



STRATEGY MEETS ACTION

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## **Insurance Data Quality & Enhancement: *The Promise and the Peril***

*Featuring as an example:  
Pitney Bowes Spectrum™  
Technology Platform*

### **An SMA Perspective**

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*This perspective is based on SMA's ongoing research  
on the role of data in insurance and IT.*

*Pitney Bowes has purchased distribution rights.*



### About This Perspective

This perspective is based on SMA's experience, research, and insights.

Pitney Bowes has purchased the distribution rights to this research and perspective. This is not paid-for research.

## Table of Contents

<b>Executive Summary</b>	<b>3</b>
<b>Data: The Promise and the Peril</b>	<b>4</b>
<i>The Best of Times</i>	
<i>The Worst of Times</i>	
<i>Critical Dimensions: the Role of Data</i>	
<b>Business Capabilities: The Data Dimension</b>	<b>5</b>
<i>Key Business Activities of an Insurer</i>	
<i>Data Requirements for Business Activities</i>	
<b>Technology Capabilities: Focus on Data</b>	<b>7</b>
<i>Enterprise Data Platform</i>	
<b>Pitney Bowes Spectrum Technology Platform</b>	<b>10</b>
<i>Company Overview</i>	
<i>Breadth of Offerings</i>	
<i>Spectrum Functionality</i>	
<b>SMA's Strategy Meets Action Commentary</b>	<b>13</b>
<b>About SMA: Strategy Meets Action</b>	<b>13</b>



## Executive Summary

Data is clearly one of an insurance company's most valuable assets. Vast stores of information about prospects, customers, partners, property, locations, and events are used and reused in millions of customer interactions, reports, and analyses every day. Customer satisfaction is influenced at every touch point, and at the heart of every touch point is data. Executives, frontline employees, and business partners make business decisions, real time and offline, every second of every day, and each decision is based on underlying data. Financial and regulatory reports are created, analyzed, and submitted to a variety of government agencies — the agencies that continually churn out new regulations, rules, and deadlines. These data-laden reports are required by law to be accurate and timely. Ultimately, everything in the insurance industry revolves around data.

A combination of high-quality data and the enhancement or enrichment of that data with supplemental information and insights holds great promise for insurers. It positions them to better service customers, improve operational efficiencies, and make smarter decisions about products, risks, channels, partners, and claims. The promise is significant; it explodes as insurers capitalize on their data by unleashing analytics, business intelligence tools, and location-based applications. Today, a major barrier to progress exists in most insurers: the poor quality of their data. Data that is erroneous, incomplete, inconsistent, out of date, and disparate creates a peril for insurers and makes it difficult to gain business insights. Worse yet, poor-quality data may result in lost business, increased costs, and even fines for lack of compliance.

Fortunately, proven tools and processes are available to improve data quality, enhance its value, and truly turn data into an insurer's most valuable asset. Unleashing the *full* power of insurance data should be on the short list for every insurer. It is doable today. The tools are available and not difficult to use. The path to high quality and rich data is not hard to define, and the goal is within reach for most insurers. The investment is one that brings quick reward and keeps on giving.



## Data: The Promise and the Peril

The *quality* and *richness* of an insurance company's data provide the base for great success — or for spectacular failure. The data quality is at the root of promise — or of peril. Data can make an insurance company's story unfold as the best of times - or as the worst of times. The two fictional scenarios that follow paint a picture of a highly successful insurer and a more typical insurer; the major differentiator is the quality and richness of their data.

### The Best of Times

What does a state-of-the-art insurance company, one that is enjoying the best of times, really look like? For starters, it sees every interaction with customers as an opportunity to address their immediate needs, learn more about their additional needs, and proactively suggest ways to further help them. It strives for perfection, understanding the importance of each interaction and transaction. It fully understands the real worth of capturing and managing information, viewing it as the valuable asset it is.

The best insurance companies understand that strategy is very important. At the same time, they recognize that, in the end, company results are determined by the sum of all the individual transactions, interactions, and decisions they make throughout each day and over the course of months and years. Embedded in their IT systems and in the minds of their employees is a simple, yet extremely important, data philosophy: do it right with accurate and rich information. They appreciate the significant impact of data on profits. For them, spelling a policyholder's name correctly the first time and every time is vital. Precision pricing to match the risk to the price is a meaningful task for every piece of business. Eliminating rework and unnecessary steps is critical and rewarding. Rapidly and fairly settling claims is the goal every time. Proactively controlling loss is emphasized and recognized. The best insurance companies know from experience that all of these activities serve to simultaneously delight customers and drive great bottom-line results.

