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REPRESENTING AVISTA CORPORATION

Overview of Avista's Project Compass

Avista Utilities



August 2013

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I. Summary

Avista Utilities (Avista or Company) is engaged in a multi-year effort to replace its legacy Customer Information System (or System). Research and planning for this effort began in 2010, and the actual work of replacement, which was named Project Compass (or Compass) was begun in May of 2012. The Company's Customer Information System has been in service since 1994, and has been fortified over time by linking it with nearly 100 other software applications and systems to keep pace with evolving information technologies and expanding customer preferences. While this strategy has provided our customers value, the Company has also been mindful that its ability to continue supporting this aging technology is finite. Between 2003 and 2010, Avista and its technology support partner Hewlett-Packard, assessed options for modernizing the legacy system in order to reduce business risks and operating costs while delaying its ultimate replacement. The Company decided in 2010 to commence with the research and planning needed to support the current replacement initiative. During 2011, Avista selected a technology partner to assist in documenting technology needs, and in assessing commercial business applications from leading vendors. Project Compass was formally launched in 2012, and proceeded with Avista's purchase of Oracle's Customer Care & Billing application, IBM's Maximo asset management application, and implementation support from EP2M. A final capital budget was approved for the Project in 2012. The Company and its support contractors are currently engaged in the implementation of these new systems, which involves the complex process of enabling them to support over 3,500 business requirements associated with 200 business processes, and to connect seamlessly with 100 other software systems and applications. In addition, the training programs needed to support these new systems and work processes, are also being developed and tested. Portions of the Maximo application will be enabled in the fall of 2013, and all other asset management and Customer Care & Billing systems will enter service in July of 2014. A final Phase of Project Compass will span a period of 6 to 12 months after the systems are fully in service, to ensure that all technical, training, and process issues that arise are identified, assessed and timely solved.

II. Avista's Legacy Customer Information System

A utility's Customer Information System is one of the most essential business systems enabling the organization's daily operations. For Avista, it supports functions that range from customer calls, to automated service on the phone system or web, access to electric and gas meter information, customer billing, outage management, customer work scheduling and status reporting, ordering construction materials, and managing customer account information. Each of these activities, and many more, is supported by our highly-integrated Customer Information System. Developed in the early 1990's, it's considered a "legacy" System because it relies on key technologies that are no longer manufactured, commercially available, or supported. Like the systems implemented by many utilities of that era, our software applications were designed and developed by Avista staff, and are often referred to as "homegrown." The decisions of companies to 'self build' resulted in part from the then-high cost of commercially available software products, and the desire to tailor systems to their own unique business processes. In 1992, Avista contracted with Electronic Data Services (EDS) to provide enterprise-wide information technology support, including the ongoing development of the Customer Information System, which was placed in service in August 1994.

Architecture of the System

Avista's legacy System is composed of three highly-integrated applications, also known as the Avista "Workplace." As a unified platform, these applications draw information from a common set of master data tables, and form the technology foundation for a network of complex business processes and transactions. A brief description of the applications is provided below.

1. Customer Service – application supports the traditional utility business functions of meter reading, customer billing, payment processing, credit, collections, field requests and customer service orders. In addition, it hosts the single source of customer-related data that is used widely throughout Avista for various other business processes.
2. Work Management – this application supports gas 'trouble' reporting and the electric Outage Management System, and is used to create orders for location services, permitting, and construction jobs, including those requested by our customers and those arising

through the normal course of construction scheduling and operations. In addition, the Work Management system is linked with the Company's Enterprise Procurement System, part of Avista's Oracle e-Business Suite, for the automated ordering and proper accounting of construction materials.

3. Electric and Gas Meter Application – module used to inventory and manage the Company's fleet of in-service electric and gas meters. In addition to hosting the meter data associated with each customer and premise, the system is also used to track each meter and manage the periodic requirements for meter maintenance and testing.

Avista's Customer Information System was developed around then state-of-the-art concepts including 'single source data,' 'subject area databases,' and 'relational databases.' These innovative and powerful tools, based on the 'relational model', organized very large sets of data into a series of normalized tables (or *relations*). Each table represented a certain type of data, such as the street addresses where the Company provided service. Data in these tables could be freely inserted, deleted and edited, and stored much more efficiently than 'linked' databases. In this model, each individual record in every data table was associated with a unique identifier or 'key'. This unique key might represent a single service address contained in the table of address data. But the unique key for this address was also shared by all of the data related to that address that was contained in all of the other data tables. In this way, a service address was linked with all other related data for that address, including such information as the date of meter installation, the meter manufacturer, meter serial number and usage data for that meter, etc.

The System also employed the now ubiquitous 'client-server' architecture. But when implemented in 1994, it was the first utility system in North America to deploy this design. Databases were built and managed for the mainframe platform using IBM's DB2 product, and the application program code was written in the then-mainstream programming language COBOL v2. The COBOL application routines or programs were developed using the CASE tool "ADW", created by Sterling, performed on desktop computers running the IBM OS/2 operating system. The application was designed for the mainframe operating system known as CICS. Another language, Smalltalk, was used to create visual interface for computer screens, and employed the innovative object-oriented programming methodology. Queries of the data tables were enabled by routines

written in the language known as SQL. This advanced System allowed the Company's customer service representatives to efficiently access the mainframe applications, and to query, display, edit and manage data in object form on their desktop computer screens.

Keeping Pace with Change

The Customer Service and Electric & Gas Meter Applications were enabled in 1994, and development of the Work Management System application quickly followed. Avista's Workplace was initially integrated with three other business systems, as depicted below in Figure 1.

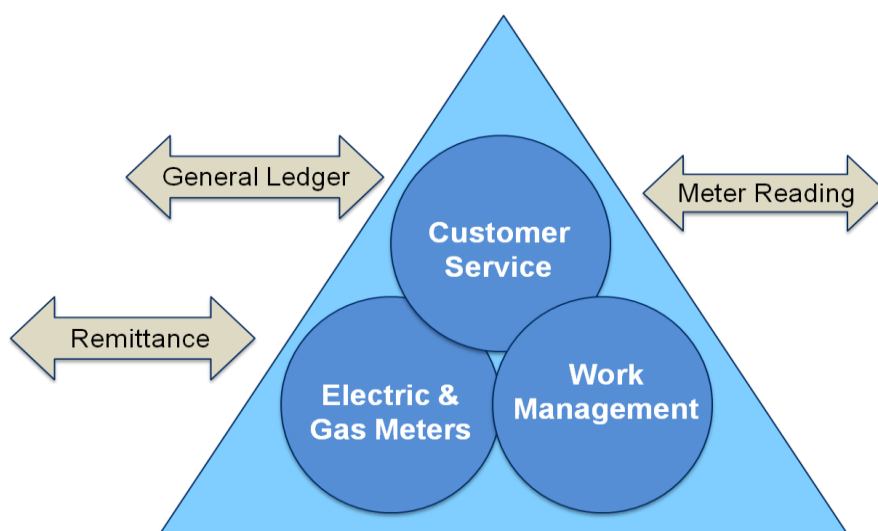


Figure 1. A simplified graphic representing the initial configuration of Avista's legacy Customer Information System, showing the three primary applications and integrated systems.

Change to the System came quickly, however, as wave after wave of new information technologies (such as automated phone systems, powerful mid-range computing platforms, and customer web portals) enabled an evolving stream of new customer service functionalities, embedded as standard features in each new generation of applications developed by leading global vendors. As consumers grew accustomed to these service options in their interaction with a wide range of other companies, they began to expect these types of services from their utilities. Avista worked to accommodate these developments, and in addition, added many features to its System to reduce internal costs by automating paper functions, redesigning work-processes, and providing self-service options for customers. This expanded functionality (such as payment by phone) was

accomplished by ‘integrating’ the legacy System with the emerging applications and systems that enabled these new capabilities.

