

The Knowledge Fabric from Pitney Bowes: A Platform for Customer Context Management

The foundation for a differentiated customer experience – multidimensional addressability

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Summary

Catalyst

Just two years off from its centenary and Pitney Bowes has built on its heritage of accurate location addressing to provide a mechanism to weave together accurate data to enrich customer profiles to help businesses improve their decision-making and create more value for their customers. This goes way beyond location data and works on the premise that everything is digitally addressable – people, places, and things. Each of the thousands of potential attributes that can be accurately mapped and associated with an individual customer can be woven together to create what Pitney Bowes calls the Knowledge Fabric. Unique to each enterprise, the Knowledge Fabric offers a foundation for differentiation.

The Knowledge Fabric builds on the company's customer information management capabilities through its Spectrum Technology Platform; customer engagement solutions with its EngageOne Communication suite, which includes EngageOne Video; location intelligence solutions; and newly expanded arsenal of geo-enriched data-as-a-service offerings. The Knowledge Fabric is a way of expressing the benefits that the combination of these solutions brings to clients seeking to understand and engage with their customers in the context of their location.

This will appeal to enterprises struggling to create unified access to accurate customer information, often hidden and fragmented across multiple systems, and those that need to enrich contextual data with accurate location intelligence.

Ovum view

Ovum's annual global research study, *ICT Enterprise Insights 2017/18 – Global: ICT Drivers and Technology Priorities*, found that, even though customer experience was cited as a top digital transformation initiative, more than 80% of enterprises in every industry and sector had made little progress. In comparison with the previous year's research results, the needle had barely moved.

One major barrier to progress is the inability to create an accurate and unified view of the customer. While CRM vendors have promised a 360-degree view of the customer ever since CRM systems became generally available in the 1990s, the reality is that these systems rarely delivered. At best, information was transactional and yielded little contextual insight.

Critical to the success of any omnichannel strategy is the ability to orchestrate relevant information and content throughout each customer's journey. That cannot happen without a foundation of accurate data synthesized from historical transactional data sources and real-time contextual data. Pitney Bowes is therefore addressing a fundamental problem that too many enterprises and CRM vendors have ignored.

While Pitney Bowes can address this customer information management challenge and augment contextual information with its location intelligence capabilities, it has struggled for visibility in the marketplace. One reason for this was its confusing array of products and mix of product names. It has addressed this issue, and the concept of the Knowledge Fabric will appeal much more to nontechnical businesspeople.

Key messages

- Pitney Bowes' portfolio rationalization reveals its twin growth engines.
- The Knowledge Fabric weaves attributes together to generate accurate and timely contextual insights.
- Pitney Bowes' customer communications products are useful but not transformative.
- Its partner strategy should include CEP providers and collaborative commerce networks like SAP Ariba.

Recommendations

Recommendations for enterprises

Customer information is the lifeblood for digital customer engagement. Most enterprises struggle to unify customer data and generate insights from it. The age of unstructured big data compounds that challenge. Pitney Bowes' Spectrum Technology Platform for customer information management overcomes this challenge, and the company is progressing rapidly with its data marketplace to help businesses weave together first-party data, its own location intelligence, and curated third-party data sets to meet the needs of businesses and public sector clients alike. Those enterprises seeking to unify customer data and deliver a genuine omnichannel customer engagement capability should consider the potential of Pitney Bowes to develop the foundation for contextually relevant personalization. Enterprises such as insurance companies setting premium rates or retail companies considering where to site stores will find the geospatial insights and intuitive visualization of geospatial data of great value in mitigating risk and maximizing investment. Although Pitney Bowes is focused on six core markets – finance, healthcare, local government, insurance, telco, and retail – the concept of the Knowledge Fabric is just as relevant in any other industry.

Recommendations for vendors

Recommendations for digital service providers (DSPs)

Pitney Bowes could be a valuable partner, especially for DSPs where everything is potentially addressable, including people, places, and things. As DSPs evolve and innovate, intelligence provided by good-quality customer information and augmented by relevant third-party data sets will be useful for driving innovation and targeting offers at the right people and at the right time and place.

