WHITE PAPER

A Data Management Platform Approach for Enterprise Planning

October 2019

11654 PLAZA AMERICA DR., SUITE 639, RESTON, VA 20190

Executive Summary

There is an increasing amount of scrutiny on how PMs, PMOs and CTO/CIOs spend their project dollars and plan for the future. Larger organizations face the challenge of understanding and integrating (sometimes in an analog fashion) many portfolios with different PPM tools, Databases, Processes, and meet Compliance Requirements and understand Financial spend. Some offices still manage hundreds of millions of dollars using just a spreadsheet. Strategic plans and Enterprise Architectures are often ignored and have little impact on project and spending decisions. This creates a situation where senior and accountable decision-makers do not know how their budgets are being spent and used at the project level, and have no tools to ensure compliance and transparency. As the organization continues to grow, these challenges deepen. Having a BI tool that can only provide insights, without a clear system of record, cannot solve this problem.

Senior decision-makers and line managers need a deeper understanding of their authoritative data -- both vertically and horizontally. This understanding allows the avoidance of duplicated capabilities and projects, better shared capabilities, assessments of existing systems prior to new capabilities being acquired, alerts of project and program overruns (and quiet re-baselining), identification of hoarding of project budgets, strategic plan and EA gap analysis, and tracking of personnel and their skill sets, to name just a few benefits. Also, by analyzing duplicated processes one can also understand where potential shared resources may exist. This can lead to cost savings.

Also, as large organizations have grown and evolved, they are increasingly “unique”. Their org charts are different, internal processes not the same as the organization next door, cultures are different, and compliance requirements are derived over time, based on the history of the organization. Agile development processes are accelerating time to market and progress can be hidden from above. The implications of all these changes means that any Planning solution must be very flexible. A Planning tool today, at the enterprise or large project level, cannot mandate processes based on a software designer’s viewpoint.

However, a Platform Data Management approach is ideal. With InQuisient’s low code Platform and selected tools, the IQ solution can be configured to ***fit like a glove*** for the largest of organizations -- without expensive code writers. This solution will scale as the organization grows, is easy to use, and will ensure full transparency across all lines of business. With this data-centric approach, managers will be able to finally plan for the future with confidence knowing that truthful data underlies each decision.

The rest of this White Paper will describe some of the features and capabilities of the IQ Platform and associated tools.

Sincerely;

Randy Ridley
SVP, InQuisient
703 626 9210
rridley@inquisient.com

Contents

Figures

Corporate Overview

InQuisient is a software company based in Northern Virginia and was formerly known as Enterprise Elements, Inc. The company has been in business since 2004. ***We are 100% U.S. owned and a small business.*** Our products are mature and are in use throughout the Federal and State Government and the Fortune 500. Within DoD, our software is in use on at many security levels. ***We have many 1000s of users in the Government market.***

At a single customer -- the Department of Defense -- there are over 3,000 named users. At the DoD in 2018, the InQuisient Software in its IT Portfolio Planning function:

- Tracked over ***8,000 IT Systems*** from all services and agencies in DoD
- Performed over ***20,000 assessments*** of those systems supporting DoD IT Portfolio decision-making
- Managed over ***6 Billion*** in IT investments

In short, in the DoD deployment, InQuisient technology manages more Projects and affects more Project dollars than any other Portfolio Management system in the world.

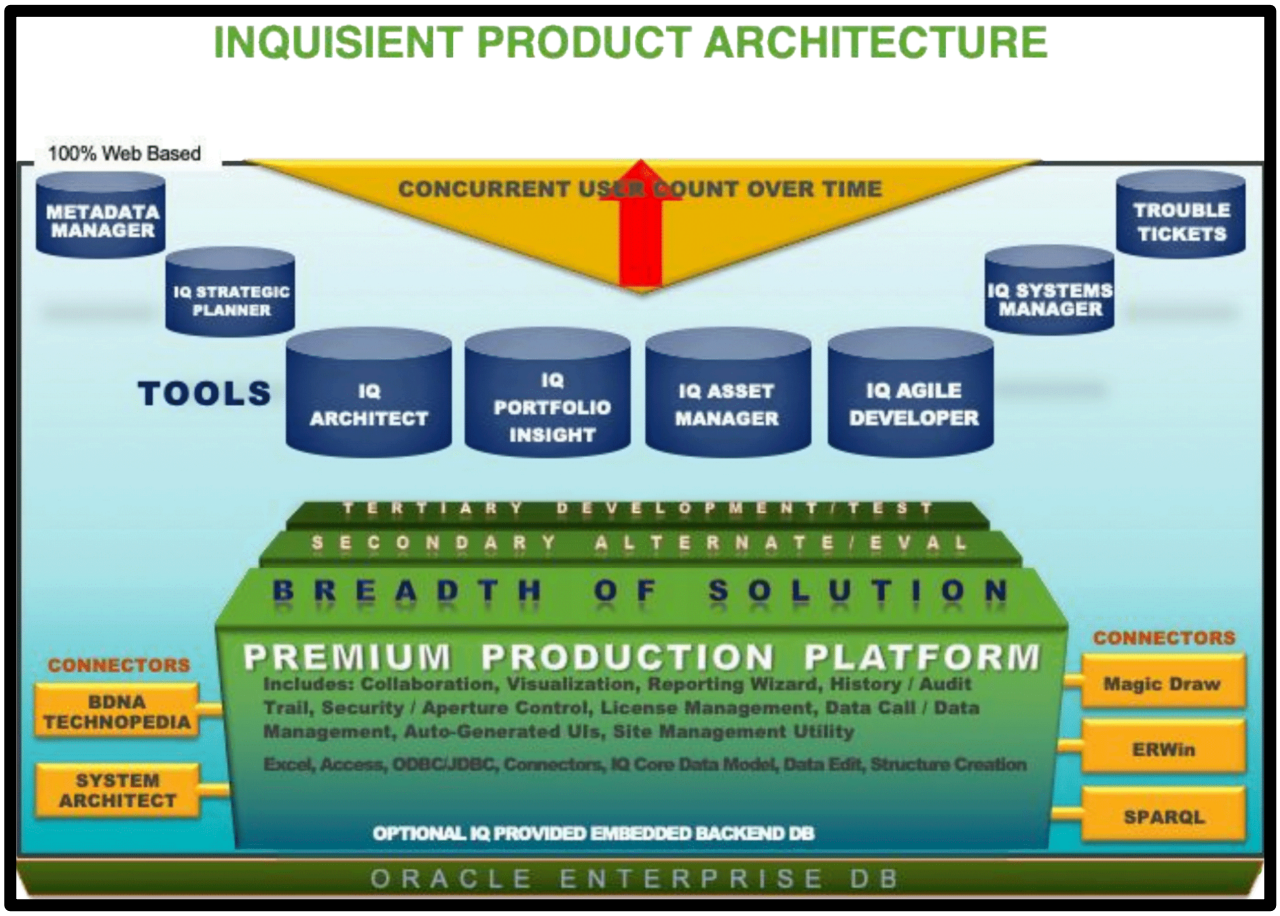
The InQuisient website is located here: www.inquisient.com.

Capabilities

Product Overview

InQuisient offers ***an enterprise or cloud-based software*** product called the InQuisient (IQ) Premium Production Platform. The IQ Platform provides a web browser and mobile compliant interface with wizard-driven, user configurable, dashboard and reporting and data analytics.

The primary tool in use on top of the IQ Platform is IQ Portfolio Insight (IQ IT Portfolio/PPM Solution). This provides intuitive Enterprise/PMO Portfolio Management, as well as fully functional and detailed Project Management. Figure 1 (below) illustrates the IQ Platform and the ecosystem of associated tools and connectors that can enhance the basic IQ Platform, depending on customer needs. These tools provide standard templates following best practices, while providing users with the capability to easily configure to specific needs.



1: InQuisient Premium Production Platform: Samples of Connectors and Tools

The backend of the system uses an Oracle Database (DB). This standard database provides continuous or scheduled backups, allows access from other applications, and has built in role and user-level security down to the row. This DB can be embedded and we can easily import data from any other DB into it.

InQuisient Platform Overview

The IQ Platform itself contains a number of capabilities such as Data Call, Collaboration Tool, and others. We also offer a number of connectors that allow the ingestion of data from third-party products such as System Architect, Modeling tools with BPMN 2.0 format, BDNA, Excel, MS Project, Access, DBs, e-mail systems, document management systems, and more complex and proprietary third-party data sources, as well as manual methods. These connector and integration capabilities would facilitate a smooth ingestion of information from the other enterprise systems record where the data is actually processed and maintained, providing an audit trail of where information comes from and when, allowing greater confidence in the truth of the information.

One of the turnkey capabilities in the IQ Platform is the ability to allow for different levels of security access and management of data by personnel on a 'need to know' basis. The IQ Platform has this -- we call it "Security Aperture" and it is in current use across the DoD and on Top Secret networks today. Additionally, the IQ Platform is CAC and SSO-enabled.

Configuration, Tailoring and Enhancement: InQuisient, unlike many other software products, is not a straitjacket. The patents that InQuisient has received are directly relevant to the flexibility of the IQ Platform and its ability to mold itself to the needs and requirements of our customers. This patented ***Low Code*** capability also allows movement towards and quick attainment of Initial Operational Capability (IOC) after purchase (see https://en.wikipedia.org/wiki/Low-code_development_platform). Most changes in the IQ Platform are done with what we call tailoring. ***Configuration*** the ability of a Subject Matter Expert (SME) or an IQ Expert (depending on the complexity) to change the structure and the nature of IQ Platform forms, reports, filters, visualizations, charts, and even data structure -- ***without the need to write any code.*** Regular knowledge workers can also do configuration. ***Tailoring*** is a slightly more advanced form of **Configuration** requiring limited low code writing. **Enhancement** is the adding COTS capability to the InQuisient software through discussions with InQuisient. All three of these happen routinely with customer engagements. There is no proprietary, product-specific InQuisient code in our software offering. It is easy to adjust the IQ Platform to fit the needs of the user(s).

2: *Sample of Advanced Visualizations within the IQ Platform*

InQuisient offers a fully mature Commercial off-the-shelf software solution that is currently in use by thousands of users in the Government and beyond. The current version is 10.3. End-users interact with the system through a standard web browser. The experience is tailored in ways that help those users accomplish their specific, organizationally-defined objectives. Each user is presented with a personalized

experience to help achieve their own goals and complete their tasks.

IQ has a robust and inherent visualization capability as shown in Figure 2 (above). This collage of visualization examples shows just some of what the IQ Platform is capable of once the data has been migrated into the system.

Dependency and Linkage: The IQ Dependency and Linkage diagram (number 1 in Figure 2, above) is automatically created in IQ to reflect the relationships among the classes of information and illustrates data via distinct graphical renderings. Several different diagrams are available for selection. These diagrams also allow the user to drill up or down to the desired level of information they wish to access.

Process Modeling: The IQ Enterprise Architecture tool generates Process Modeling dashboards (number 2 in Figure 2, above) based on an organization's Architecture, so that customers can visually document, analyze, and develop actionable steps to improve their processes. The process modeling is a robust tool designed to map out current state (or "as-is") as a baseline, and the future state (or "to-be") end-to-end picture that would incorporate with gaps and specified solutions to address each gap. Process Modeling dashboards are built using data related from all of the connecting activities, events, and resources of a particular process, product or service and can provide insight into the way to improve each resource.

Project/Program Schedule: The Project/Program Schedule dashboard (number 3 in Figure 2, above) provides a single and dynamic gateway that shows all action steps that need to be performed, which resources are assigned to each project and the timeframes specified in which this work needs to be performed. The Project/Program Schedule dashboard also reflects sub (or child) tasks and milestones that are key dependencies for delivering the project on time and on budget. IQ allows designated project stakeholders to generate project schedules, resources, budgets and project-related assets in real time. The data attributes used to render this type of dashboard can be tailored based on customer requirements.

Budget Overview: The Budget Overview dashboard (number 4 in Figure 2, above) is a fully interactive and drillable interface that allows users to quickly access all the particulars associated with budgeting and forecasting data. Users can navigate through charts and other widgets on this dashboard showing spending trends and planned vs. actual budgets. This interface is developed using a combination of financial data directly imported from external data sources or created with the IQ tool. As with all dashboards in IQ, users may directly export a static snapshot of each chart for use in other documents e.g. PowerPoint presentations.

Portfolio Management: IQ Portfolio Insight provides a Portfolio Management dashboard (number 5 in Figure 2, above) that helps organizations focus on enhancing the collaboration, communication and resulting portfolio-level reporting needed to gain first-line visibility into demand, project status, resource capacity and utilization, and cost estimates versus actuals. This technology enables the CxO/PMO to track, review and analyze multiple projects and processes through a single system and interface. Individual managers can drill down to specific details easily, so they can respond confidently and quickly instead of trying to compare hundreds of different reports from third-party systems and spreadsheets, so that the CxO/PMO can be confident that organizational data flows into better decision-making.

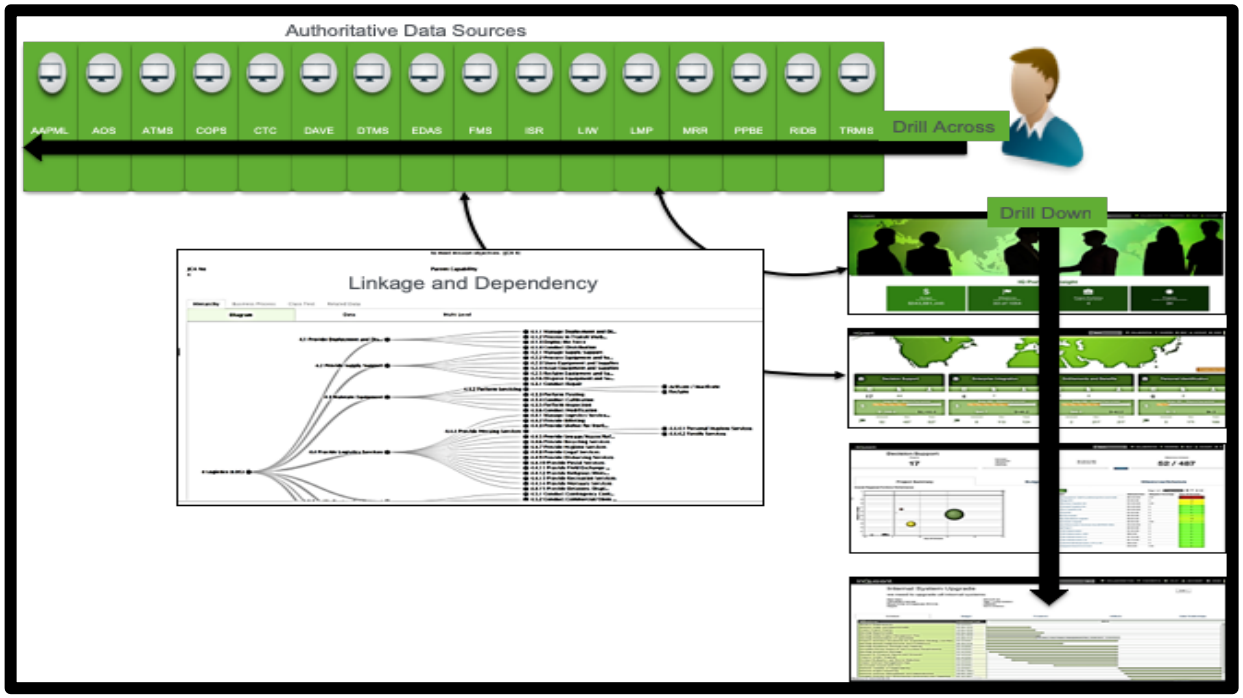
Systems Analysis and Summary: The Systems Analysis and Summary dashboard is expanded and discussed later in this document, in Figure 18.

Predictive Analytics: The IQ Predictive Analytics dashboard (number 7 in Figure 2, above) offers a method to view broad-based and truth-driven data sets on this screen. IQ's patented technology, coupled by data within the system, creates a visual representation of unknown future events. This screen allows users the ability to use data to predict the likely future occurrence of project end-date and any risks associated with the timeline.

Geospatial Visualization: The Geospatial Visualization dashboard (number 8 in Figure 2, above) is included in the IQ Platform and is specifically engineered to deliver impactful and full interactive data

visualization maps while also providing a way for users to organize and fully coalesce highly complex data. This capability creates aesthetically pleasing and responsive geospatial visualizations from either uploaded data assets or manually created items onto Google Maps (or others, such as ESRI). These locations can then be drilled into to provide additional information about the location and what it is linked to.

