STEP ONE:
DATA TRANSFER

STEP TWO:
DATA ONBOARDING

STEP THREE:
DATA ACTIVATION

CRM (PII) DATA
(from marketer and/or agency)

Database Services Provider

Onboarding Provider

DMP

Marketing & Advertising Execution Platforms &/or Data Analysis Platforms (depending on use case)

(data flow)

Data Originators:

Cross Device Data
(name, device ID)

App Data
(name, device ID)

Publisher Data
(name, IP, email, cookies)

TV Set-Top Data
(name, email, address)

Walled Garden Data
(impression data)

Marketer Data
with PII as record identifier

Onboarder Proprietary Data and Match Tables

ID matches to record in onboarders' match table via PII

Match data includes email, mobile, postal, IP, and device ID.

Anonymized and Activated Data

PII stripped and onboarder ID assigned for activation and attribution.

The State of Consumer Data Onboarding:

Identity Resolution in an Omnichannel Environment

WINTERBERRY **W** GROUP

In the course of developing this perspective paper on the current state of onboarding, Winterberry Group spoke to nearly twenty senior industry experts involved in the onboarding process, ranging from the service providers themselves to legal experts focused on privacy considerations. These primary interviews, combined with our review of public financial records and other secondary data sources, enabled us to provide this comprehensive look at consumer data onboarding.

In the pages that follow we: detail a brief history of onboarding; discuss its value to marketers across the most pertinent use cases today; diagram the various matching processes with additional detail around providers, match partner types and pricing structure; outline privacy concerns and other considerations; estimate the size of the market and its growth rates, and; posit our predictions for its continued evolution. The goal of this paper is to facilitate understanding for those unfamiliar with this rapidly evolving service, which we believe can and will continue to be increasingly and immensely helpful in marketers' ever-elusive quest to obtain a complete understanding of—and forge connections with—their customers.

We would like to offer special thanks to the many thought leaders from the following companies who supported the development of this paper by sharing their insights:

Acxiom	Nielsen
Conversant	Oracle
Epsilon	The Trade Desk
Experian	Throtle Onboarding
LiveRamp	Venable
Lotame	Wunderman/KBM Group
MediaMath	*and*
Neustar	Zwillgen

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Over the course of the past twelve months Winterberry Group has fielded numerous client questions on the current state of onboarding: What exactly is it? What can we use it for? How does it work? It became readily apparent that the critical question was: Why should we onboard? The answer is that onboarding is a central component for the consistent and accurate customer recognition for the personalization, insights and targeting necessary for omnichannel marketing. As more marketers adopt omnichannel approaches, the U.S. onboarding market has subsequently grown from an estimated $30 million in 2012 to $250 million in 2016 and is forecast to reach $1 billion in 2020.

So, what is the onboarding market and what is onboarding? Consumer data onboarding (hereafter referred to as "onboarding") refers to the process of linking offline data with online attributes. More specifically, it is the matching of two audience (B2B or B2C) data sets: one, a first-party CRM data set belonging to a marketer and the other, a digital data set belonging to a data provider. The match process uses a common identifier or *match key* to link the records. The match—with a certain degree of accuracy—provides for the privacy-compliant identity resolution needed in order to activate a distinct and expanding set of data-driven marketing use cases. Today's primary onboarding use cases include:

- Digital audience targeting across media, devices and formats including: display, email, social media, addressable TV and mobile (leveraging cross-device ID)
- Site personalization
- Customer or audience insight development for market research, modeling and planning; and
- Measurement and attribution for both online and offline applications.

The activation of these use cases varies according to the marketers' objectives and types of data available as well as the agencies and data providers used. The maturation of these use cases has resulted in rapid marketer adoption as well as an expansion in the number (and types) of providers offering onboarding solutions. Winterberry Group estimates that the number of marketers and data providers onboarding is doubling annually and has now passed the one-thousand mark. Looking ahead to 2017 and beyond, indicators across brands, media companies, agencies, technology providers, system integrators and data suppliers all point to continued growth in onboarding adoption and consistent use. It is the rapid expansion of customers, volume and frequency that will fuel growth in the onboarding market (that is, the revenues from fees associated with the process of onboarding and not including media buys powered by onboarding) to $1 billion in 2020.

Regardless of marketers' level of experience with onboarding, tactical questions remain. *These include:*

How do I select an onboarding partner?
Which type of provider(s) would be best given my objectives?
How often do I need to onboard my data?
How much am I paying for onboarding services?
What is the right balance between accuracy and reach?
What are the privacy considerations and how do I ensure I am compliant?

Consumer Data Onboarding: The process of matching (temporarily linking) owned consumer data (PII) with consumers' corresponding digital attributes (such as cookies, IP addresses, device IDs and other identifiers) to create a cohesive and comprehensive identity for more actionable marketing.

Matching an offline consumer with their online persona was originally achieved through IP address and cookies dropped on digital properties by ad servers. Identity was therefore linked to households (via shared computers) and matching was largely **probabilistic** (or inferred). In probabilistic matching, onboarders use a statistical approach to identify consumers. Leveraging known consumer data with digital behaviors, onboarders create models that weigh attributes (e.g., two pieces of identifying information often seen together) and ultimately produce a score that determines the probability that a consumer represents a particular audience profile.

