Videa is the founder of the Questus Group a boutique consulting firm that specializes in financial planning and modelling, business development and expansion as well as capitalizing and monetizing business channels. Videa is an experienced Business Transformation leader and Subject Matter Expert on Insurance and financial services. Her Career spans over 20years includes significant work with the Big 4 accounting firms and insurance providers at senior levels.

## Appendix N°2 - Supports / Sponsors

Trusted by:



Awarded by:



## Appendix N°3 – Glossary

- Blockchain

A blockchain is a digitized, decentralized, public ledger of all cryptocurrency transactions. Constantly growing as ‘completed’ blocks (the most recent transactions) are recorded and added to it in chronological order, it allows market participants to keep track of digital currency transactions without central recordkeeping. Each node (a computer connected to the network) gets a copy of the blockchain, which is downloaded automatically.

- Nomic

Relating to or concerned with a discoverable scientific or logical law; not contingent. Nomic is also a game in which changing the rules is a move, which makes it different from almost every other game. The primary activity of Nomic is proposing changes in the rules, debating the wisdom of changing them in that way, voting on the changes, deciding what can and cannot be done afterwards, and doing it. We apply this concept to the new socio-economic model we believe Pingvalue creates. This model is not static but can be re-defined in a democratic way based on what the community decides.

- Phygital interactions

Interactions that connect the physical and digital worlds (combination of offline and online).

- Pingspot

Pingvalue hotspot for free wifi connection with an added value, both for the user and the Pingspot owner. A Pingspot is the touchpoint for phygital interactions between a business and its customers: it allows the user to discover places and promotions in the nearby area, while providing smart insights on customers' profile and interests to the business.

- Trust Social Factor

The Trust Social Factor is a measure of the expertise and trustworthiness of each user on the Pingvalue platform in relation to specific categories of interests/topics. The Trust Social Factor increases with the user contributing to the platform and interacting with other parties in a honest and transparent way, also receiving a positive feedback from the community. It can also decrease when negative behaviors are detected that the community does not agree with.

- Smart contracts

Smart contracts are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code. The code and the agreements contained therein exist across a distributed, decentralized blockchain network. Smart contracts permit trusted transactions and agreements to be carried out among disparate, anonymous parties without the need for a central authority, legal system, or external enforcement mechanism. They render transactions traceable, transparent, and irreversible.

## Technical Glossary

- Acceptance testing

Formal testing with respect to user needs, requirements, and business processes conducted to determine whether or not a system satisfies the acceptance criteria and to enable the user, customers or other authorized entity to determine whether or not to accept the system.

- Alpha

The alpha phase of the release life cycle is the first phase to begin software testing. Alpha software can be unstable and could cause crashes or data loss. Alpha software may not contain all of the features that are planned for the final version. In general, external availability of alpha software is uncommon in proprietary software.

- Alpha testing

Simulated or actual operational testing by potential users/customers or an independent test team at the developers' site, but outside the development organization. Alpha testing is often employed for commercial off-the-shelf software as a form of internal acceptance testing.

- Beta

Is the software development phase following alpha. Beta phase generally begins when the software is feature complete but likely to contain a number of known or unknown bugs. Software in the beta phase will generally have many more bugs in it than completed software, as well as speed/performance issues and may still cause crashes or data loss. Beta version software is often useful for demonstrations and previews within an organization and to prospective customers.

- Beta tester

Beta testers are people who actively report issues of beta software. They are usually customers or representatives of prospective customers of the organization that develops the software. Beta testers tend to volunteer their services free of charge but often receive versions of the product they test, discounts on the release version, or other incentives.

- Beta testing

Operational testing by potential and/or existing users/customers at an external site not otherwise involved with the developers, to determine whether or not a component or system satisfies the user/customer needs and fits within the business processes. Beta testing is often employed as a form of external acceptance testing for commercial off-the-shelf software in order to acquire feedback from the market. (Synonym: Field testing)

- Black-box testing

Testing, either functional or non-functional, without reference to the internal structure of the component or system. (Abbreviation: Black-box; Synonym: Specification-based testing)

- Boundary value analysis

A black-box test design technique in which test cases are designed based on boundary values.

- Branch coverage

The percentage of executable statements that have been exercised by a test suite.

- Bug

A flaw in a component or system that can cause the component or system to fail to perform its required function, e.g., an incorrect statement or data definition. A defect, if encountered during execution, may cause a failure of the component or system. (Synonyms: defect, fault, problem)

- Code complete

A release is called code complete when the development team agrees that no entirely new source code will be added to this release. There could still be source code changes to fix defects, changes to documentation and data files, and peripheral code for test cases or utilities.

- Code coverage

An analysis method that determines which parts of the software have been executed (covered) by the test suite and which parts have not been executed, e.g., statement coverage, decision coverage or condition coverage.

- Confirmation testing

Testing that runs test cases that failed the last time they were run, in order to verify the success of corrective actions. (Synonym: re-testing)

- Debugging

The process of finding, analyzing and removing the causes of failures in software.

