Mobile Identity

KDDI au ID: Placing Identity at the Heart of Mobile Strategy

A GSMA Mobile Identity Case Study

Written by the Mobile Identity Team

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1 Executive Summary

A. Introduction to au ID and its position as an innovative product for KDDI

As mobile increasingly becomes the primary channel for accessing digital and online services, the ability to manage digital content easily and securely, while also receiving a customised user experience, forms a core element of consumer demand.

Conversely, an increasingly fragmented application and content market has led to consumer frustration - and, in some cases, distrust. Service providers are increasingly compelled to provide complex and ungainly user authentication processes in order to ensure that their offering to consumers is secure and untainted by malware, whilst at the same time, ensuring the consumer is who he or she claims to be. Reputation and trust are becoming central to service providers and customers alike.

As this trend evolves, content and service providers are increasingly turning to organisations with sufficient customer loyalty, trust and operational capacity to facilitate tailored access to their services. This has opened up a market opportunity for mobile operators: through their strong customer relationships, secure billing processes and secure access networks, mobile operators are well positioned to play a central role as identity gatekeepers in the digital world.

A prime example of how this opportunity can be leveraged is provided by KDDI of Japan. Operating under the brand name 'au', KDDI launched au ID, which sits at the core of its new "3M Strategy": comprising multi-use, multi-network and multi-device offerings, all linked through a single customer identity. Arguably the single most successful operator-provided federated identity solution in existence today, the au ID service represents the gateway to a broader portfolio of services – in essence, KDDI has created a portal within which it has placed free content, games, services and other value propositions, and has ensured that the only way to gain access to that portal is by using an au ID.

Through the service, au ID users can make use of online storage, manage third party loyalty schemes, and even pay for goods and services on their mobile, by adding the purchase to their monthly bill. Using a standard called OpenID, KDDI acts as an identity provider (IDP) – providing an authentication platform and integration mechanism so that third party service providers can allow unhindered access to KDDI au ID customers.

This has proven to be an extremely effective strategy for addressing the perennial chicken-and-egg problem that affects essentially all identity propositions: customers often do not adopt a service until they perceive a meaningful and appealing base of service providers with whom the ID service works, while service providers do not want to deploy until they perceive a large base of active customers. KDDI created a value proposition that very rapidly attracted customer interest and engagement. The service has now reached more than 15 million individual au IDs, making it one of the most successful identity services to date.

This case study explores some of the key factors that led to the success of KDDI's au ID service and provides valuable insights into some of the challenges KDDI was able to overcome in launching the service and extending the solution to third parties.

An Introduction to the Operator

Founded in 2000 by the merger of DDI, KDD and IDO, KDDI provides mobile and fixed line networks and is the only integrated communications network operator in Japan. Its mobile cellular services are provided under the "au" brand. In 2003, the company launched its 3G network service, replacing its CDMA 1 with CDMA 1X WIN, followed by a full commercial LTE launch ("au 4G LTE") in September 2012. At the end of 2006, 3.5G, EV-DO Rev A was launched and LTE-based services were introduced in September, 2012."

Under the au brand, KDDI operates a number of additional subsidiary companies, including au Insurance, a mobile-based general insurance provider established jointly by KDDI and Aioi Nissay Dowa Insurance, and "Jibun Bank," a mobile bank jointly established with the Bank of Tokyo-Mitsubishi UFJ. KDDI reinvented its au brand in January 2012.

The Japanese Mobile Market in Numbers

Total number of connections (Q1 2013):

KDDI: 37,709,300

- 25.7% total market share
- 25.8% post-paid market share
- 6.42% 4G market share* ARPU: EUR 33.13

NTT DOCOMO: 61,536,000

- 41.94% total market share
- 42.21% post-paid market share
- 59% 4G market share
- ARPU: EUR38.39

SoftBank Mobile: 33,696,400

- 22.97% total market share
- 63.2% pre-paid market share
- 9% 4G market share
- ARPU: EUR 31.24

Source: GSMA Wireless Intelligence, Q1 2013

*4G market shares are calculations. KDDI launched 4G in Q2 2012 and, as of August 2013, was growing at 241%

2 Setting The Scene: A Brief Overview of Japanese Mobile Life

A. The Market Context in Japan

Brief introduction to the Japanese market

Smartphone Penetration	39.8%
SIMs Per Subscriber	1.29
Area	377,864 sq km (145,894 sq miles)
Population	126.4 million (UN, 2012)
Capital	Tokyo (greater metro area population 36.5 million)
Ethnicity	Japanese 98.5%, Koreans 0.5%, Chinese 0.4%, other 0.6%
Religion	Shintoism 83.9%, Buddhism 71.4%, Christianity 2%, other 7.8%
Life Expectancy	80 years (men), 87 years (women) (UN)
Median Age	45.8 years
Monetary Unit	100 Yen = approx US $1
Main Exports	Vehicles, computer parts, chemicals, scientific instruments and watches
GNI Per Capita	US $44,900 (World Bank, 2011)

(Source: BBC Monitoring, May 2013, CIA World Factbook 2010)

i. A Fourth Generation Society

Japanese society is well-accustomed to mobile data and internet access. Widely affordable flat-rate data plans became available in Japan in 2004 (three years prior to the US and other developed nations). The country's mobile web infrastructure extends well beyond urban centres, driven partly by a commuter culture whereby workers travel via train to and from urban areas - sometimes enduring journeys of up to three or four hours a day. A well functioning mobile web infrastructure is therefore needed to conduct business and stay connected while travelling.

As a result, Japan's mobile operators have always led in terms of network deployment. In December 2010, NTT DoCoMo launched the world's first limited LTE services. KDDI launched its full LTE network ,"au 4G LTE", to all existing au customers from September 2012, and was followed quickly by Softbank's launch in March 2013.

As of November 2012, Japan's smartphone penetration rate stood at 39.8%: amongst the highest in the world. According to research by Impress R&D, the majority of men and women aged 20-29 already a smartphone (58.9% and 58.5% respectively). The same is true for those in their thirties, and teenagers.

Apple's iPhone was the single most popular smartphone, despite the greater prevalence of the Android Operating System (66.4% compared to iOS's 33.1% market share).

ii. A Society Connected: to Everything

Broadcast television still takes up much of people's leisure time in Japan. In parallel, on-demand video services over the Internet are steadily establishing foothold. Recognising the importance of scheduled and self-selected video content, mobile operators in Japan were quick to innovate.

As of March 2012, over 81% of all mobile phones in Japan had an integrated television receiver, enabling users to watch regular terrestrial broadcasts (for free) whilst on the move. All of the operators have also added video-on-demand to their roster of services, provided over mobile data networks.

The widespread adoption and usage of mobile television suggested a need to unify the user experience across multiple networks, devices and locales – and became a key driver in the development of the au ID service.

