Resource Data, Inc.

Statement of Qualifications

PEOPLE

TECHNOLOGY

RESULTS

Version 11.3

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RESOURCE DATA, INC. (RDI)

Resource Data, Inc. (RDI) is a software development, system integration and Geographic Information Systems (GIS) development company with 25 years experience. We specialize in supporting medium– to large–sized enterprises; with a staff of more than 120 employees, we provide expertise in all aspects of software implementation and IT management.

What We Do

We solve your business problems through software solutions. We develop custom software applications for government and business, focusing on Web–based, database, and GIS applications, using technologies such as .NET, Java, ColdFusion, Oracle, Microsoft SQL Server, ESRI software, and a variety of open–source tools. Refer to the reverse for additional details.

Where We Are

We started in Alaska and now have six branch offices nationwide—three in Alaska (Anchorage, Fairbanks, and Juneau), one in Boise, Idaho, one in Houston, Texas, and one in Portland, Oregon. Our corporate staff supports all the branches with contract management, billing, human resources, and system administration, allowing the branches to focus on delivering excellent results.

How We Operate

We are able to succeed in diverse disciplines by recruiting outstanding talent. We have a stable, highly skilled, and experienced team that is accustomed to working in new and varied environments. Because of our low employee turnover rate, our clients get to know our staff and can build great working relationships.

How We Manage Our Work

We have developed innovative management tools to run our business and support clients. Key to managing our extensive staff is a resource scheduling tool called Work Load Manager (WLM). This Web tool allows us to track and forecast workloads for each person and client. WLM tracks work assignments and leave time, identifying conflicts between them. In addition, assignments are automatically posted to employees' home pages and projects are linked to their time sheets.

Client Access

Clients also enjoy unique Web tools for managing RDI projects. We provide clients with secure Web access to our business database and have all employees enter their timesheets daily (via another Web–based tool); therefore, project budgets are always current and available for review.

RDI has been providing software and database development, system integration, and GIS to clients in the public and private sectors for 25 years.

Stability

We are a stable, growing company. With prudent management, we have avoided large fluctuations in employees and revenue. For 2010, RDI grossed well over ten million dollars while maintaining a very low employee turnover rate.

Great People, Great Results

Our motto is People, Technology, Results. We focus on recruiting and retaining the best in the industry. We stress a healthy work/life balance, continual professional development, and long–term careers. The net result is a happy, productive workforce, making for successful projects and many long–term clients.

Services

Selection of Services Supplied by RDI
Analysis (business processes, workflow, and requirements)
System design and data modeling
Custom programming (database, GIS, Web, and open source)
Software implementation (commercial off-the-shelf [COTS] and custom software)
IT system integration
Technical writing and documentation
Web design
Training
Project management
Mentoring and support
Data processing and conversion (spatial and tabular)

Software Expertise (partial list)

Geographic Information Systems	Databases	Work Management
ArcGIS Server	SQL Server	Maximo
ArcInfo & ArcGIS Desktop	Oracle	PassPort
ArcSDE & ArcIMS	Access	
ArcObjects	DB2	
AutoCAD	MySQL	
Google Earth/Google Maps	FoxPro	
Reporting		
SQL Server Reporting Services		
Crystal Reports		
Oracle Reports Services		

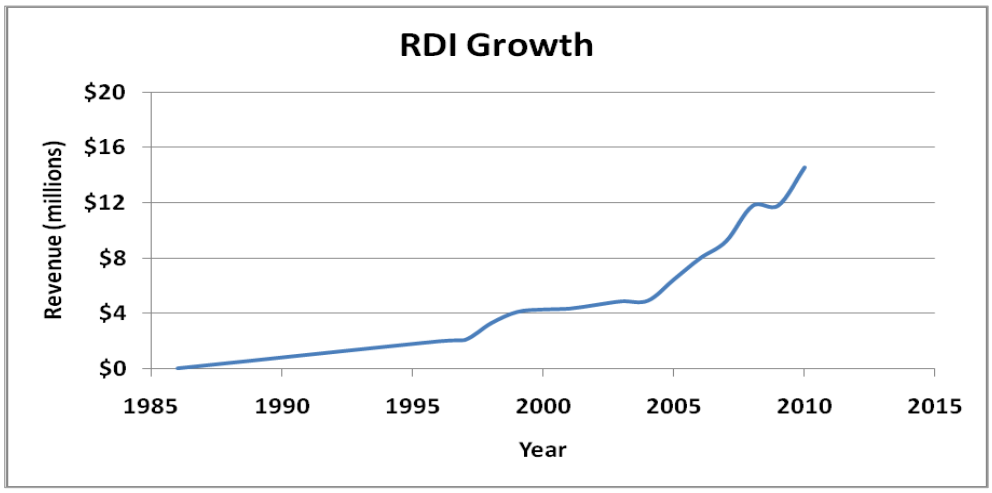
Development Environments	Language Expertise (partial list)	
Visual Studio	ASP	HTML/CSS
Eclipse	ASP.NET	Java
NetBeans	C#	JavaScript
Python	C/C++	Perl
Transact-SQL (T-SQL)	Caml	PHP
Visual Basic .NET (VB.NET)	ColdFusion	PL/SQL
Visual Basic for Applications (VBA)		
VBScript		
Visual Basic		

HR/Financials	Content Management
Oracle Financials	SharePoint
PeopleSoft	DotNetNuke
	Joomla!

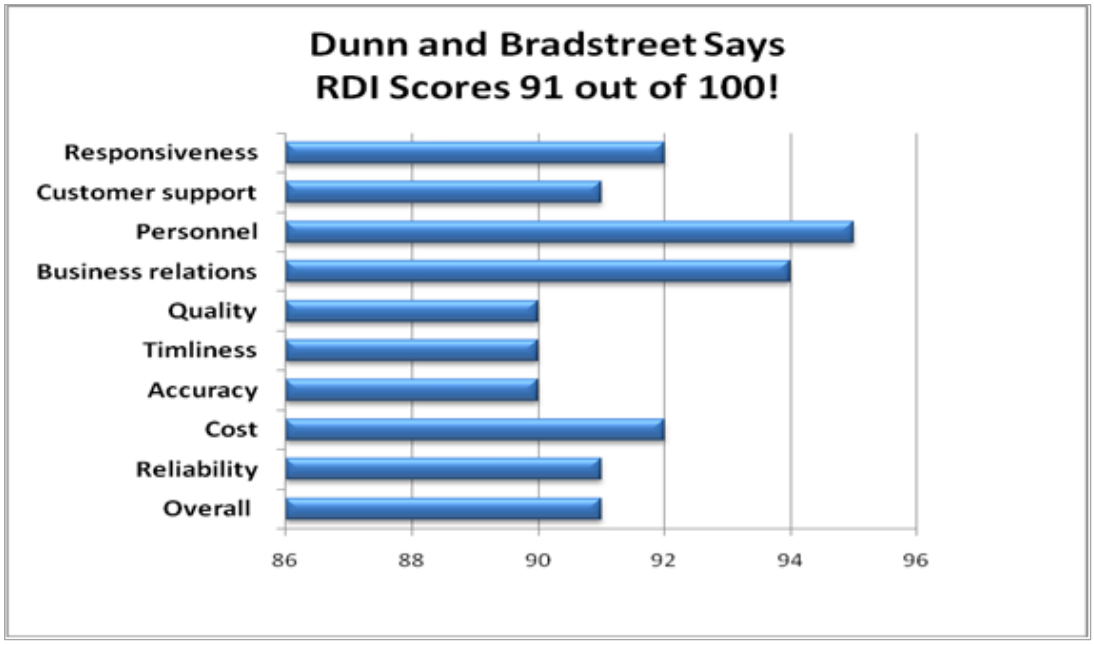
RDI by the Numbers

Resource Data, Inc. (RDI) is a growing successful company. Starting in 1986 with one person, RDI has grown to over 130 employees with offices in Alaska, Idaho, Texas, and Oregon. Our full time permanent staff enjoys one of the finest places to work and as a result, they stay with us for a long time. Our clients benefit from our strong stable staff – they stay with us for a long time too.

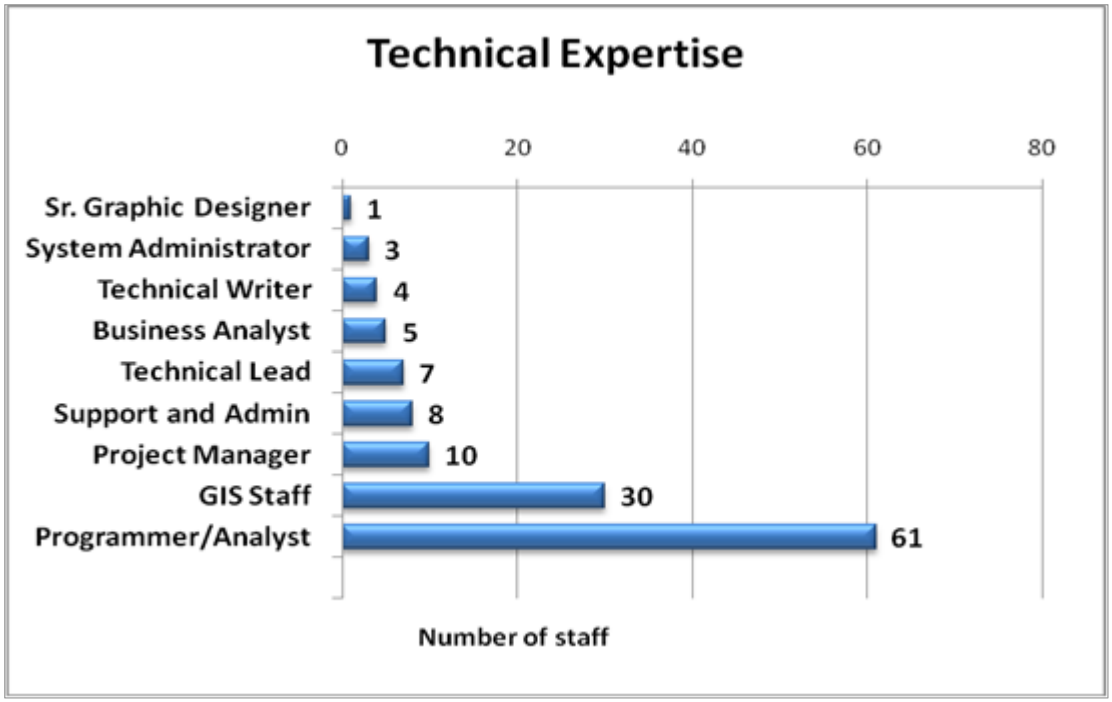
Better than words, the following charts provide an overview of RDI:



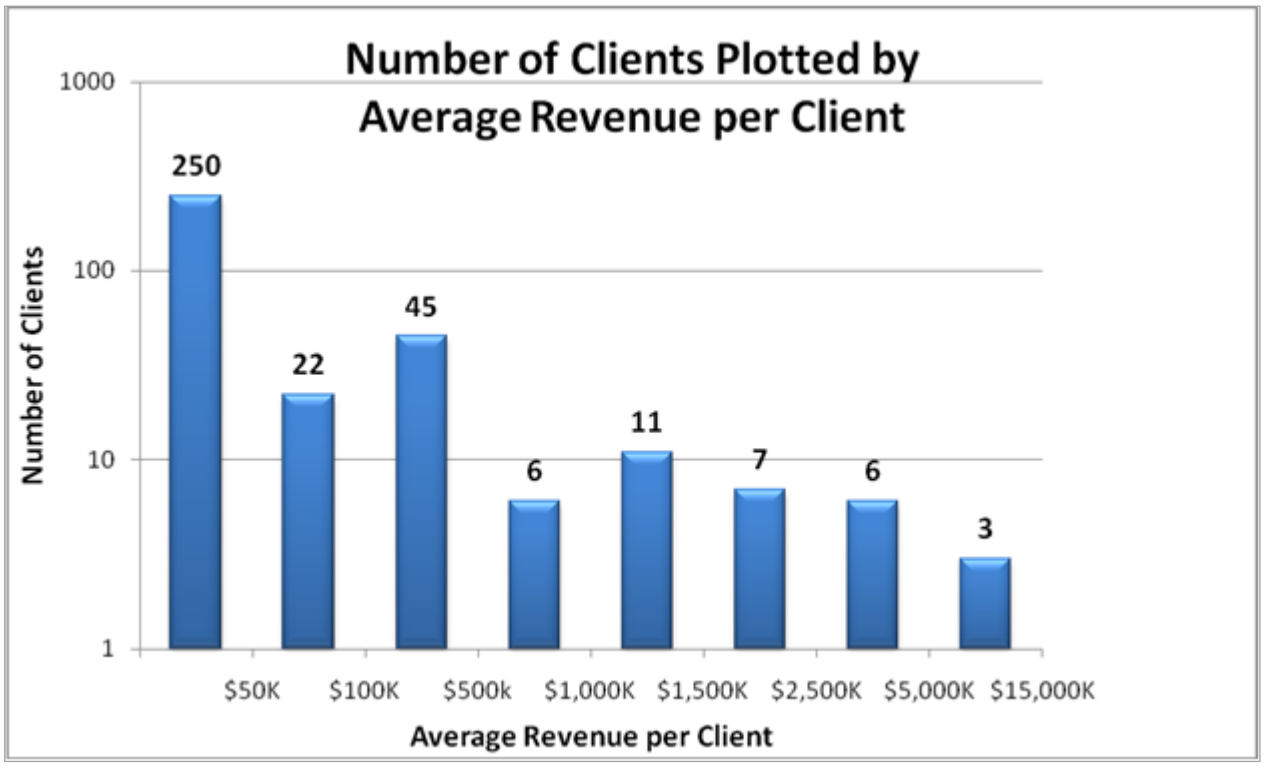
Although we have grown, our relentless focus on delivering the highest value remains unchanged. See what the ratings expert says:



RDI has built a large permanent staff of experts.



RDI is built to respond to any project size. From one hour up to thousands of hours, we are ready to help you.



INDUSTRY EXPERIENCE

GIS technology is a perfect partner for many environmental projects. RDI has been utilizing GIS systems for 25 years to support permitting, analysis, land selection, spill cleanup, mapping, routing, wetlands, and remediation projects. Clients seek out RDI for our unique combination of expertise in technology and understanding the process and language of environmental projects.

The following are some examples of how we support environmental scientists and engineers with appropriate technology:

Wetlands Analysis System
Developed a GIS and database for wetland and environmental studies. Developed Smart Client application to allow users located in offices across the US to access common tabular and spatial data for wetlands and vegetation mapping/analysis. Scientists use custom hand-held devices for field work collecting GPS, photos, and attribute data. Nightly uploads post all data to the master database and then users across the country can download and process as required. Tools are provided to allow classification based on multiple criteria. Extensive reporting is provided to allow generation of assessments, classifications, and reports required by agencies when considering wetlands permitting issues.

Mine Permitting
Developed a comprehensive data management/GIS website to support an environmental studies project for a mineral exploration and development company. Organized and managed GIS data to be used for mapping and impact analysis. Developed and automated GIS routines to perform spatial analysis and reporting in tabular form. Project used .NET technology to build a website for tracking project related information, housing a project related document library, and storing field and chemical (lab) analysis data. Data was stored in an Oracle 9i database.

Superfund Cleanup Portal
Developed a project portal website for an environmental restoration project, which provides comprehensive information about the cleanup of properties on Annette Island, AK. The portal allows users to store and retrieve digital documents, digital photographs, well information, bore hole information, restoration site history, project budget information, project schedules, laboratory results, contact information, site actions, site projects, site descriptions, tasks, and stakeholder information. Information is available in map or text view. Site includes query integration between data input forms, reports, document and photo repositories, and an island-wide mapping component.

RDI leads the industry in knowledge and experience in applying GIS to environmental projects.

Gulf Spill Support
RDI was selected to be the lead GIS vendor to manage and support corporate, federal government, and private contractors working on the Gulf Oil spill. RDI was tasked with three main areas of responsibility: on-site staffing for mapping, data processing, and display; development of GIS tools for the management, display, and integration of data; management of all GIS staff from other agencies, contractors, and vendors. RDI developed dashboard tools for management views of GIS along with innovative tools to manipulate and analyze data, map production, and 24-hour staffing of the response center.

Pipeline GIS
Designed and implemented an interactive web application for a complete pipeline GIS for a pipeline service company. Data included USGS base maps, rivers, roads, hydrography, land parcels for urban areas, aerial photos, environmental data, spill response information, corrosion and pipeline integrity data, and pump stations. Custom menu system allowed easy access to data along with unique pan/zoom tools and distance measuring tools. Intelligent map tips allowed users to float over features and dynamically display attribute data.

Federal Government GIS
Currently providing on–site GIS support for the Mineral Management Service (MMS), which is responsible for management of oil and gas reserves on the outer continental shelf. Writing ArcView extensions to help MMS scientists keep track of diverse environmental and cultural phenomena ranging from bowhead whale population distribution to shipwreck locations. Provided user manuals that included step–by–step instructions and graphics explaining installation and use of extensions.

Environmental GIS for State Agency
Automated in–house spatial data and data from other state agencies and municipalities into a GIS format. These included contaminated sites, leaking underground storage tanks (LUSTS), drinking water sources, contingency plan sites, seafood processors, and Computer–Aided Management of Emergency Operations (CAMEO) data. Obtained and converted base map data for Anchorage, Kenai Peninsula Borough, Mat–Su Borough, and Fairbanks into the ADEC's GIS.

Spills Database for Alaska
Developed a web–based database system to track hazardous spills in Alaska. System allows users from any part of the state's Intranet to view and manipulate spill–related data. Application uses a multi–database backend while storing and retrieving from four different SQL Server databases.

Environmental Baseline Studies
Provided environmental data compilation and GIS services for a mining and mineral development company's Pogo Project in central Alaska. Tasks included compilation of wetlands, environmental and base map GIS data, creation of maps for field mapping, scanned and digitized data, summary acreage reporting of wetland and other classifications, and development of color maps for inclusion in reports. Support and development of the database of wetlands field data containing extensive field notes corresponding to digital photos.

Wetlands Mapping
Designed and implemented the ESRI GIS for Yukon Pacific Corporation. Provided database management and GIS support of YPC's gas pipeline environmental studies. Converted public and private data to GIS spatial datasets. Work included paper map conversions through scanning and vectorization, GPS data capture, and conversion of digital AutoCAD and raster data. Captured digital photos and stored field notes to support route selection. Designed the system to track and organize YPC survey data, such as vegetation, hydrology, and soils reports, and to provide features, such as secure multi–level user access.

Fish and Wildlife Data Compilation
Acquired and mapped various data layers, including wildlife habitats, subsistence use areas, air corridors, airstrip locations, and cultural uses, as well as land status. Results include summary maps of potential use conflicts and calculation of corridor lengths to show affected areas.

Resource Data, Inc. (RDI) has implemented business-critical financial systems for many large companies and public agencies. We have developed custom software solutions for financial intranets as well as tax and accounting systems that process millions of dollars in monthly transactions.

The following are some recent examples of our work:

Financial Intranet
The Municipality of Anchorage (MOA) needed a better way for staff to access information in their PeopleSoft system. We developed a suite of intranet applications—collectively called Muniverse—through which MOA staff can easily access financial transactions, such as payables, receivables, budgets, purchase requests, vendor reports, and contracts.

Permanent Fund Dividend (PFD) Online Application System
A division of the State of Alaska, Permanent Fund Dividend Division oversees the program through which the state distributes nearly a billion dollars to qualified Alaska residents each year. When the state began to allow residents to submit their annual PFD application online, we were contracted to help the PFD Division update their systems.

As part of this work, we developed the online application process; we rebuilt the back end data systems, updated system tables, screens, and business logic; we implemented the *Pick. Click. Give.* program for charitable contributions; and we improved the connection with *myAlaska* (the state's website for authentication). This system has successfully distributed over $600,000,000 dollars a year for several years. The output from our system yields the single largest Automated Clearing House (ACH) transaction in the nation.

Oracle Financials Implementation Support
When Arctic Slope Regional Corporation (ASRC) implemented a new enterprise financial system based on Oracle Financials, we provided a variety of IT support and programming services to assist them.