An ‘integration’ refers to the sharing of data between computer applications when more than one is required to complete a process. In early integrations, data from one application was sent directly to another application in a direct link known as a ‘point to point’ integration. The integration relied on a custom computer program to translate the data format and computer language of one application into a form that could be input into the other application for processing, and vice versa. This function allowed the two applications to communicate and work in concert to perform a joint function. Many businesses shared this need to extend the capabilities of the limited architecture of their information systems, and this demand gave rise to an entirely new software product family known as “Middleware.” These applications provide communication and management of data for distributed software applications beyond those available from the computer operating system itself. Using a Middleware product known as ‘Biz Talk’, the Company was able to cost-effectively expand the efficiency, capability and functionality of its legacy System, by integrating new commercial off-the-shelf software, internally developed custom applications, and the application systems of third-party service providers. For both customers and employees, this approach seamlessly integrated technologies far beyond the boundaries of the System’s original design limitations. When the System architecture was designed, home computers were uncommon, the internet was in its infancy, there were no e-mail services, no automated phone system, few cell phones, no text or SMS messaging, and no mobile computing, as supported by today’s smart phones and tablets. Some of the major applications and systems now integrated with Avista’s Workplace include the following:

- Enterprise Voice Portal – this automated telephone system supports a range of self service options for customers, as well as voicemail and other functions used by those contacting the Company and for internal Company operations.
- Mobile Dispatch System – this application supports the call out and scheduling of Avista’s gas and electric servicemen, and other field staff required to support Company operations.

- Avista Facilities Management – this application houses the Company’s Geographic Information System. In addition to map data, it includes all the Company’s electric and gas facility maps and other geographic data.
- Automatic Meter Reading – this system gathers meter-reading data from the Company’s fleet of AMR-equipped meters in Avista’s service territories in Oregon, Idaho and portions of Washington.
- Construction Design Tool – this application supports the Company’s computer-based design tool for gas and electric construction projects, the automated input of component assemblies, materials ordering, and cost accounting.
- Outage Management Tool – this application uses Avista’s electric Facility Management and mapping data, in conjunction with electric system device and circuit intelligence, to determine the likely source of a reported outage, to display the likely size of the outage, and to automatically dial affected customers as well as automatically posting outage information on our customer web portal.
- Mobile Web Application – this application hosts our customer’s access of Avista’s web portal using smart phones and tablets.
- Electronic Check Payment – this family of applications belongs to banks and third-party service vendors used by the Company to support payment options for customers.
- Contract Billing – this family of applications supports services such as customer account management, bill printing, mailing and remittance processing.
- Customer e-mail Support – applications that host e-mail services for our customers, and provide support applications and services.
- Meter Data Management – this recently integrated system provides the data-storage and management capability to enable ‘smart metering’ capabilities such as customers’ real-time use of energy.
- Smart Grid Pilot – this portal provides access for Avista customers participating in the Company’s Smart Grid Demonstration Project.
- Avista Web Applications – this system of applications supports the Company’s internet website, Avistautilities.com, and enables customers to access and manage their account information held in the Customer Information System.

- Avista's Oracle Financial and Enterprise Procurement Systems – these enterprise applications support the breadth of the Company's financial and reporting systems, as well as a host of enterprise supply-chain functions.

Prudent investments in our legacy system over the past 20 years have allowed us to deliver consistently-high levels of customer service across an expanding range of service channels and self-service options. In place of its initial three modules and three system integrations, the current System supports nearly 200 business processes, and includes approximately 100 integrations with other specific applications and systems, as depicted in simplified form in Figure 2, below. A more complete depiction of the interconnection of major systems is provided as Attachment 1.

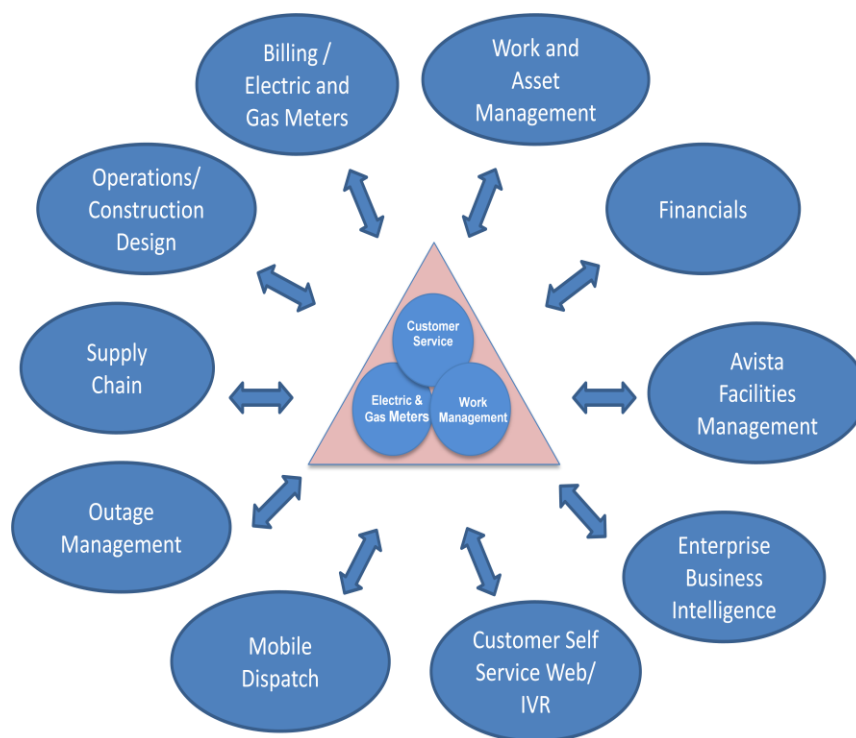


Figure 2. A simplified graphic representing the integration of Avista's legacy Customer Information System with other major applications and systems.

Additional Benefit of Extending the Life of the Legacy System

Avista has invested in its Customer Information System, principally because we could add functionality and value to better serve customers for relatively small incremental investments. But,

importantly, this approach also allowed the Company to ‘skip over’ successive generations of technology platforms, many of which are being replaced by our peer utilities today as they install new contemporary systems. In addition, the Company was able to evaluate the experiences of other utilities engaged in replacing their systems, as one way to support the design of a best practices project. Extending the life of its legacy System has allowed the Company to avoid the significant investment of replacement, and to acquire replacement systems later in the evolutionary trajectory of the technology, giving it broader and more standardized capabilities, and a likely longer future service life.

III. Drivers of the Need for Replacement

As described above, our legacy System meets the basic needs of our stakeholders today because we’ve made managed investments to extend its value, cost effectiveness and service life. But while there has been incremental and long-term benefits associated with this strategy, there have also been less-obvious but important costs and business risks accumulating with time as the technology platform ages. These latter costs and risks can compete with the benefits of extending the service life, and the Company has remained aware of the inevitability that our core legacy System and the very-complex “patchwork” of integration programs supporting other applications, would have to be replaced.

The Role of Technology Evolution

Over the past twenty years, the rapid evolution of information science technologies has impacted the life-cycle availability of aging software and hardware products and services, and it has enabled significant improvements in consumer service capabilities in each new generation of commercial applications. This rapid cycling of product and service innovation has eroded the foundational integrity of Avista’s legacy technology. And at the same time, it has pressured us to continue adding on functionality well beyond the design capabilities of our legacy System.

A Familiar Example

As a way to illustrate the impact of these technology forces, consider a parallel evolution in personal music players. In 1980, Sony introduced the revolutionary and highly-successful Walkman cassette player. Cassette tapes were then dominant, but by the mid-1980s, the Walkman was redesigned for the new format of compact discs (CD). By 1990, cassette players began to disappear from store shelves as personal CD players were continually improved. But, like the cassette tape before, the CD personal music player was doomed when Apple introduced the iPod in 2001. And for some time now, the supremacy of the iPod has been undermined by the iPhone and other smart devices that can store and play music files, but in addition, can access music via web streaming or files stored in the computing cloud.

Today, a person might still use a Walkman to listen to music on existing cassette tapes. But to maintain and expand a cassette music library, requires several electronic components forming a ‘chain of technology’ that’s no longer mainstream. Though cumbersome (by today’s standards), it’s still possible to perform the steps required to record a new tape, so long as each piece of equipment in the technology chain is working. And the incremental cost is small, compared with the alternative of replacing the tape library with digital files purchased from iTunes. At some point, however, the old equipment will fail. And, because it’s no longer mainstream, it will be progressively more difficult and expensive to repair. Even the most ardent cassette person will probably reach the point, where the cost, complexity and limitations are enough to overcome the inertia of reinvesting in a new music platform.