Asset Management: The Asset Management dashboard (number 9 in Figure 2, above) can be used to track any other physical assets and how they are deployed across the organization. Working on top of the IQ Platform, IQ Asset Manager helps organizations to clearly see information from strategic planning to the operational environment, soup to nuts, truly connecting the dots all the way along the operational process. This capability makes managing organizational assets dramatically more accurate. Users can easily and immediately see hot spots of what's missing, what's actually being used, what's expired and what's current. This makes the organization's approved technology list actionable: compare what's approved for the organization with what is actually installed, to see what needs to be phased out, what needs to be renewed, or what needs to be replaced. Use of IQ Asset Manager's graphing capability, coupled with asset data, allows the generation of real-time diagrams to see and react to up to date information.



3: *The IQ Platform Allows Users to Examine and Visualize Projects from any Vantage Point*

As shown as Figure 3 (above), the structure of the IQ Platform permits an examination of all data from all sources at any time. This capability is often used to "drill down" from the CxO/PMO level to systems, programs, and individual projects. During drill down or across, the data is visualized in the same dashboard that is being viewed by knowledge workers working daily in the system.

IQ Tools Embedded in Platform

In addition to the ease of creation and configuration, the IQ Platform is loaded with a core set of data structures and embedded tools to help get started. The core data includes Organization, Address, People, Artifacts (documents, etc.), Languages, Units of Measure, and the linking classes that connect these.

In addition to the base data structures, the IQ Platform also provides some tools that give added value for data entry, reporting, navigation, collaboration, and auditing.

Collaboration Tools

The IQ Platform provides several built-in mechanisms for collaborating on information. This can be done through a semi-formal Data Call, or through less rigorous informational Discussion Threads.

Data Call Central

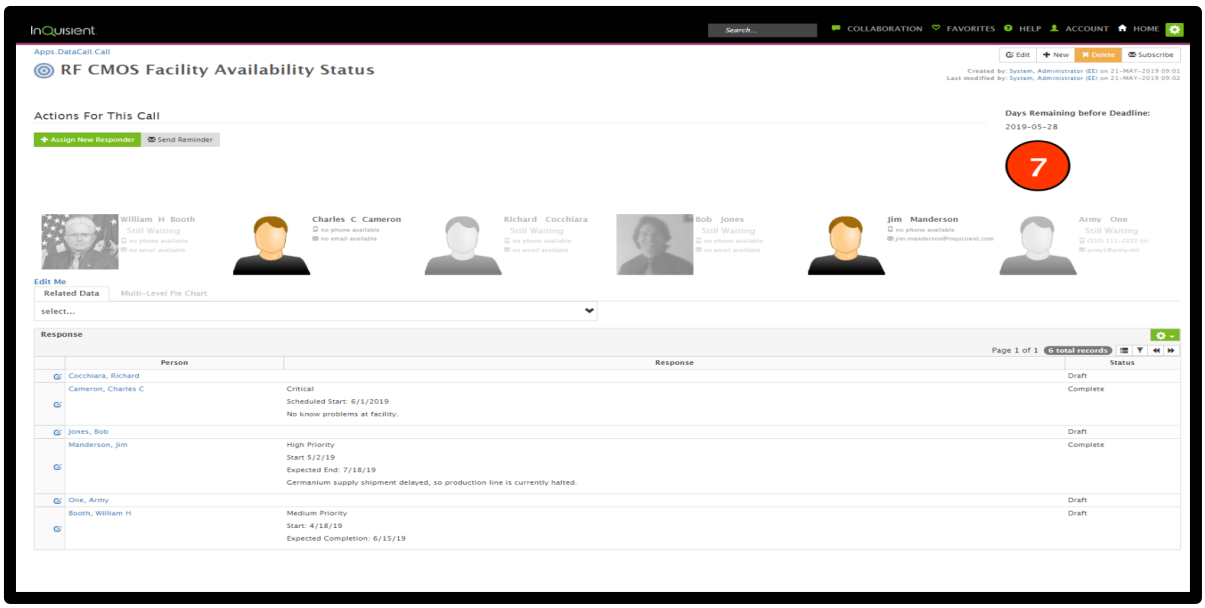
Unsure of what is going on within a specific Portfolio, Project, or some other critical piece of information? Gather the information needed to respond to unexpected, unpredictable and time-sensitive Data Calls – efficiently and confidently. InQuisient's browser-based tool provides access from anywhere to the knowledge any CxO/PMO/PM user might need, allowing and tracking responses to requests for information from any source, from the front lines to the front office.

The Data Call Engine tool within the IQ Platform enables key decision-makers to answer any data call rapidly and confidently. It's the perfect antidote for today's ad-hoc and transient data collection approaches that often require too much time to collect the data, don't store the information in reusable formats, and often deliver data of questionable quality.

InQuisient's data call engine helps organizations collect the specific data needed, rapidly and with a clear chain of custody, ensuring high confidence. Data is stored and is reusable to generate reports that enable historical comparisons and analysis, and the web-based design increases efficiency significantly, ensuring high integrity results today and moving forward.

Create a data call, with a description and deadlines for when the responses back are needed. All of the dialogs can be configured to add or remove desired data.

When the data call is generated, the desired responders or data custodians are assigned to provide the data desired. The Assignees would receive an e-mail with a link to the response entry web page. Figure 4 (below) shows the status of the responses for the chosen data call – RF CMOS Facility Availability Status. A few individuals have responded -- some complete, some in draft, and others have not yet responded. These responses can also have artifacts or supporting documents attached to them. This information is recorded for history, to provide the CxO/PMO/PM with traceability and auditability, allowing better trust in the reliability of the information.

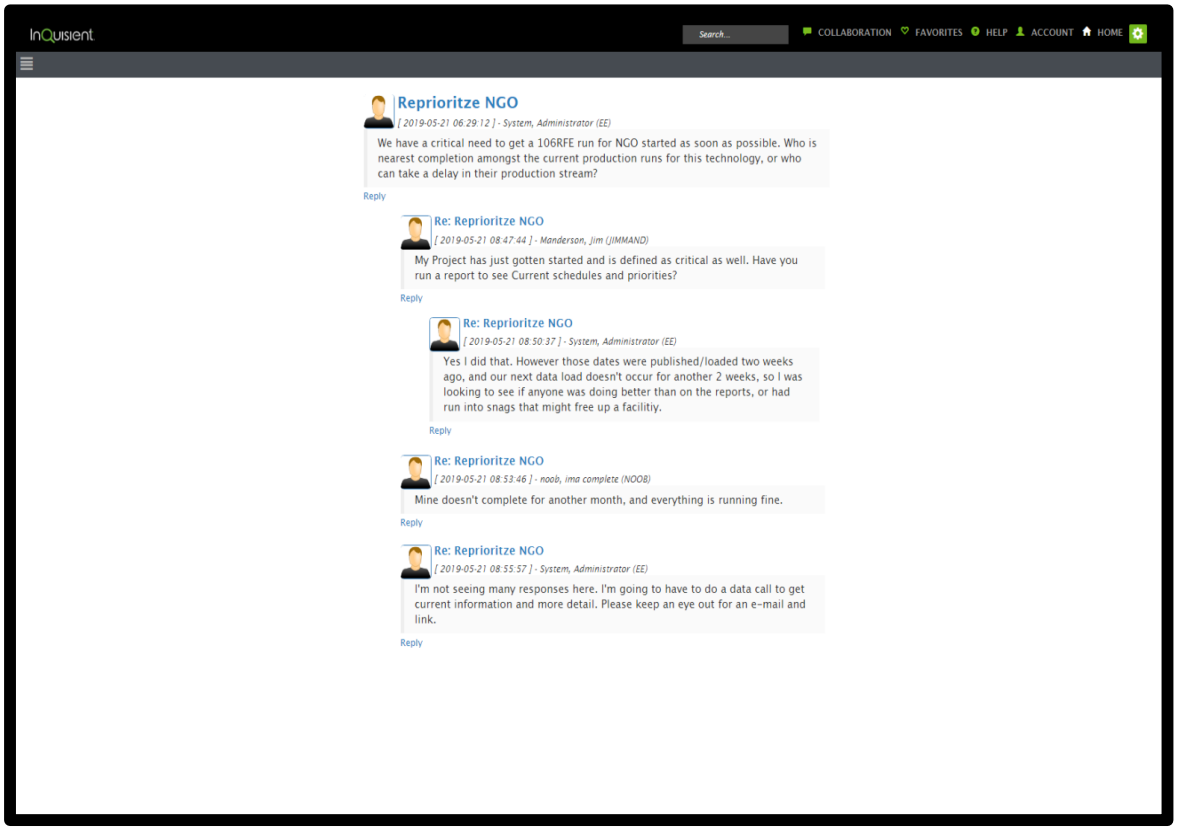


4: *Data Call Responses*

Discussion Threads

Collaboration is available at every web page and every specific portal page and its contents that any level user might need to work on. This comes in the form of a discussion thread that can be started at the particular view of the information, and added to. These are accessible from the menu on any web page, and show the discussion threads defined around that web page.

Figure 5 (below) is a sample discussion, where the Portfolio Manager lays out their need for information and receives a response from a couple of the Project Managers. This provides easy centralized information around the desired subject, available from the subject screen.



5: *Collaboration Thread*

Connectors

InQuisient has a large number of connectors to external applications, both to get data from the system of record (if there is not one, then IQ can be the system of record), as well as to pass back updated data where allowed. InQuisient also has an interchange utility that will receive data in a standard XMI format to create new schemas and load data directly from other systems into the InQuisient Repository. InQuisient has integrated with a number of financial systems for our customers, so we can integrate with BASIS+. The InQuisient Repository is based on Oracle, so we can also work with any existing ETL tools available on-site to move information between systems.

Connections to project systems can be done through our ability to drag and drop spreadsheets into the project entry and to map the columns in the spreadsheet to the columns in the database through the use of a wizard. This process can be automated if a standard CSV or spreadsheet format is consistently used. InQuisient also has an out-of-the-box integration with Microsoft Project or .mpp files, as well as Redmine for Agile and other third-party software.

IQ Tools That Can Be Added to the Platform

The IQ Platform is further enhanced with a number of pre-built tools to assist the Enterprise by providing a best practice data design and layout to support many of the standard CxO/PMO/PM business needs and requirements. These tools are easily configurable to add additional information and processes specific to the organization.

IQ Strategic Planner

IQ Strategic Planner is a valuable Tool that fills a key gap in strategic planning and communications. It provides the Master Reference of the road map of how to meet the strategic objectives, documents the motivation of the organization, and ensures transparency when discussing and defining the vision, strategy and tactics to be used to meet the organization's mission and execute change.

This Tool enables the CxO/PMO to link the organization's business vision, goals, strategies, tactics and business rules, then bridges the resulting business specifications to align the Information Technology stack with organizational goals and directives. By tying these disparate sources of information together, it enables the CxO/PMO to answer the hard questions with confidence, to ensure the accuracy and value of all components impacting the strategic plan.

Also, a key component in the use of this tool allows complete traceability of top down requirements, usually mandated by the Agency head, to each individual project. Questions such as: 1) Are we meeting objectives or requirements? 2) Do we have gaps in capabilities? 3) Is this project executing against a need that is not validated anywhere?

InQuisient's IQ Strategic Planner provides a structure for developing, communicating, and managing strategic business plans in an organized manner. Specifically, the web-based tool:

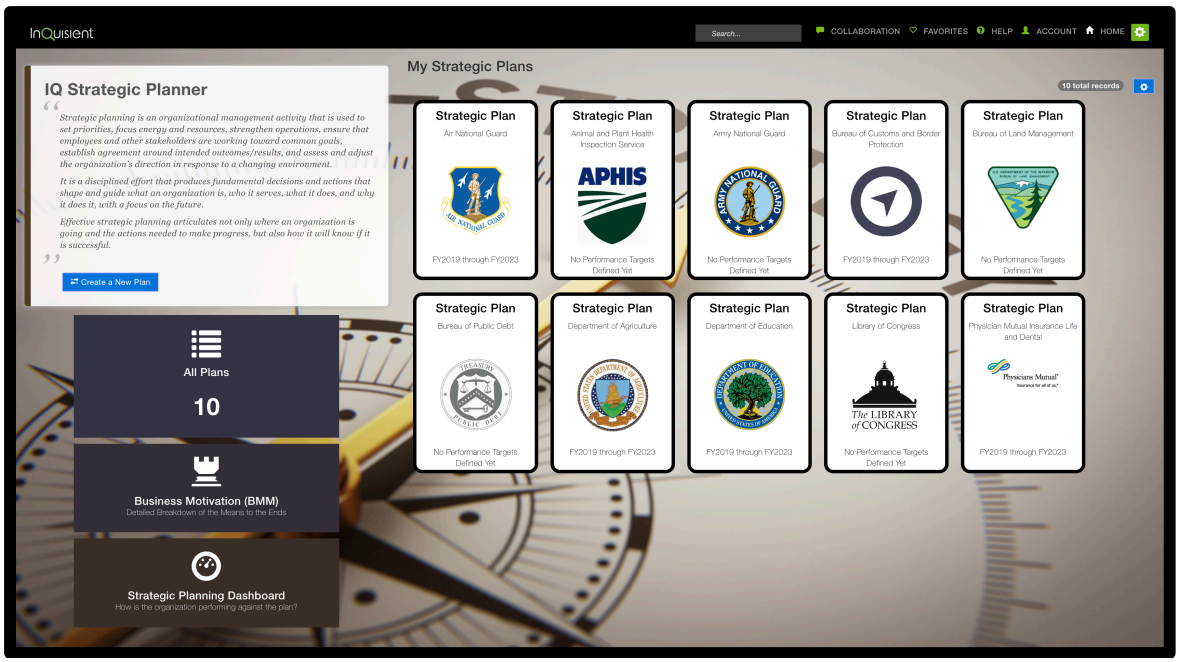
- Identifies factors that motivate the establishing of business plans;
- Identifies and defines the elements of business plans; indicates how all these factors and elements inter-relate;
- Publishes the final result as an easy-to-read document.

IQ Strategic Planner captures business requirements across different dimensions to rigorously capture and justify why the organization wants to do something, what it is aiming to achieve, how it plans to get there, and how it assesses the result.

The main elements of IQ Strategic Planner are:

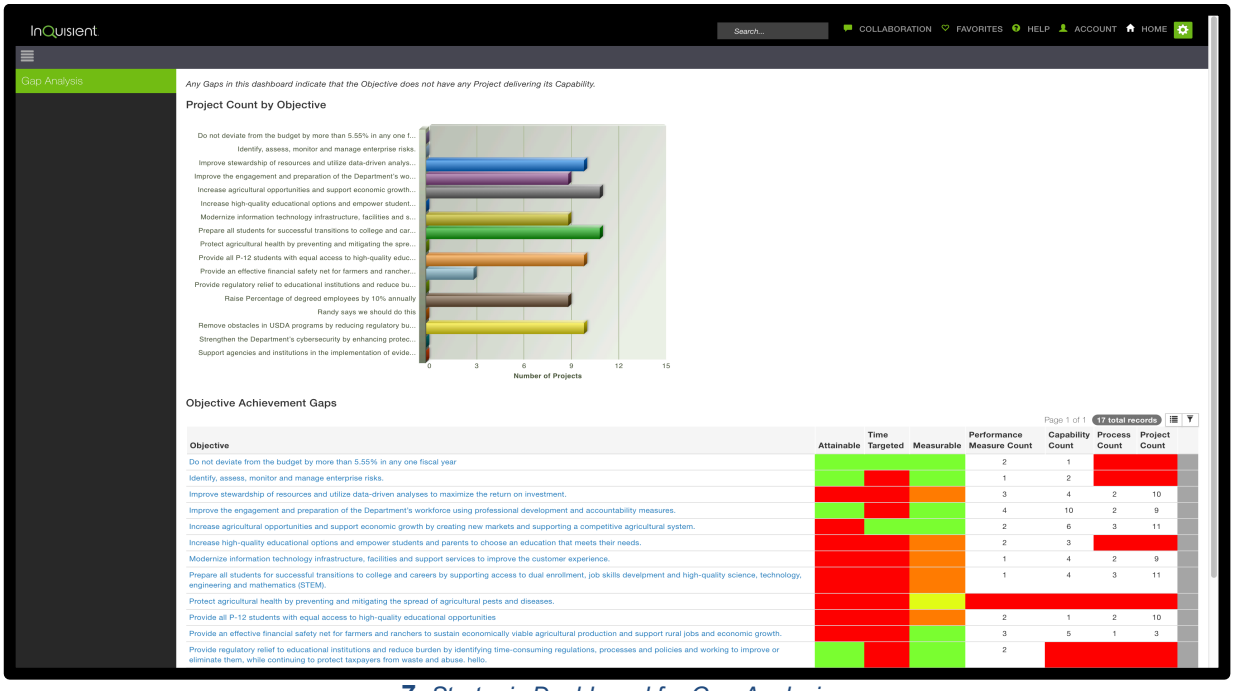
- Ends: What (as opposed to how) the business wants to accomplish.
- Means: How the business intends to accomplish its ends.
- Directives: The rules and policies that constrain or govern the available means.
- Influencers: Can cause changes that affect the organization in its employment of its means or achievement of its ends. Influencers are neutral by definition.
- Assessment: A judgment of an Influencer that affects the organization's ability to achieve its ends or use its means.