Trans Alaska Pipeline System (TAPS) Quality Bank System
Each month, the TAPS Quality Bank must compute the net worth of oil transported via TAPS in accordance with its tariff. We developed the database and applications that compute the needed financial adjustments for differences in crude oil value. The system tracks samples, calculates crude oil assays, determines crude oil values, and handles bank transactions worth millions of dollars every month.

In addition, because the information in the Quality Bank is highly proprietary, the system includes security techniques similar to those used by banks. We also developed thorough quality control procedures and worked with Quality Bank auditors and bank personnel to ensure accurate Quality Bank adjustments.

RDI is a valued partner on many important financial systems and our clients trust us to consistently deliver high-value, confidential service.

State Corporate, Motor Fuels and Mining Tax System
RDI was selected by the State of Alaska to reengineer the business processes and build all new systems for the collection and management of corporate, motor fuels, and mining taxes in the state. This multi-year, million dollar plus project is critical for the State's department of revenue and all results are fully audited. The reengineering and system rewrite will prepare the State for the next 20 years with new technology and state of the art processes.

Financial Reporting System
Chugach Electric Association (CEA) needed to facilitate financial reporting and analysis from its corporate accounting system. To meet this need, we built a data warehouse to collect data from PeopleSoft's General Ledger, Accounts Payable, Project Costing, Human Resources, and Payroll modules.

We also incorporated data from their inventory management, contract management, and purchasing systems into the warehouse.

Utility Customer Information System
When the Anchorage Water and Wastewater Utility (AWWU) implemented a new Customer Information System, we developed innovative tools to improve access and use of this system. These tools included electronic bill viewing and payment, custom reports, integration with AWWU's permitting system, and a field work scheduling system.

PeopleSoft Implementation
Managed enhancements to PeopleSoft as implemented at Anchorage Water and Wastewater Utility (AWWU). This work included a custom check printing application, modifications to delivered PeopleSoft functionality, modifications to existing budget reporting to add more reporting options to integrate with NARUC requirements, development of new budget reports for tracking project grant and loan payment status, and development of a new cash receipts module for accounts receivable.

Financial Intranet System
Three Parameters Plus, Inc. (3PPI), a large environmental consulting firm, needed a system to support their administrative business functions. We developed a full–service, Web–based business system that includes time sheets, a general ledger, bill and project coding, electronic invoicing, and invoice routing.

401k Contribution System
A major Alaska Native corporation needed a tool to manage their 401k plans. We developed a comprehensive system to process and reconcile 401k contributions. This system supports the varying 401k plans for subsidiaries across the United States.

Online Permitting and Licensing System
The Alaska Department of Revenue, Tax Division used a number of solutions to manage and collect tax and licensing data in the state. We developed specifications to streamline their processes and also developed the Online Permitting and Licensing Application (OPAL). This modular system allows users to apply for licenses and pay fees online with full security and authentication.

Shareholder Management System
A major Alaska Native corporation needed a system to manage data concerning their shareholders and stock. We designed and deployed a custom shareholder stock management system, which includes tools to track owners, estates, stock transactions, dividends, and all accounting associated with managing shareholders.

Our government clients rely on us to implement cutting–edge solutions at affordable prices. We support our public institutions with systems ranging from tax collection to job banks to billion–dollar financial systems. Whether it be a small desktop system or a statewide enterprise solution, RDI is a trusted partner to get the job done.

The following are some recent examples of our work:

State Corporate, Motor Fuels and Mining Tax System
RDI was selected by the State of Alaska to reengineer the business processes and build all new systems for the collection and management of corporate, motor fuels, and mining taxes in the state. This multi–year, million dollar plus project is critical for the State's department of revenue and all results are fully audited. The reengineering and system rewrite will prepare the State for the next 20 years with new technology and state of the art processes.

Logistics Database System
To plan and execute a deployment to an overseas theater of battle, the Department of Defense (DoD) must retrieve data from systems operated by each service branch and several intelligence agencies. We developed a system that uses data mediation tools and Web services to provide this access. The final solution was a part–GIS/part–database system with graphic and tabular displays.

State of Alaska Authentication System
The State of Alaska needed to develop a single user authentication system for all persons doing e–business with the state. To meet this need, we developed *myAlaska*, which is used by all state agencies needing secure user login functionality. This application, which includes an administrative Web interface and a Web service, required complex code that met strict standards.

Permanent Fund Dividend (PFD) Online Application System
The State of Alaska, Permanent Fund Dividend Division oversees the program through which the state distributes nearly a billion dollars to qualified Alaska residents each year. When the state began to allow residents to submit their annual PFD application online, we were contracted to help the PFD Division update their systems.

As part of this work, we developed the online application process; we rebuilt the back end data systems, updated system tables, screens, and business logic; we implemented the *Pick. Click. Give.* program for charitable contributions; and we improved the connection with *myAlaska* (the state's website for authentication). This system has successfully distributed over $600,000,000 dollars a year for several years. The output from our system yields the single largest Automated Clearing House (ACH) transaction in the nation.

We support our public institutions with systems such as tax collection, job banks, billion-dollar financial systems as well as simple web pages and GIS tools.

Online Permitting and Licensing System
The Alaska Department of Revenue, Tax Division used a number of solutions to manage and collect tax and licensing data in the state. We developed specifications to streamline their processes and developed the Online Permitting and Licensing Application (OPAL). This modular system allows users to apply for licenses and pay fees online with full security and authentication.

Petroleum Property Tax

To support changes in Alaska petroleum taxes, we have developed tools for collecting data about, billing for, and assessing all equipment related to petroleum production in Alaska. These tools streamline and automate the yearly process for petroleum producers and state tax collection personnel and also support auditing and analysis.

Data and Document Management System

The Alaska Banking and Securities Division is responsible for regulating and chartering financial institutions in Alaska. To support their operations, which include examinations, registrations, and filings, we developed a data and document management system.

Financial Intranet

The Municipality of Anchorage (MOA) needed a better way for staff to access information in their PeopleSoft system. We developed a suite of intranet applications—collectively called Muniverse—through which MOA staff can easily access financial transactions, such as payables, receivables, budgets, purchase requests, vendor reports, and contracts.

Utility Portal

To allow water and wastewater utility staff easy access to a vast array of data, we deployed a portal. With this tool, users can access a wide variety of data—such as customers, pipe and infrastructure, ownership, maintenance, permits, land use, and inspections—in real time from more than a dozen disparate systems. To find information, users can query graphically from a map or by entering text criteria. We also developed a portable version that can be downloaded to laptops for field crews to use.

Fisheries Data Warehouse

The Alaska Fisheries Information Network (AKFIN) data warehouse is a repository for all fisheries data from state and federal agencies. We developed this warehouse, which was designed to incorporate complex business rules, advanced extract, transform, and load (ETL), and data validation and analysis.

Utility Data Warehouse

Anchorage Water and Wastewater Utility (AWWU) performs cost of service studies to justify maintaining rates at current levels or adjusting rates; these studies are often used in rate cases submitted to the Regulatory Commission of Alaska (RCA) for approval. We developed a data warehouse and the reports needed to analyze historic data from 60,000 customers and multiple divisions of AWWU.

Resource Data, Inc. (RDI) has implemented innovative health care and medical applications for hospitals, government human services agencies, Alaska Native organizations, and community health centers. Our technology expertise coupled with knowledge of health care delivery needs makes us the ideal choice for modernizing health information systems.

The following are some recent examples of our work:

OnCall Alaska
RDI teamed with Anchorage physician R.J. Hall to develop *OnCall Alaska*, a Web–based tool that simplifies the physician scheduling process in hospital emergency rooms. The system allows users to update personal contact information, check current on–call schedules, and trade duty days.

OnCall Alaska is accessible to users via a Web browser or mobile phone. In addition, *OnCall Alaska* supports record keeping and reporting as required by federal law.

Electronic Healthcare Systems for Alaska
Alaska Psychiatric Institute (API) is on the leading edge of the Healthcare IT revolution. With ongoing project management and support from RDI, this 80–bed hospital is implementing Meditech's electronic medical records system. RDI is assisting the State of Alaska's IT staff with EMR, electronic billing, Telebehavioral Health, disaster recovery, risk management and roll–out of wireless tablet computers.

Alaska Telehealth Solution
As a member of the Alaska Federal Healthcare Access Network (AFHCAN) team, we helped complete a highly successful telehealth project that serves over 700 users in remote Alaskan locations. Using customized medical hardware and a user–friendly interface, a health technician in a rural village sends medical readings and images to a remote doctor for diagnosis. During the project, we assisted with design, programming, testing, and website development.

Behavioral Health Services Needs Assessment
Behavioral Health Services of the Southcentral Foundation needed to identify common data record requirements among its eight divisions. Our business analysts conducted a needs assessment, interviewing key people at each division. We inventoried existing software and procedures and then recommended improvements and new software packages.

RDI systems span the latest innovations in health care, from telemedicine to outcome measurement and electronic health records.

Women's Wellness Database
A nonprofit medical foundation conducted a longitudinal outcome–measurement study to promote cardiovascular disease and breast and cervical cancer awareness among Alaska Native women. To support their study, we developed a database that relates lifestyle choices to disease incidence and then forwards results to the Centers for Disease Control.

Patient Provider Contact Data Mart
For a medical nonprofit, we developed a Web–based, patient–provider contact data mart using Microsoft's BizTalk product. This data mart collects data from various remote databases and provides reports of contact information. Its reporting system provides fundamental medical records information, such as visits, client demographics, diagnostic and treatment summaries, and provider workload.

Operating Procedures Document Management System

Fairbanks Memorial Hospital needed to standardize its approach for storing, updating, and distributing Standard Operating Procedures (SOPs) to all staff. We developed a Web–based system, using InfoPath 2007 and SharePoint that allows hospital staff to create, view, and update SOPs electronically. Employees can enter content in dynamic forms and the information is stored in the database. With SharePoint, users perform tasks such as versioning, content approval, and issue tracking.

Community Health Websites

Our professional Web designers and graphic designers routinely work with community health organizations—such as Juneau Family Health and Birth Center, Alaska Federal Health Care Partnership, and Valley Medical Care—to develop websites for them to publicize their services. For these small organizations it is important to quickly complete professional quality websites.

