Users who are regular contributors to the Global Product Database, will have accuracy ratings assigned to them. Users with higher accuracy ratings may earn Shping Coins from Shping based on their accuracy rating, and be given special titles within the Shping community. All information entered by contributors is verified by Shping's moderation team, who will manually check information from the public domain to ensure it matches the information entered by the contributor.

| BASIC | BRONZE | SILVER | GOLD | PLATINUM |

If 100% of the information has been verified correctly, the contributor will receive 100% of the Shping Coin allocated as a reward for this action. If 70% of the information is correct, the user would only receive 70% and so on. The system would average the score for all contributions in order to calculate the contributor's score. For example, if a contributor enters information in relation to 10 different products, where 5 of those products receive a rating by the Shping moderator of 100% and 5 products receive a rating of 80% the average rating for the contributor would equate to 90%.
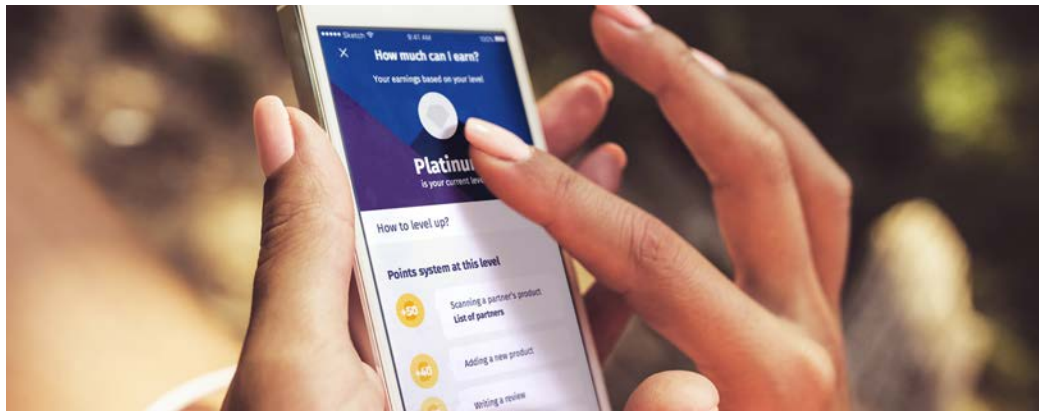
3.1.3 Shping Buddies

Shping App users will have the option of inviting others to use the Shping App and adding them to their network as a "Shping Buddy". Inviting and adding Shping Buddies will entitle users to earn bonus Shping Coins from Shping including the opportunity to receive additional Shping Coins on a monthly basis for each active Shping Buddy in their network.

3.2 Features & benefits for brands

3.2.1 Shping Marketing Module

The Shping Platform will provide brands and marketers with a new and highly targeted channel to send useful messages to consumers when they scan their product's barcodes with the Shping App. It will also provide brands with access to valuable aggregate data about these consumers' buying habits through the Shping Marketing Module.

Shping Marketing is both a unicast and multicast communication platform for brands to program and automate messages to reach consumers at a granular level. Through this powerful channel, brands have access to a suite of useful features including:

→ *Direct-to-consumer communication - enabling brands to deliver messages to their consumers at critical stages of their buying journeys.*

→ *Consumer demographic and behavior analytics - offering an advanced analytics suite that provides brands and retailers with access to comprehensive consumer patterns and trends.*

→ *Targeted, personalized marketing - giving brands a powerful tool to market to consumers of their products, based on time, location and behavioural and demographic criteria provided by consumers.*

→ *A ready-made loyalty program - enabling brands to reward consumers in the form of Shping Coin for engaging with their products on the Shping Platform e.g. leaving reviews and engaging with information about the brand's products.*

→ *Social media integration - allowing brands to encourage their consumers to subscribe and interact with their social media channels.*

→ *Rich automation marketing features - provides marketers with the ability to create and layer sequenced, highly relevant communications which are aligned to consumer's behaviours and the brand's understanding of their buying journey. These features include our own artificial intelligence interface, Shping Bot.*