Avista’s Chain of Legacy Technologies

The complexity of the technology chain supporting the Company’s legacy System is similar in many ways. The key areas of vulnerability and challenge have to do with older computer hardware and operating systems, computer applications and programming languages, and the availability of qualified technical and development support, as briefly described below:

Hardware – As mentioned, our System is based on a mainframe computing platform. This is because when the system was designed and launched, only mainframe machines had the

computing horsepower required for its operation. Even though smaller computers have the necessary capabilities today, the legacy System databases and program applications are entirely mainframe dependent. In addition, the development application used for making programming changes to the Company's System, runs on IBM's OS/2 operating system that has not been sold or supported for many years. And the computers that were matched to the OS/2 operating system haven't been manufactured for a similar time. For several years after the hardware and operating system were discontinued, Avista bought used computer components (some from e-Bay auctions) that were matched with OS/2. More recently, however, the Company uses specialized software that runs on contemporary desktop computers to "emulate" the OS/2 operating system. This workaround allows the Company to execute its OS/2-dependent software applications in a "virtual" OS/2 environment.

Applications and Computer Languages – The legacy software application is the 'computer program' that runs and maintains our legacy system databases, and enables all the features required to support our business processes. These applications are written in the computer language, COBOL v2, which for many years has not been sold, supported, or used in programming applications. This version of COBOL, which we refer to as 'native' COBOL, is also no longer compatible with contemporary mainframe operating systems. To work around this, the Company has for many years used another specialized application, Micro Focus COBOL, to compile the native COBOL language into machine language that is a virtual replication of a more contemporary version of COBOL, which is then able to run on the mainframe operating system. While the virtual COBOL replication has a very high degree of fidelity with the native COBOL, it relies on a visual replication that sometimes results in transcription errors. While the error rate is low, there are millions of lines of computer code that are re-created during the compiling process. The system must be tested to detect these errors, which then requires additional programming time to locate and repair them. More recently, there is a concern that the machine language created by Micro Focus COBOL may not be able to run on newer mainframe operating systems, which now run COBOL v390.

Avista's legacy software applications are almost constantly being repaired, modified (to comply with new requirements), or upgraded with new functionality or capabilities. To accomplish these

operations requires use of a CASE tool application known as Application Development Workbench, or ADW. CASE tool applications, whose use peaked in the early 1990s, are tightly coupled with mainframe programming languages; they enable and help-automate the process of generating (writing) code in the native COBOL language. The company that produced ADW is no longer in business, and Avista's application is neither produced nor supported. In addition, ADW can only run on the desktop machines using the emulation software to create a compatible OS/2 operating system. Once the coding changes are made in native COBOL using ADW, they are then compiled using the Micro Focus COBOL application.

Another computer language that's key to sustaining Avista's legacy system is known as Smalltalk. The language is used to create routines or programs that enable many key functionalities of Avista's system, including 'rendering' the display screens customer service representatives use to view and manage customer and system data. Rendering is the conversion of lines of computer code into a visual screen display, which not only allows the user to see account information, for example, but to also make changes to the data or information contained on the rendered screen. This functionality is utterly everywhere today, such as the displays on your smart phone, but it was a very innovative application when designed into Avista's system the early 1990s. And, Smalltalk was the leading programming language of its type in that day. Although this language is a very flexible and powerful tool, it is no longer mainstream, and is no longer sold or supported. Many versions of Smalltalk are still in use among small communities of users in the computer industry, but the language is no longer taught in computer curricula and there is no formal training for new programmers.

Finally, the Company's customer service and system data residing on the mainframe platform must be updated every night in what is known as a 'batch' program. The batch updates the data tables to reflect changes in account status made during the day, and to perform other functions using the data, such as producing customer bills. Like the COBOL routines that enable the interactive use of the Customer Service application (described above), separate COBOL routines are required to perform these batch functions. There are approximately 3,000 individual COBOL programs and millions of individual lines of code in the legacy System. The management, repair

and modification of these native COBOL programs can only be performed using the ADW and Micro Focus COBOL applications to both modify and compile them.

People – Maintaining our legacy System requires us to train and maintain technical staff competent in these older programming languages and computer operating systems. This is becoming more difficult as the availability of business analysts and application developers who are familiar with these languages and technology becomes more limited each year. This attrition of skilled developers makes it very difficult to replace members of Avista’s support team, many of whom grew up with this technology when it was new, and who either have retired, or are anticipated to do so in the next few years. Since there is no longer technical training or schooling available for these old languages and systems, the Company must train developers in house, which requires a considerable investment to achieve proficiency. It’s also difficult to channel younger employees into career tracks that have very-limited and diminishing future application. As a consequence, the need to find, train, and maintain capable technical staff adds another layer of complexity, cost and risk to the maintenance of these legacy Systems.

Other Legacy Considerations

Each of the elements above focuses on an aspect of the Company’s System that poses a level of risk greater than that associated with contemporary hardware, operating systems, technical support, and business applications. Avista’s situation is not unique, however, and illustrates the general technology principle shared by many legacy systems: that even though they may require complex workarounds to perform their intended functions, which many can do adequately, they are subject to elevated levels of risk that only compound with time. In addition to increasing business and customer service risk, there are other considerations associated with the maintenance of legacy systems like Avista’s.

Cost of Modifications – In addition to the risks associated with outdated technology, the System is difficult to modify to add new functionality. This arises because the linkages connecting the applications of Avista’s Workplace, along with the Middleware that connects Workplace with the other applications and systems, are ‘hardwired’ together. Unlike contemporary enterprise applications, when a programming change is made to one of Avista’s applications it requires

complimentary programming changes to both the connecting Middleware and the other applications themselves. Because the system has been stretched over time so far beyond its original design considerations, these layers of changes have geometrically increased the complexity of the entire system. Each new modification must be adapted to this complexity, and at the same time, it adds to the complexity. Additionally, because the legacy System is used only by Avista, the ongoing application development costs must be borne entirely by our customers.

Ultimate Cost of Replacement – As Avista added new capability to its legacy System, as described above, this required ‘programming’ to modify the software applications to enable the business processes supporting this new capability. When the legacy System is replaced, the new applications must be ‘programmed’ to support the same integrated systems and business processes. Generally, then, as the number of integrations in the legacy System increases, so does the cost, complexity and the degree of sophistication required to install the replacement system.

Platform for the Future – In addition to the costs and risks of extending the service life of Avista’s legacy system, and the complexity and cost of adding functionality, its ultimate capability has been largely exhausted. The System was designed as a meter-based billing system that provided the Company an efficient and cost-effective platform for managing a customer’s basic transactions. In this respect, the system is more ‘business centric’ because it was designed around the transactional needs of the business. This is not surprising, though, since at the time the System was developed, the transactional convention consisted of customers receiving a paper bill, which they paid with a personal check sent by mail, or in person at one of Avista’s offices. Utility customers, generally, had no expectation of being involved in energy choices or service options, which likewise, were rare. Today’s information technologies and the market demands for service differentiation have swept aside the business-centric service model and placed the ‘customer centric’ model front and center. Consumers today have an ever-increasing expectation of being able to conduct business with all manner of companies in ways they, the customer, prefer (e-mail, text, chat, phone), at the time they determine to be convenient (24 x 7 x 365), and to have one point of contact to seamlessly, quickly and efficiently meet all their needs. As capably as Avista’s System has performed in the past, it simply does not have the fundamental capabilities required to provide customers the service options they have come to expect in the customer-centric marketplace. In

addition, the legacy system cannot support the newer utility product offerings becoming more familiar to customers, such as real-time information management, pre-pay options and time-of-use metering and billing. Some enhancements viewed by customers today as “basic service” (e.g. text messaging or selecting their preferred mode of contact – phone, text, SMS or e-mail), simply cannot be accommodated.

Summary of the Limitations of Avista’s Legacy System

The Company’s legacy System is dependent on expensive mainframe computing platforms, even though today’s mid-range computers have the capability needed to support the applications. It also depends on many obsolete technologies that require complex workarounds to function properly. And the workarounds themselves depend on obsolete systems and applications working properly in concert to enable them. As a consequence, maintaining the system involves risk that grows as the technology ages, and requires expert staff and trained contractors who remain competent in these archaic technologies. Making changes to the System is complex, burdensome, and expensive. But unlike the inconvenience of having to repair a broken cassette player , Avista’s system is the hub of business operations for over 600,000 customers, and it must operate flawlessly on a continuous basis. Finally, though the System still operates adequately, there are finite and insurmountable limits to its ultimate ability to provide the technology platform that’s needed to serve our customers today and into the future.