### The Worst of Times

Unfortunately, most insurance companies do not fit the scenario described above. They may meet some of the goals, but very few have the capabilities to meet them all. The scenario for many insurance companies looks very different from that of the best insurers. Their strategy may be similar, with the same goals of delighting customers and increasing profitability. The difference lies in the execution, in part embodied by their IT systems. Customers defect because they sense that an insurer does not really understand who they are and what their relationship is with the company. It is all too obvious that the company doesn't have a single customer view. It doesn't realize, for instance, that the father of the young man they just rejected for a motorcycle policy has multiple insurance policies, several investment products, and a lifetime value of millions of dollars. It loses another customer because it causes her the cumulative frustration of having her name spelled incorrectly, spending time working through billing errors, and enduring delays in completing updates to her policy. Claim severities for the typical insurer are higher because the claim-handling process takes too long. Settlement amounts increase. More lawsuits are filed against the company because the claims

The *quality* and *richness* of an insurance company's data provide the base for great success — or for spectacular failure.



process drags on so long. Fines are levied against the company for missed compliance deadlines. New market opportunities are lost to competitors because the company is unable to glean strategic insights from its data.

## Critical Dimensions: the Role of Data

The “best” and “worst” scenarios point to two critical dimensions of data that enable insurers to gain competitive advantages: data quality and data enhancement. First, the data must be accurate, complete, timely, consistent, and relevant to be of optimal value in customer transactions, reporting, and business analytics. These attributes become table stakes, a base-level requirement for competition in the insurance industry. Although the concept is simple, implementation is difficult. The benefits of using good-quality data are high, but the risks of using bad data may be even higher.

The second critical dimension for competitive advantage is data enhancement. Insurers capture data from every interaction with customers and business partners, yielding enormous volumes of operational data. This data is of vital importance in managing the operational aspects of the business, but it becomes even more of a strategic advantage when coupled with data from other sources, especially location-based data. Enormously valuable information is available in the marketplace that is location dependent, including that of demographic concentrations, geographic risks such as flood zones and fault lines, and first-responder locations such as fire and police stations. The true power of customer and product information is revealed when it is linked to this location-based data. The key to making this linkage is the ability to geocode the data.

## Business Capabilities: The Data Dimension

Vital to the success of every insurer is a key set of business activities. It is axiomatic that successful execution, in today’s complex world, requires the right mix of people, process, and technology. SMA believes that another element must be added to this mix: data. When knowledgeable people use optimized processes, advanced technology, and high-quality data, the result is positive for both customer and insurer. All four elements must act in concert for maximum success: people, process, technology, and data.