Through this process, organizations can review and analyze vision statements, objectives, strategies, tactics and business rules – which are then linked to Enterprise Architecture business processes. This enables the user to ask and answer: does the architecture support the business objectives?



6: *Strategies – Multi-company or Departmental*

Strategies can be tracked at multiple levels within an organization, and those incorporate the strategic plans at a more granular level, as shown in Figure 6 (above). The goals and objectives can then be linked from the higher-level plans down to the lower level ones to see where the departments are contributing to the whole. The Strategic Planning Dashboard provides quick views for Gap and Overlap Analysis, Budgetary information, and Strategic Performance Measurements. These advanced visualizations provide quick information on where focus needs to be made to further strategic goals, where too much effort is being expended, how current efforts are performing and how the money is being spent to do that. This helps identify immediate needs, where focus needs to be increased, and areas that can be reduced, saving costs and streamlining efforts.



7: *Strategic Dashboard for Gap Analysis*

Figure 7 (above) shows two important areas of information to help identify where additional effort needs to be expended to meet Strategic Objectives, and potential areas that are being overworked. The first visualization shows how many projects are supporting which objectives – some objectives have a large number of projects and some have none. The second visual heat map focuses on potential areas of improvement by showing those strategic objectives that do not have full coverage, be it incomplete performance measurements, or not being mapped to capabilities, business processes or projects. This is a best practices listing of types of information to map to objectives, but InQuisient is easily configurable to add information unique to an enterprise or to remove unnecessary information.

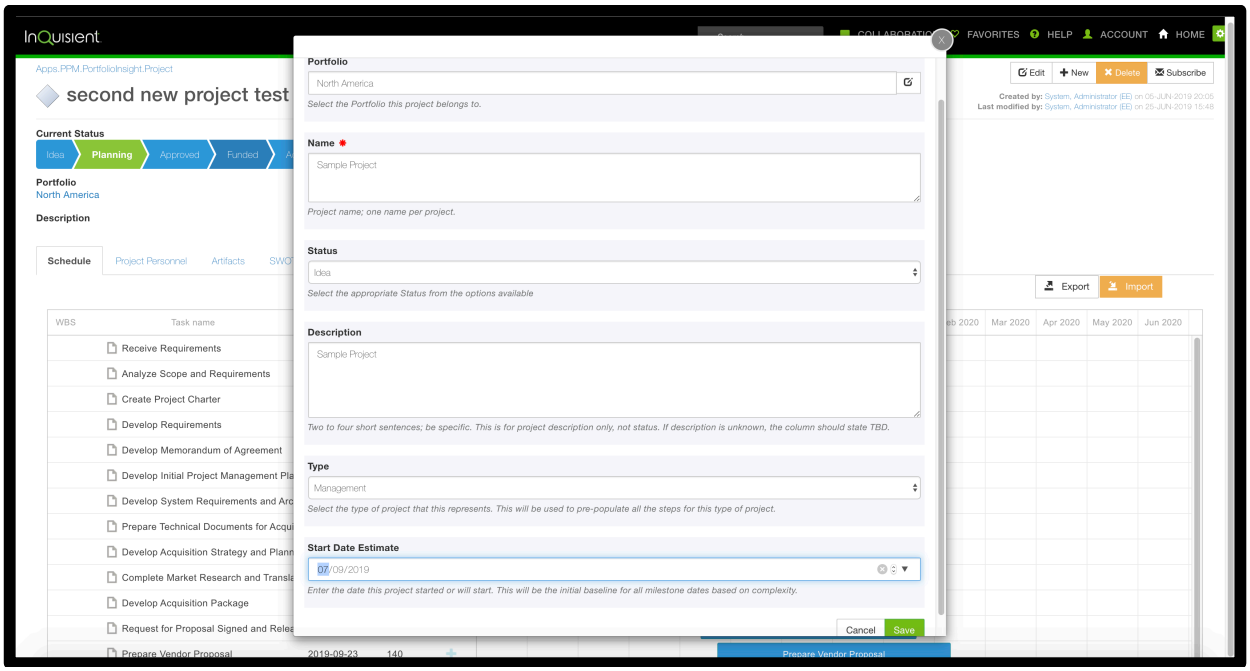
IQ Portfolio Insight Tool

IQ Portfolio Insight enables one seamless view of information for the CxO/PMO – from the organization's vision into the IT portfolio stack and the CxO/PMO that funds the changes – enabling business transformation at the speed of the mission. This technology benefits leaders and team members from all levels of the organization, including:

- Agency Leadership
- IT Portfolio Managers
- Program Managers
- PMOs and their staff
- Project Managers
- CIOs, CTOs, and COOs
- Chief Business Investment Officers
- Data Analysts
- PEO Leaders and their staff

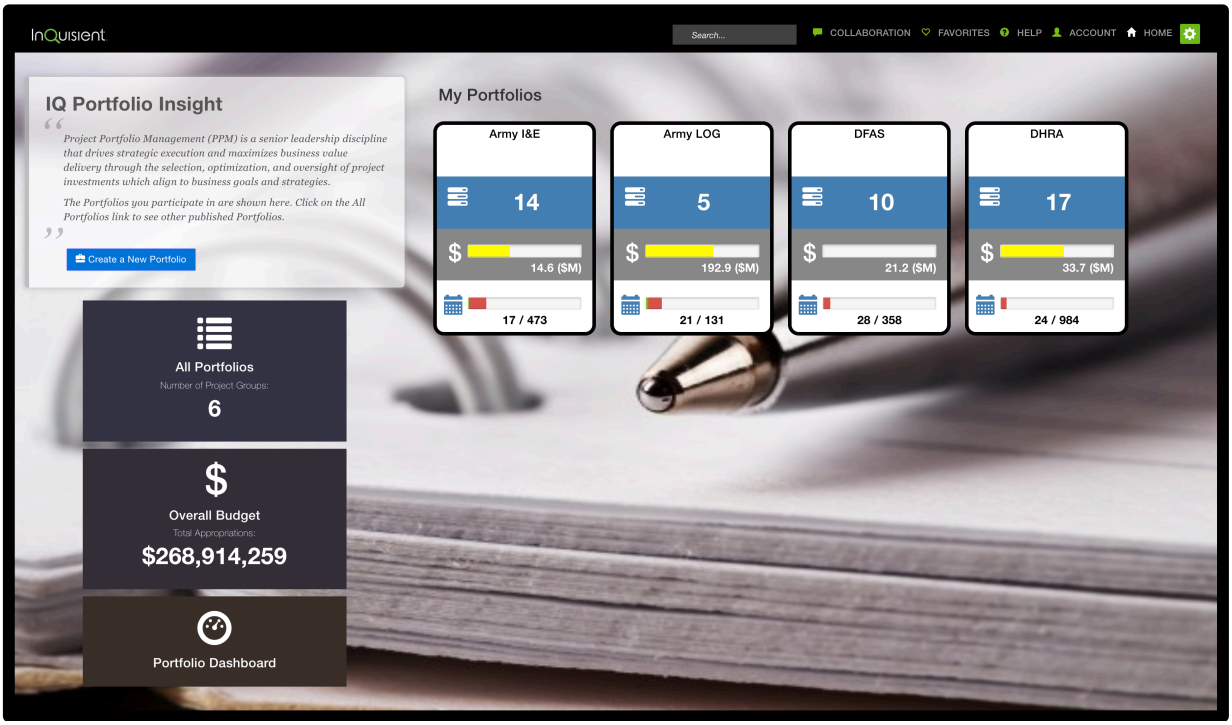
IQ Portfolio Insight tracks hundreds of Portfolios if needed, down to a single Project with thousands of detailed tasks. Projects can be added to Portfolios and ***tracked through the entire Project lifecycle from Project Selection through Project Closure, providing governance steps and approvals*** throughout the lifecycle. ***Predictive Analysis and intuitive forecasting*** allow the CxO/PMO/PM to know how portfolio, projects and systems are performing, what risks are present, resource allocation and forecasting, and whether they are meeting organizational Strategic Goals.

IQ Portfolio Insight provides intuitive tools to help the Portfolio or Project Manager manage projects. Figure 8 (below) shows the Project Initiation template initiated by selecting new in the Project Manager web page that allows the user to simply enter the required information of portfolio membership, name, status (automatically populated as "idea" for a new project), description, type (project template), and estimated start date. The "Status" field contains the standard phases of the project lifecycle, and is automatically updated as the project passes through the different approval phases and workflow.



8: *Project Initiation from Project Manager Page*

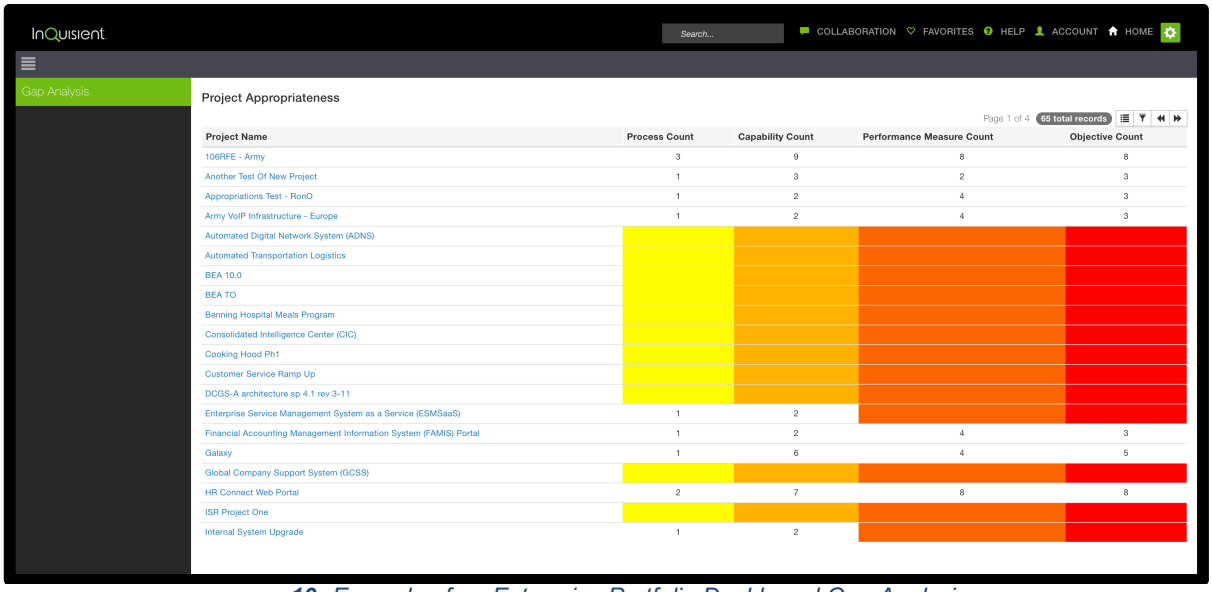
The “Type“ field contains a list of available standard project templates to use – InQuisient provides twelve out-of-the-box, but others can be easily configured and saved as template projects to better fit the organizational needs. Selection of a type of “Other” permits the PM to create a new project with no tasks -- they would need to be either enter manually, or by using the Import button to bring a Project in from an external source via either a .CSV file (spreadsheet format), or a .MPP file (Microsoft format).



9: *Example of a CxO/PMO Enterprise Level Summary Dashboard from the IQ Portfolio Insight tool (Configurable)*

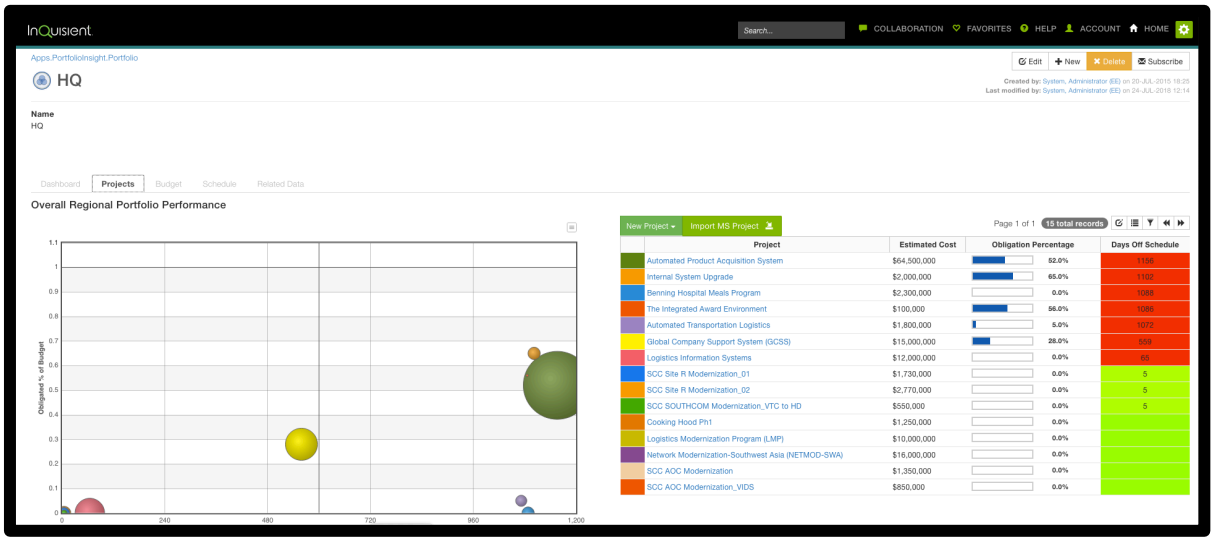
Figure 9 (above) shows a CxO/PMO summary of key data for a mature portfolio. The detail is an

executive-level summary, designed to give a PMO Director and/or C-level user key information about budgets and deadlines associated with each Portfolio. This allows the executive level to quickly see each portfolio grouping accessible to that user, or “My Portfolios”. This view provides high-level visuals on all artifacts, projects, people, milestones (total and achieved), and funds (used and appropriated). This is just an example of what could be done in one aspect of the tool. Additionally, with the IQ Platform, each user can “drill down” into the data to gain more information. Access is also provided to all other portfolios that security permits, an overall Budgetary dashboard, and a Portfolio Dashboard providing Gap and Overlap Analysis showing how projects and portfolios map into strategic objectives and business processes.



10: *Example of an Enterprise Portfolio Dashboard Gap Analysis*

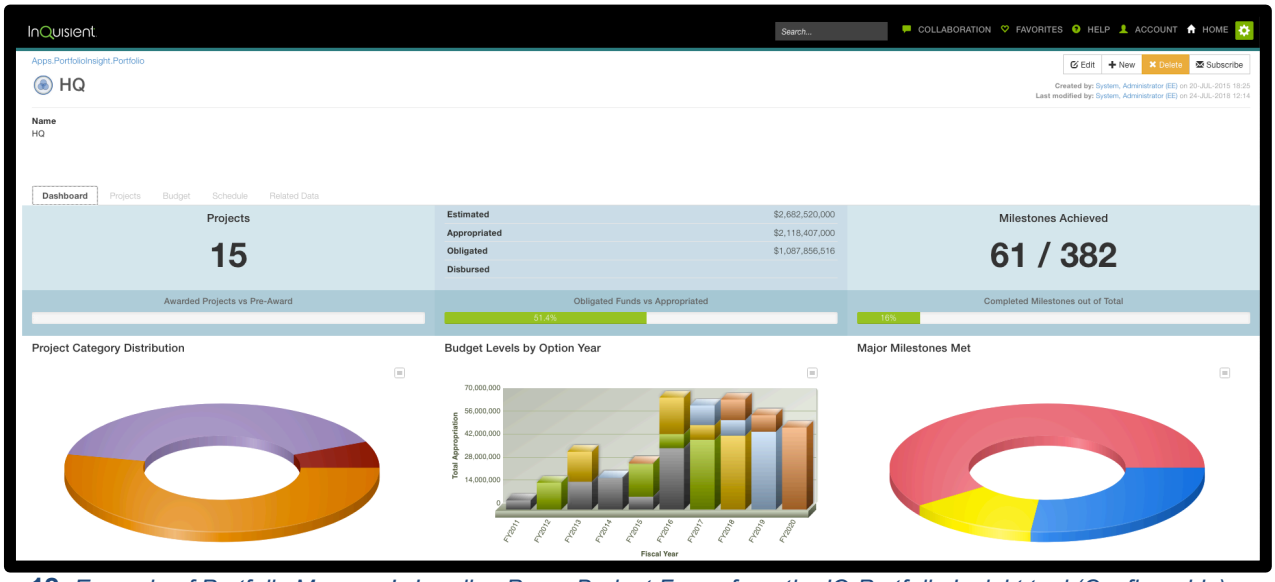
Figure 10 (above) provides an example Portfolio Dashboard Gap Analysis, showing the projects in the selected portfolio(s) that do not meet Business Processes, Business Capabilities, Performance Measurements, or Strategic Objectives. This is a quick way to determine which projects may be combined with others or retired, thereby saving money and resources for other more important projects.