Options to Extend the Service Life of the System

Periodically, Avista and its support partner, EDS/Hewlett-Packard, have evaluated the System’s capabilities as well as options for its possible modernization. The potential scalability of the Customer Information System was assessed in 1999 to determine the feasibility of expanding the number of customers that could be served with then-current applications, processes and technical infrastructure. The results of this work titled “Avista Workplace Application Scalability Assessment,” indicated that with certain investments, the system would be able to support up to 1.5 million customers. As the number of customers served by Avista continued to grow at generally-historic rates, the system investments needed to support greater scalability were neither needed nor made. In 2002, as some of the technologies supporting Avista’s System, such as ADW, were becoming unsupported, an assessment was made, titled “Avista Application Migration

Review”, of the feasibility of moving the Company’s system from the mainframe platform to a contemporary mid-range platform and operating system. The benefits of such a process, commonly known as ‘replatforming’, were forecast over time and were compared with the estimated costs for completing the work. Results of this work indicated that replatforming the System at that time was not cost effective, and as a result, this work did not proceed. The next assessment was made in 2003 and focused on ways to reduce the risk associated with the ADW application then running on aging desktop computers using the IBM OS/2 operating system. The project report, titled “ADW Conversion”, recommended Avista purchase the specialized software to emulate the OS/2 system on contemporary computers and operating systems. This recommendation was implemented. The legacy System was reviewed again in 2006 as part of a larger information technology review conducted for the entire Company. The report, titled “Preliminary Applications Rationalization Assessment”, addressed the overall rationalization potential across the Company, and identified any ‘modernization’ opportunities for specific applications. The term “rationalization” refers to an information technology discipline that’s aimed at reducing the ongoing costs of maintaining overlapping or redundant software systems across the whole of the business. The report noted the Company’s Customer Information System as a ‘high risk’ application that was a candidate for either replacement or “refactoring.” The latter refers to a process of changing the internal structure of the existing application code to reduce its complexity and improve its readability. While this process helps reduce the risk associated with legacy software, it does not fundamentally change its basic properties or architecture. Refactoring the Customer Service System was assessed as not having sufficient benefit, and the Company was not ready to replace the System. Most recently, in 2010, the Company again reconsidered reinvesting in its legacy System as means to delay its ultimate replacement. As a prelude to requesting vendor proposals to support such an effort, the Company sent a Request for Information to several major information technology vendors to describe the legacy System, and to gauge their interest in participating in possible next steps. A copy of the document, titled: “Request for Information for Avista Workplace Revitalization Project” is attached to this report as Attachment 2. As Avista continued to weigh the possible feasibility of this approach, it ultimately determined that commencing with the research and planning for the current replacement project was the prudent course of action.

Timing of the Replacement

Avista's decision to replace its legacy System involved a number of considerations, many of which have been described above. Considered in concert, these helped shape the decision to commence with the research and planning necessary to support this effort:

- Confidence that Avista could operate the legacy system without fail through at least 2014, without any significant upgrades to older technology. This timeframe would accommodate the period of research, planning, design and implementation of a replacement project;
- Avista expected to have a limited window of availability for the employee and contract technical resources necessary ensure the proper functioning, maintenance, repair, and upgrades of the legacy system expected through 2014;
- The pending need to determine whether or not to renew the long-term (ten years) services contract with Hewlett – Packard for the ongoing mainframe capability, and the maintenance and operations support for the legacy system. The end of the then-current contract presented a window of opportunity for replacing the legacy system;
- The experience that the Company had practically tapped the capabilities of its legacy system, whether or not it was operating on contemporary computer hardware and software;
- The concern that business and service risks associated with the legacy system were continuing to accumulate with time;
- The continuing assessment that as new functionality was added to the legacy system, it was driving geometrically-increasing complexity, and likely greater ultimate replacement costs, and
- The knowledge that the legacy system would not have the capability to deliver some of the service and billing options our customers desired, or service and work-process options.

IV. Planning for Replacement of the Legacy System

Replacements of Customer Information Systems are Common

Nationwide, many utilities have undertaken the same journey in replacing their own legacy

Customer Information Systems, and many are replacing systems installed around the year 2000, a ‘generation’ newer than Avista’s System. Several utilities in the Northwest are among those engaged in some phase of a major replacement project. Avista’s understanding of the status of these efforts is summarized below:

Company	State(s)	Status
Cascade Natural Gas & Intermountain Gas	OR/WA/ID	Currently using Oracle’s Customer Care & Billing application in Oregon and Washington, which replaced their prior system installed in 1999. Planning to install this system in their Idaho service area in late 2014-2015.
Northwest Natural Gas	OR/WA	Currently using commercial system installed around year 2000. Now in the process of evaluating potential for upgrades and/or system replacement in near future.
Puget Sound Energy	WA	Recently placed in service new SAP and Outage Management applications in April 2013. Now engaged in system stabilization.
Portland General Electric	OR	Beginning evaluation phase for the replacement of their customer information and meter data management applications, expected to be completed in next 5 years.
Idaho Power	ID	Planning to place in service a new SAP customer information system in September 2013.
PacifiCorp	ID/OR/WA	Currently evaluating systems for possible installation over the coming five years.
Seattle City Light	WA	Engaged in the early installation work of their recently selected Oracle Customer Care & Billing system.

These Projects also Present a Significant Challenge

Replacing a customer information system is a major undertaking for any corporation. And, it’s particularly complex for an integrated business, such as a utility, that manufactures its own products, constructs and maintains its own distribution and delivery infrastructure, and that often sells more than one energy product in the highly regulated markets of sometimes multiple state jurisdictions. The degree of interconnectedness of the customer information system with the many other business systems and applications supporting the enterprise, is a key driver of the challenge. In addition to the complexity of these systems, there’s significant workload associated with the steps of planning, evaluating, selecting, implementing and testing the new systems, as well as training employees and informing customers in time for a smooth transition. In addition, successful projects have a high degree of executive engagement and commitment, superb information technology competence, a deep knowledge of the company’s work processes – both

current and potential future states, and proven experience with the implementation of enterprise information technology projects. The confirmation of these challenges lies in the failure rates reported for these projects, in the range of 40% to 60% over the past five years. In these cases, “failure” was judged as a project that was either abandoned, or that failed to substantially meet its project goals – in terms of cost, solution expectations, implementation timeline or operational readiness.

Identifying Common Challenges

As part of its initial project research, Avista contacted several utility peers who were in various stages of the process of implementing new customer information systems. In an effort to evaluate their preparation, approaches and performances, Avista conducted in-depth interviews to gather lessons learned from these utilities, which included El Paso Electric, San Jose Water, Green Mountain Power and Los Angeles Department of Water and Power.

In addition, the Company took advantage of shared industry knowledge related to the changing demands being placed on utility customer information systems, the maturation of technology solutions, and project audits¹ that assessed root causes of the failure to successfully implement new systems. What emerged from that collective work was a pattern of challenges that had caused many projects to be less than successful. Taking advantage of the opportunity to learn from the experience of others helped Avista prepare, with eyes wide open, for the challenges of replacing its Customer Information System. Some of the central issues the Company and others identified as problematic are included in the list below.

1. Executive involvement that was either distant or faded over the term of the project.
2. Sponsorship of the project that was weak or diffused because there were necessarily so many departments involved in the project.

¹ Focused Management and Operations Audit of Kentucky Utilities Company and Louisville Gas and Electric Company. Final Report presented to The Kentucky Public Service Commission. Liberty Consulting Group, September 12, 2011.

Performance Audit of the Customer Care and Billing System: Testing Prior to Go-Live. Office of the Auditor, Austin, Texas. September 21, 2011.

3. Project management that lacked the applicable experience and strong skills needed to establish a realistic, comprehensive and sustainable plan for the administration of such a large and complex information technology project.
4. Expectations established too early in the project for the ultimate project cost, scope and timeframe, which rendered them unachievable.
5. In spite of the involvement of many departments, project leadership that was often ‘tilted’ toward either the information technology aspect or the business processes.
6. Research to identify best practices and peer-lessons learned that was either inadequate or ineffectively built into the project.
7. Inventory of business requirements that was not complete or that lacked sufficient detail.
8. Business requirements that were not effectively translated into a complete understanding of the application capabilities required to support them.
9. The expertise and effort needed to perform comprehensive evaluations of vendors and their proposals, related to due diligence, project scope and confirmation, was insufficient.
10. Selected vendor solutions often were not complete without additional customized development, which drove added complexity and costs.
11. Implementation support from third-party contractors that had little familiarity with the systems being purchased from the software vendors.
12. Inadequate code testing by the vendor prior to installation in the utility environment.
13. Test environments that did not fully replicate production.
14. The tendency to customize the product solution to better match the existing business processes of the organization, rather than working to implement the solution as designed.
15. An organizations’ resistance to re-design work processes to comport with the architecture of the new solution.
16. Inadequate test team involvement.
17. Inadequate training, education and organizational change management programs to help employees accept and perform competently in new work processes and systems.
18. Going Live with the new systems before the business was fully prepared and production ready.

