	Company	Experian (Objectives)	Experian Marketing Solutions	Global Data Consortium Inc	INFORMATICA CORPORATION	Melissa Data Corp	Pitney Bowes Inc	Quadient Data US Inc	Service Objects	SmartyStreets LLC	UNIVERSAL POSTAL UNION (UPU) - Addressing Solutions (ADDRESSING SOLUTIONS)
Company Info											
1.1	**Name of company**	Experian Marketing Solutions	Experian Marketing Solutions	Global Data Consortium, Inc.	Informatica	Melissa Data Corp	Pitney Bowes Software, Inc.	Quadient Data US, Inc.	Service Objects, Inc.	SmartyStreets LLC	UNIVERSAL POSTAL UNION (UPU) - Addressing Solutions
1.2	**Parent company if applicable**	Experian Inc	N/A	N/A	N/A	N/A	Pitney Bowes Inc	Quadient Quadient Data: EX63 Rue de l'Ecole, Gaville 28 F, 28600 Luisant Quadient Inc: 50 Jet de Vendée Brest, 92310, Bagneux, France	N/A	N/A	UPU is an UN Global Nations' Postal Administration with 192 members UPU headquarters (HQ): Route de Wifdorf 57, Berne - Bethlehem/Ostermundigen 3015 - P.O. Box 312 - 3000 Berne 15 - SWITZERLAND
1.3	**Please provide your headquarters location (City, State, Country)**	US headquarters: Costa Mesa, CA, USA Global headquarters: Dublin, Ireland	Global Data Consortium 19 W. Hargett St., Suite 600 Raleigh, NC 27601 USA	Mountain View, CA, USA	4566 Dublin, Ireland	4757 Sunset Street, Glandbrad CT, 60601 USA	3001 Summer Street, Stamford CT, 06901 USA	92310, Bagneux, France	Santa Barbara, California, United States	Provo, UT, USA	Berne
1.4	**Date of Foundation**	1996	1996	2000	1993	1985	1920	1920	1996	2009	Paris
1.5	**Stock symbol**	NASDAQ:EXPGY	NASDAQ:EXPGY	N/A	N/A	N/A (private)	N/A (private)	N/A (private)	N/A (subsidiary)	N/A	Intergovernmental international organization. Government-funded since 1874.
1.6	**Total number of staff with company**	17,000	8	9500+	1,9	1,9	PBI EU has over 800 globally. Pitney Bowes Inc. has over 14,202 globally	4,000 (Globally)	50	25	250
1.7	**Current Customers (largest three)**	JPMorgan Chase, Bank of America, Walmart	Our largest three customers include Ally, Mercado Libre, and Lowes Rents.	AARP, US Airforce, Ebay	Sempra.com, Dominion Power, First American Title	Unfortunately, we cannot disclose our largest customers as this is company confidential and not for public consumption. However, in general terms Pitney Bowes Inc. has over 1.5 million customers in 100 countries ranging from small businesses to Fortune 100 companies. Our customers are in all industries and sectors, which attests to the scope and diversity of our current customer portfolio.	UnitedHealth Group/Optum 98, 8.9, Donnelley, Fidelity Investments	Among the companies that have used our tools are Amazon, Hughes Network, and Thomson Reuters.	Most prominent as from listing some of the larger organizations in their area. Know that we are not in Hollywood. Google, Amazon, Netflix
1.8	**Target customer base of company**	Financial Services, Insurance and Retail	Government, shipping carriers, financial service firms	Any company looking to verify Mailable Addresses.	Enterprise level corporations, public sector, telecommunications, healthcare, retail, insurance financials	Pitney Bowes services all corners of the economy: Public, Private, Non-Profit, and Membership Organizations among many others.	Quadient caters to businesses large and small. Many of our customers are mail and print service providers, but also mail implers and shippers all the way to Fortune 100 companies can utilize a Quadient solution. Some of our top industries are: Healthcare, Financial Services, Government, Retail, Utilities, Insurance, Retail and Government.	Our best customers are tech savvy, transaction oriented, medium sized businesses in the US or companies with annual revenues between $50 million and $500 million.	Anyone who deals with addresses.	Currently 12 companies licensed directly for the postal reference data. Area assigned licensees are responsible for the sale of the data to their local customers. Target is all organizations that need to verify addresses regarding marketing, bottom line, etc. ..... Currently 1,120 businesses using the UPU reference data via software vendors. Target is 1,450 businesses using the reference data at 2030. ..... Current customers include Amazon, Google, Facebook, Microsoft, Apple, Yahoo, Twitter, Linkedin, International Express Mail Service - First Management and FEDEX (Express Technology for international money transfers, financial services, anti fraud, anti money laundering) - Investigators Agencies (Immigration, surveying, infrastructure, customs, intelligence) - Shipping, transport and delivery industry (including postal organizations) ..... - WFB designers and online retailers for customers' data acquisition for trusted addresses - Telecommunications - authenticate an addressed item (among address and customs, confidentiality) an addressed items
Data Accuracy											