11*: Example of Portfolio Manager’s Landing Page from the IQ Portfolio Insight tool (Configurable)*

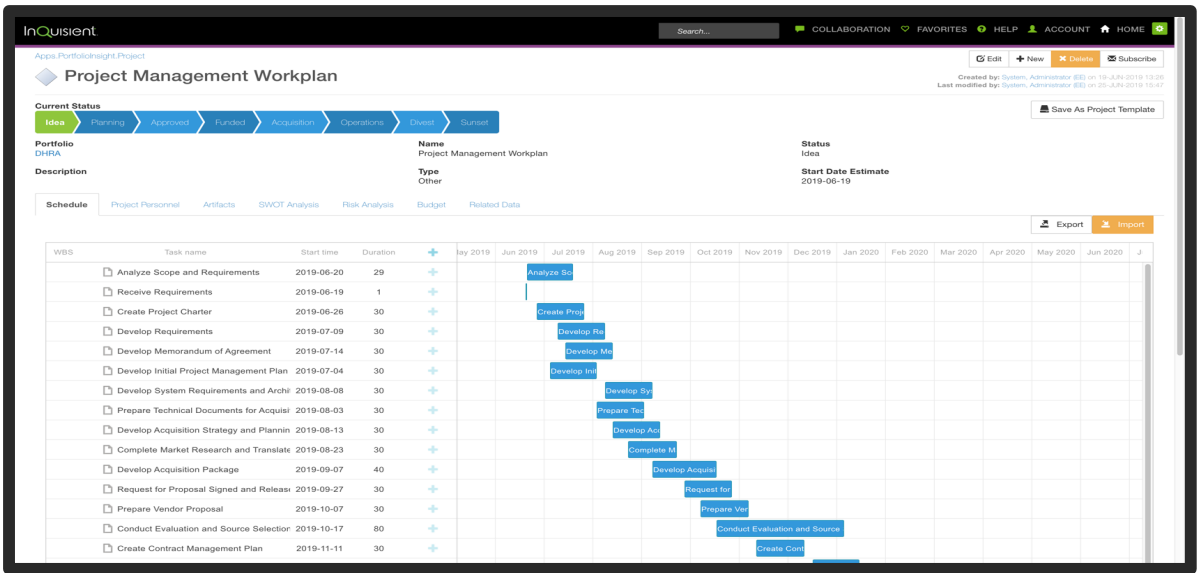
Drilling down into a specific portfolio to find out more information about its performance and composition

yields the visualizations in Figure 11 (above). On the left is a configurable bubble chart that visualizes the entire portfolio on an X-Y grid. In the grid, the size of the balloon represents the size of the individual project budget; the two X-Y scales represent days ahead or behind schedule or the amount of budget obligated. On the right, a listing of all the portfolio projects is provided, with a color-coded scorecard indicating the status of each project and budget information. All this information can be used as a decision support tool to promote or demote individual projects. As with the previous screen, a user can now click on a project and "drill down" on that project to obtain even more detail. ***The IQ Portfolio Insight tool can be used to drill down all the way to the project and even the small team view.*** At each level or view, the IQ Platform can directly correlate IT projects and budget dollars to the precise requirement.



12: *Example of Portfolio Manager's Landing Page: Budget Focus from the IQ Portfolio Insight tool (Configurable)*

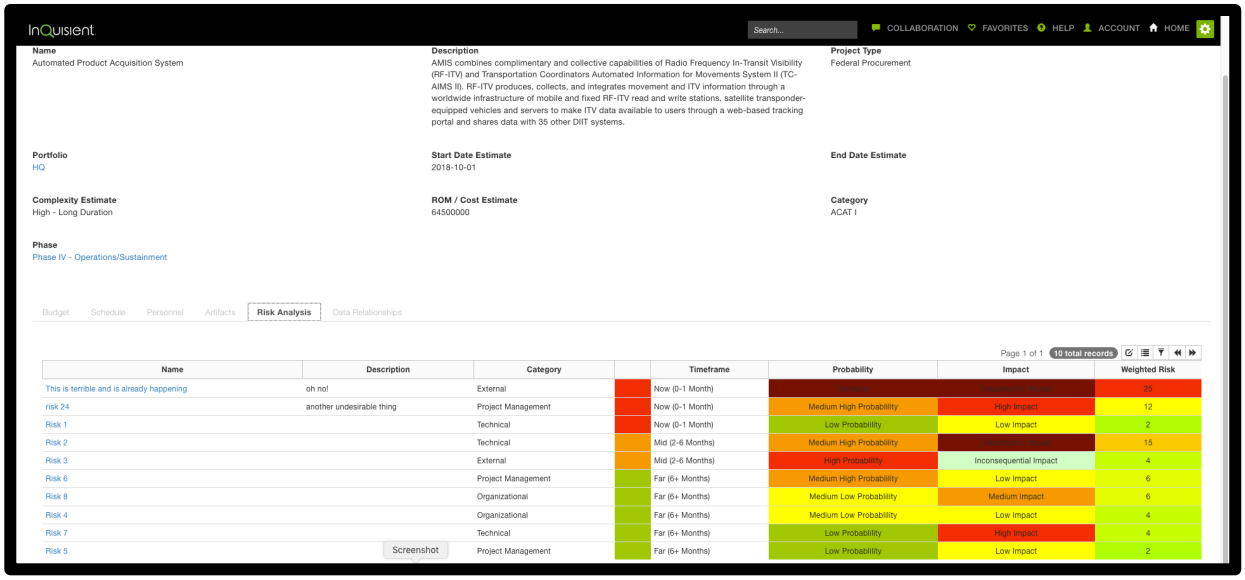
Figure 12 (above) shows a configurable Portfolio Manager's budget dashboard and provides an awareness of the projects in the portfolio's budget information: aggregated, estimated, appropriated, obligated, and disbursed. This dashboard shows any potential budget problems as early as possible to deal with them more proactively. Along with aggregated budget information for the portfolio, there are also aggregated Milestones, and Awarded/Pre-Award projects.



13: *Example of Portfolio Manager's Landing Page: Budget Focus from the IQ Portfolio Insight tool (Configurable)*

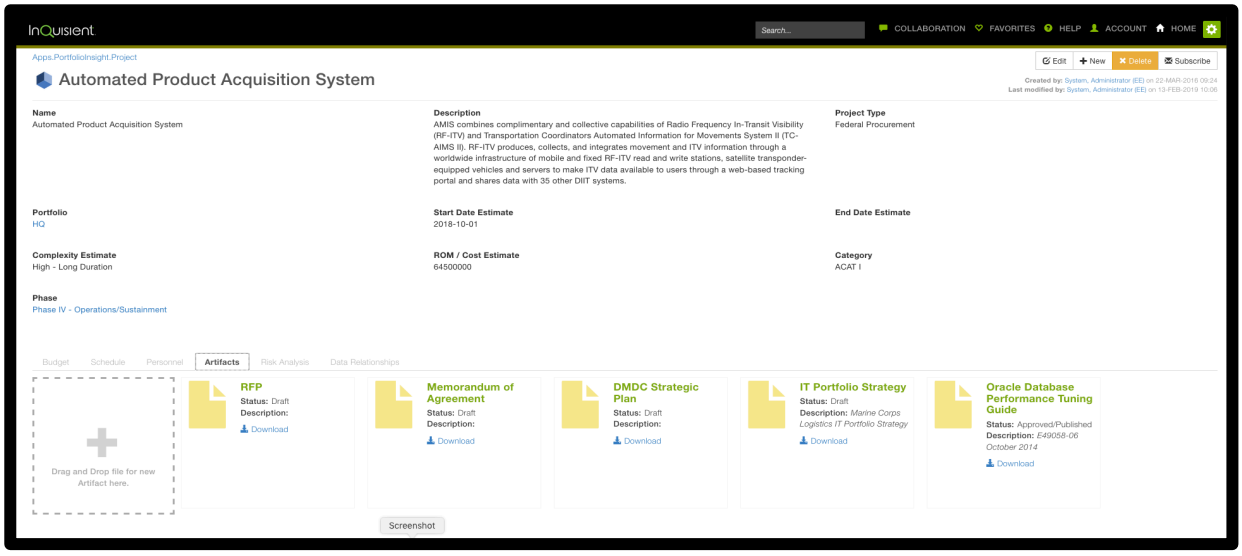
Figure 13 (above) shows a Project/Program Manager's detailed project/program view, focusing first on a schedule view. At the top left of the page is an interactive status bar showing where the project is in the project execution lifecycle, specifically in the IDEA stage. The available status that a project will work through in the example runs from IDEA to SUNSET.

The IQ Platform can bring data in from multiple tools and then run analytics, allowing users to quickly see current tasks and the project delivery schedule. For this particular project, the schedule is a direct import of data from MS Project. Import and Export Buttons directly above the schedule shows how the tool and connectors for the IQ Platform bring data from third-party tools into the IQ Platform for analysis and editing (if desired), with both import and export capabilities. The visualization of this data is the same as in the original tool (MS Project). Projects can also be created from scratch, or from templates in InQuisient, and once they have reached a certain point in the project lifecycle, they could be exported out to the project team in a different format, if desired. Common project structures can also be saved out as templates for reuse when starting new projects, using the Save As Project Template button in the upper right corner of the page.



14: *Example of Project Risk Assessment Report from the IQ Portfolio Insight tool (Configurable)*

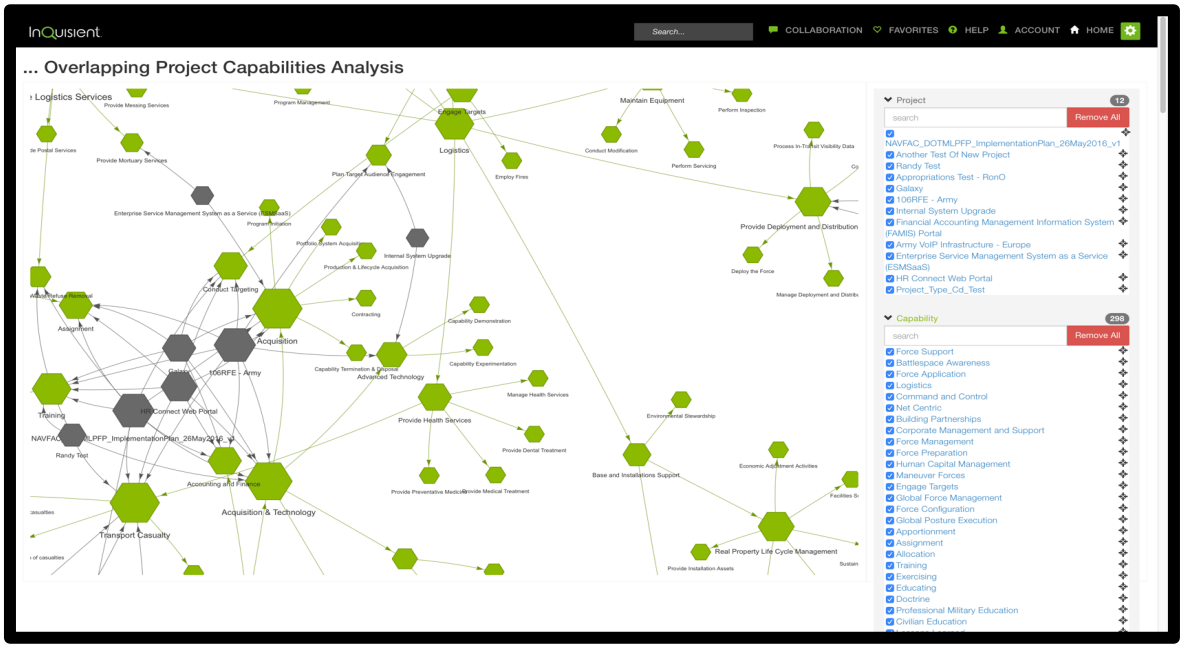
The Project Manager's dashboard delivers program-specific data across all aspects. The risk analysis tab, as shown in Figure 14 (above), provides an assessment of the risks that need to be managed across the project. The IQ Platform leverages the data model and links between budget, supporting systems, cybersecurity, resources, development projects and more to assess internal, external, operational, and more to provide a very full and in-depth risk analysis with its probability and impact to projects and all dependencies.



15*: Documents/Media attached to Project from the IQ Portfolio Insight tool (Drag and Drop)*

Figure 15 (above) shows the artifact tab view and provides the Project Manager a place to keep all unstructured documents that affect the project, from its Strategic Plan, RFI/RFP, IT documentation, and capabilities. The artifacts page gives Project Managers a place to upload new documents by a simple drag and drop during the course of the project.

Once data is connected around active and in-development project systems, an interactive map is generated showing how the systems are connected to other information. For example, the user can trace a system back to the originating project, back to the capabilities it supports and to the goals and objectives that the capability supports. This allows quick visual identification showing where capabilities are not being met and identifying areas for improvement. It will also show capabilities that are being addressed by multiple systems, potentially identifying areas to combine or systems to retire for significant cost savings. The graphic diagram can be filtered, allowing a look at a subset of the total diagram by selecting just a single or group of systems, or a single or group of capabilities. Drilling into the nodes on the map provides more detail about the system or capability. An example of this type of link and diagram is shown in Figure 16 (below), where the gray boxes represent projects and the green ones represent capabilities, showing what projects provide capabilities and the potential impact of retiring an existing capability.



16: *Customer Example of a Link Analysis showing Capability Relationships between Systems (Configurable)*

IQ Agile Developer

IQ Agile Developer enables the team to leverage the collaboration, innovation, and speed of ***the Agile methodology*** for the enterprise, providing access to data and information needed in a traceable and authoritative manner. This technology benefits leaders and team members from all levels of the organization, including:

- Agency Leadership
- IT Portfolio Managers
- MPOs/Program Managers
- CIOs, CTOs, PMOs, and COOs
- Project Managers

Many organizations are seeing the need for change at a faster rate and with more consistent results. This balancing act is especially challenging in enterprise organizations. To succeed, enterprises must be able to rapidly change the way they create and deliver value to their customers. That means improving how they develop software and systems. The more complex, the more important collaboration, innovation, and speed become in ensuring success.

As a development methodology, Agile is a major step in that direction, but Agile was developed for small teams, and by itself, does not scale to the needs of the larger enterprises and the systems they create. IQ Agile Developer solves that problem, applying the power of Agile in a package that allows the team to connect to all of its data, leveraging the Scaled Agile Framework (SAFe®) to ensure success.

SAFe provides comprehensive guidance for achieving the benefits of Lean-Agile development at enterprise scale. It is designed to help enterprises deliver value continuously and more efficiently on a regular and predictable schedule, making them more Agile in the marketplace and more competitive in their industry. Many of the largest organizations in the world have adopted SAFe. By integrating the SAFe framework in a tool that seamlessly interacts with the IQ Platform, IQ Agile Developer makes it easy for the organization to adopt this valuable approach for the enterprise.