Designing the Project Around Best Practices

While alarming in some respects, the challenge experienced by many utilities is also not entirely surprising. The process of selecting and implementing a new customer information solution is complex enough by itself, but it is also commonly joined, like Avista's, with the implementation of new asset management or other software systems, and many other work processes. It's also outside a utility's core competency, and it can occur only once in a generation. The degree of challenge and failure has, not surprisingly, given rise to a range of business services whose purpose is to reinforce the capabilities of companies like Avista in the technical and project management skills identified as areas of potential weakness. Avista selected several of these specialized vendors as part of its application selection and implementation processes. Some of the key project-design decisions made by the Company are listed below.

- Established a steering committee of senior executives, meeting monthly with the project directors, to provide executive oversight on all aspects of the design and implementation of the replacement project.
- Made the executive decision to implement what is referred to as “off the shelf” vendor applications, with a commitment to minimize the number of Avista-specific customizations. This approach, while it demands that significant changes be made to the Company's existing business processes during the replacement, helps ensure our customers benefit from the periodic application updates to be provided by the vendor without bearing the cost of the additional software programming that would otherwise be required to accommodate the volume of customized computer code. This approach, which is more mainstream today, is diametric to the approach common when the Company's legacy System was designed and built in house and was carefully tailored over the years to match our existing business practices.
- Created an Avista project leadership structure with two co-directors serving as executive leaders of the effort: the director of customer service, representing the Company's business processes, and the director of application systems programming, responsible for the information technology aspects. The intent of this structure, although potentially ungainly, was to overcome a common failing of projects to ‘overweight’ one aspect of the project to

the detriment of the other. In addition, both project managers are dedicated full time to Project Compass.

- Hired an outside expert in change management as a Company employee to work full time developing and implementing a communications and change management plan for the project. Avista learned this function was critical to successful companies' efforts to substantially change work processes that accompanied the adoption of off the shelf applications.
- Hired an outside firm to assist the Company in developing a solutions Request for Proposals, in soliciting, comparing, and evaluating proposals from an array of options and potential vendors, and in selecting and purchasing the vendor applications. In Avista's research, this was an area of key challenge for utilities because even the process of understanding the totality of its 'business requirements' was a barrier, let alone the challenge of assessing whether a vendor's application had the full capability to support these requirements.
- Ensuring the vendor selected for supporting the implementation of the customer service and asset management applications, and in seamlessly linking them together, had direct experience and extensive familiarity with the applications selected.
- Retaining an outside project manager with significant expertise and experience implementing enterprise-wide utility software applications – being assigned the broad responsibility for the overall implementation process, including the coordination of project leaders representing the vendor applications selected and those who would be selected for quality assurance monitoring and system testing.
- Identifying and securing the full-time participation of key employees who would be needed full time for the project.
- Securing dedicated office space located away from the distractions of Avista's day-to-day operations, and having ample office and meeting space for all project leaders, employees and contractors associated with the project.
- Retaining the services of an outside firm specialized in creating training programs for new systems, development of the curricula, training the trainers, and evaluating the effectiveness of the training effort.

- Planning for an employee communication program that would be part of the foundation of the Company’s change management effort for Project Compass.
- Anticipating the service changes that would arise for customers associated with the new System, and planning for the communications effort that would accompany the Go-Live.
- Waited to establish a final project budget until the planning, preparation and scope had been well enough defined to successfully manage the project.

The Initial Project Plan

The Project was envisioned to be completed over a four-year time horizon, with a substantial effort dedicated to pre-project research and planning. Figure 3, below, depicts the high-level activity phases of this initial plan.



Figure 3. Depiction of the high-level phases of activity envisioned for the Project to replace Avista’s legacy Customer Information System.

The first Phase of the Project, known as “Selection/Procurement,” encompassed the activities of mapping Avista’s business process needs and developing the detailed business requirements for requesting and evaluating alternative sets of software and system solutions that would best meet those needs. This Phase would conclude with the Company selecting the optimized solution set, negotiating final pricing, and signing the purchase agreements with vendors.

Known broadly as “Implementation,” Phase 2 encompasses the complex activities of installing and configuring the new vendor software, testing the new systems, and developing and delivering the specialized training modules for the new Systems. ‘Configuring’ a software application involves the programming required to code its generic capabilities to execute the steps needed to

match each of the Company's work processes. In addition, there are many Avista process steps that cannot be executed within the generic capability of the new applications, without customization. This involves the addition of customized programming that is outside the bounds of the 'off the shelf' capability of the application. Significant customization renders the process of installing the periodic vendor updates of the applications, both complex and expensive. Avista is committed to capturing the value delivered by 'off the shelf' implementation, and accordingly, our goal is to minimize the need for customization. What this requires, however, is that Avista organize employee teams to accomplish the significant tasks of developing new internal business processes that can be supported by new application. There is also a significant volume of work required to perform the 'programming' to integrate the new vendor applications with the approximately 100 other applications and systems required to support the Company's customer service and allied business operations. This Phase of the Project also encompasses the development of employee training programs and systems for the new applications, and the extensive testing of the system needed to confirm the technical performance of the new applications as configured to Avista's design. Finally, this Phase concludes with the step of placing the new Systems into service, the "Go-Live."

The third Phase, known as "Post Go-Live Support," encompasses the activities associated with supporting the in-service deployment of the new systems. Key activities include development of contingency plans to respond to issues that may arise during the Go-Live, and providing technical support for the new systems in the period referred to as "system stabilization."

V. Evaluation of Replacement Options

Assessing and Selecting the Replacement Applications

An early step in the work of Selection/Procurement was development of a project charter, which is included as Attachment 3, and outlines the high-level work objectives, some of the key deliverables, and authorizes an expense budget to support these activities. A presentation made to the executive steering committee in April 2011, includes a partial listing of the Project drivers, highlights of Avista's Project research, some key elements of the Project design, planned next

steps, and some very-preliminary Project capital costs. This presentation is included as Attachment 4. Later in 2011, the Company named this effort, “Project Compass.”

The next key step focused on selecting and retaining a firm to support Avista in developing the following work products:

- 1) Complete inventory of Avista’s technical business process requirements;
- 2) Inventory of the types of business process decisions to be made;
- 3) Gap analysis;
- 4) Request for Proposals document for technology solution providers;
- 5) Normalized evaluation and vetting of vendor proposals;
- 6) Selected preferred solution set, including due diligence and scoping;
- 7) Formal purchase offer for acquisition of vendor services, and
- 8) Negotiated final purchase price for applications and integration services.

Avista developed a Request for Information to document the services of interest and to gauge the interest of candidate firms, which is included with this report as Attachment 5. The list of firms is provided in Attachment 6. The Company solicited, reviewed and scored proposals from the participating firms, and a summary of the scores used in making the selection is included as Confidential Attachment 7.

Avista selected Five Point Partners (Five Point) to support its Selection/Procurement activities. Among other criteria, the Company placed emphasis on their proprietary ‘STAR’ methodology for identifying every type of major business process requirement that Avista would need from solution and application vendors to support its future business operations. This ‘requirements’ definition allowed the Company to develop a detailed and specific Request for Proposals from candidate solution providers. Understanding the detailed requirements translated to a more complete understanding of the complexity and cost of the solution sets, as well as understanding up front the activities and applications that would be required for successful implementation, including their costs, and foreknowledge of what parties would be responsible for the associated workload and costs.

Establishing Review Criteria

Global criteria were developed and vetted for use in evaluating vendor proposals. These criteria included: 1) Functionality; 2) Technology; 3) Implementation Partner, and 4) Cost. With the help of Five Point, Avista used the inventories of its business process and decision types to create the Request for Proposals from candidate solution vendors. The solicitation packet was reviewed and refined in several rounds and sent to vendors on September 28, 2011. An overview document of the Company's Request for Proposals for CIS (customer service) and EAM (asset management) solutions, is provided as Attachment 8. A list of vendors who received the Company's solicitation is included as Attachment 9. An initial step in the vendor's process of evaluating and responding to Avista's proposal solicitation was a conference call opportunity to ask Company representatives detailed questions about its current and anticipated business practices, processes and systems.