1 Impress R&D research, published November 2012 www.impressrd.jp/news/121120/kwp2013
2 Using the 1seg digital TV format for mobile devices

"Mobile Operators are very important to us due to the power of a large customer base they can direct to us. Secondly, although Android also has a large number of customers, they don't have as efficient a billing system as the Operators do. In this regard, we are very grateful that KDDI is taking such a leading role in this space and providing our customers with an easy way to pay. It is important to us that our customers can trust our games. On the Android platform there are lots of games which are not curated, whereas au Smart Pass gives a sense of security to our users. Finally, the au Smart Pass model means that KDDI also does the promotion for our games so we don't have to."

— SEGA representative, a gaming content provider using au Smart Pass

iii. Social Login: An Increasingly Accepted Norm

Japan's social media market is among the fastest growing in the world, and social networking is a mobile-centric activity. Mixi, until recently the most popular social media site in Japan, claims that 80% of its 14 million active users access the site solely via mobile. Facebook data suggests that 72% of its mobile users in Japan access the service daily (significantly higher than the global average of 57%).

As is the case in many markets, Japanese social media landscape changes quickly. Different platforms come and go, as tastes and features change. However, one increasingly common and widespread feature is social login: Japanese users have become increasingly accustomed to using their credentials and identity from one social network to login to another; and this trend has evolved beyond social networking into the internet at large.

Login with Facebook and Google+ fast became the most commonly used social login, while Mixi, LINE and a wide range of other local social media sites have also begun to integrate their login functionalities to third party websites.

The trend for social login was amplified by Japan's addiction to games. Many of the most popular games now include social login functionality, so that gamers can use existing identities to login to networked games – especially those with integrated chat functionality.

For KDDI, these trends created a key strategic opportunity. Understanding that third party websites wanted to simplify the registration, login and usage experience for their customers, and also wanted to trust that the individual being logged in is in fact the correct person – they began to define the nature and dynamics of their identity service.

iv. Growth of online commerce: statistics and expectations for future growth

The final growth trend that helped to clarify KDDI's identity proposition relates online commerce. Mobile shopping is the fastest growing segment within Japan's e-commerce sector. Government data suggests the total value of mobile-commerce is well in excess of one trillion yen.

Recent growth in e-commerce sales has been attributed to the introduction of mobile shopping apps. KDDI launched a mobile shopping mall "au Shopping Mall" in February 2006 and a mail-order fashion cite "au Brand Garden" in August 2009. NTT DoCoMo recently re-launched its mobile shopping portal -, and made a series of acquisitions of online shopping stores such as Megaseek, a fashion store offering easy access via QR codes to products in fashion magazines, Oak Lawn Marketing and food shopping site, Radish Boya.

The growing popularity of mobile commerce indicated clearly to KDDI that there was a critical need for a secure means of registering, and transacting, on a wide range of shopping and commerce websites – so that users no longer needed to create and manage discrete identities and credentials for each one.

3 Serkantoto.com, "No Need For Alarm, Facebook Japan Is Doing Fine: Number of MAU Hits 21 Million," August 14 2013
4 In Japan, Mobile Commerce Attracts New Capital, Business of Fashion Magazine, June 9 2013

"From my mobile, I usually loginto my bank accounts, Facebook, Amazon, Yahoo, and also look at my email. I've used Login with Facebook and I like it because it's convenient, but I've often had the feeling that I have to be very careful with it. If I'm not careful to check boxes on who I want to see what I do, then all my friends end up getting recommendations from my Facebook."

– au ID user

v. Digital identity theft in Japan: a growing threat

The need for a secure identity platform was also informed by more negative developments. Though the incidence of mobile fraud is very limited in Japan, online fraud and identity theft are a rapidly growing occurrence. In May 2013, Yahoo Japan suffered a highly prominent hack attack on its administration system, during which up to 22 million customer logins were reportedly stolen . Another notable case involved a WiFi hotspot service, Connect Free, which was found to be collecting people's social media login details, in violation of Japanese privacy laws.

KDDI recognised that as such incidences increased in number, the concept of a "Smart Passport" service that could provide safe, trusted access to third party content while also protecting the identity data of the individual, would become more and more appealing to consumers who distrust the ability of their social network providers (and others) to protect their information.

5 BBC News, "Millions hit by Yahoo Japan hack attack", May 20 2013

3 Introduction To au ID: Kddi's Innovation

i. Innovation & strategy

au ID is a "federated identity" service. As such, the customer creates a unique au ID which can be used to login to KDDI's own services as well as to other third party services by linking the ID of third party website to the au ID. In this way, customers do not have to register for each individual third party site and remember credentials for each one – instead, they create a single identity with KDDI, and third parties trust KDDI to handle authentication and identity management.

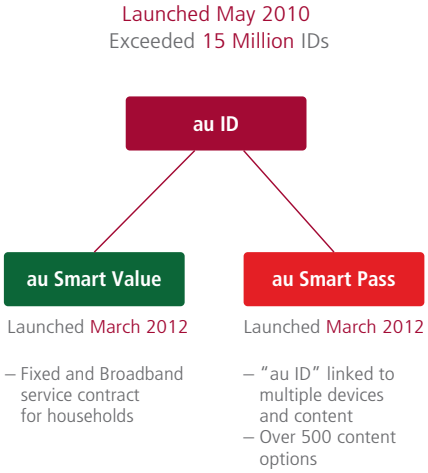
In the digital world, federated identity is becoming a popular mechanism for accessing online services, and a number of prominent web players including Facebook, Google and Yahoo now provide federated single-sign-on platforms for users to login with their existing credentials to a range of different third party websites.

Like many mobile network operators, KDDI previously stored records of their subscribers according to each individual subscription they held, and they were thus unable to identify customers who had multiple subscriptions. A key component of the 3M strategy therefore involved migrating multiple identities (subscriptions) and devices to sit under the umbrella of a single, unique au ID for each customer. The au ID is supported by sophisticated authentication platform, and can be used for logging in to KDDI's own services, as well as third party sites and apps. Consequently, au ID could be positioned as the "gateway" for the subscriber to access services. By implication, the service provides a means for KDDI to understand its subscribers' activities more comprehensively.

The au ID concept is directly attributable to KDDI's forward-looking CEO, Mr. Takashi Tanaka, who recognised the importance of providing users with a means of streamlining access via the different devices they use every day, and unifying the customer experience across all of them. Mr. Tanaka understood that subscriber identity had the potential to become a fundamental differentiator for mobile network operators in a highly competitive market. His hypothesis was that since the number of devices would only ever increase, au ID would have the opportunity to become a crucial cornerstone of all subscriber activities and transactions, and a strategically critical service that would help the operator avoid the "dumb pipe" scenario.

ii. Implementing the 3M Strategy

The 3M strategy had the aim of providing customers with content and services, via the most suitable networks and devices, whenever and wherever they wanted. As its first step, KDDI launched the "au Smart Passport" concept to provide an environment in which "customers use the open internet at ease" (a common motto of the company). It consists of "au Smart Pass" and "au Smart Value", both of which are underpinned by "au ID" as set out below.