As digital advertising increasingly seeks to address the individual—as opposed to a geographic area—marketers have moved toward "people-based" matching, which necessitates greater onboarding accuracy than household-level solutions. This has led to increased demand for **deterministic** matching, wherein onboarders use email addresses, device IDs, pixel tags and other match keys to look for an exact match between online and offline data sets. While this may sound relatively straightforward, there are a number of roadblocks to truly accurate deterministic matching including the sourcing, aggregation, cleansing and standardization of both CRM and digital data across various sources and systems. Therefore, it is difficult to find deterministic data sets large enough to accurately match and target audiences at scale today, though third-party providers and onboarders are actively expanding their deterministic universe.

The significant proliferation of smartphones, tablets, beacons and other connected Internet of Things (IoT) devices has made the identity matching process even more complex. The average number of connected devices per person has expanded from three a mere two years ago to an average of seven devices today. The use of more data points, cross-device IDs and device graphs (*more on this topic later*) is critical to accurately identify and reach consumers across all of these devices and touchpoints.

For the foreseeable future, both probabilistic and deterministic matching processes are required: while deterministic may be more precise and accurate, probabilistic better supports scale. Today's onboarding providers use a combination of both approaches, with the mix determined by the quality of the marketers' CRM data, the onboarders' data inputs and, as importantly, the marketers' desired use case.

Use Case	Value	Considerations	Current State*
Digital Display Targeting (includes mobile & video)	+ Supports the deployment of relevant and timely ads to known consumers and prospects (B2C or B2B) across digital properties and devices	− Match rates vary across media deployment partners (e.g., DSPs, ad exchanges, etc.) − In an effort to achieve scale, match rate degradation can (and often will) occur	**Mature**
Walled Garden Targeting	+ Supports "people-based marketing" within the walled gardens of Google, Yahoo, Facebook, Twitter, Pinterest, etc., by matching known customers (owned PII) to these networks' proprietary PII	− Despite highly accurate targeting, walled gardens limit data passback making measurement and attribution a challenge	
Consumer Analytics and Insights	+ Facilitates the development of look-alike and predictive models that leverage online behavioral data, enabling more effective targeting	− While a relatively simpler process, a major pitfall is organizational silos that limit the passing and sharing of information	**Maturing**
Measurement and Attribution	+ Improves cross-channel understanding of digital marketing efforts by tying back offline sales to online campaign exposure, providing a clear picture of ad spend effectiveness	− Requires passing campaign and transactional data between different platforms and systems which is often stalled by technology limitations (e.g., at POS) as well as organizational and data silos	**Emerging**
Site Personalization	+ Powers recognition of non-authenticated users and ability to suppress and/or provide audience-specific content and offers on owned properties	− Requires real-time concurrent coordination of multiple platforms to effectively execute: the integration of platforms across CRM systems, onboarding providers, DMPs and personalization engines is highly complex	
Addressable TV Targeting	+ Extends audience reach and ability to engage consumers across both cable TV and digital devices (video)	− Completely fragmented data and media marketplaces make it difficult to obtain reach (i.e., getting access to set-top-box information requires going to multiple cable providers) − No standardized media buying process as TV buyers are often separate from digital buyers, requiring the transfer of data across silos	

*The term "mature" is relative to understanding and adoption in the onboarding market and not relative to the general data market.
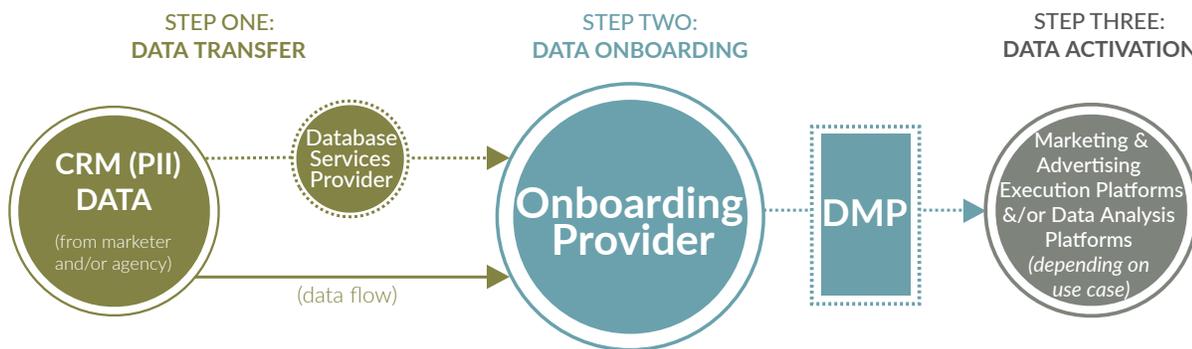
Regardless of the use case being activated, a critical component of developing a successful onboarding program within an organization is the clear identification of an *onboarding owner*. This is the same challenge that organizations have faced with CRM and the expansion of digital data; to make it work best, the data needs to be managed and governed in one place. As marketing organizations continue to evolve and customer data becomes increasingly critical throughout the enterprise, we have seen onboarding owners include corporate IT, digital, marketing, loyalty, media buying, e-commerce and analytics teams (just to name a few). In some cases, this leads to ownership by committee rather than the appointment of a single organizational owner. While the committee structure allows a larger stakeholder group to be involved and therefore foster organizational buy-in, it also potentially limits the agility, speed and effectiveness by which decisions are made.