Supporting the Application Scoping, Review and Selection Process

During the process of developing its Request for Proposals, Avista launched a parallel effort, known as 'current state mapping', needed to support the design of the Project. This is a comprehensive inventory and evaluation of each of Avista's existing customer information system work processes and system requirements. The purpose of this work was to clearly understand, from a global perspective, every single work process in the business and the applications and systems involved in supporting those activities. In Avista's view, the current state represented a picture of how custom-designed and integrated information technology solutions had been introduced over time to support the Company's legacy service paradigm and work processes. The current-state map included over 200 work processes and over 3,500 individual process steps or system requirements. These process steps represented the necessary technology functions required to support the existing business processes. While these 3,500 requirements were much too detailed to be included in the Request for Proposals, the Five Point STAR process did identify the solution capabilities the vendors would have to meet in order to support Avista's future requirements and business operations. A summary document prepared by Avista, titled "Project Compass Guidebook", is included with this report as Attachment 10, and provides a detailed overview of the complex activities required to support both the procurement of application and service vendors, as well as the detailed process organized to support and execute the current state mapping.

Application Proposals Received from Vendors

Avista received responses from vendors on October 28, 2011, and with the help of Five Point, immediately began the review and evaluation process. The table below lists the vendors who responded and the solutions and roles they proposed for delivering a solution set to Avista.

Vendor	Product or Service Offering	Customer Information System Application	Enterprise Asset Management Application	Mobile Work Management Application	Other Vendors
IBM	Systems Integration	SAP Customer Relationship & Billing (CR&B)	SAP Enterprise Asset Management (EAM)	ClickSoft Mobile Work Management (MWM)	---
IBM	Systems Integration & Software Applications	SAP CR&B	IBM Maximo Asset Management	---	---
EP2M	Systems Integration	Oracle Customer Care & Billing (CC&B)	Oracle Asset Management	Oracle MWM	---
Wipro	Systems Integration	Oracle CC&B	IBM Maximo	Ventyx Service Suite	---
HCL AXON	Systems Integration	SAP CR&B	SAP EAM	ClickSoft MWM	Technology Associates
HCL AXON	Systems Integration	SAP CR&B	Meridium Asset Management	ClickSoft MWM	Technology Associates
HCL AXON	Systems Integration	SAP CR&B	IBM Maximo	ClickSoft MWM	Technology Associates
Sparta	Integration Services	SAP CR&B	SAP EAM	Ventyx Service Suite	Vesta Partners
Logica	Software Application	---	Logica Asset Management	---	---
Meridium	Software Application	---	Meridium Asset Management	---	Partners with Wipro
HPES	Systems Integration	---	---	---	General Services Only

Most of the responding vendors proposed a complete solution, which included three applications: customer service; asset management; and mobile work management. These vendors, including IBM, EP2M, Wipro, HCL AXON and Sparta, proposed to deliver the complete solution through the primary service known as Systems Integration. This involves the installation of system software applications that are developed and sold by leading global software companies such as SAP, Oracle and IBM, and the integration of these software applications with the other

information and process systems of the Company. One vendor, IBM, proposed options where it either provided systems integration services for the software applications of others, including SAP and ClickSoft, or a package that included its own software application (Maximo). HCL AXON proposed to deliver a complete solution set from three options that included various combinations of software application systems. Two vendors, Logica and Meridium, proposed to deliver and install only their own software applications, and one vendor proposed only installation and integration services (no solution applications).

Evaluating the Proposals

In its initial review, Avista's Project Compass team and Five Point evaluated and scored each proposal according to more-detailed criteria, grouped under the four global Project criteria, as represented below:

1. Functionality

- a. Minimum Requirements – Degree the solution vendor met the minimum functional capabilities established by Avista. A scoring sheet for this portion of the evaluations is attached to this report as Confidential Attachment 11, pages 1 - 3.
- b. Project Drivers – Degree to which the proposed solution met the system requirements identified in Avista's STAR analysis. Scoring sheets for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 4 - 21.
- c. Customer Service Fit – Measure of the functionality of the Customer Care, relationship, and billing systems with respect to Avista's needs. Scoring sheets for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 22 - 28.
- d. Enterprise Asset Management Fit - Measure of the functionality of the asset management systems with respect to Avista's needs. Scoring sheets for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 29 - 32.

- e. Mobile Work Management Fit - Measure of the functionality of the mobile work management systems with respect to Avista's needs. Scoring sheets for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 33 - 38.

2. Technology

- a. Technical Fit – Evaluation of the technical hardware and software needs and costs, and technology implications of the proposals, with respect to Avista's core information technology strategies, in the short and long-term. Scoring sheets for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 39 - 50.

3. Implementation Partner

- a. System Integrator Capabilities – Assessment of the vendor's implementation strategy, installation approach, capabilities, timeliness, staffing, and compatibilities with Avista's project plans. The scoring template and assessment notes for this portion of the evaluations are attached to this report as Confidential Attachment 11, pages 51 - 59.

4. Cost

While a vendor's proposed cost was an important element of the initial screening, Avista understood the limitations on the usefulness of these initial costs. Not only were these costs very preliminary, but they did not necessarily represent the package of solutions the Company would select, did not represent the results of final price negotiation, and did not reflect with any degree of accuracy the final cost estimates that would be developed later in the process. The initial costs for each proposal are included in Confidential Attachment 11, pages 60 - 61. Avista's very preliminary estimate of its costs to implement each proposal are included on page 60 of Confidential Attachment 11. The budget line just under the heading titled "Implementation Costs" was the initial very-preliminary estimate of the collective costs to implement each package.

Based on the initial review and scoring of the proposals by the Avista Project Team, the Company withdrew consideration of the proposals made by Wipro, Sparta, Logica, Meridium and HPES.

Avista then conducted day-long interviews in early December 2011 with the final vendors who fully-met the RFP requirements. A Summary Score sheet for the application solution sets from each vendor is attached to this report as Confidential Attachment 11, page 62, The summary scores do not include the evaluations of the capabilities of the System Integration vendors themselves. The remaining vendors, HCL AXON, EP2M/Oracle and IBM, were invited to make Product Demonstrations for the Avista Compass team at Avista's offices, conducted over a period of three weeks in January of 2012.

During and after the product demonstrations, Avista and Five Point conducted further evaluations of the vendor proposals rated against a more-detailed list of the Project Compass Drivers, provided below. As Avista's evaluation proceeded, a ranking of the elements of the proposals was created from the aggregation of selections of individual Compass team members. Results were rolled into a Final Solution Workbook where scores for the proposed software applications (customer service, asset management, and mobile), the technology assessments, and the evaluations of system integration vendors were summarized on the basis of meeting the Project Drivers.

Project Compass Drivers

- Technology
 - Agile – ability to respond quickly to the ever-changing needs of the business
 - Reduce technology complexity
 - Strong technology roadmap
 - Minimizes customizations
- Customer
 - Communication preferences
 - Choices – service options
 - Improve customer touch points
 - Develop new ways to deliver more value to the customer
 - Improved information (business analytics) access and availability
- Future
 - Smart Grid
 - Energy Efficiency Programs

- Real time billing
- On-bill financing
- Strong product roadmap
- Customer experience
- Employee
 - Employee impact – positive benefits
 - Minimize adverse impact to employees
- Business
 - Business process efficiency and effectiveness
 - Trusted System Integration relationship
 - Strong System Integration implementation approach, methodology and experience
 - Preserves data integrity
 - Meets project budget, scope and timeline
 - Eliminate silos of information
 - Improved information (business analytics) access and availability
 - Satisfies current regulatory and business requirements

The Final Solution Workbook is included in this report as Confidential Attachment 12, and records the numeric scores derived from the initial evaluation of the vendor proposals.

- Results reflect a slightly higher ranking of SAPs Customer Relationship & Billing solution compared with Oracle’s Customer Care & Billing solution, as shown in Confidential Attachment 12, pages 3 - 4.
- IBM’s Maximo Enterprise Asset solution was ranked as having a slightly better match for Avista than either the SAP or Oracle Asset solutions, as shown in Confidential Attachment 12, pages 5 - 7.
- Among the Mobile applications, the Ventyx solution was rated higher than the Oracle and ClickSoft solutions, as shown in Confidential Attachment 12, pages 8 - 9.
- With respect to the vendor’s overall Technology scores, as determined by Avista’s Technology Project Driver, SAP was rated substantially above both Oracle and IBM, as shown in Confidential Attachment 12, pages 10 - 13.