Recommendations for customer engagement platform (CEP) vendors

Many vendors, from major advanced CRM vendors to former marketing automation and contact center vendors, are converging on the emerging CEP opportunity. Most organizations are unaware of this nascent art of the possible and are still at the early digital transformation stage in their development. This promises to be one of the most significant growth opportunities in the coming years, and CEP vendors could strengthen their offerings by partnering with Pitney Bowes.

Pitney Bowes' portfolio rationalization reveals its twin growth engines

Pitney Bowes builds on its heritage and plays to its strengths

At its Analyst Summit in April 2018, Pitney Bowes explained its portfolio rationalization aimed at leveraging its heritage and focusing on its core and differentiated strengths. With nearly 100 years of accurate address data in around 250 countries, this knowledge has now moved beyond its traditional mailing systems and is having an impact in commerce and customer information management. At the previous analyst summit in 2017, the Pitney Bowes portfolio was difficult to understand. It seemingly consisted of a mix of platforms, tools, and disparate product names that were confusing. The firm has now fine-tuned its portfolio to focus on its two growth engines of customer information management and location intelligence, with address-oriented data services underlying everything. Another area of focus for the company is customer communications solutions through its EngageOne portfolio, which offers some innovation in self-service communications but is unlikely to generate the ambitious growth targets Pitney Bowes seeks.

While many may be familiar with Pitney Bowes' mailing business, the company's software business is less well known. This more focused solution portfolio is timely, and although it is targeting finance, insurance, local government, retail, and telecoms, where it is rapidly gaining adherents, it ought to appeal to any enterprise seeking deeper insight into its customers to generate growth.

The Knowledge Fabric weaves attributes together to generate accurate and timely contextual insights

The Knowledge Fabric resonates with customers

The Knowledge Fabric concept has been tested on existing customers, and the overall conclusion is that it is a very relatable idea, particularly among nontechnical businesspeople. Given the critical importance of a coherent customer engagement strategy supported by data and insight, allied to an equally coherent customer-centric organization, this is a welcome step forward on the otherwise arcane and technical topic of customer information management.

It is easy to see why a foundation of accurate customer information is essential for delivering a personalized, relevant, and differentiated customer experience. But for most enterprises, this remains a very tough nut to crack when customer information is fragmented among multiple systems, from finance to CRM, and across disparate engagement applications in contact centers or commerce platforms.

The Knowledge Fabric goes beyond transactional to contextual information, which makes it valuable

A related challenge most enterprises face is that information recorded about customers is usually transactional by nature and, as a result, yields little contextual insight. Once the base customer information is aggregated, addressable, and fit for use, it can be augmented with real-time data from

interaction data gleaned from various engagement systems, website traffic, and third-party data, which can be hit or miss if the data sources are out of date or inaccurate. This is where Spectrum comes into the picture.

Spectrum does the heavy lifting and underpins the Knowledge Fabric

Pitney Bowes' customer information management platform, Spectrum, does much of the heavy lifting to provide the foundation for the Knowledge Fabric. Built on a graph database that is optimized to explore entity relationships, Spectrum provides a portfolio of tools to help enterprises extract, clean, synthesize, and augment customer data, structured and unstructured, from all transactional and engagement systems and data warehouses or data lakes. It also enables Pitney Bowes' clientele to gain a single view of their customers in the context of their location. On the premise that everything that exists is addressable in some way, this allows enterprises to develop highly sophisticated attributes associated with their customers.

Spectrum can ingest data from any enterprise system through APIs and uses sophisticated data quality algorithms to synthesize and organize customer data to make it useful. Information governance to meet local and regional compliance legislation, such as GDPR, is also provided.

Workflow and business rules support automated triggers and event management, so that changes detected or new information provided can be used to trigger an appropriate reaction in adjacent systems, such as customer service, content management, and sales and marketing, or alert the fraud or security department if fraudulent or hostile intent is detected based on behavioral patterns.

Deployment choices include on premises, private and public cloud, and hybrid options.