IQ Agile Developer helps to maximize the value of Agile delivery by providing the team resources with the technical platform needed to implement and support SAFe, enabling the team to scale Agile across all

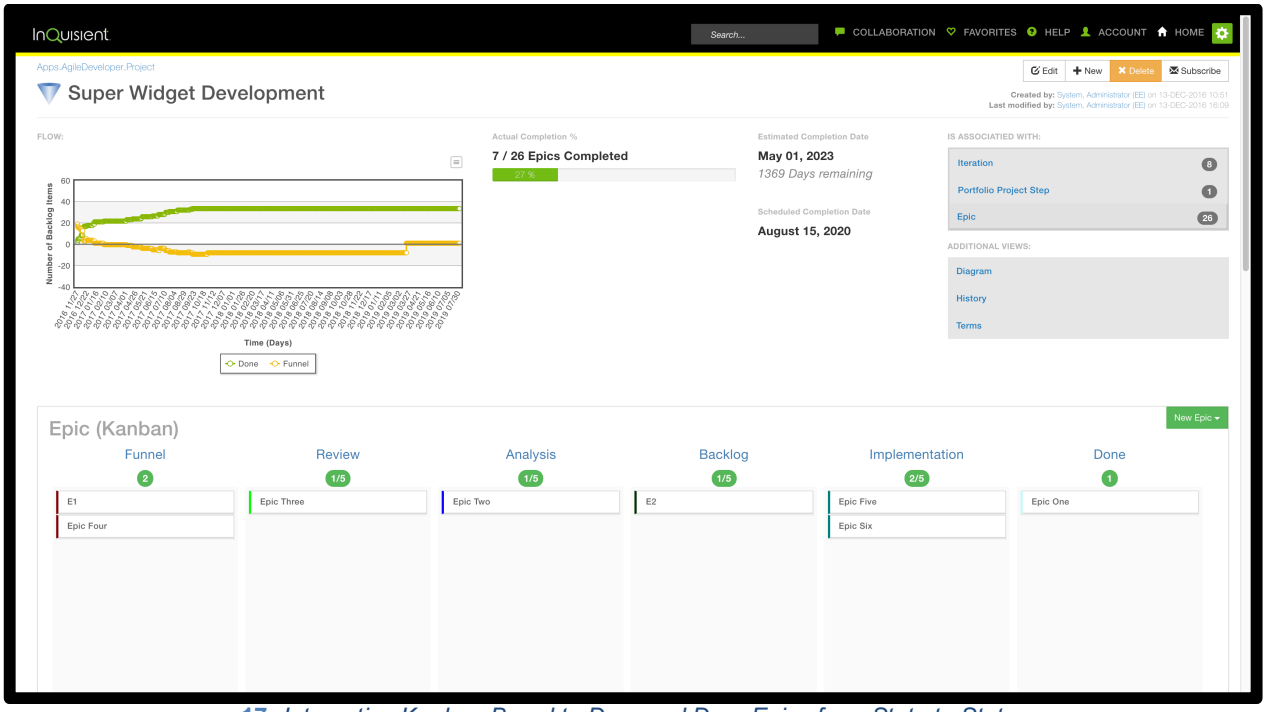
levels of the organization.

The SAFe framework, integrated into IQ Agile Developer, synchronizes alignment, collaboration, and delivery for large numbers of Agile teams. It supports both software and systems development, managing a small group of users to large enterprise systems that require thousands of people to create and maintain. SAFe leverages three primary bodies of knowledge: Agile development, Lean product development, and systems thinking.

IQ Agile Developer provides instant visibility across the portfolio(s), programs and teams. The accessibility and authoritative access to agency data enables immediate review of progress and dependencies across teams and the product increments/sprints that are being worked on. The tool's dynamic nature enables users to see changes in target dates and progress as information in the program/Kanban changes, so all levels see successes and challenges in real-time.

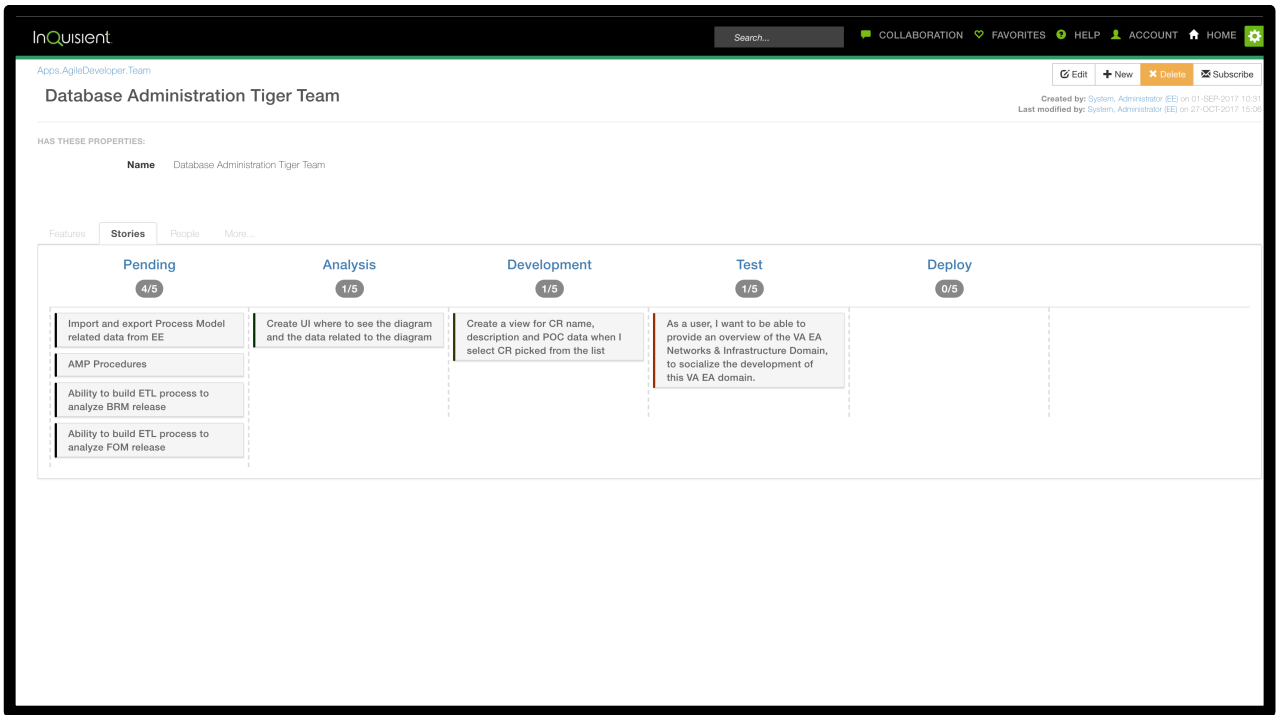
IQ Agile Developer can stand on its own, or can integrate with other tools such as Redmine and JIRA, or even ingest spreadsheet information. This provides ease of correlating information from different systems and development efforts.

Most importantly, IQ Agile Developer drives visibility of Agile processes vertically and horizontally across other tools on the IQ Platform, allowing senior managers to assess real progress into the Agile process that can often be a black hole.



17: *Interactive Kanban Board to Drag and Drop Epics from State to State*

IQ Agile Developer provides high-level up-to-date summaries, such as the Calculated completion date compared to the Scheduled completion date, as shown here in Figure 17 (above); and it provides a clear view of the Kanban board and status of all Epics.



18: *Resource Team Kanban Board Showing Workload by Story*

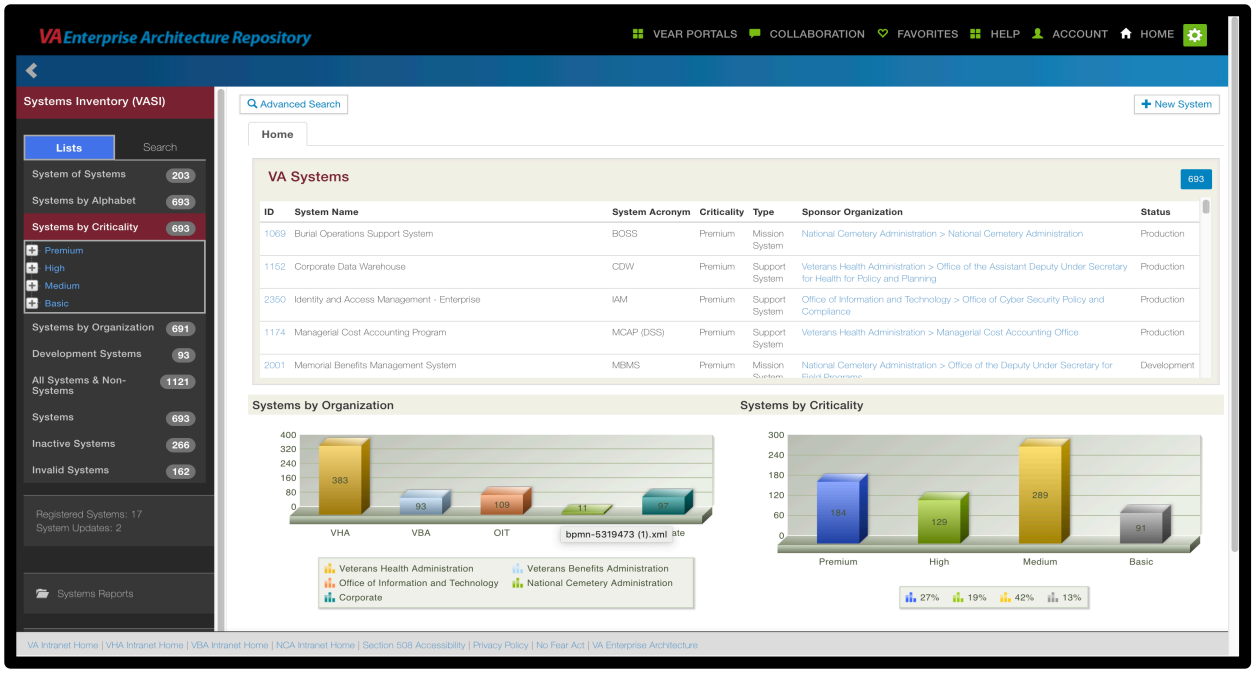
Workload can be managed by Resource Team via the drag and drop Kanban board shown in Figure 18 (above), which shows the specific work assigned to a team. Drill down provides additional information on expected/actual durations. Personnel are identified on the People tab next to the Stories tab.

Benefits to team and leaders:

- Improve team collaboration and focus
- Enable all team members to see current project status, promoting accountability
- Help team see 'big picture'
- Enable team to manage themselves
- Align backlogs to organization's strategy
- Implement Kanban for portfolio, program and team levels
- Rank and prioritize activities with WSJF: Weighted Shortest Job First (a derived metric to determine priority and scheduling)
- Track important metrics
- Track dependencies and remove impediments on every level

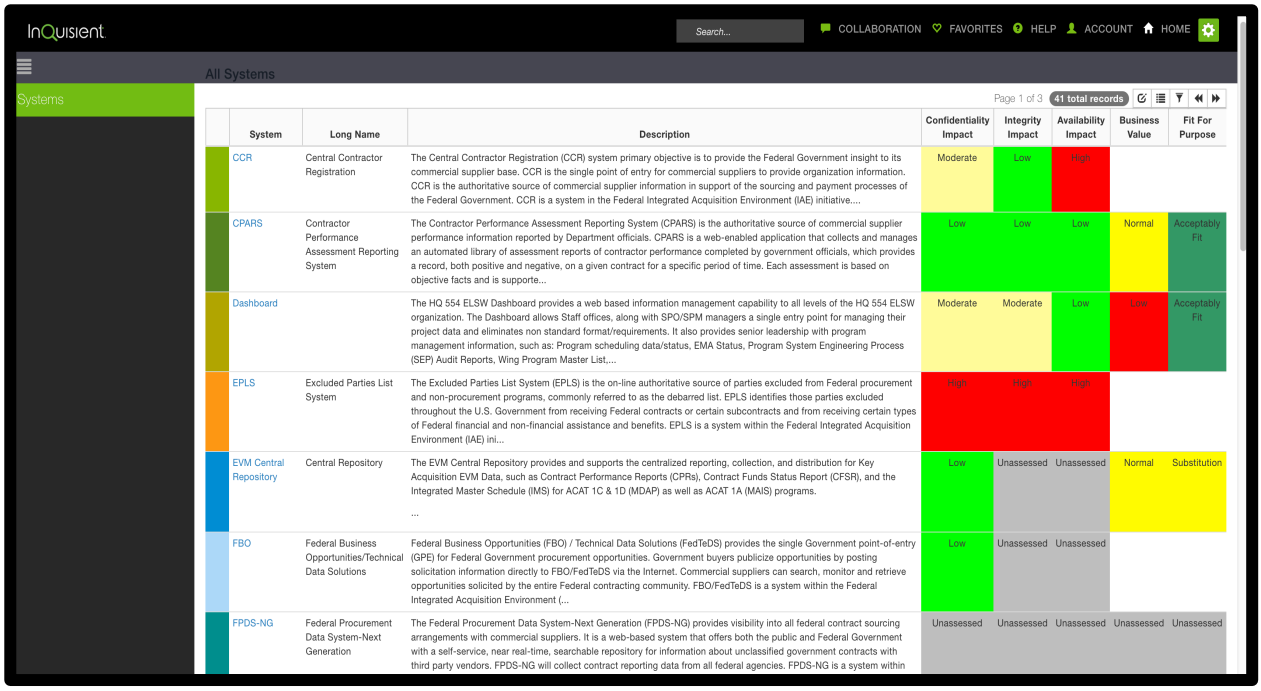
IQ Systems Inventory Tool

Figure 19 (below) shows an overview of Systems, their criticality, and ownership. This is an example of configuring the IQ system for a specific customer -- in this case, Veterans Affairs (VA). In this VA deployment, systems are tracked and mapped to defined capabilities, business processes, LRPs, and risks. This allows relating the systems together to do predictive analysis, comparisons and gap analysis to ensure that they are meeting current and future organizational needs, and to help reduce or eliminate redundancy. This gives the CxO/PMO insight into all systems within the organization, classified in a number of different ways for ease of viewing and drill down capabilities to get more detail about the system as needed. This view will also work for Portfolio Managers or System Owners who will see the same information, just restricted so that they only have view or edit rights to their information. A full audit trail is provided for any changes.



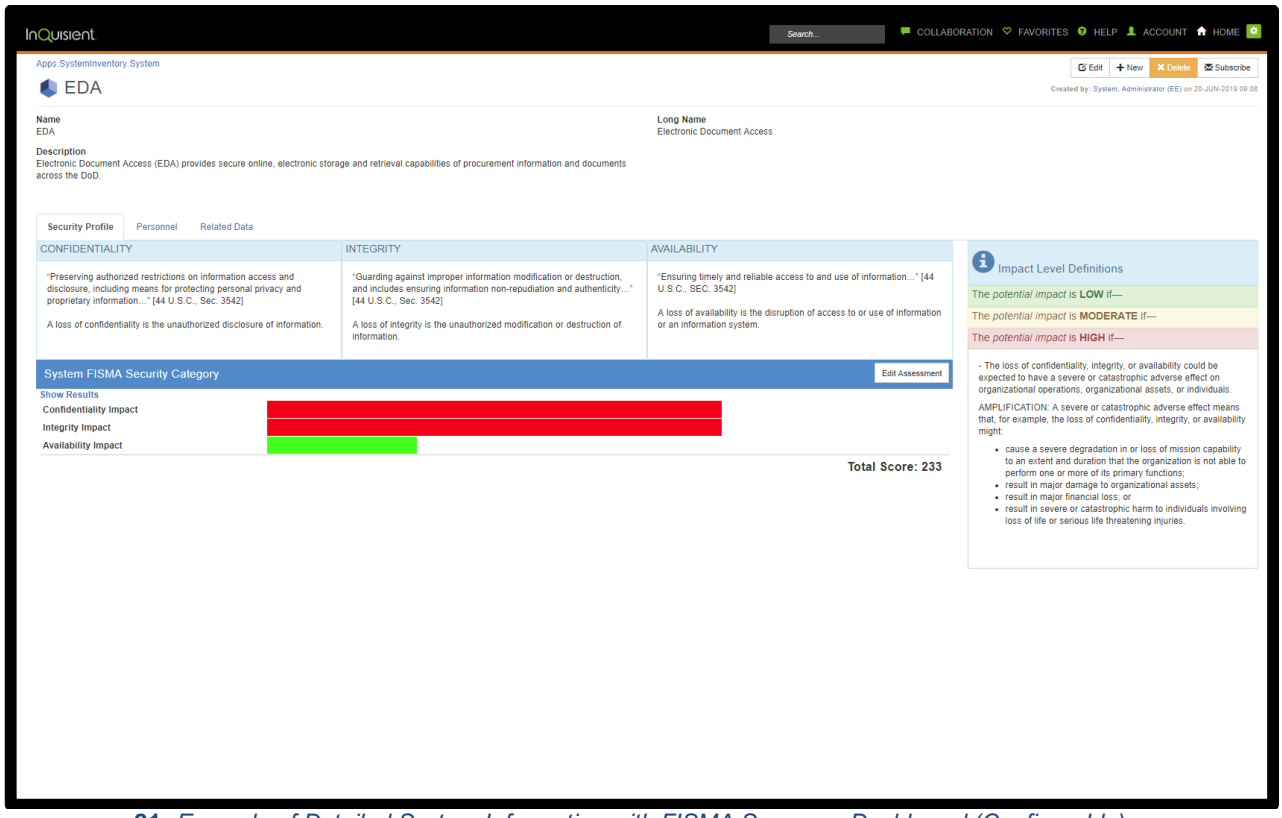
19: *Customer (Veterans Affairs) Example of a Systems Overview Dashboard*

Figure 20 (below) shows an example of Systems Analysis and Summary that provides insight to planned inventory and rationalization efforts, assesses, and consolidates a portfolio's projects to show their scores on a variety of different assessments so that they can be ranked in importance and value within the portfolio. This Dashboard offers a way to streamline the planning, packaging and delivery of physical, virtual, and mobile applications. The complete solution ensures faster service delivery and continuous and predictable deployment into increasingly complex computing environments. Data is color-coded to model the "heat-map" so that users can infer the current status of all application assets before drilling down to further details. The criteria used to show the health of each system or hardware asset can be tailored based on the customer's defined segments. This is also used by our customers to capture risks, retirement/replacement info and other metrics.