- In rating the capabilities of the Systems Integrator vendors, from Avista's perspective, HCL AXON was rated above EP2M and IBM, as reflected in Confidential Attachment 12, pages 14 - 15.

Avista's Final Selection of Applications and Services Vendors

In Avista's final analysis, it determined that the best overall combination of solutions for serving its customers would be a hybrid of the solution sets proposed, including the Oracle Customer Care & Billing solution, installed and integrated by EP2M, and the IBM Maximo Asset Management solution installed and integrated by IBM, in partnership with EP2M. In addition, Avista determined it was in the interest of its customers to delay the selection and implementation of the Mobile application at that time, since a new version of the top-scoring Ventyx Service Suite will be available for review in 2014. Final voting scores for the candidate customer and asset solutions, the lead solution integrators, and the combined projects, are included in this report as Confidential Attachment 13

Oracle's Customer Care & Billing application was ultimately selected over SAPs customer application because it met all the solution requirements needed to serve our customer and business needs, is more tailored to utility industry applications, was much more intuitive for customers and our employees to navigate and use. It is also compatible with Avista's existing Oracle financial and procurement systems. Because SAPs Customer application could not be integrated with Avista's Oracle financial system, selecting SAP would have required Avista to abandon its Oracle ERP system and to transition to SAPs system over a period of approximately five years.

IBMs Maximo Enterprise Asset Management solution was selected over the applications of SAP and Oracle because it was judged to have the strongest overall capability for Avista, is an industry leader, integrates well with Avista's geospatial facilities technology, provides for the incorporation of fleet, facilities and enterprise technology assets, and provided the opportunity for early installation of Avista's electric generation assets. In addition, IBM was willing to partner with EP2M in the installation and integration of its Maximo product.

EP2M was selected as the System Installation/Integration vendor because it has a great depth of familiarity and experience with the Oracle Customer application, has an excellent track record of successful project completion, received excellent customer reviews, has very low employee turnover and has excellent utility experience.

This combination of vendors and solutions, together, was judged to provide Avista and its customers with the optimized products and services that would deliver excellent service and value, in both the short and long term, and at the lowest overall price. During the final selection process, Avista prepared a comparison of the very preliminary pricing, as derived through the course of the evaluation process, for Avista's selected solution, as well as the second choice solution set (HCL AXON and SAP). These prices were very preliminary because the final pricing for the selected solutions had not yet been negotiated. In addition, because these costs did not reflect all of the activities involved in replacing the legacy System, they were not intended to represent a budget estimate for completing the Project. The costs used to compare the final solution sets are included as Confidential Attachment 14.

VI. Implementation of the Replacement Systems

Avista's initial project research and its planning work with Five Point Partners, to assess its business process requirements and to evaluate a range of proposals, provided the base of knowledge and certainty needed by the Company to proceed with the replacement of its legacy System. Avista entered final negotiations with the selected vendors, described above, and executed purchase agreements in May 2011. The single largest contract was awarded to the firm EP2M for implementing the Oracle Customer Care & Billing application, and integration with the IBM Maximo application and the host of other applications and systems required to support Avista's customer service and operations business. A copy of Avista's Master Services Agreement and Statement of Work for its contract with EP2M, is provided in the confidential work papers accompanying this filing. Avista's second-largest contract was signed with IBM for its Maximo software and the services of installing and integrating the application. Avista's Master Services Agreement and Statement of Work for IBM is also provided as confidential work papers.

Project Compass Capital Budget

A final project budget was developed over the course of 2011 and 2012, for the implementation of the Company's customer service and asset management applications. This budget was approved by the Company's executive steering committee on December 6, 2012, and is included as Confidential Attachment 15.

Timing of the Final Project Budget

Although Avista discussed potential costs of the project early in its inception, and approved preliminary budgets through the course of Project development, it did not establish a final capital budget until the Project was well-enough defined to do so with confidence. Avista has learned from its own experience, through its peer utility interviews, and from the support and advice of outside experts, that organizations commonly undermine the success of their software projects by making cost commitments too early in the development stages. This mistake undermines predictability, increases risk and project inefficiencies, and generally impairs the ability to manage a project to a successful conclusion. Early in the scoping of a software project, particular details of the application being designed/installed, a detailed knowledge of the Company's specific business requirements, details of the solution sets, the management plan, identified staffing needs, and many other variables are simply unclear. Accordingly, estimates of the potential cost of the project are highly variable. As these sources of variability continue to be investigated and reduced, the project uncertainty decreases; likewise, so does the variability in estimates of the project cost. This phenomenon, widely discussed in the literature, and often associated with author Steve McConnell², is known as the "Cone of Uncertainty," presented in Figure 4³, below.

² Software Estimation: Demystifying the Black Art. Steve McConnell, Microsoft Press, 2006

³ id. Figure 4.2, 96.1/751.

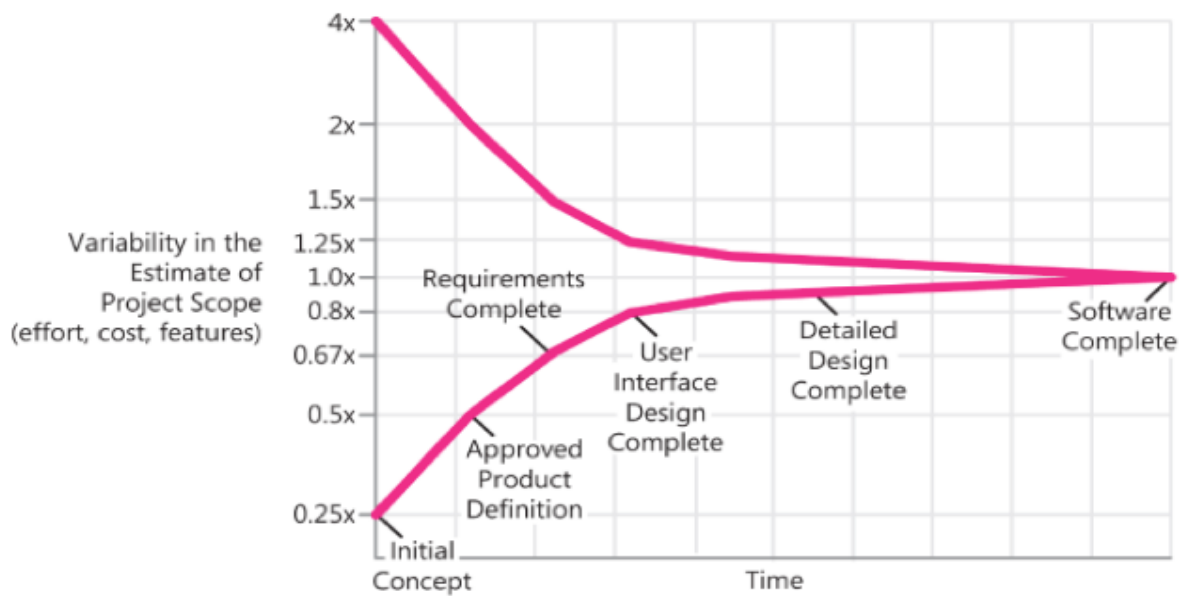


Figure 4. The ‘Cone of Uncertainty’ describing the relationship between the variability in the estimates of a software projects’ cost and the stage of the project at which the estimates are developed.

As the figure illustrates, significant narrowing of the uncertainty generally occurs during the first 20-30% of the total calendar time for the project. The uncertainty will only decrease, however, through active and deliberate project research and design required to further define the scope, requirements, implementation details and estimates of component costs. And, this uncertainty must continue to be constrained throughout the course of the project by the use of effective project controls.

The Role of Cost Information Early in the Project

The decision point for the Company in 2010, was whether to significantly reinvest in its legacy technology, as the means to defer its ultimate replacement, or instead, to invest in the planning and exploration of options needed to support its current replacement. In moving toward the latter, the Company’s focus was to assess its needs, evaluate options, and select a set of solutions that would meet the long-term needs of the Company and its customers at the lowest possible cost. At that point, the Company engaged in the progressive stages of project design needed to prudently define

its likely scope and potential cost. Through this work, uncertainty around the project was narrowed and potential costs were further refined, to the point that Avista was confident purchasing the selected applications and proceeding with the work of implementation. Even though this was several months before the final budget was approved, Avista had by this time built the foundation needed to initiate a successful project: the ability to deliver a solution that would meet its long-term customer service and business requirements in an optimized approach, and in a manner that would achieve the least cost for its customers.