Over time, onboarding will likely evolve to be managed alongside the DMP and CRM solutions within an organization and not in a "channel silo." In the meantime, it is important to identify onboarding champions that manage relationships with providers and continue to define and enhance use cases.

Consumer data onboarding generally follows a basic process from marketer to onboarder to execution partners (and sometimes back to the marketer), though the exact pathway and providers involved vary by use case. Below, we illustrate how the basic process works: outlining where data flows and noting the provider types that can be involved.

Diagram A: *The Flow of Data Between Providers*

STEP ONE:
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DATA ONBOARDING

STEP THREE:
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CRM (PII) DATA
(from marketer and/or agency)

Database Services Provider

(data flow)

Onboarding Provider

DMP

Marketing & Advertising Execution Platforms &/or Data Analysis Platforms *(depending on use case)*

*Note that dotted lines represent optional steps in the process. Each provider type can be fulfilled by a variety of partners. Process maps are provided for illustrative purposes only.

STEP ONE: As depicted in *Diagram A*, the process of onboarding begins with the marketer or their agency(ies) transferring data to the onboarding provider. This data transfer can occur *episodically*—based on a seasonal campaign, for example; *regularly*—at some interval, whether weekly, monthly, etc.; or *continuously*—in practice, this may be more accurately labeled "daily."

In most cases, the input for onboarding is the marketers' first-party or owned **CRM data**. This data can also be referred to as offline or PII data, as it is typically collected in transactional marketing activities such as in-store and ecommerce purchases, loyalty programs or other compilation approaches and includes personally identifiable information (PII). CRM data is typically stored in an enterprise data warehouse internally (on-site at a marketers' location or in the cloud), at their agency or at a specialized **database services provider**.
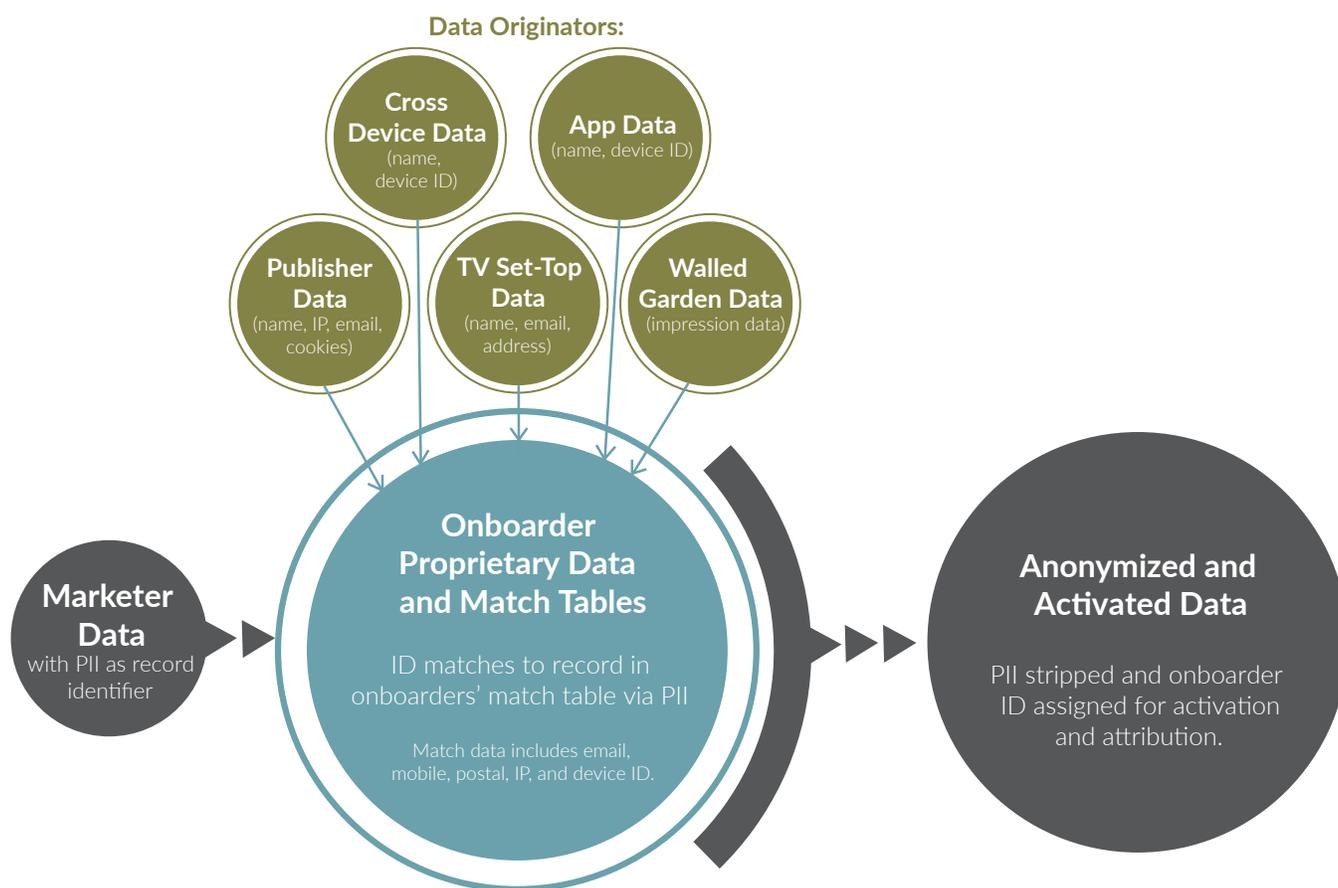
STEP TWO: In the second phase of the onboarding process, the onboarding provider matches the marketers' data to the onboarders' proprietary match tables using one or more common PII identifiers (e.g., email, mailing address, etc.). The records are then anonymized by dropping the PII and are now identified by a unique onboarding ID. These anonymized, matched records are now ready for data activation.