2.1	**What are the quality and sources of the address data used to verify addresses?**	Address information comes directly from the local postal authorities in the country of the address. Also, Consultant to Cities Know that for USPS data is	GDC's Worldview platform leverages several types of data to verify, correct, and standardize address data. These sources include, but are not limited to: Government, Postal, Utility, Telecommunications, Transportation, and Commercial. Our data partner sources. GDC prides itself in sourcing, validating and providing the best in country partners in order to provide the highest quality verification and data enrichment services. Our data partnerships are also able to leverage the local knowledge and expertise that our local data partners are able to bring to bear. As a result, GDC provides the best quality match results in the industry for a comprehensive guide for the 200+ countries for which we provide address verification and enrichment. Refer to the Web Service Interpretation Guide (section 5.1)	Informatica Address Verification Cloud has obtained all five worldwide postal certifications, including CASS (USA) and SOAP (Canada). Postal certifications are the most rigorous and high quality for address verification software.	We utilize the official government postal sources for each country and we strive to be the highest level for each country.	We provide address validation for over 250 countries. Our validation engines are CASS, RDP, AMAS and CPS certified and we provide updates to the Delivery Point level, where address point data is available.	For US addresses we source our address data directly from the USPS and our software is USPS CASS Certified. We use a variety of sources for international address data, including data purchased from Post Offices, and address flat pack numbers	We provide unique solution set, Service Objects is the only company that provides address validation, location data, address proofing, phone information and high resolution geospatial imagery. Our continually updated database include both country specific government sanctioned postal authorities as well as proprietary data. Our mapping, addresses are precise, accurate and up to date.	Data comes from the US Postal Service and from Loqate. The data is updated monthly.	Data is sourced from official sources: the governments and particularly from the Postal Regulators and Postal Operators for their postal address reference data. In some cases, the postal data doesn't cover premises level. In this case, complementary data is sourced from Government Departments like: statistic offices, census offices, tax offices, geographic portals, geographic information systems (GIS), cadastral offices, etc. Sometimes the data is sourced from the utilities companies, for example the Electricity and Water companies, and from data sets for deliveries and priorities. Advance ..... We also maintain a Data Quality Team to investigate for better data. ..... Another activity is the improvement or introduction of addressing systems for developing countries. Some of our reference data has been in-house, locally and directly. The sample is forwarded to the country for enhancement and for the development of their postal reference data. ..... The improvement is also brought to the standard S.53 certify the country. (UPU S.42 is now ISO recognized/approved ISO 19160-4 service since)
2.2	**What, if any, scoring methodology is applied to the address validation processes?**	Our Match codes and definitions section found at https://www.edq.com/documentation/ipa/address-validation/matchdefs/index. Our scoring data can require a numeric score.	GDC provides robust scoring metrics to our address validation process. These metrics include both Validity and Accuracy scores, which are outlined in the Web Service Guide (section 5.1) and are defined as follows: correct address is formed by our system based on the matching and/or correcting of specific data elements (e.g. House Number, Locality, etc). GDC provides both Validity and Accuracy scores separately for each element by element scoring. For example, the match result ("Match" or "no match") and the reliability of that score is provided for each element. This is a key feature for our customers with our own proprietary reliability scores. Because we provide individual element match/reliability scores, it also enables our customers to customize their own proprietary scores. GDC is also able provide data enrichment services (Address Enhancements for Deliverability processing), and GDC's Mail Score (the likelihood that a postal item be successfully delivered through the country's mail stream)	Address are scored on a 1,2,3,4 basis. In addition, we let you score if an address is C - Corrected , I - Incorrect , U - Unverifiable or Unmailed	Rare, the addresses will be verified, corrected, and standardized according to the guidelines and postal data. Sometimes the address is not deliverable or undeliverable; addresses will receive an error code instead of a score.	We utilize USPS scoring methodology as per USPS CASS Certification requirements. https://rdm.usps.com/Rdm/ZipCheck/overview	Phonetic Fuzzy and Levenshtein address scoring	We always return 100% verified addresses and indicate such. If an address is not verified, we let you know what portion of the address is valid.