Resource Data, Inc. (RDI) has been supporting the oil industry with information technology for 25 years. We have worked in all phases of the business. RDI employees are equally comfortable working with geologists, engineers, accountants, and field staff. We are very flexible on work locations. In some cases, we simply deliver a software application; in other cases we deploy a team on–site locally or remotely.

RDI has three offices in Alaska, one in Boise, Idaho, one in Houston, Texas, and one in Portland, Oregon, which places us in the heart of the oil industry. During our long history in Alaska, we have worked for every major oil and pipeline company operating in Alaska and maintain an excellent reputation in the industry.

The following are some recent examples of our work by industry sector:

Exploration, Land, Environmental

Mackenzie Gas Pipeline Environmental GIS
Created a comprehensive spatial database for permitting and analysis.

North Slope Environmental GIS
Compiled all the base map and infrastructure data and provided Web–based tools for analysis and reporting.

Arctic Oil Development GIS
Developed a GIS to support permitting and development of off–shore Alaska oil leases.

North Slope Lease Ownership GIS
Designed a database and GIS to provide up–to–date lease data. The system pulls attribute data from multiple sources and resolves differences, links to map data, and provides users with comprehensive lease data and history.

Facilities Mapping Program
Converted an annual oil field facilities reporting process from an expensive manual process to a semi–automated one.

Environmental and Habitat Mapping for Permitting
Designed a GIS system to support permitting activities for a wide variety of development initiatives in Alaska.

North Slope Land Ownership and Status GIS
Developed a land–status GIS for multiple users.

Remote Weather Stations
Established Web–based data links to remote weather stations for operations and monitoring.

Our projects range from targeted solutions for a single user to enterprise applications used around the world.

Production and Oil Field Services

Production Database Support
Supported the primary database for tracking a major North Slope operator's oil production data. We also developed new programs, data loaders, and query tools as required.

Completions Tracking System
Developed a system that allows tracking of all relevant data on well operations for pricing, management, and troubleshooting.

Field Tickets Tool
Created a tool that automates rig data for invoicing and reporting with automatic transmission to the company's home office on a regular basis.

Geophysical Data Management
Provided support for a major oil company in managing and processing geophysical and down–hole data. We specialized in well log data, including analysis and plotting.

Spider Maps
Developed graphic programs to build spider maps from production database attributes. The maps are interactive and can be customized for various users.

Spill Response GIS
Developed multiple spill response systems for terrestrial and marine environments. We deployed these systems in multiple technologies and integrated them with external oil dispersion models.

Forward Looking Infrared Radar (FLIR) Integration
Integrated real–time FLIR data into an emergency response GIS.

Pipelines

Denali Gas Pipeline
Built the GIS to support design of the 2700 mile gas pipeline from Alaska North Slope to southern Canada. Compiled all the relevant data, generated alignment sheets, built many tools to support engineering analysis, cost estimating, logistics planning for field work, environmental review and management oversight.

Pipeline GIS
Built a GIS with more than 2,000 miles of pipeline data for integrity management of North Slope pipelines, including all relevant infrastructure (e.g., bends, settlement, welds, sleeves, coupons). The system automates mapping of inline and external inspection data.

Risk Assessment Models
Integrated analytical models with a GIS for corrosion analysis and management for all Alaska North Slope pipelines.

Trans Alaska Pipeline System (TAPS) GIS
Developed a GIS for the Alyeska Pipeline Service Company's 800–mile pipeline. The system provides real time–access to numerous external databases; the primary users are from the engineering and environmental fields.

Engineering Data Management (EDM)
Supported and developed corrosion analysis and integrity monitoring tools for Trans Alaska Pipeline and pipelines on North Slope of Alaska.

High Consequence Area (HCA) Analysis
Determined HCAs for pipelines on Alaska's North Slope, which required combining environmental data with pipeline integrity data.

Spill Response

Gulf Spill Support
RDI was selected to be the lead GIS vendor to manage and support corporate, federal government and private contractors working on the Gulf Oil spill. RDI was tasked with three main areas of responsibility: on site staffing for mapping, data processing and display; development of GIS tools for the management, display and integration of data; management of all other GIS staff from other agencies, contractors and vendors. RDI developed dashboard tools for management views of GIS along with innovative tools to manipulate and analyze data, map production, and 24–hour staffing of the response center.

Oil Spill Contingency Planning
Participated in Spills of National Significance (SONS) drills, providing situation mapping, trajectory planning, and Shoreline Cleanup Assessment Team (SCAT). Member of Crisis and Incident Management Teams for a global oil and gas company. Designed, programmed, and implemented an interactive web application to facilitate oil spill response along the Trans–Alaska pipeline.

Prince William Sound GIS
Developed the Prince William Sound GIS, which includes both Internet–based and stand–alone applications. Converted government and environmental data and generated contours from USGS DEM data.

Resource Data, Inc. (RDI) has been working on Alaska pipeline GIS projects for 25 years: beginning in 1986 with alignment sheets for the Yukon Pacific gas line project, to the present with a GIS for the 2700 mile proposed gas pipeline from Alaska to the lower 48. During the intervening years we've completed numerous pipeline GIS projects for the major pipeline and oil companies in Alaska.

Currently, we are supporting two major oil and gas companies with separate, large pipeline integrity GIS projects automating all the lines and relevant data on the North Slope.

We haven't confined our use of GIS technology to just pipelines. We have leveraged the technology in support of permitting and regulatory compliance. Multiple large Alaska projects utilized our tools as part of their permitting process. RDI is unmatched in depth of experience with Arctic pipeline GIS projects and depth of staff devoted to GIS technology, employing 130 full–time staff members in offices in Anchorage, Fairbanks, Juneau, Boise, Houston, and Portland.

Significant GIS Linear Infrastructure Projects:

Pipeline GIS Projects

Natural Gas Line – Alaska to Lower 48
Providing ongoing support for route selection, including compiling relevant spatial data, supporting field crews, and deploying the collaboration site.

Risk Assessment GIS
Generating spatial data and technology to support development of a GIS to evaluate the state of North Slope pipelines for a major oil and gas company.

High Consequence Area (HCA) Reporting
Generated linear GIS data for DOT–controlled pipelines to support HCA reporting of Alaska assets to US DOT for a large oil and gas company. This is a yearly project.

North Slope Infrastructure GIS
Building a GIS of a North Slope piping infrastructure to support the pipeline inspection and integrity management programs.

Northstar Development
Deployed GIS technology to assist in permitting development projects on the North Slope of Alaska to expand an oil production facility.

RDI has over 25 years pipeline GIS experience and in the past few years has built systems for over 6,000 miles of pipe!

Liberty Development
Developed a GIS to assist in the permitting for an oil field development project in North Slope of Alaska

Enterprise GIS – Trans Alaska Pipeline
Produced a GIS for Alyeska utilizing linear measurement technology. Resolved problems with dynamic segmentation associated with rerouting and conflicting stationing vs. mileposts. Primarily used by Engineering, Environmental, and Lands.

Engineering GIS for Trans Alaska Pipeline
Compiled corrosion and integrity data into a GIS for analysis and map generation. Generated alignment sheets and plan–view maps to display all integrity and related engineering data. Products were used for regulatory issues in Washington, DC.

Pipeline GIS
Generated pipeline route, stationing, and dynamic segmentation data for planning the Alpine pipeline route, North Slope Alaska.

Natural Gas Pipeline Alignment Sheets
Generated alignment sheets of the proposed Yukon Pacific line and related data.

Permitting/Regulatory GIS Projects

Mine Road Alignment
Developed an extensive GIS to support permitting, analysis and design of the road route for an advanced mineral exploration project. Included environmental, routing, topographic, photographic, wetlands, and other related data.

Analysis of Road Routes
Developed GIS for analyzing and routing the POGO mine road. Permitting and wetlands delineation were key to the project.

Access Route Permitting
Developed GIS to support permitting and access routes for this new mine in the interior of Alaska.

Mine Permitting
GIS for decision support and permitting for the Fort Knox original mine site.

Mackenzie River Pipeline Corridor
Developed environmental GIS for Mackenzie Gas Pipeline in northern Canada

North Slope Alaska Environmental Data
Developed environmental GIS for North Slope Alaska.

Arctic GIS
Gathered and organized all spatial data to support oil and gas development in the Arctic for one of the largest US oil companies.

Emergency Response GIS
Gathered data and generated mapping technologies to support emergency response for all Alaska assets for major oil company.

Other Linear Infrastructure Projects

Alaska Railroad GIS
Automated the railroad as a pipeline would be done. Resolved stationing vs. mile post issues and handled multiple routes using the same technology used for pipelines.

Natural Gas Utility Network
Developing enterprise GIS and related meter reading tools for the ENSTAR gas utility in south central Alaska.

Other Enterprise GIS Projects

Electric Utility GIS
Provided GIS support for electric lines and related data for Chugach Electric Association.

Water & Wastewater Utility
Automated all piping infrastructure and integrated the GIS with an enterprise Web portal for Anchorage Water and Wastewater Utility in Anchorage, AK.

Gulf Coast Spill
Selected by a global oil and gas company to provide GIS expertise and staffing to support spill tracking and clean up in the Gulf Coast Spill.

Resource Data, Inc. (RDI) has been supporting the Oil Industry with information technology for spill response since 1989. Our personnel led the GIS and database teams for the Exxon Valdez spill and more recently led the GIS response team supporting an oil and gas company in the Gulf Oil Spill. Between those two events we have developed numerous spill response data systems, participated in multiple drills, and worked on risk analysis systems for major pipeline networks. With over 130 professionals RDI has the resources and talent to support incident response teams in the field and in the office.

The following are some highlights of our twenty plus years of experience:

Gulf Spill Support
RDI was selected to be the lead GIS vendor to manage and support corporate, federal government, and private contractors working on the Gulf Oil spill. RDI was tasked with three main areas of responsibility: on site staffing for mapping, data processing, and display; development of GIS tools for the management, display, and integration of data; management of all other GIS staff from other agencies, contractors, and vendors. RDI developed dashboard tools for management views of GIS along with innovative tools to manipulate and analyze data, map production, and 24–hour staffing of the response center.