3.2.2 Shping Security Module

Another unique feature of the Shping Platform is that it provides brand owners the ability to activate powerful brand protection and security features. Using a serialized global trade item number (SGTIN), and a unique datamatrix code, manufacturers will be able to identify and track each individual product through the Shping Platform. The Shping Security Module enables brands to physically track their products through their supply chain; with auditability and traceability from the point of manufacture to the point of sale, enabling brands to:

→ **Track and Trace** - *enabling brands to track all electronic product code information information services (EPCIS) events, and track the product through its chain of custody.*

→ **Add to the Global Product Database** - *enables brands to store detailed information about their products in Shping's database in order to make that data accessible to consumers and stakeholders who wish to access it.*

→ **Activate product authentication** - *allows customers to verify the authenticity of a product and confirm its location which in turn enables brands to identify anomalies in the supply chain .*

→ **Activate grey import monitoring** - *brands can be alerted to grey imports (also known as parallel imports) such as where products are being delivered to retail outlets through channels outside of a brand's official distribution channels.*

→ **Raw material traceability** - *enables manufacturers to track their stock of raw materials, and provide data structures linking the use of specific raw materials to their products, giving a granular understanding of a product's composition.*

→ **Product recall management** - *enables brands to identify if a product has any components for which a recall has been issued and alert consumers if a given product is under recall as soon as they scan the product, or if they have scanned the product previously.*

→ **Activating warranties** - *enabling customers to register their product warranties within the Shping Platform. This feature also provides brands with fraud protection, as brands are able to limit warranties for grey-imports, for example. Shping also allows brands to sell extended warranties on the Shping Platform.*

→ **Activate traceability and serialisation to comply with new regulations** - *providing unprecedented visibility of the location of products in the supply chain, enabling brands to quickly pinpoint items down to the saleable unit and activate product recalls efficiently and proactively. This is very useful for meeting food and pharmaceutical serialisation compliance protocols rolling out internationally.*

→ **Take advantage of traceability regulation** - *brands can use the new serialisation protocols to offer information about a product down to the saleable unit level meaning that promotions on specific products in certain locations, stock replenishment and recalls affecting small batches can be issued faster.*

3.3 Features & benefits for retailers

3.3.1 Shping Retail Module

Shping Retail closes the loop between brands, the retail outlets who stock the brand's products and the consumers who are buying these products at the retail outlets. This module will assist retailers to establish a direct channel with consumers who have scanned products in their stores, resulting in a cost-effective marketing tool that can be used to personalise and target marketing messages. The Shping Retail Module is currently in development and Shping plans to deliver the module by the end of the first quarter of 2018.

Through the Shping Retail Module, retailers will have the opportunity to access the Shping Platform to influence foot traffic to their stores, mobilise flash sales on certain products, drive ongoing interest, preference and loyalty for their outlets, and even offer augmented reality experiences to make the shopping experience more fun. The following features are a small sample of what can be implemented for Shping retailers in the future. Shping will enable retailers to:

→ *Provide product information* *to consumers that is relevant to their store e.g to alert customers to a fresh shipment of a particular product.*

→ *Incentivize customers* *to leave store reviews, purchase products or subscribe to a retailer's digital channels to receive special offers.*

→ *Support consumers with in-store navigation* *to their favourite products*

→ *Learn more about their customers* *through an analytics suite.*

→ *Launch augmented reality (AR) style product promotions* *and gamify the shopping experience.*

→ *Track products from the point of manufacture* *all the way through to placement at the store.*

→ *Confirm a product's authenticity* *before they accept it into their warehouse or outlet.*

→ *Interact with brands* *to assist with their sales promotions.*

The Shping Retail Module will be developed with safeguards and transparent rules for participating retailers to ensure the system is respectful of consumers. For

example, retailers will only be permitted to use the platform to communicate with customers about products that they have scanned with the Shping App and have been purchased in their retail store. There will also be limitations on the amount of times a retailer is permitted to communicate with a single customer over a specific time period.

3.4 Features & benefits for the industry

A wide range of stakeholders from manufacturers to certification authorities and custom officials will benefit from the Shping Platform. These benefits include;

→ *Auditing a product's chain of custody* through the supply chain.