2.3	**What is the process for handling of non-ASCII characters of submitted addresses?**	non-ASCII characters are accepted for appropriate countries (Arabic, Chinese Japanese, etc)	GDC supports UTF-8 and is able to do address verification and transliteration of non-Latin/ASCII characters. Our Worldview platform UTF-8 is able in different alphabets (including Cyrillic, Thai, Greek, Latin/Roman, Hebrew, Simplified Chinese and Hanzi	Informatica Address Verification Cloud can transliterate address information from non-Latin/Roman language support for countries like Canada and Bahrain	The engine has transliteration capabilities to convert many popular native character sets to Latin.	Our solution handles international strings and their complexities. It uses Unicode internally and in the processing which enables the transliteration of non-roman characters into the Latin character set and mapping between different character sets. Character set mapping and transliteration features include: Support for over 30 different character sets, Support for Unicode UTF-8, UTF-16, UTF-32 and Proper "Unknown" of diacritics according to language rules. Transliteration for various alphabets into Latin Script Greek Alphabet, Cyrillic Alphabet, Arabic Alphabet, Hebrew Alphabet, Chinese (China) Latin Alphabet, Chinese (Taiwan) Latin Alphabet, Chinese (Hong Kong) Latin Alphabet, Chinese (Singapore) Latin Alphabet	They need to be filtered before processing. We handle ASCII Characters only	UTF-8 characters allowed	Non-UTF-8 character is ignored.	Non-ASCII characters are accepted as long as they belong to the sets of characters used in one Latin-script that are used in countries where the addresses are located. ..... For the postal reference data for address validation datasets in multiple scripts are recorded in our reference database tables and are available for use in our address validation software. Our software can convert the reference data, available in multiple scripts, to a predetermined Latin-based set. Our data is in Latin and in such cases can be used for the address validation processes.
2.4	**What is the frequency of postal reference data updates?**	USA can be monthly or every 2 months, CAN is weekly, GBR is monthly, if seeding by country	Our data is updated on a monthly or every 2 months, CAN is weekly, GBR is monthly, if seeding by country	Quarterly	US and Canada are updated monthly, all other countries are quarterly	Address files are updated monthly.	USPS NCOA Link is updated weekly. Address data is updated monthly. Our global path to updates our address database within three (3) business days from receipt from the USPS.	Monthly			The postal reference data collecting is permanent. In addition we investigate for better reference data for some countries (countries with no-home delivery service, countries with non-standard addressing systems, countries with no-home delivery service, countries with non-standard addressing systems) ..... We provide our customers with quarterly updates for the worldwide UPU reference data (provided annual/POSTCODE Database). Of course for some customers quarterly updates are not sufficient and they may have data with weekly or monthly updates for their domestic or regional market products. But for the international and worldwide data, quarterly updates is a good frequency. ..... We is also not some address validation vendors are able to update their software embedding worldwide reference data on a quarterly basis. - Other it is updated on a quarterly basis depending the reference architecture.