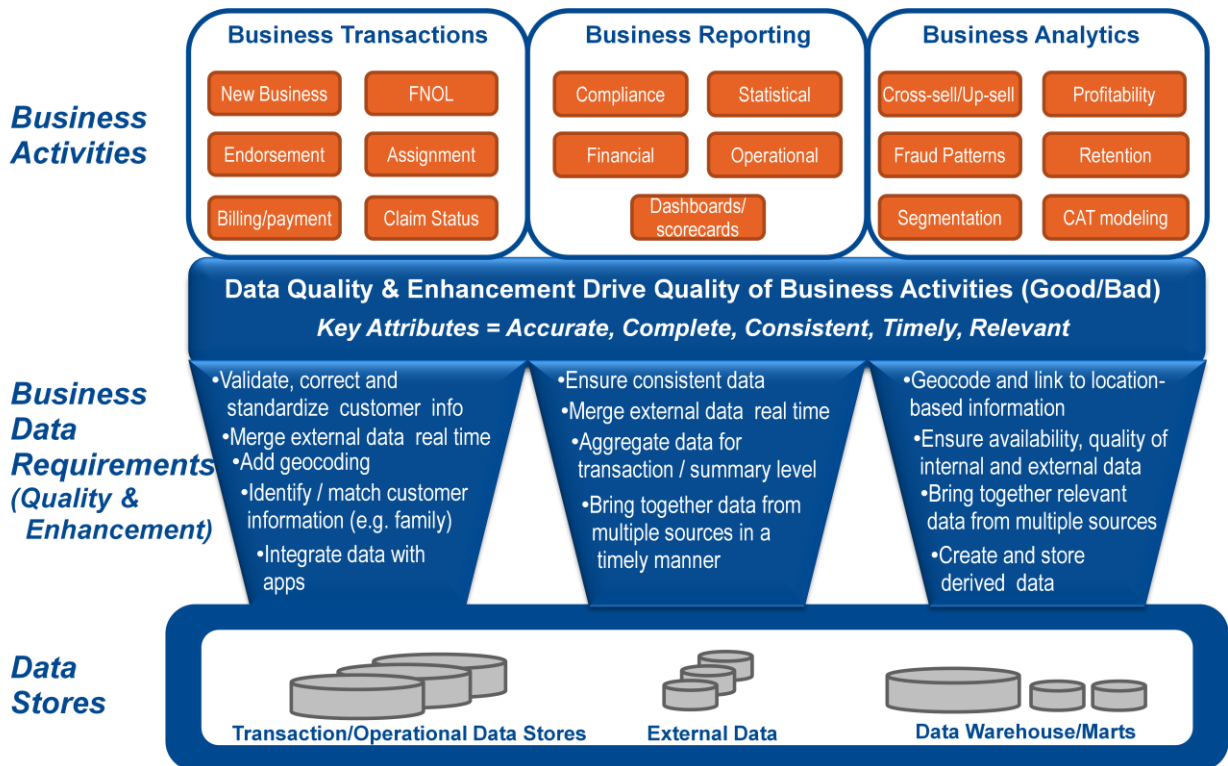
### Key Business Activities of an Insurer

The key business activities of an insurer fall into three main categories: business transactions, business reporting, and business analytics (Figure 1). *Business transactions* involve the everyday insurance operations in areas such as sales, underwriting, policy servicing, billing, and claims — the areas that are the essence of the insurance business. *Business reporting* consists of mandatory reporting to financial and regulatory bodies as well as internal reporting to assist in running day-to-day operations. *Business analytics* includes real-time and offline analysis of data to identify new insights for every aspect of the business, enabling both customer-facing employees and executives to make more informed and insightful decisions.

The key business activities of an insurer fall into three categories: business transactions, business reporting, and business analytics.



Figure 1: Insurance Business Capability Domains



Source: SMA

## Data Requirements by Business Activity Domain

Each of the three business activity domains has very specific requirements for data — data that supports and fuels the functions it encompasses — and enables a positive business result. Business transactions such as new business/underwriting, endorsements, and first notice of loss are the source of most of the new data captured by the enterprise. This data flows in through many channels, using a variety of technologies, and may be highly automated or simply keyed in by a person. The raw result is data with errors, blank fields, alternate spellings, inconsistencies, and unknown or incomprehensible information. Information delivered through these operational transactions typically consist of only the data that needs to be collected to successfully complete the transaction — no more, no less. For best business results across all three domains, the data must be *accurate, complete, consistent, timely, and relevant*.

### **Business Transactions: Key Data Requirements**

To execute business transactions in the most rapid, low-cost manner, and at the same time support good business decisions, insurers must first cleanse the incoming data. This cleansing involves validation, error correction, standardization, and completion. Data related to a specific customer must be matched with existing customer data to paint a complete picture of the relationship and interactions with that customer. Integrating the data with policy, billing, and claim systems may require conversion of data formats or other special preparation. After data cleansing (or sometimes while the data is being



cleansed), the data can be enhanced. Geocoding of records sets the stage for linkage to vast storehouses of location-specific information, which is incredibly relevant and useful for insurers.

### ***Business Reporting: Key Data Requirements***

Reporting is a huge activity area in insurance companies. The reports fall into two main categories: mandatory reporting and management reporting. In addition to the base-level requirements for data quality, ideally handled during or shortly after data capture, reporting requires consistent data. Insurers with business operations outside the U.S. must convert all financials into a common currency. For example, results from various lines, products, or geographic areas usually require conversion to common formats. It is of no value to add premium results from different lines when one is expressed as net premiums written and the other as direct premiums written. In addition to the need for quality and consistent data, reporting functions must be able to aggregate transaction-level detail to create summary reports. Often, data from many sources, both internal and external, must go through a consolidation process to create data warehouses so that business users can easily create the reports they need to run the business and meet external requirements.