Oil Spill Contingency Planning
Participated in Spills of National Significance (SONS) drills providing situation mapping, trajectory planning, and Shoreline Cleanup Assessment Team (SCAT). Member of the Crisis and Incident Management Teams for a global oil and gas company. Designed, programmed, and implemented an interactive web application to facilitate oil spill response along the Trans–Alaska pipeline.

Spill Response GIS
Developed the Prince William Sound, Alaska GIS, which includes both Internet–based and stand–alone applications. Converted government and environmental data, generated contours from USGS DEM data, and merged with environmental data.

Exxon Valdez Spill
Lead GIS vendor for the data compilation and response planning for the Exxon Valdez spill. Provided field teams in the response center that generated maps, data, and analysis. The field teams also coordinated development of the environmental sample database, chain of custody forms, and labels for all scientific sample collection. Coordinate data uploads from laboratories and compiled a comprehensive data system.

RDI has led the GIS teams for the nation's two largest spills and provided expertise for countless drills and assessments.

Spill Drill Team
RDI provided staff and technology for multiple spill drill exercises. These ranged in size and duration, but typically included GIS systems, data integration with field sensors and GPS, trained personnel in the command center, and on the fly product generation.

FLIR for Spill Response
Built tools to integrate Forward Looking Infrared Radar from airborne sensors into GIS. This allows real time responders to combine airborne and ground based data to plan response tactics during spill response.

Risk Analysis Tools
Developed multiple systems for risk analysis and determination of High Consequence Areas for most major oil pipelines in Alaska. Work included integrating detailed surface mapping, constructing 3–D versions of lines, loading relevant environmental and base map data, and integration with various risk and integrity models.

Annette Island Clean Up
Developed GIS and database to support the multi–agency cleanup project at the Annette Island Superfund site. Database included maps, photos, drill hole and sample location, sample analysis, documents and all relevant project data. System was accessible via satellite link and updates were processed on site and remotely. Recognized by Federal Agency as a ground breaking use of technology.

Resource Data, Inc. (RDI) has provided innovative technology and state of the art solutions to Utilities for 25 years. RDI has supported a broad range of programs including: GIS, electronic time card, Work Management, Financial, Customer Service, rate cases, and permitting.

Utilities benefiting from RDI include water, wastewater, gas, electric, and telephone. In addition to supporting the utility market we have also worked with the utility regulators. In Alaska RDI has been a long time contractor for the Regulatory Commission of Alaska. This has given us the knowledge of the operations and regulatory sides of the utility business.

Here are a few example projects:

Water Utility Facility Inventory System
A water utility wanted to test mobile GIS tools for verifying facilities in the field – including pipes, valves, fire hydrants, and manholes. Desiring highly accurate data, they required that RTK GPS tools, which exceed normal field GIS handheld capability, be used. We developed a custom system based on the best available technology, which included real–time GPS monitoring and built–in look–up tables for coding facilities. In addition, the system allowed field technicians to monitor signal quality so they could adjust data collection procedures, if necessary.

Water and Sewer Utility GIS Portal
The GeoSpatial Portal project is an innovative GIS implemented to provide utility staff with a single system for easy access to utility and municipal information. The portal includes mapping data as well as links to databases, such as building permits, septic tanks/wells, utility assessments, capital projects, and customer data. Mapping includes features such as lines, hydrants, pipes, valves, land ownership, topography, hydrography, and aerial photography.

The project represents conversion from the traditional ESRI coverage data model into the new Oracle–based Geodatabase model. The Portal utilizes ESRI Geodatabase, ASP, and .NET technology to integrate GIS parcel and water–utility data with 14 external databases, many in other departments within the Municipality of Anchorage (MOA).

This project was recognized by ESRI as a landmark accomplishment in Municipal systems integration and earned the Special Achievement in GIS award. The project also received official recognition for excellence by the Anchorage Assembly, the governing municipal body of Anchorage.

RDI's work led to the national Special Achievement in GIS Award for the Geospatial portal.

Work Management System
Project management, planning, analysis, and implementation of the MAXIMO Computer Maintenance Management System for Anchorage Water and Wastewater Utility. During the first phase, Maximo was configured and then implemented to all workgroups that conduct maintenance activities. Functionality included work orders, job plans, preventative maintenance, and labor and material management. The system was fully documented and user training was provided. During the second phase, additional functionality was added for equipment lifecycle management and reliability centered maintenance (RCM). Software was evaluated, purchased, and configured to enable RCM analysis of Maximo data.

Electronic Timecard
Managed the implementation of an Electronic Timecard system for a large water and wastewater utility (AWWU). Tasks included requirements analysis, interface development between the timecard and the Municipality of Anchorage's PeopleSoft system, report writing, and system documentation. The project was completed on schedule and budget. The e–timecard issued daily by all AWWU employees. Product was WorkTechTime.

Gas Bidding System
RDI developed the web–based application used by the natural gas utility ENSTAR to solicit daily bids for natural gas from Producers. The system issues and tracks gas bid requests for emergency and spot purchases from all producers with active contracts; allows producers to submit bids in response to the requests; and enables ENSTAR to reserve gas amounts based on the bids received. The software was built using rapid application development techniques that enabled ENSTAR to meet its tight deadline and budget.

Electric Utility Circuit Tracing and Load Calculations
RDI developed an application that traces the flow of electricity through Idaho Power's transmission lines and calculates the load at specific points in the network. This challenging project employed ESRI's geometric network technology and Oracle PL SQL to generate data tables for driving a variety of reports. The application reduced the cycle time from a week to a few hours to process the entire power grid for the state of Idaho.

Electric Utility GIS
Provided comprehensive GIS support to Chugach Electric Association, a large electric utility. Our professionals provided a range of services including SDE administration, application support for in–house and third party tools, development of advanced tools for data analysis, input and integration, as well as user support for all aspects of GIS. In addition, we provided GIS Technical Lead role for two major projects. One was the upgrade to ArcGIS 9.3 along with geodatabase migration and the second was the project to bring GIS tools into the engineering department.

Gas Utility Information Portal and GIS
RDI designed and developed an enterprise web–portal for viewing, searching, and editing spatial data stored in an Oracle ArcSDE database. The site featured Silverlight technology and advanced map caching for smooth movement and navigation through maps.

A custom search feature was created to provide users quick, easy access to a large amount of customer and asset data. Additional features included advanced feature identification with integration into documents and a customer information system.

Gas Utility Cache Management Tool
RDI designed and developed an automated ESRI Cache Management System that monitors and updates GIS data caches on a user–defined schedule. Included with the system was a Silverlight monitoring User Interface that allowed users to monitor, create, kill, analyze (run reports), and create new cache jobs. The project utilized the following technologies: Oracle 10g SDE, ArcGIS Server 9.3.1, Silverlight 3, Microsoft .NET 3.5 (C#), and Python.

Natural Gas Facility Corrosion Tool
A local natural gas utility needed a mobile GIS solution to support their facility verification program. RDI started with a requirements analysis followed by hardware/software evaluation with the client, a pilot, and the full production. Field tool used ArcPad with .NET programs to coordinate bar code scanner and camera input. Crews used the tools to inventory and QC over 25,000 sites in one summer. Nightly data dumps were into a SQL Server database and updates to the corporate system were used for transactional updates to the GIS and asset systems. The result was an efficient field tool that allowed technicians to rapidly assess each site. Nightly downloads provided the data for analysis and follow up work.

Electric Utility Financial Reporting
Chugach Electric Association (CEA) needed to facilitate financial reporting and analysis from its corporate accounting system. To meet this need, we built a data warehouse to collect data from PeopleSoft's General Ledger, Accounts Payable, Project Costing, Human Resources, and Payroll modules.

We also incorporated data from their inventory management, contract management, and purchasing systems into the warehouse.

PeopleSoft Reporting – electric utility
This Municipal Light and Power utility required financial management reporting from their PeopleSoft ERP. Over several years we developed numerous web–based reporting systems to provide enhanced management tools.

Water and Sewer Utility Customer Information System
The utility implemented a new Customer Information System to replace a legacy mainframe system. The process involved requirements, vendor selection, implementation, data conversion, report generation, and integration. RDI led the effort to integrate with GIS and PeopleSoft systems along with the data conversion and report generation. The RDI team developed innovative tools to improve access and use of this system including electronic bill viewing and payment, custom reports, integration with AWWU's permitting system, and a field work scheduling system. These latter required tight coupling with the GIS to ensure proper assignment by field team and spatial analysis.

Telephone Utility CRM Implementation
Set up and managed testing activities for a Customer Relations Management project of mission critical importance to a major Alaska telecommunications company. RDI established the test program and provided ongoing management and operation. Tasks included: determining and implementing test architecture, modalities, test plans, script development, including "Gating" and reporting requirements. Managed testing team of 8 to 30 testers. Managed development of User Acceptance Testing process, including thousands of test cases. Executed subcontractor requirements validation tests incorporating in excess of 30,000 test steps. Developed bug identification, reporting regime, and corrective management. Set up and managed issue tracking software and processes key to the progression/regression testing cycles. Managed the relationship with the primary Contractor in all matters related to testing, including Business Analysis and Business Process re–engineering.

TECHNOLOGY & TOOLS

Relational databases provide the back-end processing for most modern applications whether they are data warehouses, Web applications, document management, client-server, or distributed database systems. RDI's expertise covers the gamut of database technology from design to fine tuning. Our seasoned professionals are experts in: data modeling, transaction processing, stored procedures, distributed queries, data migration, real-time recoverability, fault-tolerant redundancy, and performance optimization across a number of commercial database products.

Data Modeling and Database Implementation

We develop data models, logical and physical database designs and implement them. When designing a database, we might start from scratch or we might begin from an existing legacy or relational model. This completed database design identifies the structure of the database that will be implemented during the project. The following are some recent examples of our work.

Trans Alaska Pipeline System (TAPS) Quality Bank
Each month, the TAPS Quality Bank must compute the net worth of oil transported via TAPS in accordance with its tariff. We designed the data model and also developed the database and applications that compute financial adjustments for differences in crude oil value. The system tracks samples, calculates crude oil assays, determines crude oil values, and handles bank transactions worth millions of dollars every month. In addition, because the information in the Quality Bank is highly proprietary, the system includes security techniques similar to those used by banks or other financial institutions.