- Decision coverage

The percentage of decision outcomes that have been exercised by a test suite. 100% decision coverage implies both 100% branch coverage and 100% statement coverage.

- Decision table testing

A black-box test design technique in which test cases are designed to execute the combinations of inputs and/or stimuli (causes) shown in a decision table.

- Density-independent pixel

In Android, the density-independent pixel is equivalent to one physical pixel on a 160 dpi screen, which is the baseline density assumed by the system for a "medium" density screen. (Abbreviation: dp; Synonym: dp)

- Deprecated feature

An existing feature that has become outdated and is in the process of being phased out, usually in favor of a specified replacement. Deprecated features are no longer recommended for use and may cease to exist in future versions of the specification. (Abbreviation: deprecated)

- Dynamic testing

Testing that involves the execution of the software of a component or system.

- Entry criteria

The set of generic and specific conditions for permitting a process to go forward with a defined task, e.g., test phase. The purpose of entry criteria is to prevent a task from starting which would entail more (wasted) effort compared to the effort needed to remove the failed entry criteria.

- Equivalence partitioning

A black-box test design technique in which test cases are designed to execute representatives from equivalence partitions. In principle, test cases are designed to cover each partition at least once.

- Error

A human action that produces an incorrect result. (Synonym: mistake)

- Error guessing

A test design technique where the experience of the tester is used to anticipate what defects might be present in the component or system under test as a result of errors made, and to design tests specifically to expose them.

- Exhaustive testing

A test approach in which the test suite comprises all combinations of input values and preconditions. (Synonym: complete testing)

- Exit criteria

The set of generic and specific conditions, agreed upon with the stakeholders for permitting a process to be officially completed. The purpose of exit criteria is to prevent a task from being considered completed when there are still outstanding parts of the task which have not been finished. Exit criteria are used to report against and to plan when to stop testing. (Synonyms: completion criteria, test completion criteria)

- Failure Created

Deviation of the component or system from its expected delivery, service or result.

- Formal review

A review characterized by documented procedures and requirements, e.g., inspection.

- Functional requirement

A requirement that specifies a function that a component or system must perform.

- Functional testing

Testing based on an analysis of the specification of the functionality of a component or system.

- General availability

Is the marketing stage at which all necessary commercialization activities have been completed and a software product is available for purchase, depending, however, on language, region, electronic vs. media availability. (Abbreviation: GA; Synonym: GA)

- Git

Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

- Hotfix

Code (sometimes called a patch) that fixes a bug in a product. (Synonym: patch)

- Impact analysis

The assessment of change to the layers of development documentation, test documentation and components, in order to implement a given change to specified requirements.

- Incident

Any event occurring that requires investigation. (Synonyms: deviation, software test incident, test incident)

- Independence of testing

Separation of responsibilities, which encourages the accomplishment of objective testing.

- Informal review

A review not based on a formal (documented) procedure.

- Inspection

A type of peer review that relies on visual examination of documents to detect defects, e.g., violations of development standards and non-conformance to higher level documentation. The most formal review technique and therefore always based on a documented procedure.

- Integration

The process of combining components or systems into larger assemblies.

- Integration testing

Testing performed to expose defects in the interfaces and in the interactions between integrated components or systems.

- Interoperability testing

Testing to determine the interoperability of a software product. (Synonym: compatibility testing)

- Load testing

A type of performance testing conducted to evaluate the behavior of a component or system with increasing load, e.g., numbers of parallel users and/or numbers of transactions, to determine what load can be handled by the component or system.

- Maintainability testing

Testing to determine the maintainability of a software product. (Synonym: serviceability testing)

- Maintenance testing

Testing the changes to an operational system or the impact of a changed environment to an operational system.

- Metric

A measurement scale and the method used for measurement.

- Moderator

(1) The leader and main person responsible for an inspection or review process. (2) A neutral person who conducts a usability test session. (Synonym: inspection leader)

- Non-functional requirement

A requirement that does not relate to functionality, but to attributes such as reliability, efficiency, usability, maintainability and portability.

- Non-functional testing

Testing the attributes of a component or system that do not relate to functionality, e.g., reliability, efficiency, usability, maintainability and portability.

- Orientation

The orientation of the screen from the user's point of view. This is either landscape or portrait, meaning that the screen's aspect ratio is either wide or tall, respectively.

- Peer review

A review of a software work product by colleagues of the producer of the product for the purpose of identifying defects and improvements. Examples are inspection, technical review and walkthrough.

- Performance testing

Testing to determine the performance of a software product. (Synonym: efficiency testing)

- Portability testing

Testing to determine the portability of a software product. (Synonym: configuration testing)

- Quality

The degree to which a component, system or process meets specified requirements and/or user/customer needs and expectations.

- Quality Assurance

The process assuring the quality of one organization's outcomes. (Abbreviation: QA; Synonym: QA)

- Regression testing

Testing of a previously tested program following modification to ensure that defects have not been introduced or uncovered in unchanged areas of the software, as a result of the changes made. It is performed when the software or its environment is changed.