Pitney Bowes creates a data marketplace to augment contextual information

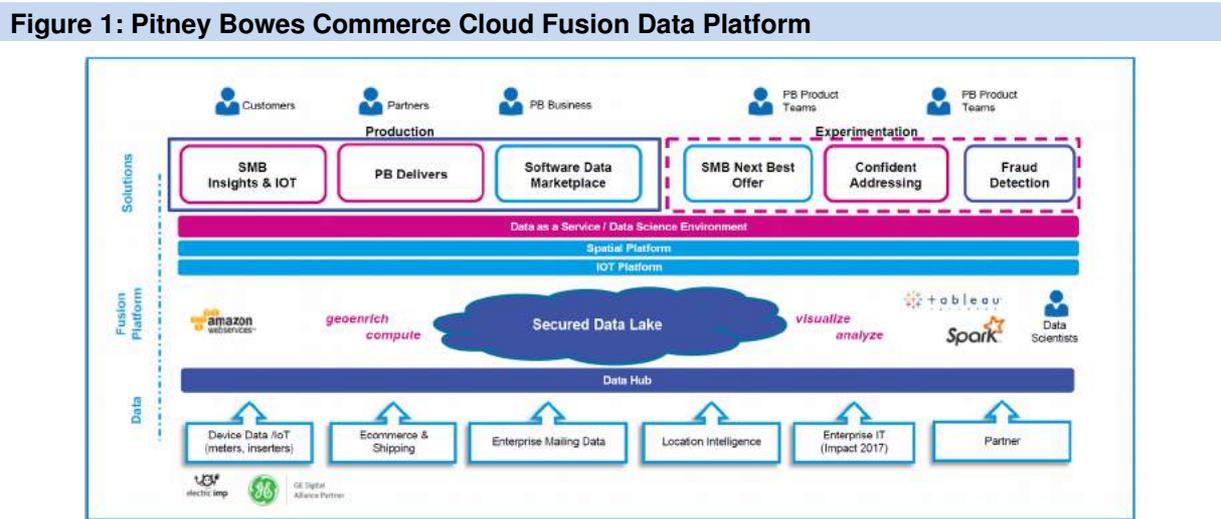
While Spectrum helps solve the first-party data challenge when combined with the Commerce Cloud Fusion Data Platform, it also enables enterprises to enrich their customer data with Pitney Bowes' global store of location and geospatial data and a wide selection of curated third-party data consisting of some 4,500 data sets. The company has made great strides in simplifying the experience for businesses, end users, and partners. This is a result of its innovation investment, which is focused on three related areas:

- design, data, and cloud enablement
- operational execution
- innovation hotspots

Like many forward-thinking software vendors, Pitney Bowes has embraced Agile development and design thinking to optimize usability and to create a subscription platform business that is easy to consume and use and is central to its commerce cloud ambitions. Design considers the needs of different end users. Data quality and integration are also essential components of the Knowledge Fabric. Continued investment in Spectrum and broadening its addressability to capture data around people, places, and things (IoT related) and provide intuitive visualization to explore relationships and generate usable insights have made the platform much simpler to use.

Pitney Bowes' data ambitions also extend to third-party partners, and investment in APIs has made it much easier for them to incorporate data supplied by Pitney Bowes in their own solutions. One partner managed to integrate the Pitney Bowes DaaS solution in 20 minutes, whereas, prior to the architecture modernization, it would have taken up to six months. By making it so much easier to consume, through partners or directly as in an online subscription business, Pitney Bowes' DaaS is

rapidly morphing into a data marketplace. Figure 1 outlines the modern cloud-based unified architecture.



Source: Pitney Bowes

Pitney Bowes leverages its location intelligence software and geospatial data to add insight

Over the past 12 months, Pitney Bowes has invested in its software portfolio tremendously and has seen growth in six key areas. The company has released a completely re-engineered version of MapInfo Pro with key user experience enhancements. In web and mobile mapping, Spectrum Spatial Analyst provides users and partners with the flexibility to customize the application to address customer- or industry-specific workflows. Most significantly, the company released 15 geospatial APIs focused on exposing both their underlying mapping and geocoding technology as well as geospatial data. Of importance to many enterprises is how the company is positioning its solutions for the growing big data market. Pitney Bowes has released several modules of its Spectrum platform to run natively in a Hadoop framework. The company says that it is a solution that provides users with the ability to perform spatial analysis, geo-enrichment, and visualization where the location-based data lives, taking advantage of the performance and scalability of the big data technology environment. Pitney Bowes continues to invest heavily in its industry-leading geocoding solution, which has resulted in improved precision, accuracy, and performance. But a key differentiator could be the introduction of a unique ID (pbKey) for each addressable location in what the company calls its Address Fabric. Finally, Pitney Bowes has introduced its successful intelligent infrastructure management solution into the US market, where it is tackling the challenges facing departments of transportation at the state and local levels.