Note that this is where the first match rate is determined: how many of the marketers' records are able to be matched to records in the onboarders' database. This is largely determined by the quality and recency of marketers' dataset, which we later discuss in further detail.

Onboarding providers—including data compilers, marketing service providers and other segments of the marketing and advertising technology ecosystem—amass large data files that contain anonymized, identifying attributes at the individual, household or neighborhood level. They create these files by working with a variety of **data originators**, including digital publishers and, more recently, addressable TV and cross-device identity resolution providers; see *Diagram B*, below, for an illustration of this process. The finer details of match accuracy as well as the privacy regulations and requirements surrounding this relationship are discussed later, but the basic concept is that data originators can monetize the data they collect during the normal course of business (e.g., a person using her email address to log on to a site she subscribes to) by providing that information to the onboarder for a fee.

Diagram B: *A Closer Look at Step Two—The Flow of Data Within Onboarding Providers*

Data Originators:

Cross Device Data (name, device ID)

App Data (name, device ID)

Publisher Data (name, IP, email, cookies)

TV Set-Top Data (name, email, address)

Walled Garden Data (impression data)

Marketer Data with PII as record identifier

Onboarder Proprietary Data and Match Tables

ID matches to record in onboarders' match table via PII

Match data includes email, mobile, postal, IP, and device ID.

Anonymized and Activated Data

PII stripped and onboarder ID assigned for activation and attribution.

STEP THREE: The final step in the onboarding process, data activation, is where the pathways really start to diverge and a wide variety of data activation platforms and partners can be involved. The following pages provide details for the third step by use case, including the providers marketers can leverage for data activation.

Display Advertising Platforms
e.g., DSPs, publishers, private marketplaces, ad exchanges, etc.

In **digital display advertising**, the simplest execution pathway occurs when the marketer (or their agency) sends their data to the onboarder and the onboarder then passes this data directly to a DSP or trade desk for ad serving and deployment. This process can become significantly more complex with the addition of different media partners. For instance, the data can be sent from the onboarder to a DMP that then interfaces with the DSP or directly with publishers, ad exchanges, or publisher/private marketplaces. While more partners adds layers of complexity to distribution, in many cases it is beneficial: the more variety of connections within a broad ecosystem of distribution partners, the greater the potential scale of the audience.

For desktop display, matches are often made at the cookie level; as cookies are only temporary identifiers, there can be a second match rate decline against the publisher file. For mobile display or other cross-device targeting, matches are based on device IDs. Given device proliferation, the ability to manage the scale and complexity now required has led to the existence of cross-device identity resolution providers. The providers offering this service have built **device graphs**: reference tables that associate device IDs with consumers' corresponding online or offline identifying information. While privacy regulations continue to be defined for cross-device data, this is an area of tremendous opportunity and growth in both reach and match rate accuracy for onboarders and their clients.

With digital display targeting, it is important to note that the impression, open and time stamp data is passed back from the media partners to the onboarder. For the onboarder, this data enables more effective measurement and reporting of onboarded segments back to marketers and data companies.

Data Analysis Platforms
e.g., analytics firms, DMPs, etc.

In the case of **consumer insights and analytics**, the goal is to better inform and enhance marketers' lookalike and predictive models. The activation partner in this use case is a third-party analytics provider. This provider can create new models or layer attributes received from the onboarder onto a marketers' existing segmentation, ultimately passing back this analyzed data to the marketer or the marketers' DMP.

In cases where marketers use a DMP, the DMP provides the ability to classify, analyze, model and deploy onboarded data through existing activation partnerships. DMPs offer additional layers of information; for example, additional sub-segments that marketers can target on their own via email, direct mail, etc., or activate with partners in the digital media ecosystem via display advertising. While the use of a DMP may provide greater insight, it is limited to matching on device ID or cookie, as DMPs do not (and, in fact, cannot) contain PII. Many of the analytics services provided by DMPs are beginning to be offered by onboarders in-house as they seek to provide clients with additional value.