In little over a year, at the end of Q1 2013, the company had amassed over "13" million subscribers to the au ID platform – equivalent to 30% of the company's subscriber base and around 10% of the adult population of Japan. Today, the number stands at approximately 15 million subscribers. Of these, over 7 million use the full au Smart Pass package which gives access to the bundle of services and content.

iii. au ID: a Gateway to Value-Added Services

As previously highlighted, the 3M strategy posits three major themes: "multi-use" (services and content spanning a wide range of use cases, from music, video and books through to e-commerce and social networking), "multi-network" (multiple networks including KDDI's fibre and cable TV fixed infrastructure, 3G, WiMAX and LTE), and "multi-device" (such as tablet, PC and TV in addition to both smart and feature phones). A single identity was seen as a key means by which interoperability between these strategic axes could be developed, and the user experience across all media and devices unified.

Before introducing au Smart Pass to its customers, KDDI conducted consumer research which found that customers did not feel safe using smartphones to go online, and often hesitated to use them due to the fear of entering the "open and untrusted internet."

"We thought that to eliminate this hesitation we had to first introduce subscription services. In this way, the customers would feel more secure knowing that we were promoting and curating the content. Only then did we think about what services should be included. At first we looked at applications: we saw that customers wanted to use applications but hesitated because they couldn't understand the details of the tariff charge. This was the main reason for introducing a subscription services which included many applications. We discussed how many apps we should to provide, whether it would be 100 or 10,000! We eventually settled on 500."

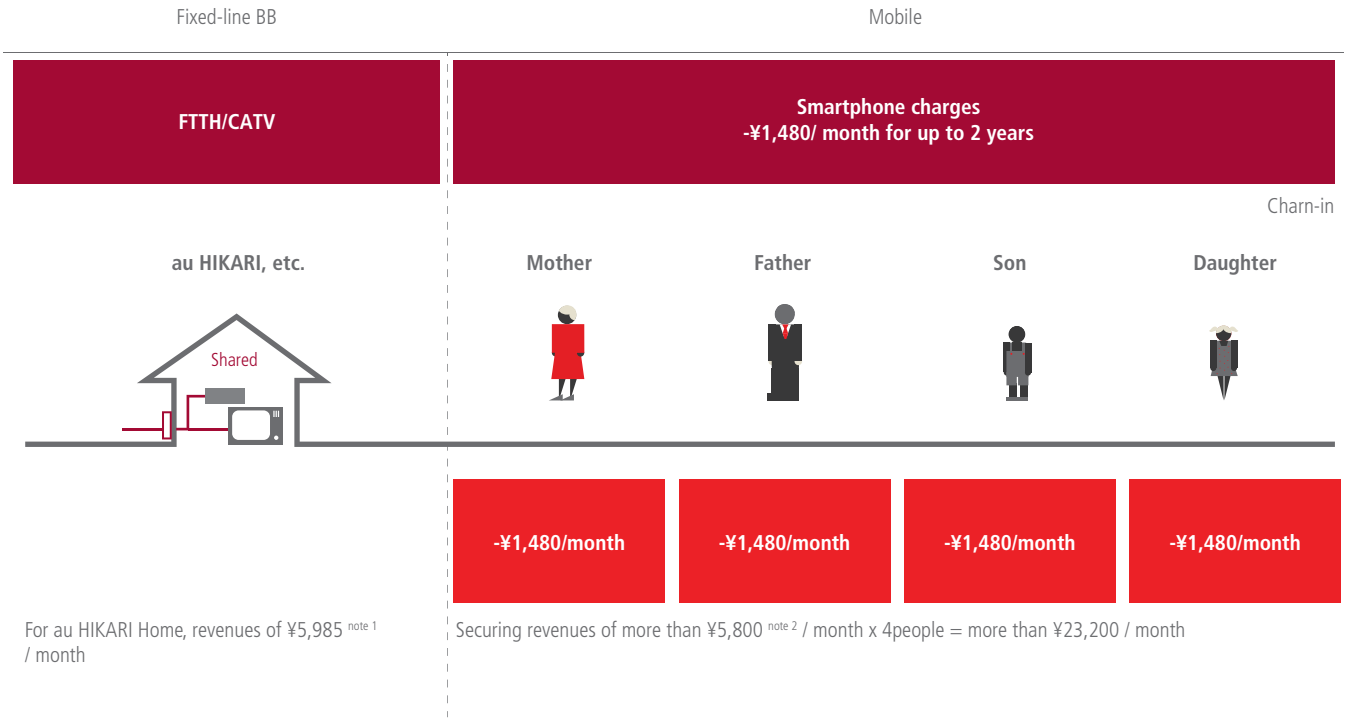
– Senior Manager, KDDI

au ID was initially created as a means by which consumers could securely access the Smart Pass and Smart Value bundles. The underlying functionality was rapidly enhanced to include financial settlement (add-to-bill, for service providers that did not have access to an e-commerce engine), amongst other things. The au ID platform was then opened up – by publishing APIs to third parties – such that service providers outside of the Smart Value and Smart Pass ecosystems could effectively hand off subscriber management to KDDI, and become an integrated part of the broader au ID enabled environment. The unification of multiple subscriptions under a single identity also allowed KDDI to not only streamline customer support, but also add considerable intelligence and sophistication (for example, by knowing, that a subscription is paid for by one individual (a parent) but used by another (a dependent).

This latter point was of particular importance given the structure of the au Smart Value service bundle.

au Smart Value

au Smart Value is a multi-member "family package" service offering multiple discount options for fixed and mobile subscriptions.



– Discounts on the monthly charge on family members' smartphone contracts for households that sign up for KDDI's FTTH service or a broadband service of partner CATV and electric power companies
– Designed to acquire entire family members as au smartphone service customers
– Mechanism for "group shared pricing"

The Smart Value concept has been of material importance in driving subscribers towards KDDI, reducing churn, and allowing for more sophisticated and sensitive customer support. By incentivising whole families to subscribe to KDDI's mobile and fixed networks, the company has not only created a clear differentiator versus its direct competitors in the Japanese market, but has also created subscriber groupings that should result in a net decline in churn, and equally importantly, has created circumstances in which the ability to unify the customer experience across multiple networks and devices is acutely important.

au Smart Pass

au Smart Pass is a content bundle allowing users to enjoy a variety of apps, web content, exclusive coupons and a digital storage locker of 50GB, all for a fixed price of 390 yen per month (US$4).

Since 2013, the au Smart Pass service has evolved beyond the online environment to provide content for use in the physical world, including advance reservation of concert tickets, coupons for local restaurants and stores, as well as loyalty points for purchasing digital and physical goods through the carrier billing mechanism, au Simple Payment.

As of September 2013, "au Smart Pass" has amassed a customer base of 7 million unique subscribers.

"I like to use my au Smart Pass to relax when I have some time to myself, usually when I'm commuting by train or am waiting for a friend. It's so easy to go to when I'm just killing time. My favourite games are simulation games. I'll continue playing to try to beat one game until I get to the end, then I'll look for another on the au Smart Pass site. I'll look at the rankings of popular games and also search by the company name to see if they have any other games I'll like by the same company. It's cool that you can search by ranking, genre, RPG quality and things like that. I tend not to pay for other games online because I feel I get enough content from au Smart Pass; it's all there for me in one place."