20*: Example of Systems Analysis and Summary Dashboard (Configurable)*

Figure 21 (below) shows the details for the selected system. The first tab, shown, shows the details around the Security Profile based on FISMA assessment, and allows the authorized user to enter the appropriate rankings. The second tab shows the Personnel, or people attached to the system, but their job function – owner, admin(s), developers, or other interested parties, including their contact information and appropriate bios. The final tab, Related Info, shows and allows for mapping of the connections to the appropriate projects, capabilities and objectives that the System supports.



21*: Example of Detailed System Information with FISMA Summary Dashboard (Configurable)*

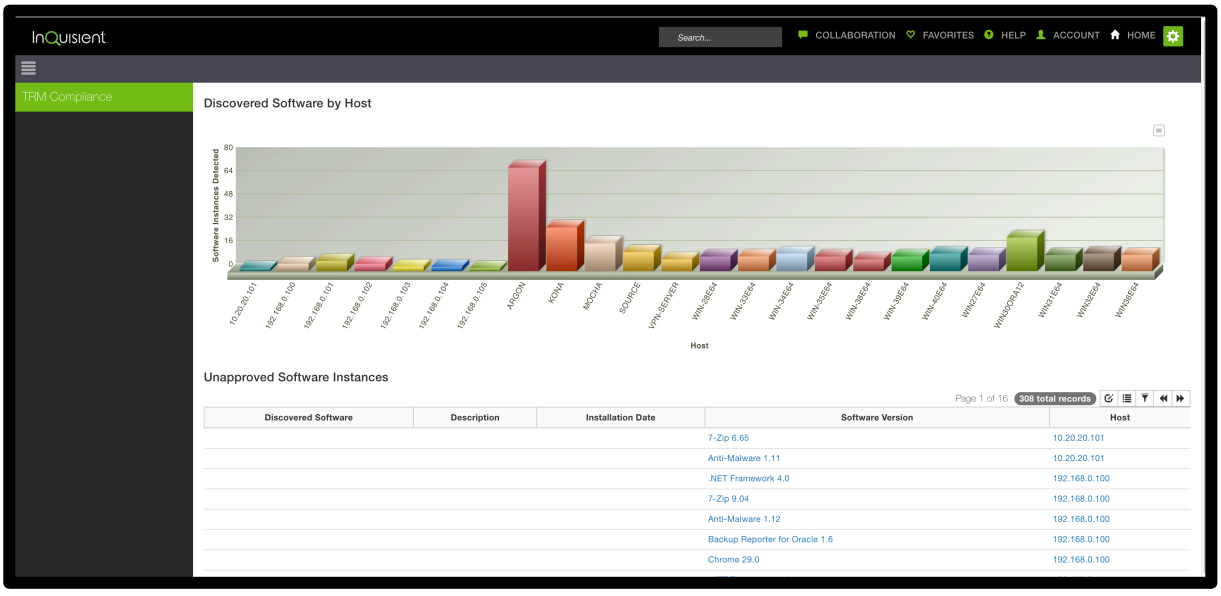
IQ Asset Manager Tool

The IQ Asset Manager Tool's capability makes managing organization assets dramatically more accurate. Users can easily and immediately see hot spots of what's missing, what's actually being used, what's expired and what's current. This makes the organization's approved technology list actionable: compare what's approved for the organization with what has actually been installed, to see what needs to be phased out, what needs to be renewed or replaced. Figure 22 (below) shows which vendors assets have been acquired from.

22: *Example of Oversight of Hardware and Software Manufacturers Utilized in the Enterprise from the IQ Asset Manager Tool (Configurable)*

Figure 23 (below) shows reports on where assets are being used, and what is out of standard. This provides a quick look at both potential overloads, where systems may be trying to do too much, as well as identifying potential security and compliance issues.

Any type of asset can be managed in this tool.



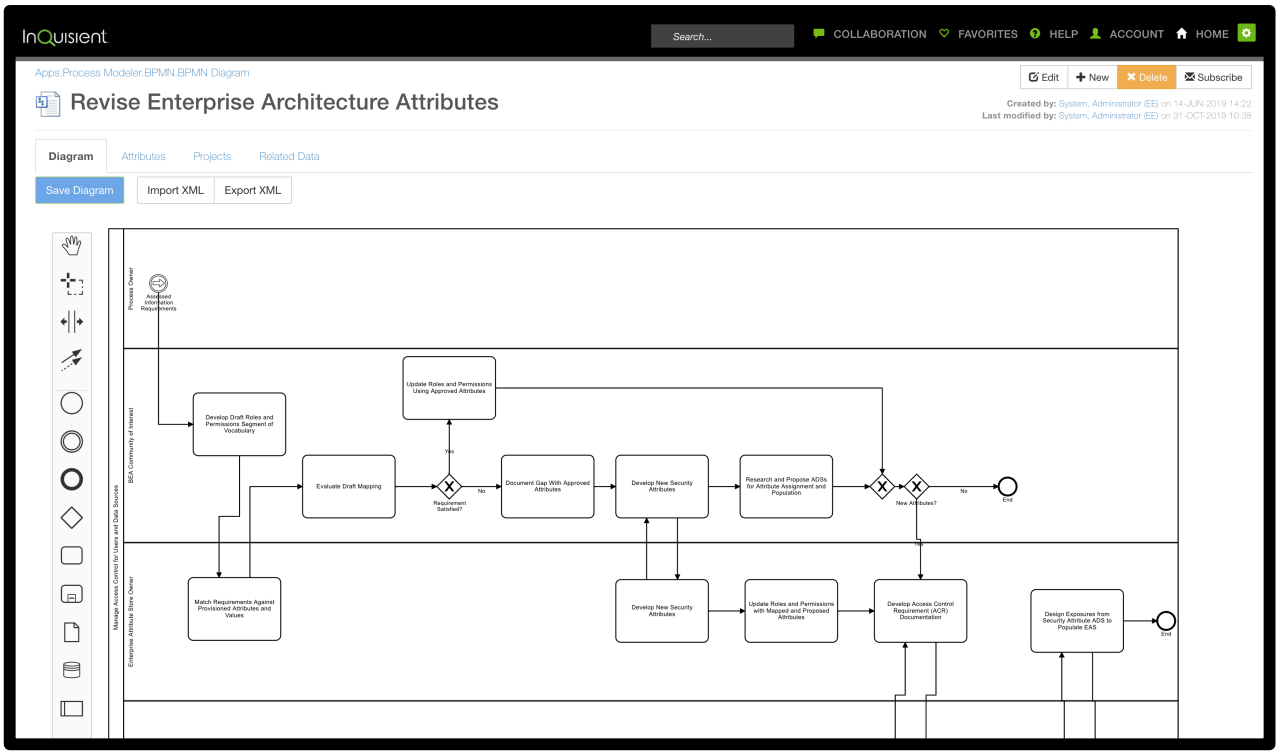
23: *Example CIO/EA View of Discovered Software and Unapproved Software in Use, from the IQ Asset Manager Tool (Configurable)*

IQ Architect Tool

Enterprise Architecture (EA) is a standard function in all companies or organizations that are driven by large IT missions and infrastructures. The intent is to design the architecture with EA tools and then build to that design. However, it is a rarity that the IT implementers live and breathe the EA design before they build IT systems. Sometimes IT systems are built without regard for the EA architecture at all. This situation can lead to an IT "wild west" with duplicated systems and cost overruns. In many organizations, Architectures are developed using EA drawing tools. These drawing tools can exist almost on their own, serving the team of architects, but are often disconnected from other data actually in the enterprise and not informing in a useful way the IT projects, programs and systems they are intended to reflect and oversee.

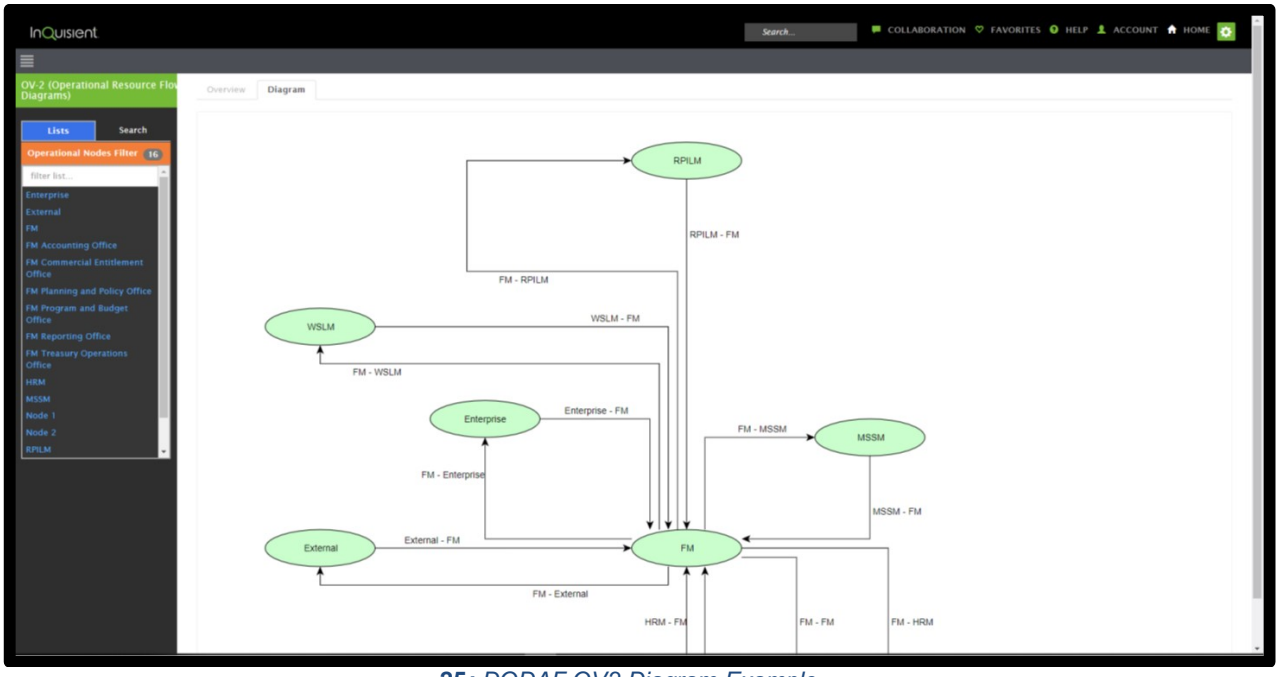
Increasingly, many CIOs are asking for data truth in order to manage enterprise technology. Within EA and IT Portfolio Management, data truth means a number of things all at once. First, near real-time data is necessary to keep pace with IT technology programs underway and the need to constantly monitor and execute compliance activities. Second, the data must be authoritative and come from a system of record that is shared not just by the IT architects but also by the Program Managers and other stakeholders in the enterprise. Finally, EA drawings are still a critical way to communicate the enterprise design, but now these drawings must be data driven. In other words, every drawing in the approved EA must have functional descriptions — it is these descriptions and other created data that drive the EA drawings. The overall effect of a data truth and data driven approach is to create an enterprise-level management tool set that enables every participant in the enterprise management or analysis team to interact with the same information.

InQuisient for years has been assisting Chief Architects and IT Portfolio Managers to design and manage their enterprise technology. Within its Fortune 500 and Federal Government customers, the InQuisient technology is managing billions of dollars' worth of projects across multiple enterprises. Since its inception in 2004, InQuisient has pioneered the data and truth driven approach to EA management.



24: *Business Process Model for Revising Enterprise Architecture Attributes*

An example of a Business Process is shown in Figure 24 (above). Users can view business processes, edit them online, import and export from their tool of choice that supports external model editing, and have the activities associated to projects and other data elements. Drill down capability is also available to see what project, capabilities, and objectives each of these process activities is supported by or supports.



25: *DODAF OV2 Diagram Example*

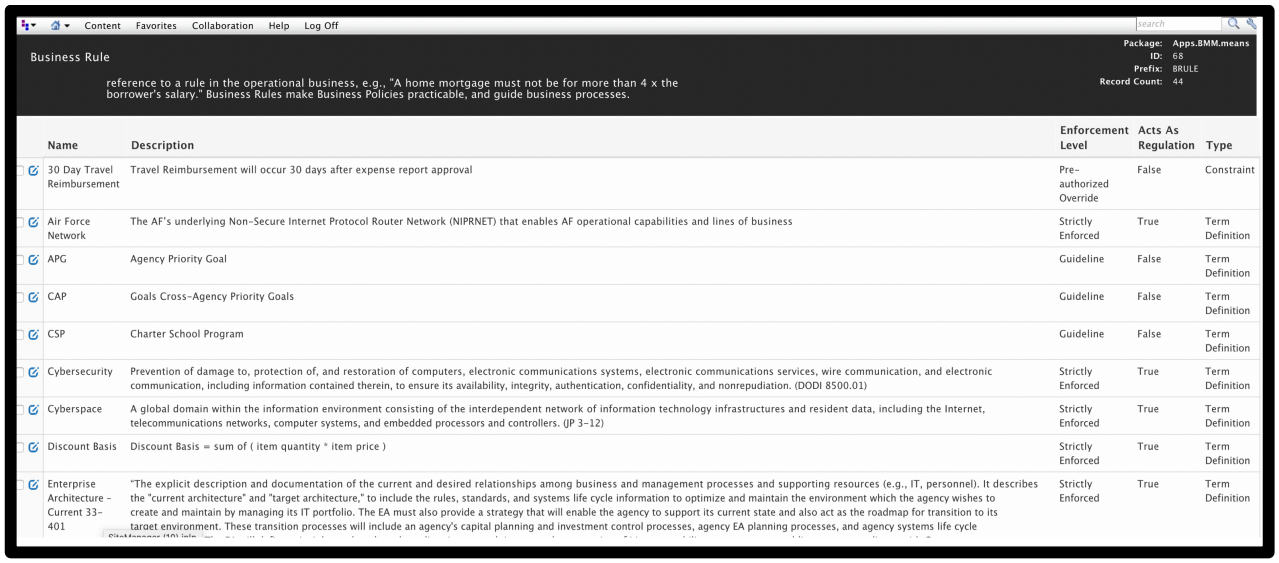
The type of diagram shown in Figure 25, above, is auto-generated based on the data in the system, as it is imported through System Architect. No architect is required in order to create this drawing. This makes those backroom diagrams created by the users of the System Architect software available for everyone to see and understand, and to relate to the existing projects and systems.

IQ Metadata Manager Tool

Metadata management is the administration of data that describes other data. It involves establishing policies and processes that ensure information can be integrated, accessed, shared, linked, analyzed and maintained to best effect across the organization. Standardization of definitions of terms and data enables connection of information across different systems, whether they are different due to country and language barriers or systems/data created by different departments, each using their own terms. This variation in terminology could come from acquisition, consolidation or simply have evolved over time. Standardizing terms allows comparison of “apples to apples”, thereby ensuring that all similar data is identified.