2.5	**Provide an example of technical implementation of the service or software, including connectivity options, uptime, API response time, etc.**	Attachment: Experian FAQ's Sep 2014.pdf	Attachment: Inst_Intro2GTCU.pdf	Attachment: AV_JS_DeveloperGuide_en.pdf	Attachment: global address ws17.pdf	Attachment: Tech_Diagram.jpg	Attachment: Quadient_Architect_Installation_Guide_US.pdf	Attachment: CASS Factsheet.pdf	Attachment: US Street Address API documentation - SmartyStreets.pdf	Attachment: US Street Address API documentation - SmartyStreets.pdf	Attachment API implementation.docx
2.6	**What type of solution (saas/appliance/software) do you have? Please include details on they relate to scalability, redundancy, geographic diversity of hardware and connectivity.**	This link is regarding Section 5.1. Technical API Guide (which refers to technical implementation of the service or software, including connectivity options, uptime, API response time) ..... Our Worldview platform (application/services) utilizes TRUEPAS system. Have 2 load balanced data centers which will failover upon optimally. Data Centers are located in Allen, TX and Ashburn, VA	GDC supports syntactical, operational, and identity validation. Syntactical validation is supported through our Web Services Interface and verification of the individual elements of an address and an identity. We parse address data, categorize elements (house number, street, city, state, country, postal code), correct missing address data and provide additional services like geocoding and name parsing and gender detection. This can be independently or in conjunction with operational and identity validation. GDC's operational validation includes our Mail Score and Address Enhancements for Deliverability. Our Mail Score provides guidance as to whether or not the address will enable delivery through the local mail service. We also provide a process tool for enhancing the data to ensure successful delivery. Our identity validation service that can provide robust matching of an individual's name, address, national ID number, phone number, date of birth, and other identifiers. For address data, we provide a robust set of reference data sources. For more information, please see our website (www.globaldataconsortium.com/address-identity-verification) or reach out to GDC directly	Informatica Address Verification Cloud runs on a Linux platform, which is a stable and redundant platform. Whether your global address data is captured or stored in a CRM system, order entry, or database, Informatica Address Verification Cloud can validate, cleanse, and enhance the data. Our address reference data is created or processed in both modes. It also appends accurate geocodes and enterprise-supermarket-in codes for most countries.	We have offerings available for all three types: syntactical, operational, and identity.	Syntactical - Simply going from the general terminology, Syntactical would mean our cleanse and validate address information against the rules of syntax. In Spectrum CASS products, this would be performed by our Validate Address Function which uses Pitney Bowes algorithms, rules, processes to standardize, validate and cleanse address elements so we can then improve matching with validated addresses. Operational - Simply going from the general terminology, Syntactical would mean our cleanse and validate address information against the rules of syntax. In Spectrum CASS products, this would be performed by our Validate Address Function which uses Pitney Bowes algorithms, rules, processes to standardize, validate and cleanse address elements so we can then improve matching with validated addresses. We provide validation for address standardization which includes parsing, cleansing, and formatting of address data against the local postal authority, with USPS mapping and enhancements for US addresses. We provide both primary and secondary address line validation or "Delivery Point Validation" (DPV).	Syntax, postal code, link to city, Delivery point, unit number and dwelling number (unit#), suite, apartment floor, + secondary	No confirm that an address exists within the best dataset available for the country. We do not confirm existence.	Currently the UPU is providing services for international address verification to CIABG. This service is limited to batch/bulk address validation can syntactical and at an operational levels. ..... The UPU is developing in-house APIs for address data input based on the UPU's A2 Standard (already available for S.42 data). The development is on going and once they will be ready the Postal Technology Centre of the UPU will integrate the tools (APIs) in their software applications for the standard S.42 (Postcodes (International Financial Services - IFS, International Postal Services - IPS and Customs Declaration System - CDS). For those postal applications the address validation services are an added value for trusted Advisors (e-tools). The postal applications are available worldwide, with regional hubs(which can run over a 1,5 Ethernet and 27 Mp/s support - orchestrate. The UPU software are installed on stiffrown hardware and networks. There are backups / cold clusters in Switzerland and abroad.