–au ID user

Interview with NAVITIME JAPAN

NAVITIME JAPAN provides navigation services for pedestrians (NAVITIME) and motor vehicles (Drive Supporter). A limited version of each of these services is offered to au users via Smart Pass, and NAVITIME also offers a content service via subscription through the au ID portal, in partnership with KDDI. The company's premium services are also available through the Google and Apple app stores. The six NAVITIME services are among the most popular within the au Smart Pass bundle.

NAVITIME JAPAN has had a partnership with KDDI for almost 10 years, having started working with KDDI in October 2003, when the operator first began providing autonomous GPS services through a platform for feature phones called BREW.

"KDDI was the first operator in the world to launch a mobile phone GPS capability. Not long after, we started providing content for GPS services, but we weren't a formal partner back then. We provided navigation content and services preinstalled on some of the devices sold by KDDI."

NAVITIME was one of the first companies to integrate au Simple Payment into its offerings. In late 2010, when Android smartphones became available in Japan, the company worked with KDDI so that customers could pay a monthly fee via au Simple Payment (around 315 Yen per month approximately US$3.15) for subscription to GPS services and content.

"Our partnership with KDDI enables us to have much broader reach we would otherwise have. It's much more convenient for us to access a wider range of customers through KDDI's au Smart Pass and other services.

"There's a limit to what we can do to promote our NAVITIME services when we try market them on our own. But with KDDI, these services can be pre-installed on the device and are also promoted through au shops so there are many more touch points with the customer. KDDI can also talk directly to customers in au shops and encourage them to use our services.

"In our view, there is not much difference in terms of segmentation among the customers who access our services via our own site or via KDDI's portal. However, volume-wise there is a huge difference: many more customers access our content through our collaboration model with KDDI. The fact that KDDI can promote it through their au shop is very important. Due to the nature of the product, it's mostly metropolitan areas where people are using the pedestrian navigation services for public transport. On the other hand, the navigation for vehicles is mostly used outside of metro areas where we have little presence to promote it, so in both cases the au shops are essential for helping us promote our navigation services."

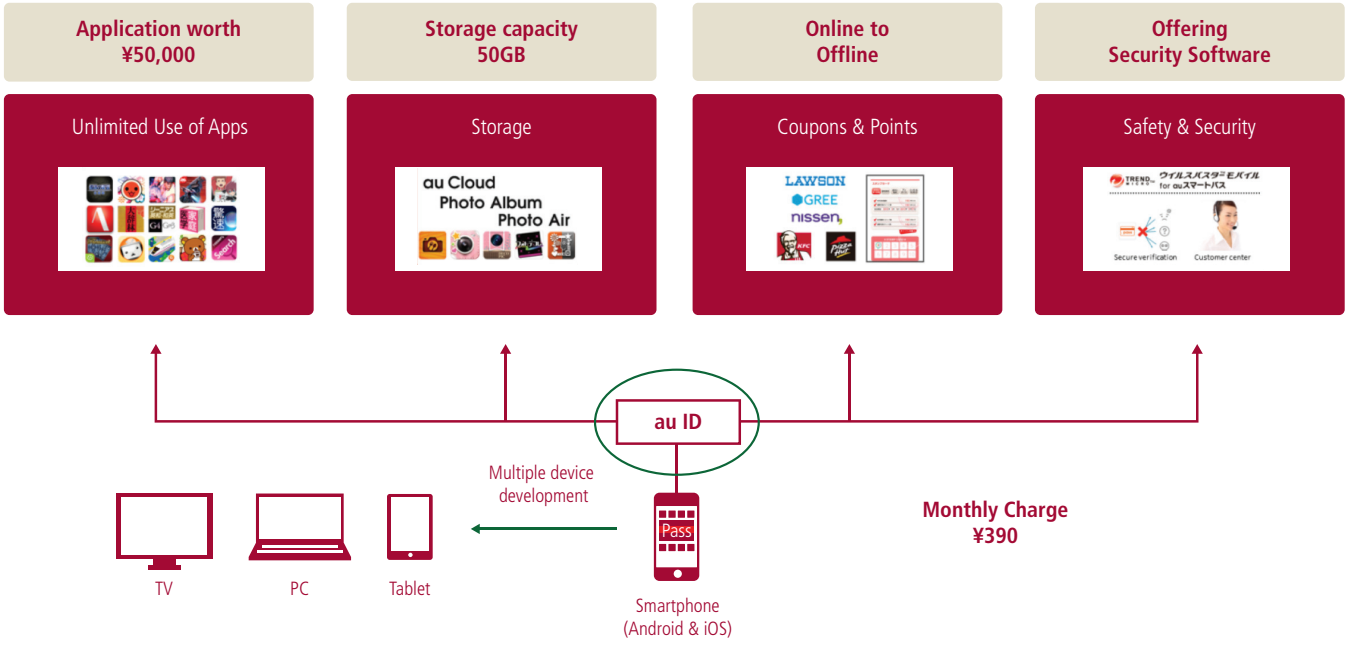
NAVITIME has six separate products all offered individually and accessed separately through au Smart Pass. These include navigation for pedestrians, vehicles, bicycles, buses, and trains as well as one additional product called Komirepo which allows users to post travel updates and tips, and to communicate in real-time about delays. There is also a website offering these services to subscribing customers, which can be accessed via tablets or mobile browsers.

"au Smart Pass is a very important distribution channel for us. What we offer in au Smart Pass is a limited version of our full services, as a kind of introductory model; if the customer wants to have more - features such as road congestion and train schedules - they have to upgrade to the subscription model, which is 315 yen per month (approximately US$3.15).

"While there is no difference in terms of content between the premium services we offer by ourselves and through partnership with KDDI, the convenience is an important factor for our customers. It's so much easier for a KDDI subscriber to buy the services via KDDI's au Simple Payment."

Federating au ID A key component of KDDI's success with au ID was the company's recognition that it needed to build a large and active ID user base before offering the federated platform to third parties – thus breaking the perennial chicken and egg conundrum.

The Smart Pass concept – a secure walled garden portal in its first iteration – made consumers want to take an au ID, because doing so was the only means by which they could access the contents of the Smart Pass portal. So well executed was the Smart Pass concept that KDDI has been able to charge the equivalent of US$4 per month to subscribers using the platform.



The benefits of the au ID and Smart Pass combination to consumers was increasingly self-evident:

- au ID is linked to multiple devices, services and content (500+ services for Android users; 300+ services for Apple users)
- It has a low, fixed monthly fee
- It provides convenient and secure online purchasing capabilities (au Simple Payment)
- The curated content increases user confidence in quality
- The platform provides additional security software

Once KDDI had been successful in attracting customers and encouraging them to make regular use of their au ID, the process of attracting third party service providers became considerably more straightforward. With a multi-million strong customer base, the benefits of au ID integration by third parties became abundantly clear:

- Authenticated, secure access to a large customer base
- Access to KDDI physical stores: simple and convenient real-world distribution model
- Ability to up-sell to premium services via Smart Pass and au website portal
- Attractive to O2O (Online to Offline) marketing through couponing and "au points"
- Highly secure third party billing / settlement mechanism (au Simple Payment)

The use of exclusive coupons is primarily a promotion model to encourage customers to continue logging in to the Smart Pass service. Often, strategic coupons are provided at specific points with the intention of increasing customer satisfaction.