The topic of Metadata is broken into two categories

1. the Business Terms taxonomy and their definitions that should be standards across the organization and their data stewards. See Figure 26 (below).
2. the logical and physical data models that may or may not contain data representing those terms. See Figure 27 (below).



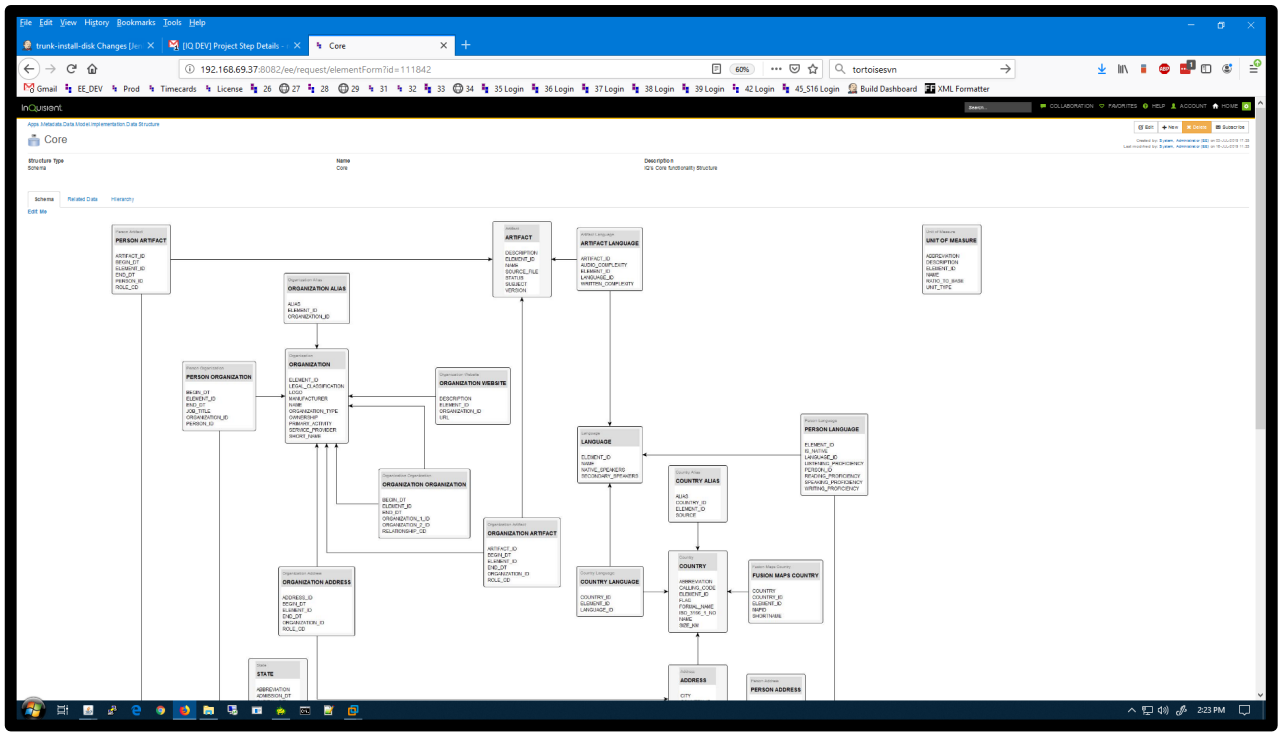
Business Rule

reference to a rule in the operational business, e.g., "A home mortgage must not be for more than 4 x the borrower's salary." Business Rules make Business Policies practicable, and guide business processes.

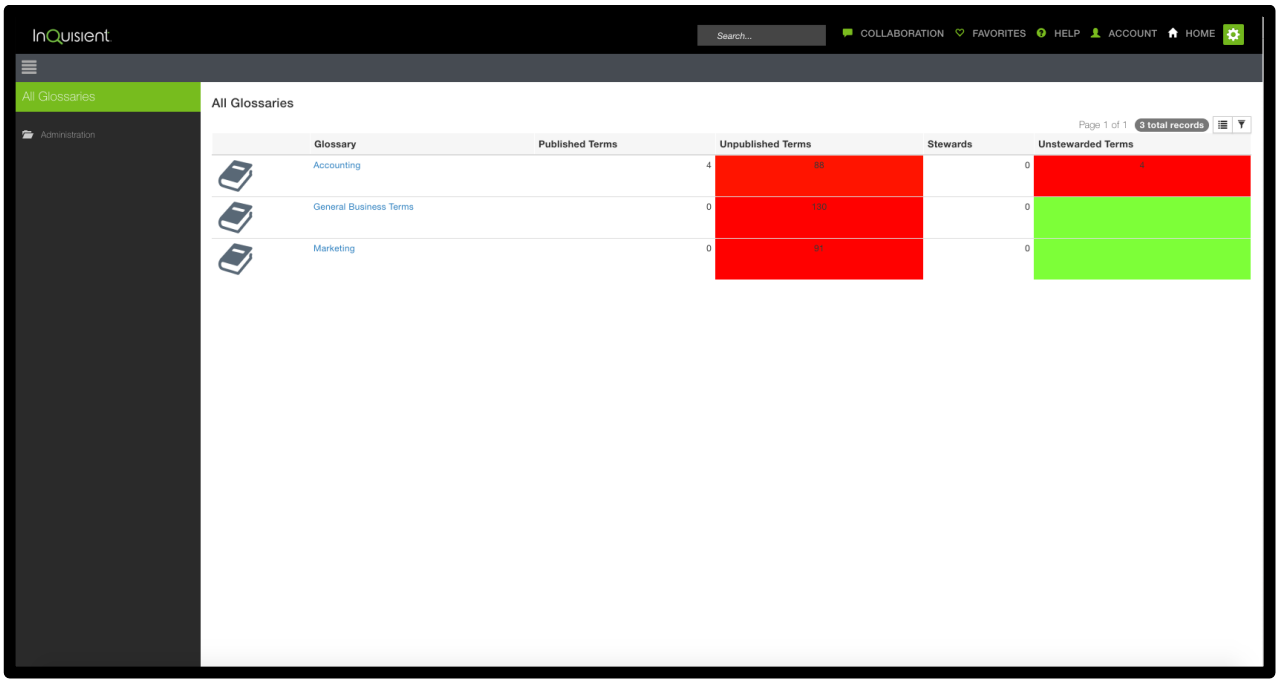
Package: Apps.BMM.means
ID: 68
Prefix: BRULE
Record Count: 44

Name	Description	Enforcement Level	Acts As Regulation	Type
30 Day Travel Reimbursement	Travel Reimbursement will occur 30 days after expense report approval	Pre-authorized Override	False	Constraint
Air Force Network	The AF's underlying Non-Secure Internet Protocol Router Network (NIPRNET) that enables AF operational capabilities and lines of business	Strictly Enforced	True	Term Definition
APG	Agency Priority Goal	Guideline	False	Term Definition
CAP	Goals Cross-Agency Priority Goals	Guideline	False	Term Definition
CSP	Charter School Program	Guideline	False	Term Definition
Cybersecurity	Prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and nonrepudiation. (DODI 8500.01)	Strictly Enforced	True	Term Definition
Cyberspace	A global domain within the information environment consisting of the interdependent network of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers. (JP 3-12)	Strictly Enforced	True	Term Definition
Discount Basis	Discount Basis = sum of (item quantity * item price)	Strictly Enforced	True	Term Definition
Enterprise Architecture - Current 33-401	"The explicit description and documentation of the current and desired relationships among business and management processes and supporting resources (e.g., IT, personnel). It describes the "current architecture" and "target architecture," to include the rules, standards, and systems life cycle information to optimize and maintain the environment which the agency wishes to create and maintain by managing its IT portfolio. The EA must also provide a strategy that will enable the agency to support its current state and also act as the roadmap for transition to its target environment. These transition processes will include an agency's capital planning and investment control processes, agency EA planning processes, and agency systems life cycle	Strictly Enforced	True	Term Definition

26: *Business Rules showing MetaData Type, Definition, Enforcement and Regulations*

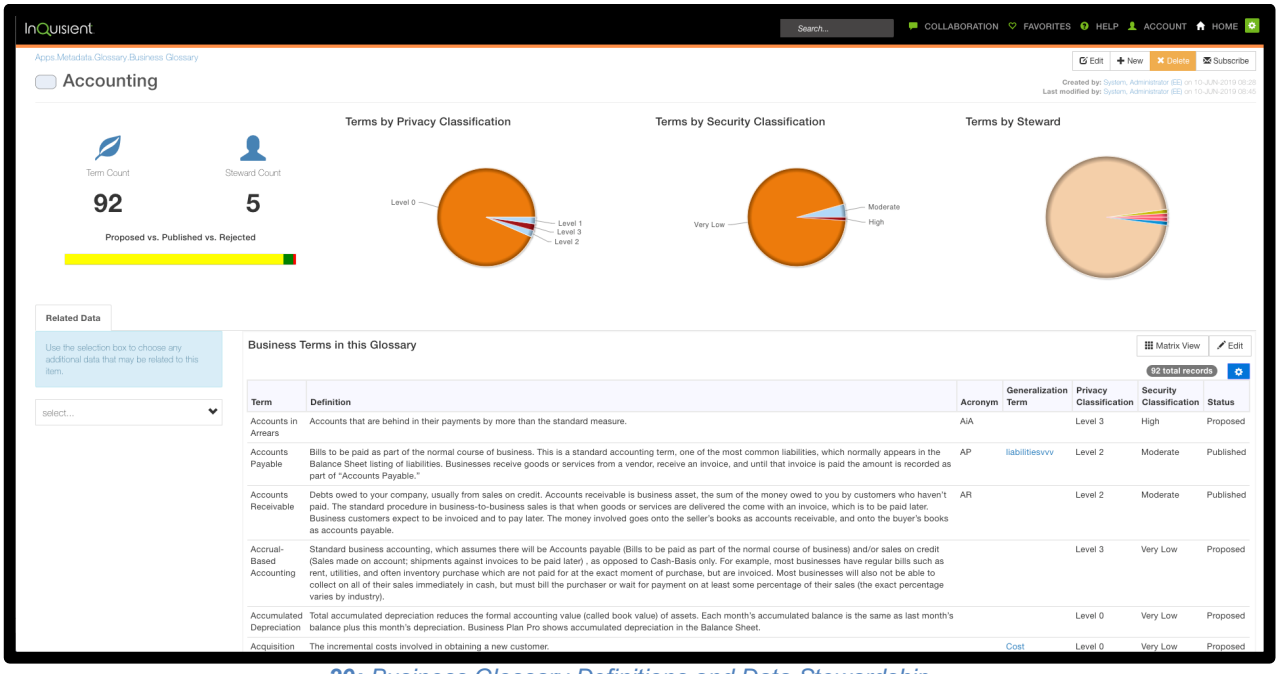


27: *MetaData Physical Model*



28: *Gap Analysis with Heatmap Identification of Glossary Terms Unpublished or Unstewarded*

A quick glance a figure 28 (above) shows that all Glossaries have unpublished, or unapproved, Terms, and also that the Accounting Glossary has four terms that do not have Data Stewards assigned to them. This provides management with a quick look at where vulnerabilities may be.



29: *Business Glossary Definitions and Data Stewardship*

Business terms need to be defined in a taxonomy that is standard across the enterprise, in order to make sure that all components are captured. Figure 29 (above) shows high level and detailed information about terms within the Accounting Glossary. The top half of the page shows dashboard visualization information about how many terms, how many stewards for these terms, how the terms are classified by

privacy and security, and the numbers of terms owned by stewards. The second half shows the detailed terms as well as their privacy and security classifications, and a Generalization term to provide added grouping across similar terms.

Metadata ownership, definitions, and modeling are usually managed or owned by multiple roles with different perspectives. Database Administrators (DBAs) are concerned with the Physical Model of the data, and identifying gaps in where the Logical Model has components not mirrored in the Physical, as well as what Physical parts do not have a Logical Model counterpart. The Developers are more focused on what the actual data tables and column names within the tables, based on the Logical Model available. Managers are concerned with how changes to the Logical Models will impact the Physical Model Implementation, as well as System duplications. The Modeler is concerned with designing and mapping the Logical Model(s) and making sure that the logical model accurately represents what gets built in the Physical Model, or working to get the Physical Model corrected to match the Logical. All of the different roles work together to complete the Metadata Model. Additional Gap and Overlap reports are available to show where there are discrepancies between the Physical and Logical Models, providing rapid identification of these to focus on closing these gaps in areas needing special attention, such as sensitive Personally Identifiable Information (PII), IT Security, Controlled Unclassified Information, or Protected Health Information (HIPAA), Attorney-Client Privilege, Export Control, or other types of protected or sensitive information.

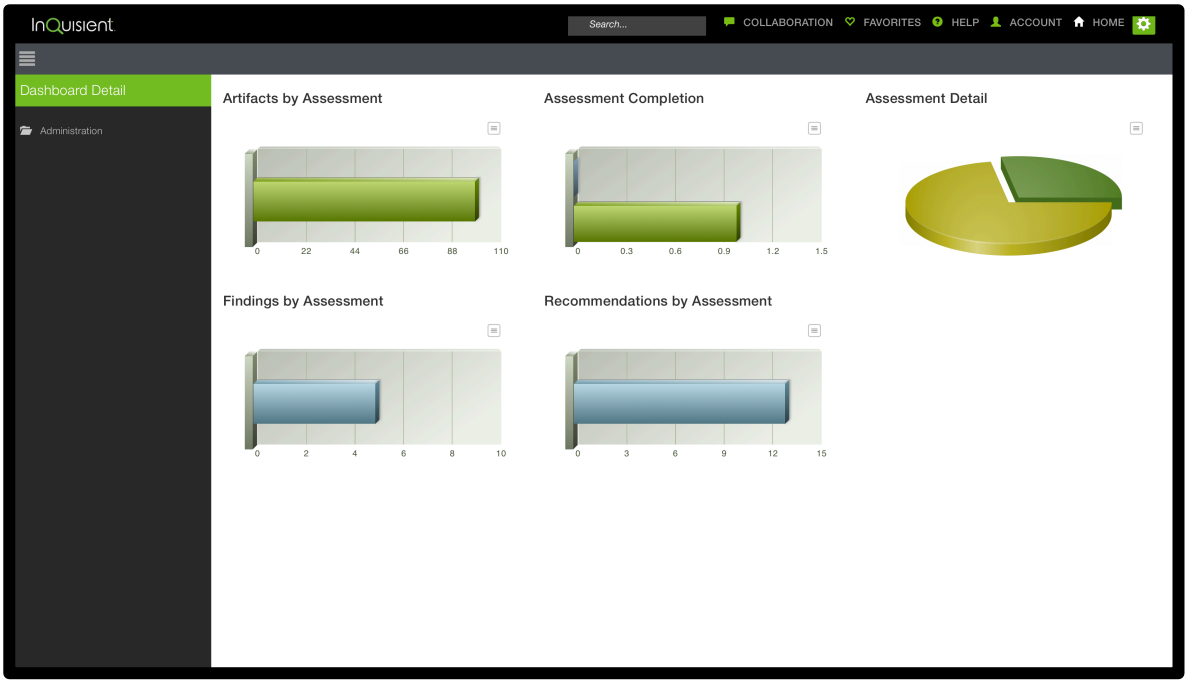
IQ Inspector General Assessment Tool

Ensure the data integrity and security of your data, respond rapidly and with confidence as you collect the data and connect the dots to support your IG office with InQuisient's Inspector General Assessment tool.

Every government organization takes its responsibility to respond to data calls and assessments from the Office of Inspector General (OIG) of their agency seriously. Often this is a challenging task; data collection can be cumbersome and time consuming, and information is often required from different organizations all over the world. And still, it's crucial that the data collected be trustworthy, accurate, and verifiable. InQuisient's Inspector General Assessment tool delivers just that.

InQuisient's browser-based solution facilitates interaction from around the globe from all operational levels. There is a clear chain of custody, a high level of confidence in the accuracy and integrity of the information, and an agile and flexible delivery of the information needed to respond to the specific IG requests. Investigators, auditors, and inspectors will all be provided the information they seek in the format they need to ensure accurate analysis and decision making.

This also provides dashboard rollups for supervisors on all or a subset of assessments to ensure that the workload is being managed and to identify any bottlenecks, as shown in Figure 31 (below).