Measurement & Attribution Platforms
e.g., attribution tools, analytics firms, DMPs, etc.

Industry leaders note that the **measurement and attribution** use case is growing rapidly in both demand and sophistication as marketers seek to better understand how their data is performing. Here, the onboarder passes anonymized data back to the marketer (which cannot be de-anonymized) so the marketer can analyze segments and attempt to close the loop between data targeting and campaign results. This is usually done in conjunction with an attribution partner.

As an alternative, this data can also be passed back to a DMP with the analysis done through a combination of the DMP and attribution partner.

Personalized Marketing Platforms
e.g., CMS & CRM platforms, campaign management tools, personalization engines, etc.

As marketers aim to deliver more one-to-one customer engagement, **site personalization** through creative and content has emerged as an onboarding use case. In this case, the onboarder passes data to the DMP, which connects to personalization platforms (or an agency that manages these platforms on behalf of the marketer). This process allows marketers to optimize creative, offers or media to deliver personalized digital experiences in real-time on the brand's owned properties, including websites, emails or other communication channels.

While still nascent, this use case is expected to experience rapid adoption as marketers, onboarders, agencies and third-party solution providers increase their ability to dynamically optimize and customize experiences.

Addressable Television Providers
e.g., MVPDs (cable and satellite TV providers, etc.)

Addressable TV targeting is perhaps the newest application for onboarding and the furthest from scaled activation, though it represents a significant opportunity for marketers. Addressable TV providers serve as the media activation partners; this effectively functions like a private exchange. Addressable TV providers can build the capability to onboard marketers' data directly; that is, without the use of a third-party onboarding provider (though this is still in the early stages of adoption).

The fragmented nature of the TV ecosystem has created a set of challenges for broad adoption. First, addressable TV providers are reticent to release their data, which they consider highly proprietary, constrained by privacy limitations and a significant source of competitive advantage. Second, there is limited addressable inventory available from the TV providers for programmatic and, third, the technology needed for agencies, DSPs and trading desks to deliver these ads is still being developed.
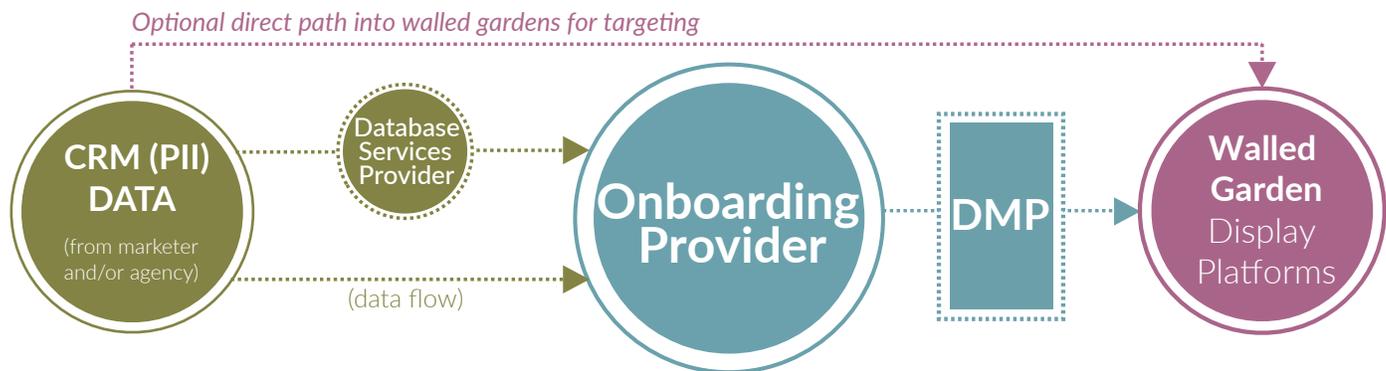
Walled Gardens
e.g., Google, Yahoo, social networks, etc.

Walled garden targeting is unique in that it is the only pathway where marketers can onboard data directly to the activation partner, rather than using a third-party onboarding services provider as an intermediary step.

We have illustrated this additional pathway below, in *Diagram C*.

Diagram C: *Walled Garden Targeting*

Optional direct path into walled gardens for targeting

CRM (PII) DATA (from marketer and/or agency) → Database Services Provider → (data flow) → **Onboarding Provider** → DMP → **Walled Garden** Display Platforms

With walled garden targeting, marketers have two options for execution. The first is that a marketer can opt to bypass the onboarder and upload their file directly to the walled gardens' self-service platforms to match their customer records. (See the optional direct pathway in *Diagram C* above.) The match key used in this case is typically email and since consumers often have multiple email addresses, it is likely that a certain percentage of marketers' records will not match and fall off.

The second option is to use an onboarding provider, which allows for a single, consistent upload across all advertising platforms (rather than uploading the same file to multiple partners). This may add time and expense to the onboarding process but can provide higher match rates to the walled garden data sets using the same marketer file. The reason is that the onboarder is able to match the marketers' records across a number of different match keys, most of which are data fields *not* collected by walled gardens. The record identifiers are then appended by the onboarder and linked with the walled gardens' corresponding identifiers with no match rate drop-off. Additionally, many onboarders offer pre-built segments which marketers can use for targeting without having to share their PII directly with the walled gardens. Depending on the need for accuracy and scale, marketers should weigh the benefits of using an onboarder against the additional cost.