2.7	**What applicable tolerances of errors and/or false positives (if known) error and what is the frequency? Please indicate the errors solution**	False Negatives we cover with new and we remedied the accuracy. The customer is able to determine how to proceed with these Postal Penal Authority - Mathis Infrasport.	GDC is very concerned and aware of the potential of false positives. We have a robust QA process in place and are remedied the accuracy. The customer is able to determine how to proceed with these reasons.	This is not a known problem.	There is statistically relevant or measurable amount false positives returned	Our validation engines offer Tight, Medium and Loose settings. We recommend a Medium setting to avoid false positive results. We offer a flexible exception monitor to define and review exceptions.	No known incidence of errors/false positives at this time. Our address correction engine is within USPS CASS requirements.	Matching accuracy exceeds 99.9% Certified by USPS and others.	We don't have false positives. An address is either a 100% match or it isn't.		For the reference data in case we detect errors, these are reported to the data supplier. For the ISO datasets we maintain an country and territory's reference data in accordance with ISO 3166-1 and ISO 3166-2. ..... We also provide a tool for our customers to report errors in the reference data and all customer data files. Once the data supplier has fixed and corrected the data, the improved dataset will be included in the next update. ..... In case the data errors might have incidences on address validation concerns, the UPU can fix and correct the dataset. In case of urgency we also resend the corrected dataset to our Customer contacts in our mailroom system.
Service											
3.1	**Provide an example of technical implementation of the service or software, including connectivity options, uptime, API response time, etc.**	Attachment: Experian Security Overview Sep 2014.pdf	Attachment: Worldview Webservice Interpretation Guide20150130.pdf	Attachment: AV_JS_DeveloperGuide_en.pdf	Attachment: global address ws17.pdf	Attachment: Tech_Diagram.jpg	Attachment: Quadient_Architect_Installation_Guide_US.pdf	Attachment: accurate-ISO7816address-validationservicesuite.pdf	Attachment: US Street Address API documentation - SmartyStreets.pdf	Attachment: US Street Address API documentation - SmartyStreets.pdf	Attachment API implementation.docx
3.2	**What type of service level targets do you have? Please include details on they relate to scalability, redundancy, geographic diversity of hardware and connectivity.**	This link is regarding Section 5.1. Technical API Guide (which refers to technical implementation of the service or software, including connectivity options, uptime, API response time) ..... Our Worldview platform (application/services) utilizes TRUEPAS system. Have 2 load balanced data centers which will failover upon optimally. Data Centers are located in Allen, TX and Ashburn, VA	Worldview is a distributed network that is available and redundant. It leverages data centers across the world to ensure redundancy and availability.	Up to 2 million addresses are processed per hour with Informatica Address Verification Cloud and is scalable.	Ten high level data processing are recommend the on- premise component that you would have yourself.	Our solution is completely scalable both Vertically and Horizontally to meet any service level targets.	No response	Our servers are redundantly located across the United States. They are fail-safe, scalable and can easily handle more than 100,000 address lookups per second.	Our solution is service oriented architecture and is fully scalable and redundant. Our servers are redundantly located across the United States. They are fail-safe, scalable and can easily handle more than 100,000 address lookups per second.		As we are developing our in-house address validation tools (APIs for address data fields displayed based on the country's standard (S.42 based country), address data input and syntactical check, address data input and operational verification, address data recording structure, address data rendition on mail or on labels conform to the postal standards by country (S.42), there is no plan site and documentation (API and our server answer positively this query ..... But the address validation will answer the need of real time transactions as they will be embedded in our UPU real time transactional products (UPS, IPS, CDS).
3.3	**What is the average response time for the address validation services (e.g., in milliseconds/hour/day)?**	The average response time is sub 500ms.	While the response time may vary based on the country, specific implementation configuration, and service provided (address hygiene or identity verification), GDC's average response time for address hygiene is approximately one (1) second.	Up to 2 million addresses are processed per hour with Informatica Address Verification Cloud and is scalable.	6 Thread DACH (Rewrite) 0.7 & GB BEAUFLAM ISO 7886/Hour	Average response time is approximately 60 to 500 ms using 1 core of the server. Our solution is scalable and deployable in a clustered environment for optimum performance.	Average response time for single address is 30 to 40 seconds. Batch processing can process 1-5.2 billion records per hour.	The response times are as fast as 200 milliseconds.	you can check at www.smartystreets.com. Response time is typically about 0 milliseconds.		As we are developing our in-house address validation tools (APIs for address data fields displayed based on the country's standard (S.42 based country), address data input and syntactical check, address data input and operational verification, address data recording structure, address data rendition on mail or on labels conform to the postal standards by country (S.42), there is no plan site and documentation (API and our server answer positively this query ..... But the address validation will answer the need of real time transactions as they will be embedded in our UPU real time transactional products (UPS, IPS, CDS).