In addition, Pitney Bowes provides a variety of geospatial data that can be used to validate customer information and identify potential market segments, to target or reduce risk in siting retail stores based on the local demographic information or enhance actuarial underwriting risks associated with potential catastrophic risks, such as proximity to fire risks, among other uses.

Examples of geospatial data include

- accurate geocoding in more than 240 countries and territories; of those, 120 countries have highly precise "roof-top" geocoding

- current and historical data associated with a specific location
- geospatial and topographical data, which, given its accuracy, has the potential to be used for drone-based deliveries as well as more traditional delivery methods
- overlay information to provide multiple layers of data that might inform potential risks or opportunities that might otherwise remain hidden.

Using the Spectrum GeoEnrichment Module, master location data adds a unique, persistent pbKey to each address and named location to simplify linking to many Pitney Bowes and third-party data sets. In line with the company's mantra that everything is addressable, the pbKey provides the means to link Pitney Bowes' location intelligence with more than 1.3 billion digital personas gleaned from social media to provide microsegments for marketing communications. It also provides a mechanism for keeping address data up to date. The pbKey can be stored, and by performing a reverse pbKey lookup, the latest address can be found to update customer records.

The complete management of customer information, allied to contextual enrichment from customer interaction data and a selection of the most appropriate Pitney Bowes location intelligence and/or third-party data sets, creates the unique Knowledge Fabric for the client enterprise.

While Spectrum and additional data can be bought separately, the Knowledge Fabric will be a compelling concept for many enterprises.

Pitney Bowes' customer engagement solutions are useful but not transformative

EngageOne Video makes the complex simple and interactive

A third category of solutions from Pitney Bowes is a portfolio of customer communications and engagement solutions that go under the brand name of EngageOne. These enable enterprises to create and deliver personalized and interactive video content, which can be useful in providing easy-to-understand information about complex products. EML Mutual, founded in 1910, provides a workers' compensation scheme in Australia for workers injured in the course of their jobs. Details on how to claim compensation or take advantage of rehabilitation care are included in policy documents; however, conditions, exceptions, and processes can be difficult to understand because of their complexity. EngageOne Video is used to remove the anxiety in finding out what is covered following an industrial accident, and EML has completed successful trials that back up its strapline, "We help people get their lives back."

On May 9, EngageOne Converse, which enables enterprises to communicate with customers via SMS, was added to the portfolio. Again, it is useful but, in comparison with products delivering the Knowledge Fabric, can be seen as icing on the cake, rather than a critical component of omnichannel customer engagement plans.

Its partner strategy should include CEP providers and commerce networks like SAP Ariba

Partners are essential for Pitney Bowes if it is to meet its year-on-year growth targets. Improvements in product design and the relative ease with which its solutions can be combined with partner solutions via modern APIs will contribute to the goal of generating 40% of revenues via partners. While systems integrators are an obvious route to market, the firm should consider expanding its OEM coverage, and the emergence of customer engagement platforms offers high potential bandwidth.