### ***Business Analytics: Key Data Requirements***

The whole area of business analytics is exploding, driven by the search for new insights and the availability of new data and new tools. Data intended for use by analytical tools and engines must be clean and complete. The data obtained via operational transactions should have already been subject to cleansing tools and processes. However, valuable analytics often require supplemental external data. As this data comes into the enterprise, it must be subjected to the same scrutiny and cleansed using data quality tools. Geocoding of data is essential for insurers. It facilitates linkage to important location-based information that opens the door for a variety of useful analyses and applications. Analyses often derive new data from the existing base, and this derived data must be monitored to make sure that it also meets enterprise data requirements and is available for even further analyses.

The successful application of data quality and enhancement capabilities for each of these three business activity domains ultimately results in high-quality, valued data that moves the business forward in meeting key objectives and delivering profit. The failure to properly and thoroughly apply data quality tools and implement data enhancements will impede progress and, in some cases, even cripple insurance companies.

Data intended for use by analytical tools and engines must be clean and complete.

## **Technology Capabilities: Focus on Data**

The technology capabilities required for a state-of-the-art data business capability are not complex. The ultimate goal is to unleash the power of the data and turn it into valuable information. Doing so requires an enterprise data platform that facilitates the plug and play of various technical components as well as data and business services — those that



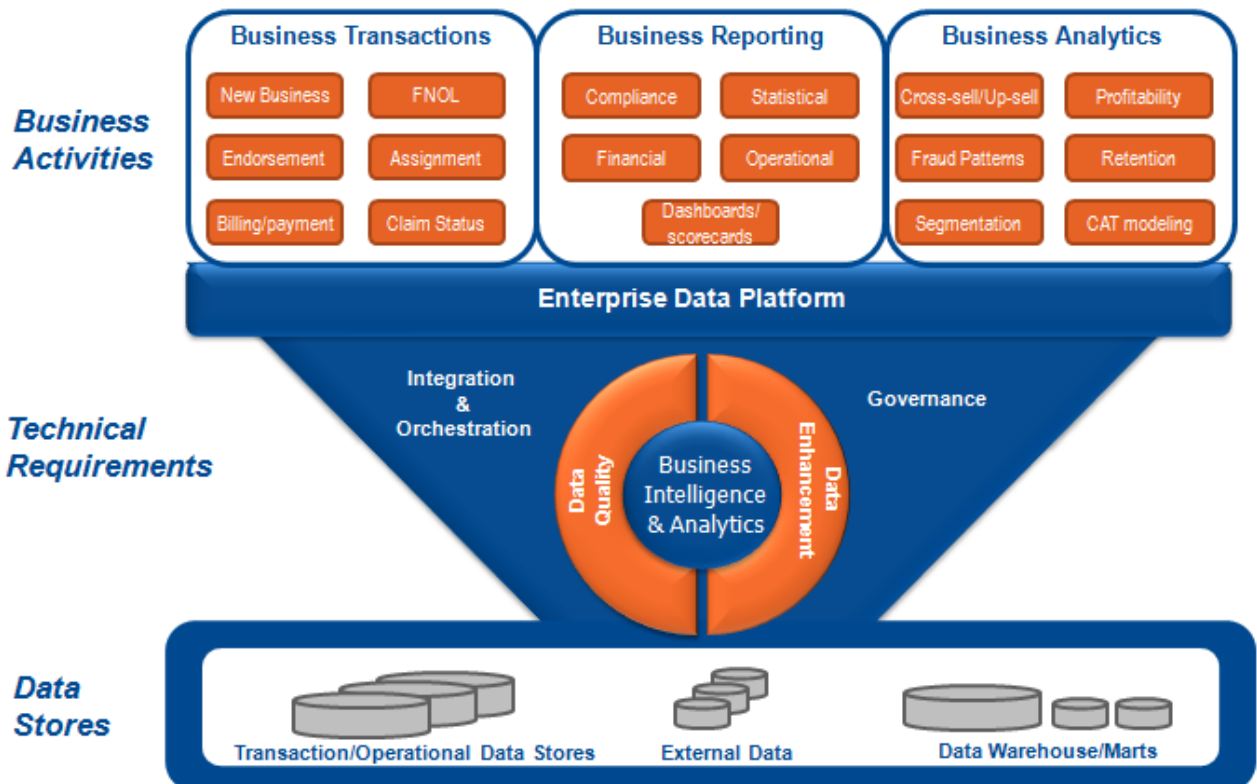
ensure data quality and provide the full range of benefits possible through data enhancements. Investments in these technology capabilities return enormous value across the entire ecosystem: intelligence and insights that provide competitive advantage to the insurer, partners, agents, brokers, and even policyholders. The enterprise data platform needs to be based on a modern agile and flexible architecture that allows the reuse of business and data services for business transactions, business reporting, and business analytics. It also must scale to handle the ever-increasing amount of structured, unstructured, and derived data and accommodate new data sources and services as they become available. Insurers can achieve this agility, reuse, and scalability by using the principles of a service-oriented architecture (SOA).