The Project Budget as a Management Tool

While Avista believes its estimates of scope, timeline and budget for the project are reasonable, and it is committed to control the Project to best meet each of these estimates, it is also cognizant that its success will not be defined by whether or not each estimate, including the budget, is precisely met. In contrast with a ‘not-to-exceed’ metric, the software budget is a management tool that allows senior leaders to make informed enterprise-level decisions, and that provides an effective tool for the project manager to control project activities in an effort to meet the estimates of each deliverable (timeline, scope, functionality and cost). In describing the relationship between software project estimates and final results, McConnell states:

“The primary purpose of software estimation is not to predict a project’s outcome; it is to determine whether a project’s targets are realistic enough to allow the project to be controlled to meet them.”⁴ “Typical project control activities include removing noncritical requirements, redefining requirements, replacing less-experienced staff with more-experienced staff, and so on.”⁵ “In practice, if we deliver a project with about the level of functionality intended, using about the level of resources planned, in about the time frame targeted, then we typically say that the project “met its estimates,” despite all the analytical impurities implicit in that statement. Thus, the criteria for a “good” estimate cannot be based on its predictive capability, which is impossible to assess, but on the estimate’s ability to support project success...”⁶

Avista believes it has designed and developed such an implementation plan and budget for Project Compass. By this, we mean that the overall Project record will demonstrate its proper research and design, robust planning and estimating, effective management and controls, and that its delivered scope, timeline and cost, are reasonable, cost effective and prudent.

⁴ id. At 42/751.

⁵ id. At 39/751.

⁶ id. At 41/751.

Project Budget Allocation

The overall allocation of the final capital budget for the Project is shown in Confidential Attachment 15. The budget amounts represent key purchases and contract and employee labor required to support the activities of installation. In addition, these costs are also separated for each major application system: Customer Care & Billing; Maximo for Generation Resources, and Maximo for Gas and Electric Transmission and Distribution assets.

Application Costs as a Portion of the Overall Project Budget

Today, the cost to purchase the rights to enterprise commercial applications is a relatively small proportion of the overall replacement project budget. This is because the vendor's cost of developing and updating these huge applications can be spread across a broad global client base. Accordingly, the incremental cost to each company is relatively small. To achieve this broad applicability, the software applications are designed with a standard off-the-shelf range of functionalities, which allows them to be adopted by the widest possible client base. But, since every company still has unique business processes within these broad templates of standard functionality, the applications are designed with significant additional flexibility that is not configured when the application is purchased. This configuration must be performed by each company after the application is purchased and installed, in the ways that best meet their individual business requirements. For Avista, as described above, tailoring the applications to meet our 3,500 individual business requirements involves a significant labor cost. In addition, the customer service and asset management applications must be integrated to perform seamlessly with each other, and with every other business software application (over 100 for Avista) that's required to support the operations of the Company. Finally, for each existing Avista work processes that cannot be accommodated by the standard functionality of the new applications, this work process must be re-designed so that it can. This process re-design is also labor intensive because it's performed by work teams staffed with employees representing every segment of the business that's impacted by the change. Overall, these costs of installation, configuration, integration and work process re-design represent the lion's share of the project budget.

In addition to the activities above, there is a broad range of other support required to make the Project successful. These include development of training materials for employees on the new systems and the re-designed work processes, the process of training, project change management, employee and customer communications, project quality assurance, computer hosting and computer hardware for the applications, and providing technical support for the new systems at their launch and during the period of stabilization.

Board of Directors Updates on Project Compass

The Finance Committee of the Board of Directors was provided an overview and update on the progress of the Project by Mr. James Kensok, in February 2012. A copy of that presentation is included as Confidential Attachment 16. Mr. Kensok provided another update to the Board Finance Committee in September 2012, and that presentation is provided as Confidential Attachment 17. The Board Finance Committee received an updated progress report on Project Compass, made by Mr. Kensok, in February 2013. A copy of that presentation is included as Confidential Attachment 18.

Principal Implementation Activities of Phase 2

As briefly described above, the major activities of the Implementation Phase include installing the software solutions and configuring them with Avista's System, testing all of the System components prior to deploying the solution, developing and implementing employee training and customer and employee communications. And, finally, the Go-Live placement of the new System into service. Some of the key activities include:

- Tailor / Configure the software solutions to match the design of Avista's business requirements.
- Develop Technical Specifications – These ensure the software configurations can be documented for future development and upgrades.
- Develop / Configure Work Processes – documents how the Company has determined that the flow of work processes will be accomplished using the new software.
- Develop Integrations – to connect with Avista's other business systems and applications.

- Develop Data Migration Plans – to move Avista’s customer and other data to the new platforms.
- Security Setup – Establishes the security plan for protecting the Company’s customer and other data.
- Test Scenarios – developing test scenarios from an inventory of the processes to be tested, using the step-by-step procedures for each particular transaction or business process that will be used to integrate and test new systems.
- Conduct Unit Testing – unit testing ensures that underlying customized portions of the software systems are functioning as designed.
- Migrate Data Tables and Files – to ensure there is order and accuracy when information is moved from the programming stage into the testing stage and, finally into live application.
- Evaluate System Test Application – the performance testing of the system created for testing the actual applications and their integrations.
- Conduct Systems Integration Testing – focuses on the testing processes between the software solutions implemented, and the Company’s other systems, including third party systems.
- Conduct User Acceptance Testing – provides those who will actually be using the systems to evaluate all application functions related to their business processes. Acceptance testing confirms the system meets business requirements, and also, verifies the business processes for the software solution are complete, well understood, and well documented.
- Defect Management – During each test cycle, actual test results are compared with expected results. If issues are identified and logged, functional and/or technical updates will be made as required to resolve a particular issue. As issues are resolved, additional testing is completed to validate that the issue is fixed properly. The majority of this testing falls within the test cycles outlined above, but additional testing is completed as required by the project team until all business requirements, system functionality, integrations and business processes are fully tested.
- Training Materials are created for employees and others who will be using the system.
- Train the Trainer courses are conducted for employees who will be key trainers for others.

- Deliver Training – Training is one of the final opportunities to prepare employees to operate the system with the new business processes. The timing of the training is critical so that the users are trained in time for the transition, but will still retain knowledge of the new system.
- The project team develops the detailed “cutover plan”, to ensure a comprehensive list of supporting requirements is timely developed. ‘Cutover’ refers to the process of moving Avista’s service from the legacy operating systems to the new applications and systems.
- Ensuring that the technical operating environment for the new is in place and stable prior to the Go-Live.
- An assessment of organizational readiness is conducted to ensure the Company is equipped for a successful Go-Live.
- In conjunction with preparing for the Go-Live, a contingency plan will be developed and in place to respond to issues that may arise during the process.

In addition to the major activities listed above, the work in this Phase is also organized and managed in several project ‘workflows’ that provide a unified objective and continuity across this Phase. These six workflows include:

- Overall project milestone plan – this body of work supports the management of the overall project.
- Enterprise Asset Management / First Wave – this effort is focused on the application of the new asset management software to Avista’s electric generation and substation equipment.
- Enterprise Asset Management / Second Wave – this portion of the project encompasses the activities required to apply the new asset management software to the Company’s electric transmission and distribution, and its natural gas infrastructure. This work process replaces the functionality currently provided by Avista’s legacy work management and electric and gas meter application systems.
- Customer Service Application – This portion of the program, which represents the lion’s share of project Compass, is focused on replacing the functionality of Avista’s legacy customer service system.

- Testing – This workflow is focused on the technical testing of the new applications, as integrated into the Company’s business environment. Activities include the technical testing of the software and hardware systems, and what is known as user-acceptance testing. The latter involves Company employees testing the new systems by simulating all possible combinations of their business application.
- Enterprise Technology – Ensuring the new applications mesh technically and strategically with the Company’s enterprise services model for information technologies.
- Organizational Change Management and Communication – This work involves the preparation of employees for their successful participation in work process redesign efforts, and for the systemic changes they will experience when the new systems are implemented. In addition, there is an important element of this work that is focused on the customer: preparing them in advance for the minor service changes that will accompany the launch of the new systems.

Key Activity in Phase 3

After the Go-Live, there is a transition when supporting consultants remain on site to help resolve technical issues that arise, in the Phase known as Post Go-Live Support. The duration of this transition period, which is expected to last between 6 and 12 months, will be defined by Avista’s internal support personnel as they become comfortable supporting the new system.

ATTACHMENTS

**Attachments 1-18 Provided on Disc
(Attachment 7 and 11-18 are Confidential)**