Compared to onboarding in the general digital environment, walled garden onboarding offers relatively higher match rates and greater match accuracy as consumers log into these networks frequently with their primary email address. One meaningful limitation to walled garden onboarding is that the providers do not pass the match data back to the marketer – hence the issue with the "walls" inhibiting attribution and requiring marketers and agencies to rely on the networks to provide insight into campaign performance.

When deciding to onboard, a top consideration for marketers is—and will continue to be—the balance between **accuracy** (i.e., *are the online identities being linked to my offline profiles correct?*) and **reach** (i.e., *how many of my offline profiles can be linked to online identities?*).

While reach is determined by the size of an onboarder's data network, accuracy requires providers to have high quality match partners for sourcing. Sites with consistent traffic that require login upon entry wherein users effectively verify their digital identity with each session are likely to have the highest degree of accuracy. These include: ecommerce sites where identity authentication and financial transactions have occurred, social media networks where a real identity is typically critical to a person's social circle as well as subscription-based websites, paid mobile apps and games. The next tier of data sources is comprised of media- and information-focused sites that may rely on cookies, which lose their value over time as consumers periodically clear their browser history and survey or remnant sites, which may be linked to consumers' tertiary email addresses–whose inboxes largely go unchecked. *The more often a consumer uses and authenticates on a digital property, the higher the potential match accuracy.*

Diagram D: *Publisher Hierarchy*

Higher accuracy publishers *

- Social media
- Subscription-based publishers
- High-quality publisher properties (e.g., surveys)
- Remnant properties with forced login
- General digital properties

*Publishers can take on many forms, including websites and mobile apps.

Marketers are often forced to make tradeoffs in the balance between reach and accuracy when onboarding. The tradeoff is highly dependent on the marketers' objective. For instance, if a marketer wants to drive awareness using display advertisements, they are likely to push for reach. In personalization and performance use cases, accuracy is the priority.

In order to achieve the broadest and most accurate reach, many marketers are turning to multiple onboarding providers in a waterfall methodology. While this adds cost, it also provides marketers the potential for an incremental lift in match rates, thereby reaching more of their customers.

Understanding what onboarding providers consider a match is critical for marketers evaluating different onboarding partners and approaches. Marketers and service providers should have clear answers to the following questions:

1. How do match partners calculate their match rate? *(E.g., does a provider consider a nontraditional cookie environment such as Safari as part of the total population in their calculation of match rate?)*
2. How do match partners define a match? *(E.g., if two emails addresses are matched to the same record, does that constitute one or two matches?)*
3. How frequently should we update our matched file based on our current and planned use cases and what are the pricing implications of this frequency?
4. How frequently do match partners refresh their data source files? *(E.g., have cookies been active recently enough to ensure the consistent traffic I need to reach my consumers?)*

Onboarding providers report that uploading customer data weekly is the standard, but many note that monthly may be sufficient depending on a marketers' use case and the corresponding requirement for accuracy. While daily may seem like the best way to guarantee accurate data and increase the likelihood for high match rates, industry leaders and providers note that many marketers do not engage in daily transfers due to increased cost and the limited incremental match lift associated with that cost.

Diagram E: *The Relationship Between Cost, Frequency and Accuracy*

> *Accuracy is determined not only by the quality of the publishers and their user data but also by how frequently a marketer's file is uploaded to an onboarding provider, ensuring data recency.*
>
> *That is, how often is a marketers' customer information being sent to an onboarder for matching?*
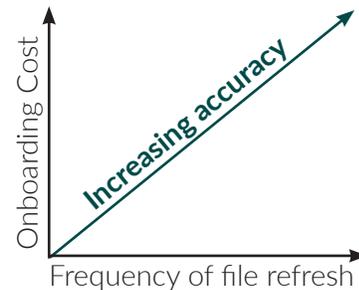
While cost per record is the most common cost structure, pricing models vary by provider and can include:

- Fees based on number of matched (onboarded) records per data transfer
- Flat-fee, monthly subscription
- Minimum monthly fees with additional volume-based pricing
- Usage-based pricing *(i.e., charge on the onboarded records used per campaign)*
- Charge per media (CPM) bundled with an onboarding fee

Outside of core onboarding service fees, providers are also beginning to offer value-added services such as insight generation, modeling, data hygiene and custom segmentation. These additional services further enhance providers' ability to support marketers' objectives and can serve as an added benefit of increasing accuracy and reach.

The range of pricing models underscores the fact that onboarding is still in its early days. Ultimately, providers and marketers are seeking predictability (in revenue and spend, respectively). While the goal of predictability supports the flat-fee model, as providers—and the use cases they support—mature, marketers can expect to see additional pricing models as well as complementary value-added service packages emerge.