A modern enterprise data platform will enable more insightful views of risk, complete with geocoding and spatial mapping information, providing location intelligence for risk evaluation and pricing. These same tools can then be used on dashboards, in business analyses, and in reporting as well as in predictive analytics applications. The key is to strengthen all of the business transactions, reporting, and analytics with an agile, flexible, and scalable enterprise data platform that makes it easy to reuse and expand services throughout the insurance ecosystem and also drives the right balance and value from the business intelligence and analytics.

### Enterprise Data Platform Components

SMA outlines the four essential aspects of the enterprise data platform, shown in Figure 2: integration and orchestration, governance, data quality, and data enhancement.

Figure 2: Technology Capabilities





## ***Integration and Orchestration***

To optimize the business value, data must be fluid: easy to move to the point of use and simple to aggregate and consolidate. It must be easy for an insurer to extract and transform the data for use between and among different kinds of systems. The enterprise data platform must be able to capitalize on concepts like data federation and to leverage tools and software for extract-transform-load (ETL). The data should be managed with a data hub. Implementing point to point is no longer an acceptable practice. Although XML messaging (ACORD-based) is an improvement over hard-coding principles, there still needs to be a central hub with a canonical data model that translates, facilitates, and orchestrates the movement and management of the data between various systems and applications. This hub allows for reuse of the data and makes it easy to integrate approaches for adding new data and business services.

## ***Governance***

A complete enterprise data platform requires a governance plan that includes proactive real-time management, mastering, and monitoring of the data across the enterprise. Following the best practices of master data management means shoring up data processes that support multiple users across the enterprise. Standardized tools and techniques are used. The data definitions and the use of the data and rules are standardized. Expectations for data quality are defined and are imposed and followed. Data stewardship ensures that information meets the needs of downstream processing. Information-rich tools such as dashboards aid productivity and service. Data scorecards assess the adequacy of the data to help the enterprise meet goals.

## ***Data Quality***

Perhaps the most fundamental requirement for insurance business capability is high-quality data. Once a governed environment is in place for orchestration and integration of the data, an insurer can leverage services to standardize, cleanse, and profile the data. A variety of data services are available to cleanse data in real time, any time, or even in batch mode:

- Parsing and standardization and identify resolution: Used for data validation, identification of data errors, normalization, and data correction.
- Record linkage and merging: Used to identify data errors, resolve variances, and make subsequent data corrections.
- Name and address modules: Used to make certain that names and addresses are correct. This is essential to ensure good customer service and to make sure risks are properly coded for the right rate, price, and servicing. Correct name and address allow for geocoding of all location information.

Insurers can execute all of the data quality services using data as a service (DaaS) in the cloud, an ASP model, or on insurer-managed processing systems. When data maintenance requirements are frequent, service should be real time, any time, and available online.

A complete enterprise data platform requires a governance plan that includes proactive real-time management, mastering, and monitoring of the data across the enterprise.



It is useful to view the way data enhancement and enrichment offerings impact three main components of the insurance business data: market, customer and location-based data.

## **Data Enhancement**

For insurers looking to enhance their data, the options are endless. Enhancing data unlocks limitless intelligence and insight. Sophistication ranges from enhancing insurance company data with external data to applying a blend of external data and analytics that enrich the data. Competitive advantage explodes when traditional internal data is enhanced and enriched.