→ *Identifying instances where certifications may be misused or counterfeited.*

→ *Enabling product messages to be pushed* to customers that promote or enhance the certifications (e.g Certified Organic Australian produce).

→ *Incentivizing customers* to purchase products, add reviews, or subscribe to other digital channels such as email lists or social media.

→ *Meeting new compliance and industry regulations for traceability* down to the saleable unit, especially in regulated markets such as food and pharmaceutical industries.

CHAPTER 4.0

How Shping works

4.1 Building a Global Product Database.

The Shping Ecosystem is built on product information provided by a number of data sources including consumers, brands, retailers, manufacturers as well as government-owned and independent certification bodies and agents acting within the supply chain. Shping collects information from these sources into a continuously updated, distributed product database (the Global Product Database). Using the Shping App, anyone can scan a product's GS1-compliant barcode or datamatrix code to access the synthesized product information in the Global Product Database to help them make smarter and safer buying choices through the Shping App.
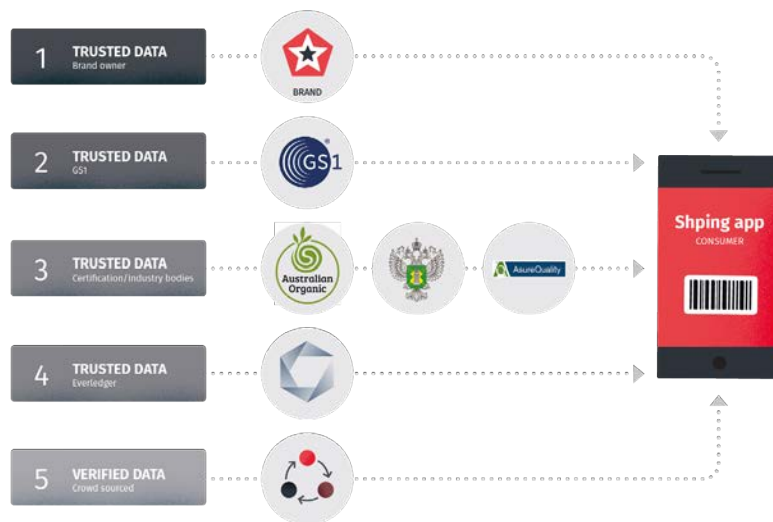

Fig 4.1.1 *Shping's Global Product Database is continuously updated by trusted and validated sources, including from the consumers themselves.*

Our socially-engineered validation process ensures that trusted information will be continuously updated by brands, retailers and consumers, helping to make the world's largest, Global Product Database trustworthy and accessible to all *(see Fig 4.1.1.)*. Shping supports all GS1 product identifiers, barcodes and datamatrix codes.

A common form of Global Trade Item Number (GTIN) is the code printed at the bottom of a traditional EAN barcode. Developed by GS1, GTINs identify tradeable items. These GTIN identifiers are used to look up product information in a database, usually through carrying out a barcode scan. The unique nature and universality of GTINs make them useful in establishing corresponding links between product listed in disparate databases. Serialized global trade item numbers (SGTIN) are uniquely applied codes, usually in the form of a datamatrix code, and are typically used by manufacturers to help identify and track individual units. Unlike GTINs, SGTINs are only applied to an individual item rather than all items of the same type of product.

SGTIN codes are expected to become a more prolific feature of products in the future as traceability compliance regulation is enforced in countries around the world. Shping offers serialisation for manufacturers to meet traceability compliance as part of its Shping Security offering *(see page 15)*.

The Shping database architecture uses GTIN as the key index to allow it to link to other product-related data including SGTIN data. By scanning GTIN and SGTIN barcodes, Shping users can reveal valuable information about products to help them feel safer about their product choices *(see figure 4.1.2)*.