3.4	**What are the approximate pricing elements of available cross-field address validations?**	Pricing is transactional (per address submitted to the service, minimum transaction charge of $0.05 and maximum charge of $0.50 for processed or per 25 per can provide an idea on the volumes	At low volumes pricing is typically between USD $0.50-$0.08 per address verification query. Depending on volumes and the specific service, pricing can fall $0.05-$0.0350 per query. Pricing discounts of all kinds are applied for monthly transaction volumes of 100,000 queries or more. Pricing discounts of 10% are also applied for prepayment of transaction volumes. For volumes of 1 million queries per month, pricing is typically in the $0.0350 per address verification range. This fee is typically ranged from $150,000-$500,000 depending on customer configuration requirements.	Pricing is based upon a Per Environment - On Premise Or Per Hit for Web Hosted Service	Decentres needed, data processing volume, and number of installations	Spectrum address Validation pricing is based on software and data components. On-Prem software is calculated by number of cores and number of processors. Spectrum address Validation is also per processor and unlimited usage for each year, customers are provided keys to unlock data elements required for their solution. Each is annual non transaction	Pricing consists of annual license based on anticipated volume of addresses corrected	International address validation available for as low as 2.25 per transaction. Domestic address validation (US and Canada) available as low as .67 cents per transaction.	Pricing is the same for all US validations. It's just the cost of lookup. All the fields are returned for each address		For the different APIs: address data fields displayed based on the country's standard (S.42 based countries), address data input and syntactical check, address data input and operational verification, address data recording structure, address data rendition on mail or on labels conform to the postal standards by country (S.42 or ISO), with the worldwide postal reference data (provided annual, excluding the data from countries that apply special access conditions to their domestic data (France and Iran), we will expect a fee by address submitted to the address validation API. This fee is based on the number of S.42 or ISO 3166-1 or ISO 3166-2 data fields. The fee is based on the number of data fields and will be prepaid and will include a fee transaction fee (1,000, 10,000, 100,000, 1 million, 10 million, etc.) depending the end-user. The address data Currently we are no software maintenance fee. In case datasets from specific countries that apply special access conditions to their postal reference data we have to include one fee address fee for some countries might increase depending the license fee to be amortized over the transactions volumes (an additional fee of USD 0.01 per address for the Iran postal reference data).
3.5	**What service options are available (e.g. provider's dependence and/or maintenance window)?**	We don't have maintenance downtime, updates are performed on the	Most software maintenance happens using a process of rolling deployments with zero impact to customers	We provide regular downtime schedule for Maintenance. We have had a 99.999% percentage uptime for our cloud systems. We recommend the purchase of our On-Premise implementations to avoid downtime.	No downtime.	Clients can run and schedule back ups. Don't support hot upgrades. However, patches and updates are created to fix clients. Design time depends on modules and servers installed with software. Client can decide to install upgrades, patches, data updates in their system. Our On-Premise solutions.	There is no downtime, our services are configured in a redundant environment where one set of redundant nodes out of the total which maintenance is issued	Service Objects provides 99.999% availability of its Service Offerings with one of the industry's only financially-backed service level agreements.	We don't have downtime. We do rolling updates. Of course you can set how our service as well and then you control the switch.		The reference data is provided in a number of formats (Excel, Access, Text, Oracle, SQL Server, Postgre SQL, Mysql, Sqlite, Mongo DB, Cassandra, Redis, Hadoop, Hive, Pig, Spark, Mahout, Solr, Lucene, Elasticsearch, Kafka, Storm, Flink, Zookeeper, Hbase, Sqoop, Flume, Oozie, Hue, Ambari, Knox, Ranger, Atlas, Falcon, Tez, Yarn, Ambari, Zeppelin, Ranger, Knox