It is useful to view the way data enhancement and enrichment offerings impact three main components of the insurance business data:

- **Market:** Used to gain competitive and market intelligence on market segmentation, market opportunities, customer targeting, competitive landscape, and distribution network options in addition to insight on growth opportunities by demographics, SIC code, business type, economic data, insurance data, and census data.
- **Customer:** Used to gain additional insights to help profile and assess risks, price accurately, and provide improved service. The tools provide insights used in claims processing and in cross-selling and up-selling for both personal and commercial risks. Additional insights in customer information might include detailed demographics, loss histories, credit profiles and scoring, business specific data, and identity resolution. Having enhanced data is critical in making possible a single view of the customer.
- **Location:** Used to gain detailed intelligence on the physical locations to support risk evaluation, accurate pricing, and rapid and smart claims processing as well as catastrophe preparedness and management. These data enhancement tools offer geocoding and spatial mapping and can enable sophisticated routing functions.

All of the data-enhancement services can be used via software as a service (SaaS) in the cloud, an ASP model, or on insurer-managed processing systems. When data maintenance requirements are frequent, service should be real time, any time, and available online.

Unleashing the *full* power of insurance data should be on the short list for every insurer. It is doable today. The tools are available and not difficult to use. The path to high quality and rich data is not hard to define. It's a matter of laying out a roadmap and getting started. The goal is certainly within reach for most insurers. The investment in data quality and data enhancement is one that brings quick reward and keeps on giving.

## **Pitney Bowes Spectrum Technology Platform**

### **Company Overview**

Pitney Bowes is a \$5.6 billion company, serving over 2 million customers in 130 countries worldwide; it has a long history of helping companies leverage advanced technologies to improve performance. From its roots in mailroom solutions, Pitney Bowes has expanded its offerings dramatically through an aggressive acquisition strategy in recent years. The company now offers a broad set of software, hardware, and services that enable customers to improve operating efficiencies, enhance customer interactions, and gain new business insights.



The depth and breadth of Pitney Bowes BI offerings is extensive, and many solutions are tailored for use in the insurance industry.

The Pitney Bowes Business Insights (Pitney Bowes BI) division was formed to harness the power of two world-class software providers, Group 1 Software and MapInfo, in conjunction with the broad capabilities of Pitney Bowes. Offering one of the most comprehensive sets of solutions for maximizing the value of customer data, Pitney Bowes BI helps organizations more effectively locate, connect with, and communicate to their customers with enterprise platform, SaaS solutions, and on-demand applications.

Pitney Bowes BI's primary focus is to offer solutions to customers to help them "Acquire, Serve & Grow" their customer base. Pitney Bowes BI solutions help transform data into customer insights and intelligence for competitive advantage, making it possible for customers grow revenue, win market share, expand value propositions, and manage costs and risks.

The company continues to organically grow and acquire assets to expand its offerings. New ideas and offerings are fueled by significant research and development spending, along with formal innovation methodologies that incorporate customer input.

Insurance has been a spotlight industry for Pitney Bowes for many years. It has a positive reputation and great momentum in the industry, with including insurers across all tiers and in all lines of business. The plug-and-play aspect of many of its products eases installation and integration. Pitney Bowes has long and established relationships in insurance, and as it expands its offerings, it continues to expand its footprint in North American and globally.

## **Pitney Bowes Business Insight: Breadth of Offerings**

The depth and breadth of Pitney Bowes BI offerings is extensive, and many solutions are tailored for use in the insurance industry. The offerings fit into four major groupings:

- Predictive Analytics - Data mining and statistical modeling, including spatial analysis
- Location Intelligence - Advanced geographic information systems, including mapping and geo-demographics
- Operational Intelligence - End-to-end data management, including geocoding and postal address quality
- Communication Management - Integrated document creation and archiving, across all channels

The Spectrum Technology Platform solutions, part of the operational intelligence solution suite, support and deliver function for the promise of high quality data and data enhancement. They are further highlighted in this paper.