Given that the goal of reaching consumer audiences online must be balanced with optimizing spend and enhancing efficiency, it is also important to note who, from the perspective of providers, should not necessarily consider onboarding. Providers note that marketers with customer files containing less than two million records may not immediately realize significant return due to scale and should thus consider using alternative providers including DMPs that can ingest, classify, analyze and model customer data. Modeling allows marketers to clone their CRM data and build segments of online consumers that look like their existing customers, ultimately helping to achieve the scale required to onboard. Additionally, marketers can work with aggregate data resellers to augment files to reach the size needed to obtain value from onboarding.

Additionally, marketers that primarily collect sensitive consumer information (e.g., medical history) should likely not look to onboard. While onboarding creates significant opportunity to expand accuracy and reach, onboarders and marketers must ensure that they are not targeting consumers based on sensitive or presumed information.

The use of sensitive PII data is just one consideration that marketers must factor into their data onboarding strategy. While industry standards are being developed and formalized, leading legal practitioners note a number of considerations regarding privacy and regulation important for marketers:

INCLUDE PROPER NOTICE AND PROVIDE CONSUMERS WITH CHOICE: Consumers should be provided with *effective notice* that their data may be used for third-party behavioral targeting as well as provided with *meaningful choice* about the collection and use of their data on or from all devices and screens. (*Effective notice:* posting both comprehensive privacy policies that explain complete data practices and short "just-in-time" or "unavoidable" notices that provide consumers with relevant information on data uses that would otherwise surprise them; *meaningful choice:* giving consumers the ability to make a choice at appropriate inflection points.) Marketers should determine whether such choices should take the form of *affirmative consent*, *informed consent*, or *notified opt-out* based on the effectiveness of the notice and the benefit to the consumer of the data use relative to the cost of the functionality to the consumer experience. The standard industry practice is that all involved parties (i.e., marketers, publishers, platforms, etc.) include the ability to opt-out alongside language in their privacy policies that clearly specifies what consumer information is being collected, how it will be used, and who it will be shared with. *It is critically important that privacy policies include this basic disclosure.* For any practice that might surprise the consumer—for example, combining PII data with previously collected non-PII data—marketers should select the notice and choice method that is effective and meaningful from a consumer experience and expectation perspective.

ENSURE COMPLIANCE WHEN LEVERAGING NON-OBA DIGITAL DATA ACROSS ONLINE AND OFFLINE CHANNELS: Questions remain as to whether marketers can use non-OBA (online behavioral advertising) information, such as hashed email addresses, for use in offline campaigns and whether hashed emails should be referred to as PII—to the extent that it is still a practical distinction to make (that is, in the U.S.). The PII vs. non-PII distinction becomes an even more critical consideration when statutory schemes govern personal information, such as for medical records (i.e., "PHI" under HIPAA) or financial records (i.e., "NPI" under the Gramm–Leach–Bliley Act or "GLBA").

RESEARCH AND ADAPT TO LOCAL REGULATIONS: Companies whose audiences and customers span multiple countries and regions should consider the implications for *each* country, as laws vary and may extend outside of the physical boundaries of a particular country.

DO NOT DE-ANONYMIZE BEHAVIORAL INFORMATION: Marketers cannot de-anonymize behavioral data that has been appended to their records. In general, once PII is dropped, the record must remain anonymous although general information, like broad segments, can be passed back attached to the rest of the record. In specific cases like attribution, pre-existing PII (i.e., that data which the data provider/marketer already had and "pushed" to the onboarder) may be passed back to the data provider/marketer in order to identify the record for analysis—though individualized behavioral data (i.e., data on a consumer drawn from website activity) is *not* shared.

While the list above posits several significant considerations, inclusive of evolving privacy regulations and definitions of PII among other considerations, it is not comprehensive. Marketers and service providers should regularly refer to the leading industry associations and professional groups listed below—as well as law firms with attorneys experienced in data privacy and security issues—for information on regulatory updates.

HELPFUL RESOURCES:
Data & Marketing Association (DMA): https://thedma.org/
Digital Advertising Alliance (DAA): http://digitaladvertisingalliance.org/
Interactive Advertising Bureau (IAB): https://www.iab.com/
Network Advertising Initiative (NAI): http://www.networkadvertising.org/

Given the rapid adoption of onboarding services over the last three years, analysis of public financial documents and interviews with industry leaders on both the marketing and service provider side, Winterberry Group estimates that the onboarding market is approximately $250 million with a 50% year-over-year growth rate in 2016. This growth rate will continue, with revenues expected to exceed $1 billion by the end of 2020 for the U.S. market.

This outlook depends upon a number of factors, including:

BREAKING DOWN ORGANIZATIONAL SILOS: Marketers often cite organizational silos as a factor that significantly inhibits their ability to effectively onboard. Often, the team that manages the CRM file does not work directly with the digital teams looking to activate the data in support of prioritized use cases. Or, in other cases, robust analytics data from agencies is not seamlessly passed back to the marketer for CRM enhancement. While breaking down organizational silos is a tall task, reducing friction between in-house departments and agencies will help to maintain rapid growth in the onboarding market.

GROWTH OF CRM DATABASES FOR USE CASES OUTSIDE OF DIRECT MAIL AND EMAIL: As marketers continue to prioritize the growth of owned data assets by collecting data on their customers at a high velocity, CRM databases will grow and so too will the number of media channels that can be activated using CRM data. Additionally, marketers' increasing adoption of DMPs will greatly facilitate onboarding growth.