"au points" are a means by which the au Smart Pass is inextricably linked to KDDI's carrier billing service, au Simple Payment. For many games and content, consumers need to purchase "au points" in order to buy items such as weapons or gaming tools on the game. As part of the security proposition to customers, parents are able to restrict their children's purchasing of "au points" as part of the monthly limit that can be set for au Simple Payment (Y50,000 yen in total, or approximately US$500). In addition to "au points", KDDI also offers exclusive coupons as a promotion model to encourage customers to continue logging in to the Smart Pass service. Often, strategic coupons are provided at specific points with the intention of increasing customer satisfaction. Coupons are also a source of revenue for au Smart Pass, as service providers pay to include their coupons on the portal.

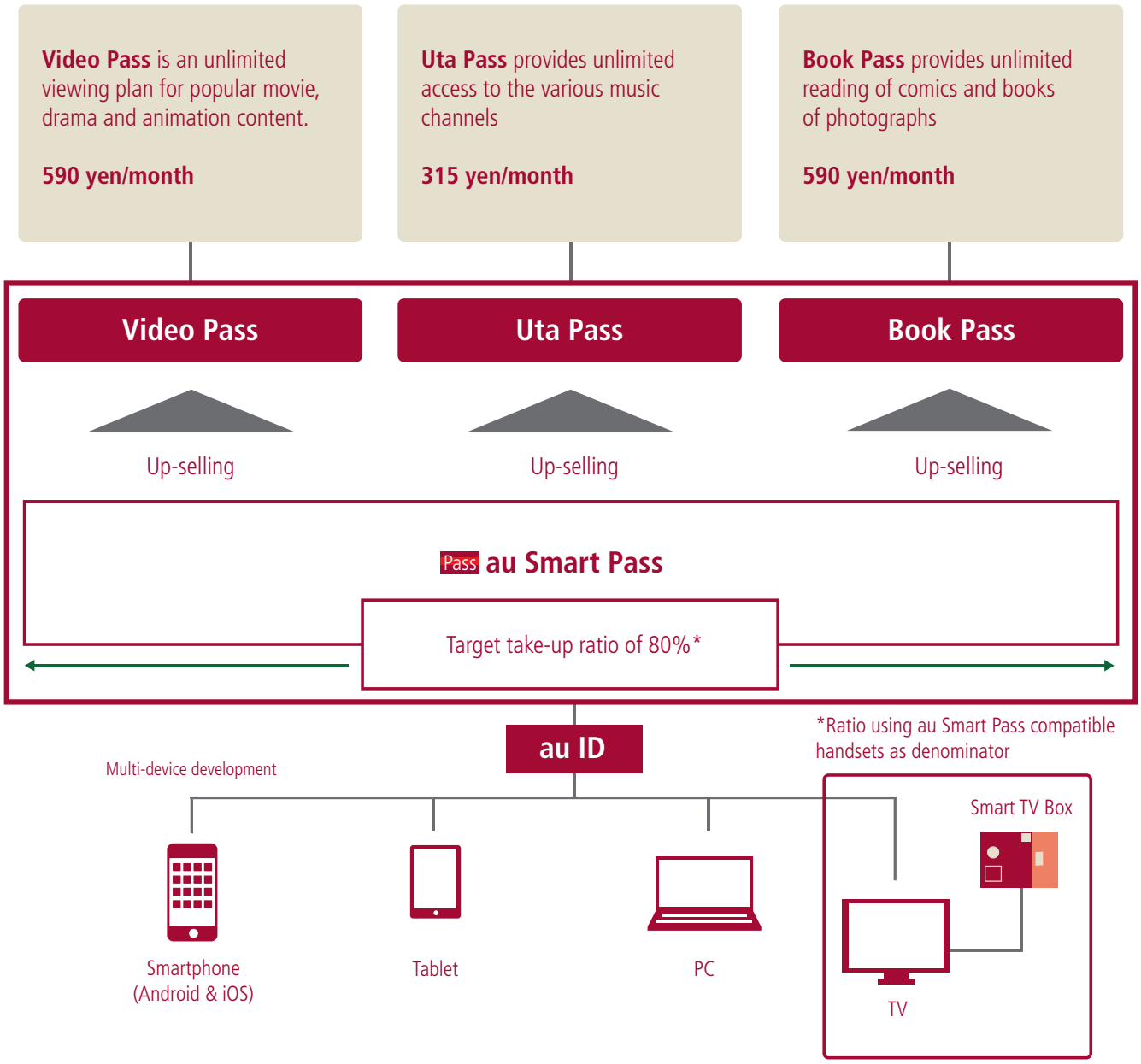
"We sometimes order a set amount of coupons by paying the coupon issuing company for a special promotion. At this moment the customer discovers the coupons from the customer site when they log on. In the future, we may consider additionally issuing push notifications to customers, subject to personal data protection laws. This is the sort of useful thing you can do with au ID."

— Senior Manager, KDDI

"I really like the coupons. If I have some time I'll usually go to the 11th floor of my building and buy some tea or a snack using those coupons. Compared to the other bundles offered by au (such as Uta Pass) this is what makes au Smart Pass much better value: it combines coupons, tickets and insurance all in one."

— au ID user

The core au ID service has become even more central to KDDI's growth strategy than many would have imagined. In combination with the au Smart Pass, KDDI has the ability to upsell to a wide range of other services in a manner that looks and feels almost like an "in-app" purchase. Customers can choose to have one single pass or a combination of multiple passes, according to their own preference.



iv. au Simple Payment: Add-To-Bill At The Heart Of The Au Id Customer Experience

Add-to-bill is a common service offered by mobile operators in Japan, allowing subscribers to conduct online shopping and add their purchases to their monthly mobile phone bill. au Simple Payment (known in Japan as "Kantan Kessai") was introduced in 2010 and has become one of the most important services in the eyes of its subscribers.

"I think one of the best things offered by au is their au Simple Payment service. For example, if I buy something from my PC there's already an option to use au ID for payment, which I find very convenient. When au Simple Payment is an option then I prefer to use it compared to any other form of payment such as credit cards."

— au ID user

KDDI realised quickly that customer satisfaction – in terms of ease of bill settlement – would be a key differentiator for the au ID service. By carefully calculating different levels of monthly credit offered to each customer, KDDI ensured that users were able to continue using the service, while reducing the potential for "bill shock" occasionally associated with add-to-bill services offered by other companies. Each customer is allowed to spend up to a predetermined limit per month. But because of the unification of subscriptions under Smart Value, a parent for example can prescribe a spending limit for each of their children.

"If I use au Simple Payment I can earn points so I try to use it as much as possible. I pay my phone bill with my credit card, which gives me air-miles, so actually I'm getting double the benefit!"

– au ID user

au Simple Payment

The introduction of au Simple Payment was a very important milestone in solidifying KDDI's relationships with its content and service providers.