Utility Oracle Database Upgrades
When a large Anchorage utility was doing a major database upgrade to Oracle 10g, we managed the implementation team, analysis work, and development. Our tasks included extensive SQL programming, database administration (DBA) services, data migration, and user support.

Logistics Database System
To plan and execute a deployment to an overseas theater of battle, the Department of Defense (DoD) must retrieve data from systems operated by each service branch and several intelligence agencies. We developed a system that uses data mediation tools and Web services to provide this access. The final solution was a part-GIS/part-database system with graphic and tabular displays.

State of Alaska Authentication System
The State of Alaska needed to develop a single user authentication system for all persons doing e-business with the state. To meet this need, we developed *myAlaska*, which is used by all state agencies needing secure user login functionality. This application, which includes an administrative Web interface and a Web service, required advanced SQL programming.

Although we focus heavily on SQL Server, Oracle, and Access, we have worked on a wide range of database systems from desktop to mainframe to distributed Web services.

Data Warehousing

We have built many data warehouses to improve our client's business. Although each one serves a different purpose, they were all designed and built using our standard development methodology. The following are some recent examples of our work.

Patient Provider Contact Data Mart

For a medical nonprofit, we developed a Web–based, patient–provider contact data mart using Microsoft's BizTalk product. This data mart collects data from various remote databases and provides reports of contact information. Its reporting system provides fundamental medical records information, such as visits, client demographics, diagnostic and treatment summaries, and provider workload.

Fisheries Data Warehouse

The Alaska Fisheries Information Network (AKFIN) data warehouse is a repository for all fisheries data from state and federal agencies. We developed this warehouse, which was designed to incorporate complex business rules, advanced extract, transform, and load (ETL), and data validation and analysis.

Utility Data Warehouse

Anchorage Water and Wastewater Utility (AWWU) performs cost of service studies to justify maintaining rates at current levels or adjusting rates; these studies are often used in rate cases submitted to the Regulatory Commission of Alaska (RCA) for approval. We developed a data warehouse and the reports needed to analyze historic data from 60,000 customers and multiple divisions of AWWU.

Web Database Programming

As access to the Internet has become more widely available, business users often request Web–based services. In addition, many intranet–based systems are used to support internal business systems. We have supported many of these Web–based development efforts. The following are some recent examples of our work.

Permanent Fund Dividend (PFD) Online Application System

The State of Alaska, Permanent Fund Dividend Division oversees the program through which the state distributes nearly a billion dollars to qualified Alaska residents each year. When the state began to allow residents to submit their annual PFD application online, we were contracted to help the PFD Division update their systems.

As part of this work, we developed the online application process; rebuilt the back end data systems, updated system tables, screens, and business logic; implemented the *Pick. Click. Give.* program for charitable contributions; and improved the connection with *myAlaska* (the state's website for authentication). This system has successfully distributed over $600,000,000 dollars a year for several years. The output from our system yields the single largest Automated Clearing House (ACH) transaction in the nation.

Virtual Private Network System Database/Portal

A large oil producer that operates offices and facilities around the world implemented a sophisticated and secure virtual private network system to provide electronic connectivity for its staff, regardless of location. We developed a portal site that was the international gateway to this virtual private network.

Wetlands Smart Client Application

A growing environmental science consulting firm needed an enterprise system to enter and analyze wetlands delineation information. System users needed to use one database but access the system from anywhere in the United States with little support, but maximum security and functionality. In addition, because of the data involved, the system had to support a complex mix of data, pictures, maps, and analysis.

To meet this need, we developed a Smart Client system, which provides a rich user interface, multi–user access, enhanced performance, and robust security through a Web deployment. This architecture combines the best of the Web and desktop worlds by providing the convenience of a Web application with the speed and performance of a desktop application.

Data collection systems for field crews are becoming increasingly important in today's fast paced mobile world. RDI has long been recognized for expertise in mapping and GPS–based systems and now we are known for our efficient mobile applications for field crews. From the arctic environment of Alaska's North Slope oil fields to urban settings, our innovative tools are proven winners.

Some examples of our work:

Wetlands Smart Client Application
A growing environmental science consulting firm needed an enterprise system to enter and analyze wetlands delineation information. System users needed to use one database but access the system from anywhere in the United States with little support but maximum security and functionality. In addition, because of the data involved, the system had to support a complex mix of data, pictures, maps, and analysis.

To meet this need, we developed a Smart Client system where data is collected on IKE handheld devices with ESRI ArcPad (data collection software) and then uploaded seamlessly into the Smart Client application. This architecture combines the best of the Web and desktop worlds by providing the convenience of a Web application with the speed and performance of a desktop application.

Environmental Data Collection System
Multiple environmental scientists, under contract to an oil company, needed to collect environmental data on Alaska's North Slope. They needed an easy, accurate method to store data on a GPS computer that ensured the collected data was complete and formatted in accordance with existing ArcSDE and Oracle tables.

To meet their needs, we developed a system using the Trimble GeoXM GPS computer and ESRI ArcPad software, which appends collected data to existing tables and feature classes in ArcSDE and Oracle. In addition, we developed an ArcPad export tool; with this tool, the scientists can use ArcMap to gather, select, and clip spatial and raster data from multiple sources and then easily export the prepared data to the GeoXM units in the field.

Oil Field Equipment Inventory System
A large oil company needed to rapidly inventory more than 26,000 vibration dampers, which are hung on above–ground pipe segments to prevent wind induced oscillations. For the project, we developed a mobile Geographic Information System (GIS), combined with laser range finders and GPS. When the system was complete, we deployed a truck–based crew, which surveyed and inventoried the vibration dampers in less than a week. Innovative use of GIS data was a key factor in our success.

RDI has a successful record of providing the best field data collection systems to private and government entities.

Water Utility Facility Inventory System
A water utility wanted to test mobile GIS tools for verifying facilities in the field—including pipes, valves, fire hydrants, and manholes. Desiring highly accurate data, they required that RTK GPS tools, which exceed normal field GIS handheld capability, be used. We developed a custom system based on the best available technology, which included real–time GPS monitoring and built–in look–up tables for coding facilities. In addition, the system allowed field technicians to monitor signal quality so they could adjust data collection procedures, if necessary.

Natural Gas Utility Field Tool

A local natural gas utility needed a mobile GIS solution to support their facility verification program. RDI started with a requirements analysis followed by hardware/software evaluation with the client, a pilot, and the full production. Field tool used ArcPad with .NET programs to coordinate bar code scanner and camera input. Crews used the tools to inventory and QC over 25,000 sites in one summer. Nightly data dumps were into a SQL Server database while updates to the corporate system were used for transactional updates to the GIS and asset systems. The result was an efficient field tool that allowed technicians to rapidly assess each site. Nightly downloads provided the data for analysis and follow up work.

Pipe Joint Tracking System

A pipe supplier with a large yard containing multiple buildings needed to track the status of each pipe joint as it was processed with various treatments and coatings. Because the buildings do not have network access, the solution had to be wireless.

We developed a system with a master database in the main office and laptops in each building that communicated via wireless to the production database. Using handheld devices, production staff enters data for each pipe joint on the production floor. Then the handheld device updates the local laptop, which synchronizes with the production server.

Remote Weather Data Access System

Various clients—including the federal government wanting long–term data collection and private companies collecting baseline environmental data for the permitting process—have needed to gather data from remote weather stations.

For these projects we provided the software that enables remote data collectors to download data to a local database on a predetermined schedule. After the data is downloaded, it is processed and made available for clients to view via the Web. For one client, we loaded the data into a GIS map for display and plotting, such as wind rose diagrams. We also built tools to report data collection malfunctions or irregularities.

Resource Data, Inc. (RDI) has been a leader in Geographic Information Systems (GIS) since 1986. Over the past 25 years our projects have evolved with the technology and we continue to be at the forefront of GIS development. ESRI, the world's leading GIS software company, has long recognized RDI as a premium GIS companion. As a long-term ESRI Business Partner, we even assist them with technical product support. Although it is nice to be recognized by the world's largest GIS vendor, we place more importance on recognition from our peers, competitors, and clients as a premier GIS shop. Repeat business from government agencies, utilities, oil companies, and other private companies is the best testimony to our quality work.

Recent Large GIS Projects

The following are some recent examples of our work.

- Lead GIS firm for Gulf Coast Oil Spill
- Statistical analysis of environmental data for land use development and planning
- New systems for the Alaska Department of Natural Resources
- Land records systems for North Slope oil producers
- Pipeline GIS for a major pipeline service company
- GIS tools for the Department of Defense, Joint Chiefs of Staff
- Award-winning GIS integration for Anchorage Water and Wastewater Utility
- Extensive wetlands and permitting systems for mining companies
- Highway and traffic data systems
- Comprehensive Web-based tools for environmental cleanup

Worldwide Experience

Although the bulk of our work has been in Alaska, we have worked all over the world on diverse projects, including the following:

- Parcel mapping for one of Japan's largest mapping companies
- Environmental GIS for one of the world's largest oil companies
- Land records and natural resource mapping for one of the nation's largest private landholders
- Natural resource GIS for one of the world's largest mining companies

Development and Maintenance of GIS in Multi-User Enterprise Environments

Deploying GIS to a multi-user enterprise environment is the norm. We are recognized by our clients for repeated success at large GIS deployments and have received national awards for our work. Examples include:

- Major Oil Company—Developed a Web-based North Slope pipeline GIS to the entire company. The GIS provides access to pipeline and extensive land base data.
- Chugach Electric Association (CEA)—Supported CEA on multiple projects related to its enterprise GIS.
- Major Oil Company—Developed a North Slope pipeline GIS focused on pipeline integrity. The GIS is accessed by numerous users on their corporate network.
- Advanced Mineral Exploration Project GIS—Developed and continue to manage the storehouse of all environmental and land base data for a mineral exploration project, which is accessed by multiple users.
- Municipality of Anchorage—Developed a new traffic data analysis GIS for enterprise deployment. This multi-user system is a tool for engineers to analyze traffic control systems and design improved roads.
- Alaska Railroad—Developed a GIS used by engineers and environmental officers at the railroad.