Fig 4.1.2 *Shping links information from GTIN barcodes and SGTIN datamatrix to provide Shping users with access to a rich array of product information, which is accessible through the Shping Platform.*

4.2 Blockchain Integration

The Shping Platform is powered by Ethereum smart contracts, a next generation blockchain protocol, and manages product traceability on the back of hyperledger and GS1 standards. Shping combines the GS1 EPCIS standards (https://www.gs1.org/epcis) with powerful blockchain technology. Shping has also partnered with Everledger to help create a private blockchain based on the Hyperledger Fabric (https://www.hyperledger.org) to play the role of a register for EPCIS events, allowing information to be exchanged quickly and securely such as the serialization of products, items movement through the supply chain, sales, and product recall alerts. All brands, distributors and retailers can become a member of this network, start their nodes and use EPC Codechain. Shping's blockchain integration agent will provide blockchain information to consumers and third parties via EPCIS SOAP service.
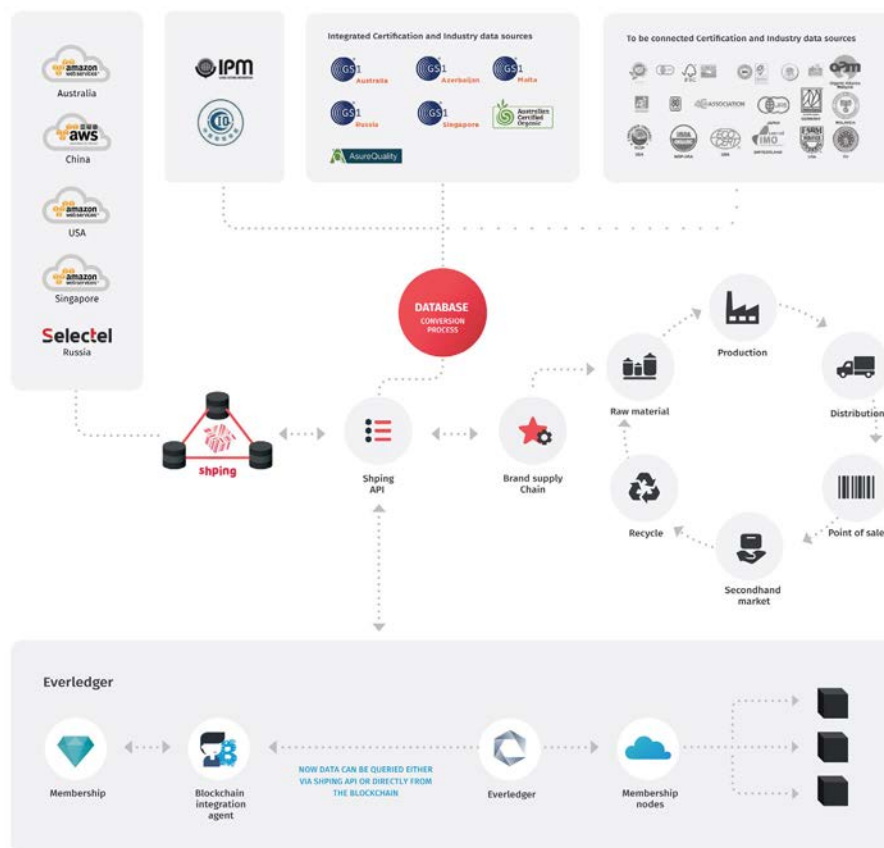

Fig 4.2.1 *Shping Architecture*

NB: Figure 4.2.1 show's Shping's architecture. Everything contained within the lower-shaded area is a work in progress i.e Everledger integration. The information contained in the top-right shaded area is part of our future plan i.e integration with more certification organisations.

4.3 Trusted Data Sources

Shping has a number of data sources that feed into its Global Product Database, which Shping aims to use to develop a unique, trusted and reliable source of valuable information.

4.3.1 Data from Brands and their Supply Chain

The dataset collected from brands and their supply chain may include a product's point of origin, as well as records pertaining to the chain of ownership throughout the supply chain, shipping and consignment details. It may also include information on the raw materials contained in the product, information on how the product was handled to the point of sale and even temperature logs. Through the Shping Security Module, brands can track, audit and trace their products through their supply chain from the point of manufacture to the point of sale. This data can also be of use to manufacturers, retailers and consumers to ensure that a product has met the requisite conditions and has been authenticated throughout the supply chain to ensure that the product in front of them is genuine. Finally, this data source also includes information created by brands and added to the Global Product Database for consumers to discover when they scan products with their Shping App. This data may include product fact sheets, marketing messages, product promotions, videos, warranty details and more *(see Shping Marketing Module on page 15)*.