"We've been making good relationships with online content and service providers for the last ten years. However, since the introduction of the au Simple Payment service, the number of our service provider partners has increasing significantly."

— Senior Manager, KDDI

"The introduction of carrier billing has been a pivotal event for us. We had one game, Fantasy Star Online 2, which had been available for 2 years before it was integrated to carrier billing just 2 months ago. It uses a "freemium" model in which users get the game for free but then pay for tools within the game, such as power-ups and weapons. You need to purchase points in order to buy items for the game. With carrier billing, we've seen sales increase incredibly fast."

— SEGA representative, a gaming content provider using au Smart Pass

In addition to the monthly subscription income that KDDI enjoys from au Smart Pass users, the au Simple Payment platform has become a supplementary and important source of revenue. Service and content providers are charged the following amounts to use the au Simple Payment service platform:

- 12% of the total value of digital contents purchases
- 5.8% of the total value of physical goods purchases

v. Internal Changes: Making Way for the au ID

KDDI Board members discussed the au ID concept for over six months before deciding to introduce the service to the market. Internally, developing the au ID strategy entailed a significant realignment of the organisation, and the establishment of smaller projects for each of the services under au Smart Pass and au Smart Value respectively. New organisational targets were set to ensure that au ID was integrated effectively to existing metrics. Each legacy division of the company (FTTH, cable, mobile) had an account management department, and all of them had to be aligned and integrated in order to create a single, overarching account for each au subscriber.

The first step was to initiate internal Working Groups for the following projects:

- Planning Working Group - designed the concept of au ID and the customer experience
- Development Working Group - designed the information systems, authentication systems and the process for tying these to the database of subscriber au IDs
- Marketing Working Group - designed the process for issuing an au ID to a customer in the au shop and online, including modifications to existing sales systems and training of sales staff
- Additional working groups for the Smart Value chain were also established to investigate and define tariffing, branding, and other matters.

A key contributing factor towards KDDI's ultimate success with au ID and its sister offerings was the fact that all discussions pertaining to the propositions and changes implemented in order to launch them took place within a single company. The other carriers in Japan provide fixed, mobile and other bearers, but none covers all media to the same extent as KDDI. It was therefore possible from day one to envisage, design and execute a truly multi-service, multi-network and multi-device solution that gave digital identity the centrally important position it rightfully deserves.

Revenue Share model - bringing Service providers into the fold

In parallel, KDDI found that application and content providers also feared that customers would not use their services. For this reason, KDDI decided to develop a revenue share model in which a certain amount of money would be set aside for content providers, which essentially guaranteed a commercial market for their offerings. These funds act like a 'retainer' – a regular source of income for third party service providers, which has the effect of focusing their attention on developing services and content, rather than worrying excessively about the bottom line.

KDDI considered a number of factors leading to its decision to set up the revenue sharing model. Most importantly, development costs are a significant hurdle for many service providers. It often takes time and money to develop applications that may never sell if not promoted adequately.
KDDI wanted to remove this barrier to entry for service providers looking to participate in au Smart Pass, by providing a 'guaranteed' revenue stream to them.

"For KDDI, this model was a risk from the start. But from a long term perspective, we were convinced that this model would get a lot of content, au Smart Pass users, and ultimately a lot of profit."

— Senior Manager, KDDI

vi. How it works: Technical solution

i. OpenID platform

The team at KDDI chose to use an authentication protocol known as OpenID, a protocol which is widely used by internet web pages. Three primary reasons constitute the rationale behind this choice:

1. A number of ID providers on the OTT layer were compatible with OpenID and its specification was standardised.

2. Since many content providers were compatible with OpenID, the development cost to make au ID compatible with them was considered to be comparatively low. It was also recognised that the expansion of au ID across a broad range of service and content providers would be relatively quick.

3. The code for OpenID integration had already been developed and was readily available on the internet.

About OpenID

OpenID is both an identifier format and an extensible set of protocols for passing identity information. Users enter their identifier at the site they wish to access and are redirected to the appropriate Identity Provider. During this session, the user can move between multiple OpenID Relying Party sites without re-entering their password at the Identity Provider, because the Identity Provider simply checks the session and transparently returns control to the requesting site. The OpenID base protocol is very simple, but can be augmented by additional extensionsto pass registration attributes.

vii. au ID Profiles: Providing the best customer experience through a holistic view of the customer

- Each au ID is connected to all subscription data pertaining to the individual (including any KDDI fixed, cable and mobile subscriptions they may have). The individual creates their own profile either via a PC or their mobile, and that information is the basis of what is shared with third party service providers. Because Japanese regulations oblige customers to show some form of identification at the point of registration for a mobile subscription, KDDI has a high level of assurance that all customer profile data (data that is shared, and data that is kept private) is correct.
- Children cannot legally subscribe to a mobile service in Japan. In cases where the mobile terminal is used by a child , adult customers can register user information on behalf of their children. Additionally, KDDI provides a filtering system so that the content and services available to the child is restricted, and age-appropriate. Similarly, service providers can provide appropriate services according to the age set out in the profile information that is shared with them.
- KDDI makes careful and sensitive use of individual's profile data, and information relating to their service-usage (within Smart Pass for example).
- Importantly, customers can link their au ID to existing IDs they have with service providers – therefore rather than having to 'start all over again' with a service provider, they can simply pin their au ID to their legacy identity with the service provider. This helps customers, because they don't lose features or history on an SP's site, and helps service providers by providing customer continuity, and a richer profile of information that extends back beyond the use of au ID.

"You cannot underestimate the importance of reliability when it comes to operators. An ID can be issued by any company. However, the au ID is a very strong ID because we have the customer data and the billing system to support it, so this is our strong point. Mobile operators are trusted by people in this country. I would never want to issue an unreliable ID which could undermine this trust. I think other operators could do the same in their countries and we could increase this image of a trusted brand around the world."

— Toshitake Amamiya, Vice President, Chief Operating Officer, Advanced Business Development

viii. How it works: The User Journey

i. Registration/enrolment to au ID:

KDDI use multiple touch-points to enrol its customers into the au ID service.

– In store: When customers come into KDDI's physical stores for a new subscription or a handset upgrade, au IDs are automatically enrolled during the procedure. In this way, KDDI can promote au ID for both new and existing customers.

– Website enrolment: When customers use KDDI services (such as au Smart Pass), they can immediately register for an au ID via the website.

Under the first iteration of the service, customers were asked to create their own au ID username. However, in later iterations - for the sake of ease-of-use and logic, the au ID username was set to the customer's telephone number by default. Customers can either keep using their default ID or they can customise their username as they like.

To further simplify matters, and to ensure 'frictionless' registration, KDDI decided to make au ID registration a standard part of all other subscription and upgrade processes – such that when the individual user leaves a retail store, the device is already imbued with an au ID, which is ready to use. According to KDDI management, this is one of the main reasons for the success of the service: customers leave KDDI stores with a fully functioning ID.

Notes for au login flow diagram

1. au subscribers can read free content from a news website (including basic headlines and free videos). To read full articles and further premium content available exclusively to paid subscribers, the au user clicks to register for the site using their au ID.