Remote Data Acquisition

We have developed numerous field-based GIS systems for data collection, which are synchronized with an enterprise GIS. Examples of such projects include the following:

- Mobile GIS supported survey of vibration dampeners on North Slope pipelines
- GPS-based GIS for locating pipelines and valves in an urban environment
- Mobile GIS data collection of pavement condition for all municipal roads
- Field tools for measuring wetlands and collecting environmental samples
- Tools to collect storm drain locations for municipal pipe systems
- Systems to allow remote users to enter validated data directly to the enterprise GIS via remote satellite link
- Remote weather stations that send data to an enterprise GIS

Although it is nice to be recognized by the world's largest GIS vendor, we place more importance on recognition from our peers, competitors, and clients as a premier GIS shop.

Web-Based GIS

We are known for our expertise in deploying GIS over the Web and have provided multi-user systems accessible through Web tools for many years. Examples of these systems include the following:

- AnchorageLive—Parcel-based GIS showing land ownership and land values for Anchorage, Alaska (www.anchoragelive.com)
- NANA Lands—Land query-based tool for the NANA Regional Native Corporation (www.nanalands.com)
- Annette Island GIS—Private, Web-based GIS for all land mapping and sample data from environmental cleanup of this large Superfund site
- Mine Permitting—Private, multi-user GIS that supports all permitting, route planning, land ownership, and environmental data for a world-class, copper-gold deposit in Alaska

Here are a few detailed descriptions.

Spill Response Effort

RDI was selected to be the lead GIS vendor to manage and support corporate, federal government, and private contractors working on the Gulf Oil Spill. RDI was tasked with three main areas of responsibility: on site staffing for mapping, data processing and display; development of GIS tools for the management, display and integration of data; management of all other GIS staff from other agencies, contractors, and vendors. RDI developed dashboard tools for management views of GIS along with innovative tools to manipulate and analyze data, map production, and 24-hour staffing of the response center.

Utility Geospatial Portal

The GeoSpatial Portal project is an innovative GIS implemented project to provide AWWU staff with a single system for easy access to utility and municipal information throughout the organization. The portal includes mapping data as well as numerous links into other related databases, such as building permits, septic tanks/wells, utility assessments, capital projects, and customer data. Mapping includes features such as lines, hydrants, pipes, valves, land ownership, topography, hydrography, and aerial photography.

The Portal utilizes ESRI Geodatabase, ASP, and .NET technology to integrate GIS parcel and water-utility data with 14 external databases, many in other departments within the Municipality of Anchorage (MOA).
This project was recognized by ESRI as a landmark accomplishment in Municipal systems integration and earned the Special Achievement in GIS award.

Gas Utility: Silverlight Enterprise Web Portal

RDI designed and developed an automated ESRI Cache Management System that monitors and updates GIS data caches on a user-defined schedule. Included with the system was a Silverlight monitoring User Interface that allowed users to monitor, create, kill, analyze (run reports), and run new cache jobs. The project utilized the following technologies: Oracle 10g SDE, ArcGIS Server 9.3.1, Silverlight 3, Microsoft .NET 3.5 (C#), and Python.

Traffic GIS Project

RDI is developing an enterprise, web–based, traffic safety data management application for the Municipality of Anchorage, Traffic Department. This is a multi–phase project that includes web, GIS, and 3rd party vendor technologies.

The system's accident module allows for capture and maintenance of current 12–200 accident forms via a web interface. The report engine integrates with GIS layer and provides a navigable map for detailed, visual statistics. The Volume and Studies phase allows the capture, organization, and reporting of roadway volume information. A multi–purpose document repository is also included. The Annual Report phase includes data verification, rate calculations, and statistical reports designed to support the annual report process. Finally, other features are included such as collision diagrams and integration with Anchorage Police Department and Alaska DOT accident reporting systems.

RDI participated in the project from requirements to geodatabase design to web implementation and it stands as a premiere example of our work in the municipal GIS area.

Electric Utility GIS

Provided comprehensive GIS support to Chugach Electric Association, a large electric utility. Our professionals provided a range of services including SDE administration, application support for in–house and third party tools, development of advanced tools for data analysis, input and integration, as well as user support for all aspects of GIS. In addition, we provided GIS Technical Lead role for two major projects. One was the upgrade to ArcGIS 9.3 along with geodatabase migration and the second was the project to bring GIS tools into the engineering department.

Microsoft SharePoint is a core technology at Resource Data, Inc. (RDI). As a Microsoft Gold Partner, we are experts in the product and have completed many successful implementations. Because SharePoint is built on the .NET platform and uses SQL Server 2005 for all data storage, deploying this technology requires expertise in SharePoint as well as .NET and SQL Server.

Technical Considerations for SharePoint

SharePoint is often considered just a content management system. However, it has far greater technical capabilities. Properly implemented it can form the core of many enterprise systems. The following are some feature highlights of the product that RDI can implement for clients.

RDI is an expert in SharePoint and it is an ideal tool to improve your business.

- Geospatial file management using the SharePoint file management system
- Multi-tiered and multi-site configurations for intranet and Internet systems
- Custom site templates for Team Collaboration and Help Desk functionality
- Blog and knowledge base tools for application support capabilities
- Custom Web part design and development
  - Key Performance Indicators/metrics
  - Schedule tracking
  - RSS functionalities
  - Active Directory contacts list
- Integration with SQL Server Reporting Services
- Integration of Microsoft Enterprise Search Services
- Integration with Active Directory
- Intranet branding via theme customization
- Deployment of systems to support document management and remote access

The following are some recent examples of our work:

Native Corporation Intranet Site

Doyon, Limited, an Alaska Native corporation, moved its intranet site to SharePoint 2007 to promote communication between its businesses. Using their .NET-based public website as the basis for the design, we redeployed the site using multiple branding techniques available in SharePoint, including themes, master pages, styles, graphics, and custom layouts.

Project Management Tool for Million Dollar Software Project

RDI is building new Corporate, Motor Fuels and Mining tax systems for the State of Alaska. This is a large complicated project and we have implemented SharePoint as the source for all project documents and materials. The implementation ensures up-to-date information is available to all parties and that project materials are organized efficiently.

Environmental Document Management System

Three Parameters Plus, Inc., (3PPI) a nationwide consulting firm, needed an easy way for their contractors— many of whom work at widely dispersed locations—to collaborate on geospatial data from various projects. We deployed and managed a SharePoint (MOSS 2007) site to facilitate collaboration and to provide workflow for contractor documents. Our responsibilities included architecting necessary hardware, installing and configuring software, and implementing custom workflows to meet 3PPI's needs.

Operating Procedures Document Management System

Fairbanks Memorial Hospital needed to standardize its approach for storing, updating, and distributing Standard Operating Procedures (SOPs) to all staff. We developed a Web–based system, using InfoPath 2007 and SharePoint that allows hospital staff to create, view, and update SOPs electronically. Employees can enter content in dynamic forms and the information is stored in the database. With SharePoint, users perform tasks such as versioning, content approval, and issue tracking.

Municipality Website

The Municipality of Anchorage wanted to move their website to a city–wide SharePoint system. We migrated the legacy website content, pages, documents, and images to the new SharePoint site. In addition, we created new Web pages in SharePoint and connected documents, images, and links to these pages.

RDI's Experience with SharePoint

- Four years experience with Windows SharePoint Services versions 3, 2003, and 2007
- Two years experience with Microsoft Office SharePoint Server (MOSS) 2007
- More than 20 employees with SharePoint expertise
- More than 50 .NET experts
- More than 60 SQL Server experts (many with more than 10 years of experience)

Resource Data, Inc. (RDI) has more than ten years of experience implementing Work Management Systems (WMS) for a number of our major clients. They use this technology for improvements, maintenance, work order processing, parts warehousing, time keeping, job costing, and maintenance activities.

The following are some examples of our work:

Utility WMS Support
We have assisted Anchorage Water and Wastewater Utility (AWWU) during all aspects of their enterprise WMS: from procurement to implementation to upgrading.

During the procurement process, we developed standard criteria for evaluating vendors and data models of proposed software to ensure the system could be easily integrated with other AWWU systems. In addition, we provided support to AWWU throughout the procurement process to ensure the utility received the best possible product at the right price.

We implemented Maximo at AWWU using a phased approach that included planning, analysis, and implementation. In the first phase, we configured Maximo, provided user training, and deployed it for all work groups.

In a second phase, we added functionality for equipment lifecycle management and Reliability Centered Maintenance (RCM). This phase included evaluating and purchasing software and configuring it to enable RCM analysis of the Maximo data.

In addition, we did planning, integrating Geographic Information Systems (GIS), training, developing data entry forms, report writing, and data loading.

The initial install was Maximo v 4.0. Since then, we have assisted AWWU in upgrading through 3 versions to the now current v 7.0.0.7 for which the upgrade is in progress during the first half of 2011. Included was a major transition to the new web based version requiring rewriting many reports and interfaces.

Maximo Implementation
For AlaskaUSA Federal Credit Union, we implemented Maximo 6.2 and Maximo Mobile Work Manager, which will help this financial institution better manage its facilities and major assets.

Extended Work Order System
To help rural Alaska school districts comply with statutes requiring a structured preventative maintenance system, we developed an Extended Work Order System for the South East Regional Resource Center. The Web–based system is based on Maximo and DataSplice. Rural school districts can use the system to print work orders, change work order status, enter labor and material data, and create new corrective maintenance work orders.

For over ten years RDI has been working with clients to implement Work Management Systems and our clients trust us to consistently deliver high-value, confidential service.

WMS Consulting
We have provided WMS consulting to multiple clients, including for Chugach Electric Association's PassPort WMS and Cascade WMS (for its Energy Supply division) and for the Alaska Railroad's implementation of a WMS for heavy machinery and purchasing.

RELATED SERVICES

Resource Data, Inc. (RDI) has been developing IT systems for 25 years. We have witnessed the evolution of system development methodology over the years as different techniques come into vogue. Every few years there is a new hot method and a push for adoption.

At RDI we have found that flexibility is the popular methodology. Projects and organizations are different and the variety drives different approaches. The key drivers of the project along with personalities will help determine the best approach.

In general, methodologies fall into two camps: Waterfall or Agile. RDI has developed a hybrid version based on client needs which is a blend of the two. This has been thoroughly documented in our web–based tool.