- Release candidate

A release candidate is a beta version with potential to be a final product, which is ready to release unless significant bugs emerge. In this stage of product stabilization, all product features have been designed, coded and tested through one or more beta cycles with no known showstopper-class bugs. (Abbreviation: RC; Synonyms: RC, going silver)

- Release to manufacturing

This term is used when a software product is ready to be delivered or provided to the customer. RTM precedes general availability (GA), when the product is released to the public. Sometimes also called 'Release To Market'. (Abbreviation: RTM; Synonyms: RTM, going gold, release to market)

- Reliability

The ability of the software product to perform its required functions under stated conditions for a specified period of time, or for a specified number of operations.

- Reliability testing

Testing to determine the reliability of a software product.

- Requirement

A condition or capability needed by a user to solve a problem or achieve an objective that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed document.

- Resolution

The total number of physical pixels on a screen.

- Retrospective meeting

A meeting at the end of a project during which the project team members evaluate the project and learn lessons that can be applied to the next project. (Synonym: post-project meeting)

- Review

An evaluation of a product or project status to ascertain discrepancies from planned results and to recommend improvements. Examples include management review, informal review, technical review, inspection, and walkthrough.

- Reviewer

The person involved in the review that identifies and describes anomalies in the product or project under review. Reviewers can be chosen to represent different viewpoints and roles in the review process. (Synonyms: checker, inspector)

- Screen density

The quantity of pixels within a physical area of the screen; usually referred to as dpi (dots per inch). For example, a "low" density screen has fewer pixels within a given physical area, compared to a "normal" or "high" density screen.

- Screen size

Actual physical size, measured as the screen's diagonal.

- Scribe

The person who records each defect mentioned and any suggestions for process improvement during a review meeting, on a logging form. The scribe should ensure that the logging form is readable and understandable. (Synonym: recorder)

- Security testing

Testing to determine the security of the software product. (Synonym: functionality testing)

- Smoke testing

Non-exhaustive software testing, ascertaining that the most crucial functions of a program work, but not bothering with finer details.

- State transition testing

A black-box test design technique in which test cases are designed to execute valid and invalid state transitions. (Synonym: finite state testing)

- Statement coverage

The percentage of executable statements that have been exercised by a test suite.

- Static testing

Testing of a software development artifact, e.g., requirements, design or code, without execution of these artifacts, e.g., reviews or static analysis.

- Stress testing

A type of performance testing conducted to evaluate a system or component at or beyond the limits of its anticipated or specified workloads, or with reduced availability of resources such as access to memory or servers.

- Stub

A skeletal or special-purpose implementation of a software component, used to develop or test a component that calls or is otherwise dependent on it. It replaces a called component.

- TBD

To be defined / to be determined (Abbreviation: TBD)

- Technical review

A peer group discussion activity that focuses on achieving consensus on the technical approach to be taken.

- Test basis

All documents from which the requirements of a component or system can be inferred. The documentation on which the test cases are based. If a document can be amended only by way of formal amendment procedure, then the test basis is called a frozen test basis.

- Test case

A set of input values, execution preconditions, expected results and execution postconditions, developed for a particular objective or test condition, such as to exercise a particular program path or to verify compliance with a specific requirement.

- Test case specification

A document specifying a set of test cases (objective, inputs, test actions, expected results, and execution preconditions) for a test item.

- Test closure

During the test closure phase of a test process data is collected from completed activities to consolidate experience, testware, facts and numbers. The test closure phase consists of finalizing and archiving the testware and evaluating the test process, including preparation of a test evaluation report. (Synonym: test process)

- Test condition

An item or event of a component or system that could be verified by one or more test cases, e.g., a function, transaction, feature, quality attribute, or structural element. (Synonyms: test requirement, test situation)

- Test coverage

The degree, expressed as a percentage, to which a specified coverage item has been exercised by a test suite. (Synonym: coverage)

- Test data

Data that exists (for example, in a database) before a test is executed, and that affects or is affected by the component or system under test.

- Test design

The process of transforming general test objectives into tangible test conditions and test cases.

- Unit testing

The testing of individual software components. (Synonyms: module testing, program testing, component testing)

- Usability testing

Testing to evaluate the degree to which the system can be used by specified users with effectiveness, efficiency and satisfaction in a specified context of use.

- Use case testing

A black-box test design technique in which test cases are designed to execute scenarios of use cases. (Synonyms: scenario testing, user scenario testing)

- User acceptance testing

Acceptance testing carried out by future users in a (simulated) operational environment focusing on user requirements and needs.

- Verification

Confirmation by examination and through provision of objective evidence that specified bug has been fixed. (Synonym: verified)

- Verifier

The alias of the person who must verify the bug after it was fixed.

- Walkthrough

A step-by-step presentation by the author of a document in order to gather information and to establish a common understanding of its content.

- White-box testing

Testing based on an analysis of the internal structure of the component or system. (Abbreviation: white-box; Synonyms: clear-box testing, code-based testing, glass-box testing, logic-coverage testing, logic-driven testing, structural testing, structure-based testing)