2. The first page of the registration process shows the Terms and Conditions (with the option to "read further") and a "Register" button.

3. The user is notified that access to the premium news site requires an au ID and au Simple Payment. The user clicks "Continue to register using au ID".

4. The user is presented with two options for registering to the service with their au ID: Orange button = simple login using an au ID already linked to this terminal. Grey button = login using an au ID + password (third button = Help button). Pressing the Orange button will take the user directly to the premium news site using the au ID already remembered on the terminal Pressing the Grey button will take the user to the registration page to enter their au ID.

5. Having pressed the Grey button, the user enters their au ID, password (a digit-based code) and has the option of clicking the box to "remember my au ID on this terminal". The user then clicks the Blue button to continue.

6. "Registration complete. Now you can enjoy all the content on this site with your au ID".

Once the registration process has been completed once, the user no longer will be required to login to the site again as their au ID will be remembered on the terminal.*

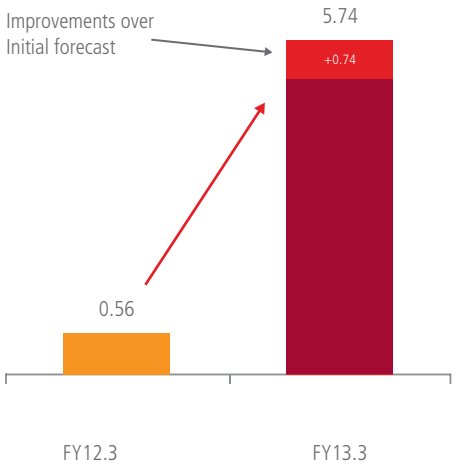
*after months of inactivity, the user will be prompted to login with their au ID again

4 Uptake & Scale: Factors Leading To The Success Of Au Id

The au ID service has now reached 13 million users since its launch in March 2012, making it one of the most successful identity services in the world to date.

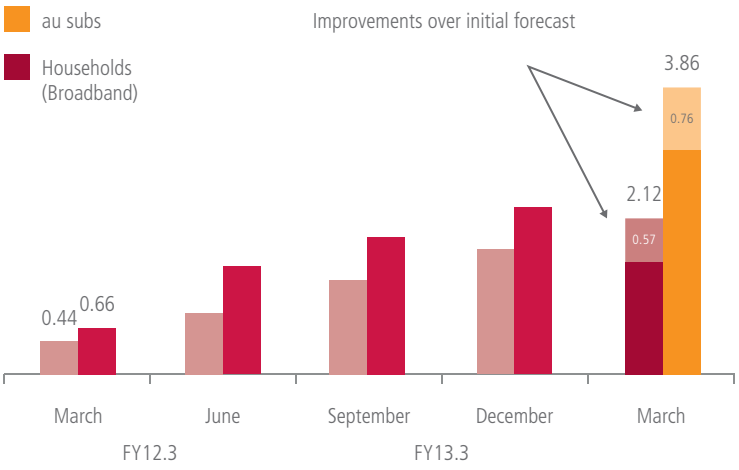
Even KDDI did not anticipate the extent of the success that the introduction of this service (and its Smart Pass and Smart Value relatives) would have for users. Mobile and fixed line subscriptions through both au Smart Value and au Smart Pass are growing beynd KDDI's expectations:

Trends in Members
(Million Members)



au Smart Pass user trends (2013)

Quarterly Basis
(Millions)



au Smart Pass Value user trends (2013)

Many of Japan's smartphone owners use app stores such as Google Play - where an overwhelming number of apps are available – but often cannot work out which apps are safe or of good quality. With the introduction of au Smart Pass, KDDI provides users with its own, curated app store which offers only apps that are deemed to be reliable, malware-free and of good quality. Similar to the process adopted by Apple, every app which is featured on KDDI's au Smart Pass goes through an extensive vetting process, including antivirus checking. Unlike other app stores, KDDI was willing to provide a regular source of income to service and content providers – which helped them financially in the early days, when volumes were lower. As volumes increased, both KDDI and its partner service providers were able to generate substantial income and profits.

"At the moment we understand that the KDDI service reaches different and separate customers from our existing readership. It's a process of trial and error - we can't have exactly the same content in both our digital and print versions. To get the younger generation interested we usually promote sports or entertainment news. Some of these people don't read newspapers at all, so we have to be conscious of the types of content we provide to them. If there was some easy next step to try to solidify those users into our readership, we would take it, but it's challenging."

— The Asahi Shimbun Company is a collaborating partner of KDDI since 2008.

As such, KDDI has built a loyal network of service and content providers, who have been willing to develop propositions that are exclusive to KDDI. And they have engendered trust amongst users, who appreciate KDDI's attention to detail in the curation process. A secure payment platform allows customers to buy more from service providers, and KDDI – as the gateway identity provider, the clearing house and the curator – adds value and generates profit.

Interview with SEGA

SEGA SEGA has four divisions to its gaming business: mobile, arcade, console and PC. All of these platforms now incorporate the option of using an au ID for login, and au Simple Payment for in-game purchases. Indeed, SEGA has been using au ID for its smartphone platform for the past 3 years.

However, SEGA has chosen to continue providing customers with a "SEGA ID" to login and manage their content. Users tend to share profile information that is specific to the gaming world when creating a SEGA identity, and the company did not want to lose this important data. So instead, with KDDI's assistance, SEGA IDs and au IDs are bound together in via OpenID, thus enabling the user to move seamlessly from their SEGA ID to make payments through the au ID Easy Payment service, amongst other things.

"We offer games over multiple devices, including mobile, PC, arcade and consoles, so we wanted to ensure that we had the best possible knowledge of our users by giving them a SEGA ID that they could use across all platforms. We did consider the potential barrier this would pose in terms of the additional steps required in order to create a SEGA ID, but we decided to go ahead with a low-barrier registration (consisting of an email address and the user's date of birth) in any case, because we thought at the time that it would be valuable, despite the relatively small amount of information we have on our users."

While SEGA also offers its customers the option of using credit and debit cards for in-game purchases, most users accessing games via mobile tend to default to carrier payment.

"Many of our users switched from web billing (credit cards, etc.) to carrier billing once it became available - we know that one major factor was that lots of young people don't have credit cards – and clearly younger consumers are a key demographic for us. Our Mobile department was the first to integrate carrier billing and we had been trying to encourage the PC department to make the move for a while, because of the ease-of-use that carrier billing represents."

SEGA believes that positive customer care is another contributing factor to the success of KDDI's au Simple Payment. If a user is concerned about a billed item they can choose to contact either KDDI or SEGA, as both have information about the customer's purchase history. Equally importantly, given the nature of SEGA's customer base, adult subscribers can preset and reset the spending limits of their children's accounts, and can also choose to be notified of their children's purchases.

KDDI attests to seeing a strong increase in carrier billing via third party sites once it was made available.

Interview with Namco Bandai Games Inc

About 30 Namco Bandai titles are available on KDDI's au Smart Pass service today. In terms of payment, Namco Bandai customers have the option of using credit cards, au Simple Payment. The company also accepts DoCoMo and other carrier billing options.