At RDI we do not push any particular approach. Rather we will talk with you, evaluate the project constraints and then jointly select the preferred development methodology. Below we have provided some examples of various projects and their approach.

Waterfall Examples

Trans Alaska Pipeline System (TAPS) Quality Bank

Each month, the TAPS Quality Bank must compute the net worth of oil transported via TAPS in accordance with its tariff. The system must track samples, calculate crude oil assays, determine crude oil values, and handle bank transactions worth millions of dollars every month. In addition, because the information in the Quality Bank is highly proprietary, the system requires security techniques similar to those used by banks or other financial institutions.

RDI selected the waterfall methodology for this financial project. We developed very clear specifications, documented all the algorithms and requirements and selected technology. The design phase followed as we architected the solution carefully including all the requirements and third party specifications. Development followed and the project is a classic model of the ideal use of traditional waterfall methodology. The final system passed all audits and has run flawlessly.

Enterprise GIS

> RDI will work with you to choose the optimum development methodology.

An Alaska–based pipeline maintenance and operations company, which is responsible for the operation and maintenance of the 700 mile trans–Alaska pipeline, needed to implement an enterprise GIS. RDI was retained to design and deploy the system. There were many departments and individuals that had specific requirements and the technology was new to the company so the traditional waterfall methodology was selected as the most appropriate. RDI analysts developed requirements, worked out use cases, and evaluated algorithms and a myriad of data sources. The architecture team worked on the design of the system along with data modelers and company IT staff. Once all the design and requirements were completed, the system was developed, data converted, integration tools built and then deployed. The project proceeded according to plan and this million dollar project was completed on budget as well.

Corporate Shareholder System

RDI was retained by a large Alaska Native Corporation to develop a shareholder system. The company had one, but it was due for a complete rewrite and upgrade. This project was an ideal candidate for the waterfall methodology as the requirements were finite and stable. Using the existing system as a basis, a complete specification and use case were developed. Based on this exhaustive work, the software designers and data modelers architected the new system using .NET tools and an Oracle database. The development followed the design phase, thorough testing accompanied the development teams, and the new system was run in parallel with the old for a complete financial cycle. After successfully demonstrating the new system, the old one was taken off line and archived.

Agile Examples

New Tax Collection System

The State of Alaska required an updated Tax collection system and retained RDI to design and develop the new system. The successful project utilized RDI's modified SCRUM process. We started with preliminary analysis work followed by a more formal Scrum approach integrating the typical sprint–style development iterations. The following were the major steps: writing the project charter, deployment of a project portal that housed all documents and communications, business process analysis and prioritization of needs, high level architecture design, development sprints including backlog creation, development, backlog review and retrospective followed by roll to production.

The result was a highly effective new tax collection system that exceeded expectations and was completed on time and budget.

Gas Bidding System

ENSTAR, a natural gas utility, faced a regulatory requirement to deploy a web–based gas bidding system. The system issues and tracks gas bid requests for emergency and spot purchases from all Producers with active contracts; allows Producers to submit bids in response to the requests; and enables ENSTAR to reserve gas amounts based on the bids received. The process is critical to the utility maintaining adequate gas supplies. Facing a very tight schedule and budget, RDI was retained to deploy the system using Agile methods.

Our project team utilized the Rapid Application Development (RAD) process. This allowed a continuous flow of work between the business analysts, customer, development teams, and users/testers. The software was built using rapid application development techniques that enabled ENSTAR to meet its tight deadline and budget concerns.

Logistics Database System

To plan and execute a deployment to an overseas theater of battle, the Department of Defense (DoD) must retrieve data from systems operated by each service branch and several intelligence agencies. The system required integration of many databases as well as GIS tools to provide map–based display and input tools.

To meet the ever changing needs of the DoD, RDI employed classic SCRUM methodology. Sprint teams were developed, rigorous schedules were met, and the teams made rapid progress. Periodic project reviews were conducted with the client, new functionality and priorities were developed, and the development continued. This was the prefect use of SCRUM methods as the application could reflect the dynamic environment.

Project Management and Business Analysis

Successful projects are well managed and result from well understood business problems. To ensure success, RDI has developed active practices in Project Management and Business Analysis.

At RDI we have developed a complete on line project management system coupled with a seminar–style training program. Our approach has been deemed so successful that our clients often request we train their internal Project Manager and/or that we provide project management services for their internal projects.

We have found similar success with our Business Analysts. Originally, we created the practice to support our development teams on client projects. This has worked better than we expected. Our analysts are recognized for their skill and efficiency, and as a result, we are often engaged solely for business analysis to help clients solve problems, understand their business, and build road maps for future automation and business growth.

The following are engagements are representative of both practices.

Shareholder Management System
A major Alaska Native corporation needed a system to manage their shareholders. We first completed extensive requirements analysis and wrote a detailed specification for a custom shareholder stock management system. The completed application includes tools to track owners, estates, stock transactions, dividends, and all accounting associated with managing shareholders.

Online Permitting and Licensing (OPAL) Analysis
The Alaska Department of Revenue and Tax Division elected to move their permit and license application processes online. They retained RDI to analyze their business and design a modular application based on one previously developed for the Dept. of Environmental Conservation.

The business rules were documented through process modeling techniques, process descriptions, and use case tables. We developed over 120 use cases, 19 process diagrams, 77 prototype screens, and 6 detailed application maps.

These products were used for system diagramming and interface prototyping and to communicate the flow and behavior of the system. These design documentation sets served as a blueprint for the system.

RDI's excellence in project management and business analysis is a key factor in their success.

Utility Cost of Service Study
The Anchorage Water and Wastewater Utility (AWWU) performs cost of service studies to determine their rates with the Regulatory Commission of Alaska (RCA). The billing system is one of the major inputs; new reporting structures were required.

RDI performed a requirements analysis and determined that the billing system did not maintain the historical data that is required. Consequently, we designed a data warehouse and the necessary reports.

Resource Authorization Systems (RAS)
The Alaska Department of Natural Resources (DNR) is required to maintain information on all the permitted uses, permittees, and applicants on State land. The DNR contracted with RDI to conduct an analysis of their processes and produce both requirements specifications and design documentation.

Electric Utility Electronic Time Card System
ML&P decided to implement an automated, online timecard system by issuing an RFP. RDI was hired to manage the process and to ensure the RFP reflected the needs for integration. RDI managed and conducted a project to assess and document the requirements (functional and technical) for the new timecard system for ML&P.

Management of Oil Pipeline Quality Bank
RDI provides project management, software, and administrative support for the Trans Alaska Pipeline System (TAPS) Quality Bank. The Quality Bank software implements the price determination portion of the oil price tariff as specified by the Federal Energy Regulatory Commission (FERC). In essence, the system calculates the difference in value between all the oil fields and identifies debits and credits for producers and shippers.

RDI has provided overall project management of this effort, including the coordination of software changes, data input, data quality control, and activities being conducted by external entities. A "project office" structure was implemented with a single overall project manager directing the activities of project leads. The project team was comprised of individuals in Dallas, Houston, Anchorage, and the North Slope.

Case Management System
The Regulatory Commission of Alaska is engaged in a multi–tiered process to improve efficiency. RDI is the overall Project Manager for this multi–million dollar project including:

- Analysis of business processes, work flows, and roles.
- Documentation of these processes so they can be implemented in software.
- Procuring and implementing a Commercial–off–the–Shelf (COTS) Case Management System.
- Converting existing electronic and hardcopy data.
- Designing, developing, and implementing a Web Portal to provide information to the public.

As a result of these projects, duplicative steps and manual steps were eliminated and tools are available to allow the RCA and the utilities it regulates to operate on a substantially higher managerial plane.

IT Support Services

Resource Data, Inc.'s (RDI) IT Support service offering is simple. We have a team of talented IT professionals who assure our clients' business systems meet or exceed expectations for cost, availability, and responsiveness. We provide a full range of IT support services, which can be tailored to meet your needs.

Ninety percent of our work is based on repeat business or customer referrals. We attribute this success to our focus on providing the highest value services.

There are two characteristics that set us apart from our competitors. First we only charge for hours spent supporting your systems: you will never be charged a flat rate or retainer fee. Second, we augment your existing IT organization: we can work with your people in your environment to make you successful.

Design
Design services ensure your system is secure, reliable, and scalable to accommodate future growth. We will consider options ranging from physical hardware to cloud computing. Every design meets your requirements for security and disaster recovery.

We can also analyze existing systems and suggest upgrades. Collaboration is part of the process; we work with you to determine what is needed now while presenting options for future expansion.

Procurement
Procurement services shift the burden of procuring hardware, software, and related services to RDI. We manage each step beginning with detailed cost estimates and ending with product acceptance.

Installation
We offer hardware and software installation services to assure quick, complete system installation.

Monitoring, Maintenance, Troubleshooting
Our unique blend of network administrators and system integrators—who combine to provide comprehensive knowledge of complex systems—provide monitoring, maintenance, and troubleshooting support. Too often service organizations are narrowly focused on hardware and networks and therefore misdiagnose problems arising from interactions between the computing environment and the software. With 130 professionals, RDI is able to assign the right blend of skills to close this gap.

We take the uncertainty out of the decision-making process by offering low cost system evaluation. Based on the evaluation, we provide you with a proposal for professional services that describes service options and costs.

Recovery Testing
Although often ignored, recovery testing is critical to assuring your organization can recover from hardware or data loss. We can perform recovery testing and make recommendations for continuously improving your disaster recovery plan.

Help Desk
Help desk support is available when and where you need it. We can work side–by–side with your existing staff or fill all your help desk needs. Our ProjectTrack issue tracking system can be used to manage all help tickets.

Experience
RDI began in Anchorage, Alaska in 1986. Since then we have grown into an organization of 130 IT professionals in five offices across three states. Anchorage remains our largest office, employing 65 professionals who provide services to over 100 clients.

RDI has extensive experience making technology understandable. From businesses with basic needs to fully integrated network services, we have the resources available to create customized solutions for most situations.

While our clients vary in size and purpose, they all require professionally managed systems to be successful. This is where RDI excels, and our proven performance is why our clients retain our services and consistently recommend us to their peers.

Partners
In addition to our in–house expertise, we also have relationships with other businesses, such as Dell and Microsoft, which can be leveraged to help reduce IT costs or streamline client projects.