4.3.2 Data from GS1 Local Members

Shping has set up partnerships with GS1 in Australia, Singapore, Russia, Malta and Azerbaijan with more negotiations in progress. GS1 is a global, independent, non-profit organisation responsible for the development and upkeep of supply chain standards that enable organisations to store, transfer and exchange data and information smoothly and universally. Its most well-known standard is the barcode which was introduced in 1974 and has revolutionized data and supply chain management across the retail, healthcare, transport and logistics industries. GS1 tools help organisations exchange critical data - from manufacturing all the way to the point of purchase - creating a common language that underpins systems and processes all over the world. At the core of GS1's trusted data is the National Product Catalogue, GS1's renowned product and item data synchronisation service. Since 2000, the National Product Catalogue has been used by thousands of organisations, now including Shping.

4.3.6 Crowdsourced Data

Shping incentivizes users to create and verify product information, product location and the appeal of products in their possession, using the Shping App by rewarding them with Shping Coins.

Additionally, every time a Shping App consumer scans a barcode which does not yet appear in the database or, finds a discrepancy in the product information, consumers will earn bonus Shping Coins helping to further add a layer of trust and verification of data to the Global Product Database.

Shping App users can also contribute product reviews and rate products through the Shping App, adding another layer of useful, real-world experience to the data available on the Global Product Database for other users to access.

As users will have the ability to write product information to the Global Product Database, Shping will implement a verification system to ensure that the information supplied is genuine.   In cooperation with brands, manufacturers and other users, Shping will collaborate to safeguard and verify the information contained in the database in a similar method to how Wikipedia works. Users who have demonstrated honest behavior will be assigned a higher degree of credibility, potentially allowing them to increase their Shping Status and earn more tokens per contribution. For more information, please see the Shping Status section on *page 13*.

4.3.7 Government Data

Shping has entered a partnership with IPM - the system used by the WCO (World Custom Organization) which enables customs officers to access records pertaining to the full chain of custody of a product. Customs Officers can use the Shping Platform to validate if the sender and receiver of the consignment note matches the track and trace data store, thereby speeding up the clearance for the brand.

Shping has integrated with CIQ (China Inspection and Quarantine) to provide a system of information on the shipment of food products in China where temperature logs, chain of custody information, test results and other documentation are required.

4.4 Marketing & Consumer Incentive System

Shping's goal is to promote engagement between data sources so that users can access all of the useful product information from a single interface in order to help them make safer and smarter product choices. To encourage this engagement, Shping is introducing an ERC20 compliant, Ethereum-based, smart contract currency called Shping Coin. The Shping Coin will be created and distributed by Shping Pty Ltd (Shping Co), and will be integrated within the Shping Platform through an agreement between Authenticateit and Shping Co.

Shping Coins are the reward that Shping App users may earn by scanning product barcodes and connected datamatrix codes on products in order to access this rich product data source. Shping Coins will be awarded to Shping App Users by brands, retailers, authorised associated organisations and Shping itself from their own Shping Coin reserves.

> *It pays to shop smart*

As the Shping App accesses a Global Product Database which is continuously being enhanced by our data sources, users will undoubtedly discover the benefits of the Shping App as a mobile search engine of products. Shping Coins simply accelerates usage and adoption of the Shping App by rewarding consumers for certain actions.

Users can earn Shping Coins through the Shping App in a number of ways, including:

→ ***Scanning or entering barcodes*** *or serial numbers through the Shping App*

→ ***Registering*** *as new users*

→ ***Rating products***

→ ***Reviewing products*** *(with text, video or photos)*

→ ***Viewing product information****, photo galleries, videos and advertisements*

→ ***Completing*** *missing information in the Global Product Database*

→ ***Adding new products*** *and information to the Global Product Database*

→ ***Interacting with brands*** *and retailers through the Shping App*

→ ***Subscribing*** *to brand's social media accounts e.g Facebook, Twitter and Instagram*

→ ***Registering products or activating warranties.***