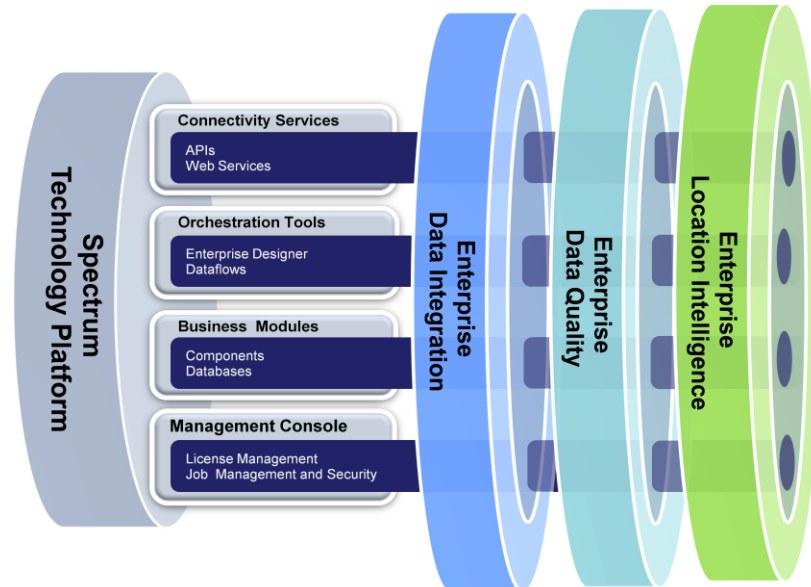
## **Spectrum Technology Platform Functionality**

The Pitney Bowes Spectrum Technology Platform addresses the required business capabilities outlined earlier in this document and aligns well to the technical capabilities shown in the SMA Technology Capabilities diagram. The platform includes foundation services for connectivity, orchestration, and management and delivers core business components (see Figure 3). The solutions enable actionable customer and location-based intelligence when and where customers need it. The platform allows insurers to first establish that the "data is fit for use" with a wide spectrum of data quality tools. Next, it derives more value -- "intelligence from your data" — with data enhancement tools for



the quick delivery of value to business transactions, business reporting, and business analytics.

Figure 3. Spectrum Technology Platform for Information Management Solutions



Source: Pitney Bowes

The base platform and services support offerings for data integration, data quality, and data enhancement with especially robust location-intelligence capabilities:

- **Enterprise Data Integration.** Pitney Bowes BI offers pre-integrated data solutions for popular solutions from IT providers, including Oracle, Siebel, and SAP.
- **Enterprise Data Quality.** Pitney Bowes BI offers data-quality tools and software that focus on address, name, parsing, normalization, and matching. These capabilities address key business needs in this area for all insurers.
- **Enterprise Location Intelligence.** Pitney Bowes BI offers expansive location intelligence with mapping, geocoding, spatial information, and various location-intelligence models. These solutions are used in insurance new business applications, including market segmentation, risk mapping (e.g., flood zones, earthquake zones, wildfire models), and CAT management applications.

For more information about Pitney Bowes Spectrum Technology Platform, visit [www.pbinsight.com](http://www.pbinsight.com) or contact Pitney Bowes at [pbbi.sales@pb.com](mailto:pbbi.sales@pb.com).



## Strategy Meets Action's Commentary

The topic of data is not always the most exciting, especially for business executives. But enlightened executives *do* become passionate about the quality and richness of their data. Leading insurers are able to translate every conversation about data requirements, tools, and services into customer interactions and bottom-line business value. SMA believes that a focus on data quality and enhancement must be at the core of every great insurance company.

SMA recommends that insurers give full consideration to the suite of offerings by Pitney Bowes Business Intelligence, specifically the Spectrum Technology Platform. These offerings deliver a robust assortment of solutions that support data quality and data enhancement on an enterprise technology platform.

Pitney Bowes BI offerings uniquely position insurers to better serve their customers, improve operational efficiencies, and make better decisions about products, risks, channels, partners, and claims. The promise of high-quality, enhanced data is real and within reach. Capitalizing on this data with analytics provides the base for great success today and in the future. Unleashing the power of the data with fresh business intelligence tools and the innovative use of location-based applications will bring rich reward to insurers.



## About SMA: Strategy Meets Action

Exclusively servicing the insurance industry, SMA is a different breed of strategic advisory firm offering a unique blend of research, advisory, and consulting services to insurance companies and to solution providers. By leveraging best practices from both management consulting and research advisory disciplines, SMA's advisory service offerings are actionable, business driven, and research based where strategy meets action.

This SMA Perspective is a summary of SMA's ongoing research on data strategies and architecture and on business intelligence and predictive analytics capabilities. Pitney Bowes has purchased distribution rights for summary results of selected research and opinion.

Additional information on SMA can be found at [www.strategymeetsaction.com](http://www.strategymeetsaction.com).