"We see KDDI's au Smart Pass as a very profitable channel allowing us to expand our customer base and cut down on our development costs. KDDI has been a great partner for us."

The company has a long-standing relationship with KDDI reaching back to 1999, when simple internet services such as wallpaper and games were being developed for the feature phone market. These started to become extremely profitable when DoCoMo first launched it's i-Mode service, and KDDI followed soon after with a similar service called EZ Web. After a short period of time, however, other online players and social media companies came into the market and carrier provision of these services declined.

"Carrier services were on the decline, and we were having to be on the constant lookout for new opportunities to keep the business ahead. We worked with social media companies like GREE & Mobage, which were growing rapidly in Japan and wanted to integrate games into their offering. At that time, feature phone sales were also beginning to decline. We tried to find ways of gaining profit through smartphones, but we realised that this was going to be challenging due to the difficulty of realising decent margins through large stores like Google Play. It was about this time, a year and a half ago, that KDDI came to us with the idea of au Smart Pass."

"To be honest, when KDDI first came to us with au Smart Pass and ID we were very perplexed. We thought it couldn't work. At that time we were selling our games - applications such as RIDGE RACER, katamari Damacy, - for a price of around 600 to 800 yen each. When KDDI told us that their customers would pay only 390 yen and have access to as many games as they liked, we thought "no way!". But then we decided to take a closer look and analysed how much profit we were actually making from Google Play and other content stores."

"KDDI told us they had already set aside a certain amount of yen for a revenue sharing model with content providers. When we looked at the risk in joining the revenue share we realised it was minimal: a simple calculation showed us that even if we sold just a few titles it would be a profitable for us, because KDDI really lowered the entry barriers for us – and all other providers."

"It's the simple easy games that are most popular over au Smart Pass."

"While a lot of people are accessing our games through Apple Store and Google Play through the freemium model, these users do not overlap with the users of au Smart Pass who are typically "lite" users - those testing out new games for the first time. These are additional users who otherwise would not have the motivation or indeed the ability to access our services."

"au Smart Pass has actually increased our customer base significantly. We soon realised that the two customer segments appear to be very separate from each other. For example, there are some games on which we spent a lot of money in development which are popular on iOS or on console but were not popular at all over au Smart Pass. Whereas, old arcade games, games which were developed back in the feature phone era and cost no money at all, were suddenly very popular again. Our most popular game is a simple one called Taiko Drum Master, which caters to all ages and demographics. Another is Gator Panic. Because these games are classic and simple, they are difficult to make popular on other platforms but are extremely popular in au Smart Pass. Now we recognise the au Smart Pass medium for what it is: a very efficient way to sell games to new users. So the service hasn't cannibalised our other channels at all. In fact, if we compare straight sales of games in other markets then au Smart Pass sales are often better."

5 Conclusion: Key Success Factors

Six key factors can be identified as crucial for the success of KDDI's au ID concept and, ultimately, for securing the Operator's position in the "smart pipe" by enabling the successful accomplishment of the 3M strategy:

1. A unified and centralised approach to the au ID implementation: The fact that KDDI was able to conduct all internal conversations, planning and implementation of the au ID concept from one unified position as a single company was a key factor in the success of its 3M strategy. A centralised management allowed the company to develop internal targets around the au ID concept and to ensure a clear path to the unification of its customer accounts and IDs into a single vision of each customer.

2. Revenue share fund: The decision to develop a revenue share model in which a specific fund of money would be set aside to create revenue-share partnerships with content and service providers was fundamental to the success of the au Smart Pass proposition, which itself ultimately came to represent the heart of the au ID proposition to customers. This revenue fund essentially solved the perennial "chicken-and-egg" challenge faced by many operators in getting both service providers and customers to come on board to a new project. By setting up a guaranteed market for content providers to offer their products via the Smart Pass portal, these companies could focus their attention on content development, rather than worrying excessively about the bottom line.

3. Confidence in the curated model: KDDI leadership recognised early on that it could provide a much-needed service to both customers and service providers in the advancing digital age. Essentially improving upon the Apple app store concept of a curated content portal, by offering only KDDI-vetted content through a secured portal proved extremely successful and helped to secure the operator's position as a trusted brand.

4. Easy integration to Carrier Billing (au Simple Payment): KDDI understood that customer satisfaction – in terms of ease of bill settlement – would be a key differentiator for the au ID service. The introduction of au Simple Payment was also a very important milestone in solidifying KDDI's relationships with its content and service providers by enabling a simple payment solution that allowed service providers to focus on their core strengths of content provision by utilising the operator's strong billing and payment management capabilities.

5. Driving customer demand through new services: Adding additional benefits on top of the au ID Smart Pass portal, such as coupons, insurance and malware services, content recommendations and reviews, and the highly successful Timeline service, have all contributed to the differentiation of KDDI's service from those of its competitors and to create a fun exploratory environment to which the customer is encouraged to return on a regular basis. Once KDDI had been successful in attracting customers and encouraging them to make regular use of their au ID, the process of attracting third party service providers became considerably more straightforward. Driving customer traffic in this way enables KDDI's content provider partners to up-sell their content via the au Smart Pass portal, and thus creating a circular demand which keeps growing.

6. Commitment to interoperable web standards (OpenID): Keeping the integration process simple for linking the au customer ID authentication to other third party websites was an essential component to attracting a wide range of web-based service providers to partner with KDDI. Utilising the OpenID protocol ensures that KDDI is well positioned to develop further integration and drive additional services with web-based service providers in the future.

7. Underlying all of these factors - and, perhaps most fundamental of all to KDDI's success in the au ID venture - is the fact that every au customer is provided with an au ID without needing to consciously make the decision. New customers are automatically enrolled with an au ID, while existing customers are given an au ID when they come into an au store (for a handset or service upgrade) or online. Through enabling the registration through multiple touch-points to the customer, KDDI has effectively tied the au ID inextricably to all KDDI services, thus centralising the au ID as the foundation of the 3M strategy and as the pivotal axis upon which all future services will be developed.

Category - Android	
Game	427
Entertainment	82
Education	82
Tool	65
Sport, Health	53
Photo, Movie	45
Horoscope	41
Music	26
Social Network	25
News and Weather	23
Email	23
Efficient Work	21
Gourmet, Recipe	19
Baby, Kid	19
au Support Tool	13
Map, Transport, Navigation	13
Shopping	11
Finance	6
Total	**994**

(Android As of Agust 2013)

Category - iSO	
Game	100
Entertainment	53
Horoscope	41
Sports, Health	40
Education	30
Email	22
News and Weather	20
Gourmet, Recipe	17
Tool	14
Maps, Transport, Navigation	12
Music	11
Social	7
Baby, Kid	7
Efficient Work	6
Shopping	3
Photo, Movie	3
Finance	2
su Support Tool	1
Book, Magazine	1
Total	390

(Android As of Agust 2013)

Mobile Identity

For further information, please visit www.gsma.com/mobileidentity
or contact the GSMA Mobile Identity team at
mobileidentity@gsma.com