Customer engagement platforms – an emerging solution category

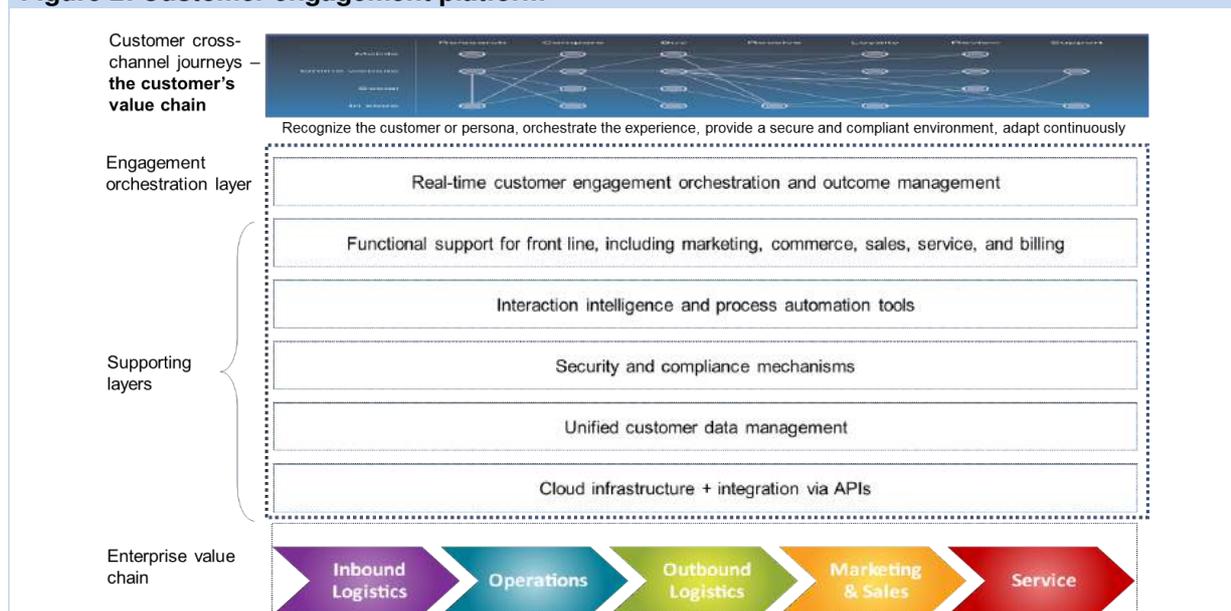
The rise of omnichannel, fueled by consumer behavior, is driving demand for businesses to move beyond transactional CRM systems to customer engagement platforms. A web search will uncover hundreds of vendors purporting to provide CEPs; however, Ovum research reveals that around 85% to 95% of these are what can be described as narrow-scope CEPs, limited to supporting a single department.

Ovum defines CEP as

- a platform that enables an enterprise to coordinate and orchestrate all customer engagement activities across its value chain, in a way that delivers a symbiotic set of outcomes:
 - a consistently positive customer experience (across all customer journeys and irrespective of channels used by the customer)
 - revenue growth

Ovum's definition is a broad scope and consists of five enabling "layers" which culminate in a sixth layer to deliver real-time, contextually relevant orchestration to support all customer interactions, irrespective of channel or journey path (see Figure 2).

Figure 2: Customer engagement platform



Source: Ovum

The *Ovum Decision Matrix: Customer Engagement Platforms 2018–19*, which is expected to be published later this summer, will include the more advanced CRM vendors and other vendors with different heritages that have converged on this new opportunity area.

The Knowledge Fabric fits well with the five supporting layers:

- cloud-enabled and integration via APIs
- Spectrum for the unified customer data management layer
- security and compliance layer for its GDPR support
- interaction intelligence and process automation tools for automation to trigger and events and its Graph-based intelligence and analytics to provide additional contextual insight
- functional support layer for self-service and service support for the EngageOne portfolio of products

The OEM route could be mutually beneficial, providing an additional route to market for Pitney Bowes and strengthening the CEP vendor's platform.

Commerce networks like SAP Ariba offer a high growth opportunity

The SAP Ariba Network brings buyers and sellers together and is the world's largest commerce network by transaction volumes. In 2017, more than \$1.6tn in transactions passed through the network, and it has over 3.3 million enterprises using the network. SAP Ariba is already partnering with market data providers, and Pitney Bowes' location intelligence data would be a useful addition. It would also greatly increase Pitney Bowes' visibility among B2B companies, many of which would also be struggling to solve their customer information management challenges.

Pitney Bowes Software finds its place by focusing on high value add and complex customer data management

Customer information management is unsexy but fundamental to customer engagement success. Pitney Bowes is doing more than most to meet this challenge, and with the Knowledge Fabric, it has added some sex appeal to boot.

Appendix

Methodology

This report is largely based on primary research, face-to-face meetings, and some secondary research sources. Pitney Bowes Analyst Summit in April 2018 provided insight and documentation that Ovum was able to understand and assess. Supplementary data on emerging trends is based on Ovum's primary research sources.

Further reading

ICT Enterprise Insights 2017/18 – Global: ICT Drivers and Technology Priorities, PT0099-000002 (September 2017)

SWOT Assessment: Pitney Bowes' software solutions portfolio, IT0020-000267 (April 2017)

Market Landscape: Customer Engagement Hubs, IT0020-000264 (April 2017)

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