30*: Example of Supervisory IG Assessment Dashboard (Configurable)*

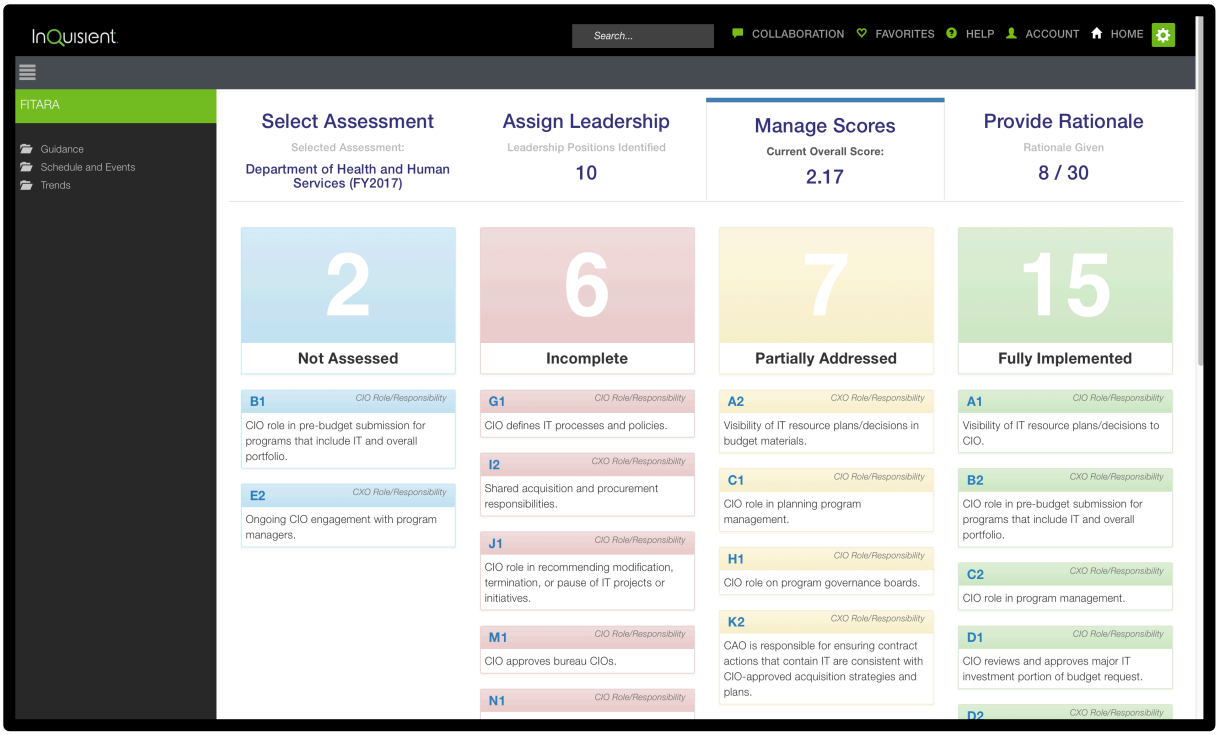
IQ FITARA A Plus Tool

The FITARA requirement presents new challenges in transparency, oversight, control and administration. *If CIOs really wish to implement FITARA, they will have to change how they do business and this will mean new processes and perhaps new technology as well.*

IQ FITARA A Plus can help. This easy-to-deploy software solution tracks and analyzes agency data and automatically generates the required FITARA reports. This tool sits on top of InQuisient's powerful Platform, connecting the FITARA tool to InQuisient's mature Enterprise Architecture (EA) and IT Portfolio Management capabilities.

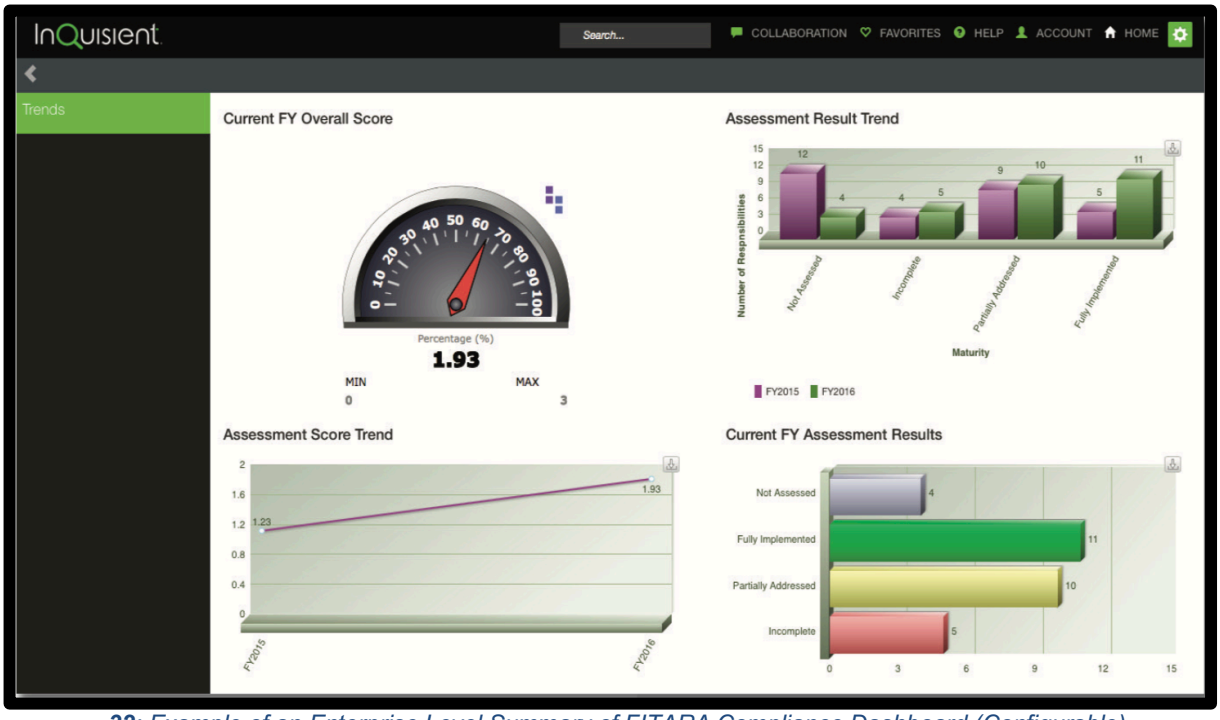
IQ FITARA A Plus ensures you have the reports you need, which OMB requires, that provide up- to-date information on your organization's IT investments. You can track your organization's information year-over-year, to show progress and improvements as you enhance your FITARA scorecard. Wouldn't you like your agency to attain A Plus on this important mandate?

Figure 31 (below) shows an example of an assessment screen for specific IT investments. All of the FITARA scoring requirements are listed as cards, which can be dragged by grabbing with the mouse and dragging them to the appropriate column. This will automatically calculate the FITARA score for this Investment. Leadership can be assigned in another tab, and Rationale can be provided in a third to complete the required FITARA components.



31: *Example of a FITARA Assessment Entry Dashboard (Configurable)*

As time passes, the CIO's annual FITARA report will receive increasing scrutiny. It will not be possible to just rush the annual report in right before the deadline – OMB and Congress will want to see real progress. This means that FITARA will have to be a part of the daily, weekly, and monthly workflow. With IQ FITARA A Plus, CIOs, the OCIO team and the entire IT enterprise staff can all see how the agency is implementing FITARA throughout the year. An example of this is shown in Figure 33 (below).



32: *Example of an Enterprise Level Summary of FITARA Compliance Dashboard (Configurable)*

Implementation

Understanding the Problem

CIOs and PMs seek to acquire a fully agile, scalable and data-driven COTS solution that includes, as a baseline, features and capabilities that will allow members of the Portfolio/Program/Project team and CxO-level executives to adequately manage and oversee all projects within their respective portfolio. The number of people that might eventually interact with the system, however, might be in the hundreds or more. Therefore, this CxO/PMO tool must scale with the users, data, and the complexity of projects.

The IQ Platform and optional tools allows Program and Portfolio Managers to rely on accurate and on demand data-driven decision-making processes to solve complex operational and programmatic problems that have a direct impact on the agency's overall mission. The underlying infrastructure of the IQ Platform is a powerful data management engine. ***The philosophy underlying the design of the IQ Platform and its tools is to let the data tell the tale to the user—whatever tale that might be.***

Transparency is paramount to this overall success. The IQ Platform PPM Solution provides clear visibility to all related stakeholders at both the project and portfolio levels. This will allow members within the organization to gain an overview of all existing portfolios and associated internal processes in order to make optimized decisions, particularly in regard to an existing business transformation.

InQuisient brings to the organization our best practices built-in portfolio solution that is in in lockstep with this view – that makes full use of existing customers' lessons learned.

InQuisient's sleek and seamless front-end design can be adjusted for a variety of audiences, including members of the CxO suite. Advanced visualization dashboards are part of the IQ Platform to create views that are based on audience type, ranging from analysts who need to manipulate data to the most senior-level members of the organization's leadership team. InQuisient has learned that the success of any large PPM software deployment must include allowing senior decision-makers to see the live results on their own computers, rather than dated information in PowerPoint. This means they must have "their" view of the Portfolio information. In this way, budgets and programs can be defended and sponsorship increased.

The Government is unique as it provides, maintains, and uses data for citizens while also maintaining trust and accessibility in data. There are laws, regulations, and practices in the Government that simply do not exist in the commercial world. InQuisient's extensive experience fully recognizes the pivotal need of the Government to have a coordinated and integrated approach to Portfolio and Project Management to deliver on mission, serve the public, and steward resources while respecting privacy and confidentiality. The needs of the Government are not the same as the Fortune 500. InQuisient technology has proven itself at multiple Government agencies with 1000s of users. ***InQuisient software is ready-built for the uniqueness of the Governmental appropriations, compliance and budgeting processes.***

Key Platform Deployment Steps

Identify Data Sources: The IQ Platform and resulting analytics feeds on the data that can be ingested into the IQ Platform. This can be either automated (recommended) or manually imputed. These sources of data must be named, located (in the cloud or the enterprise) administrative ownership defined by the person's name, and policy (if needed) created to allow IQ users and the IQ Platform to access that data. The types of sources are typically:

1. Databases

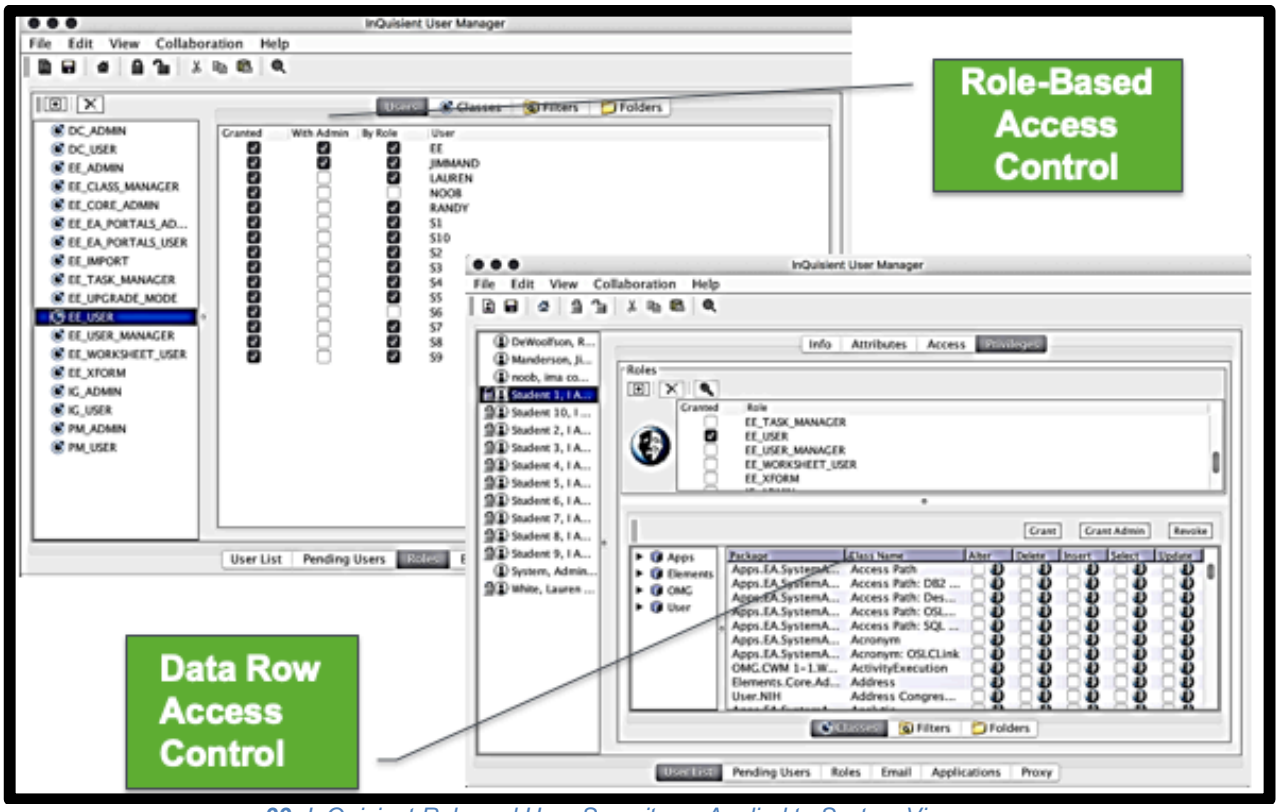
2. Software titles in the PPM, EA or Agile spaces that contain data (they all do)
3. Network sniffers that can locate the physical reality of what is deployed where on the network
4. Planning Tools
5. Planning Documents
6. Compliance Documents
7. PPM Project documents and contracts

Identify IQ Existing or New Connectors Needed or Desired: As discussed in the Capabilities section above, IQ has created a set of connectors available for purchase which can move data or metadata into the IQ Platform from other 3rd party software products. Also, IQ often creates new connectors for certain customers or as part of the regular IQ engineering cycle. Discussion with IQ on these topics is recommended.

Define PPM Workflow: Normally, each organization has an existing PPM workflow to approve, manage and even retire projects or capabilities. Through discussions internally or with IQ, the implementation team must validate or amend the PPM workflow. The IQ Platform and its associated tools has the ability to completely digitize the entire PPM workflow. This means that where prior to the IQ deployment, signed documents, PPT, and Excel may have been used in meetings to decide PPM-related matters, now it is possible to bring the entire process into the IQ Platform. Using the audit trail capability in the security system in the IQ Platform, users who have the authority to approve projects at various stages are given permission for that approval; that approval or denial is carefully recorded by time and date. After a decision, the project decision process is automatically moved to the next stage; this is reflected in the dashboard and the underlying data. Discussion with IQ on these topics is recommended.

Configuration, and Tailoring and Enhancement. The IQ Platform and available tools all have significant out-of-the-box capabilities. However, most customers use one of the three levels of adjustment, discussed above in more detail, to gain more performance and usability from the broad range of technology in the Platform and selected Tools. This happens usually at project start but as the organization changes policy and needs, the Platform can adjust and grow with the organization. Discussion with IQ on these topics is recommended.

Security Requirements: In order to obtain permission to operate on most networks or the cloud, the IQ Platform's security settings must be initialized. These settings control the data that users can change, add, and view. Security will need to be established after installation. Security is a very crucial piece of implementation, to ensure that only the right people can see, modify or delete the information. ***The IQ Platform provides both User and Role-level security to all components – data, web pages, and reports, based on log-on identity.***



33: InQuisient Role and User Security as Applied to System Views

Logging into the system can be username and password-based, or it can be integrated with a Smart-Card authorization for single sign-on. Web pages can be created that all authorized users can see, but only some can change – this reduces the number of different views into the data that need to be created, reducing development time and maintenance costs. Figure 33 (above) shows how these accesses can be set in the tool. Audit history is logged, allowing verification of who has seen or modified data and when. Typically, there are several classes of users in larger organizations, including:

1. **Administrators:** These users can see all screens and change all data.
2. **Power Users:** These users can see all and change all data for their area of responsibility. Examples of these types of users are PMs and Portfolio Leads.
3. **Managers:** These users supervise power users, and typically can only see and change data that is touched by the staff that they supervise.
4. **Senior Decision-Makers:** These are the types of users that may see all the data, but in a summarized dashboard. Normally these users consume but do not change data. CIO/CTO/PMO directors are good examples of these users.
5. **Read-Only Users:** These users come in many types, including team members, stakeholders, and IT departments. Some of these users can be outside of the PPM organization. These users typically just receive published information.