MARKET EDUCATION: For the market to continue to grow, service providers must provide ongoing education to inform marketers about onboarding use cases and opportunities. This includes developing case studies that demonstrate the benefits of first-party marketer data flowing through the entire marketing technology ecosystem, as opposed to relying only on third-party behavioral data. Establishing and embracing a test and learn culture that seeks to leverage and extend marketers' historically well-performing segments will support market growth.

MATURITY IN THE ADVERTISING AND MARKETING TECH ECOSYSTEM: In a rapidly evolving advertising and marketing technology ecosystem, process gaps have developed between brands, agencies, onboarding service providers, and the platforms that enable data activation. These gaps have limited the fluidity of data handoffs and have enabled breakages that lead to delays and data loss. A more robust organizational understanding of the platforms and processes that move data between these entities will drive continued adoption.

SPEED OF TECHNOLOGICAL INNOVATION AND ADVANCEMENT: As the onboarding market is currently concentrated in a number of leading service providers, new market entrants will look to reach marketers that haven't yet considered onboarding and continue to spur disruption. As providers continue to enhance and optimize their offerings, many will tout activation of specific use cases and focus less on a tradeoff between accuracy and reach.

As the market matures, demand for *both* accuracy and reach in a privacy compliant manner will drive differentiation between providers and provider types. For providers without *either* accuracy or reach, their competitive position will be diminished and their pricing leverage will suffer. However, this should not lead to commoditization of the onboarding services market. Providers who seek to capture long term market share and mitigate competitive pressure will enhance their accuracy, extend their reach across people, devices and "things," or offer value-added services along with onboarding to drive differentiation.

Winterberry Group also expects:

MOVEMENT FROM COOKIE-BASED MATCHING TO IDENTITY-BASED MATCHING: As providers look to enhance their offering and drive differentiation, many will look to match based on more persistent identifiers (such as mobile device IDs) in an effort to drive more accurate and deterministic matches that can increase the effectiveness of data activation.

PREDICTABILITY IN PRICING: Marketers aim for predictable and effective spend while service providers seek predictable revenue. While more pricing models may emerge over the near term, ultimately the market will move toward a flat-fee pricing model where marketers pay on a subscription or per-usage basis.

SHIFT TO REAL-TIME MATCHING: As a method of driving differentiation, onboarders will look to offer real-time matching and identity creation. Delivery of real-time is predicated on marketers' ability to consistently provide clean and match-able data, onboarders' ability to develop the technological infrastructure to ingest and process data, as well as executional partners' ability to activate the data in real-time, whether for media, attribution or personalization use cases. Due to real-time execution ultimately requiring the optimization of processes across three distinct entities, this is likely a long-term evolution.

While the consumer data onboarding market is still undergoing rapid growth, we expect the market to mature in the next couple of years with targeting use cases remaining core, analytics and attribution rising in importance and increasing application of onboarding to emerging trends within the marketing and advertising landscape, like addressable TV.

In the meantime, marketers should explore onboarding by working with privacy experts to ensure adherence to best-practice guidelines and with providers to understand how onboarding can support marketing and advertising use cases, advance strategy and ultimately **create value for their organization**.

WINTERBERRY GROUP is a unique management consulting firm that supports the growth of advertising, marketing, media, information and technology organizations—helping clients create custom strategies, capitalize on emerging opportunities and increase their value.

FOR BRANDS
MARKETING AND DATA TRANSFORMATION:
Our process mapping, marketplace benchmarking, holistic system engineering, use case analysis and vendor selection/RFP management offerings are grounded in deep industry insights and "real-world" understandings—with a focus on helping marketers and media companies better leverage their core assets and respond to growing demands for transformation driven by the emergence of data, digital media and marketing technology.

FOR SUPPLIERS
BUSINESS GROWTH STRATEGIES:
From current situation and gap analyses to our proprietary *Opportunity Mapping* strategy development process (which considers organic, partnership and acquisition growth pathways), WG has provided support to more than 200 agencies, marketing service providers, technology developers and other firms in their efforts to prioritize options that are addressable and will drive increasing shareholder value.

MARKET INTELLIGENCE:
Our comprehensive research on industry trends, vertical markets and evolving value chains provides in-depth analysis of key demand drivers, market developments and potential opportunities. With nearly 40 white papers and dozens of articles published, WG builds actionable market insight for a department, a company and the industry as a whole.

TRANSACTION DILIGENCE:
Both financial and strategic investors turn to WG to provide strategic and operational diligence in support of their potential acquisitions in the advertising, marketing and media industries. Our target assessment and industry landscape research provides insight into trends, forecasts and comparative transaction data needed for reliable financial model inputs that lay the foundation for value-focused ownership.

Additionally, Winterberry Group is differentiated through its affiliation with Petsky Prunier LLC, the leading investment bank serving the technology, media, marketing, ecommerce and healthcare industries. Together, the two firms provide one of the largest and most experienced sources of strategic and transactional services in their addressable markets.

For more information, please visit **www.winterberrygroup.com**

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