NCCSD Systems Workgroup
Educational Session for IV-D Directors

Presented by: Conduent
Date: October 18, 2019

Conduent

CONDUENT

Conduent Child Support Services

SDU

- 11 States
- 65 million payments processed each year
- 92% electronic disbursements

National CSE Payment Portal

- $2 billion payments processed each year
- Over 14 million payments each year

Systems

- Technology re-platform
- State system transfer

2nd Generation
- Delaware
- South Carolina
- Pennsylvania

- Maintenance & Operations

CONDUENT

Re-platform/Refactor

CONDUENT

Re-platform / Refactoring Definition

❑ Re-platform Definition

- The act of moving an existing system from one technology platform to another without changing the business functionality of the system.

  The focus is to move to the new platform without significant changes to the underlying processes, unless needed to allow the migration to the new platform. For most states this will typically be moving from a mainframe platform to a .NET or Java environment

❑ Refactoring Definition

- Changing a system, or components of a system, with the goal of retaining behavior of the system to achieve structural improvement and improved system performance. For example, code may be refactored to improve readability, make it easier to maintain, or make batch processes run more quickly.

  The focus is on improving something about the performance or maintainability of the system

❑ For some re-platforming projects there may be a need for refactoring to also be performed.

Re-platform / Refactoring

❑ When to consider re-platform or refactor?

- High system operating costs (i.e. operate on mainframe or client/server platforms)
- Funding challenges to perform other modernization options
- Limited staff and or skills that are hard to replace
- Applications that were built using software products or tools that are no longer supported
- Agencies that want to reduce modernization risk through shorter projects and automation of the conversion
- Leverage current software products and technologies for more secure and maintainable systems

Re-platform / Refactoring

❑ Implementation Timelines and Cost

- 18 to 24 months for planning, assessment, hardware/software procurement, application code transfer (automated), testing and implementation
- $5M to $15M depending on the volume of source code, data, activities the State will perform
- Data quality affects conversion and cost
- Implementation Strategies that affect time and cost
  - Pilot - Duration of pilot phase and validation of system functions prior to statewide rollout
  - Phased Rollout – Limit the rollout phases to short cycles and avoid cost overruns as two systems will require maintenance
  - Big Bang - An alternate implementation strategy would be to consider a big bang rollout after rigorous testing and validation with the benefit of reduced implementation costs and no data synchronization requirements.

Re-platform / Refactoring

❑ Pros

- Low cost compared to system transfer or commercial platform implementation
- Low risk if automation of over 70% can be achieved
- Very low impact on system users because the system still functions the same
- Migrating to a new technology and platform provides the opportunity to build add on services at a later stage
- Cost savings when aging mainframes are replaced
- Staff and required skillsets readily available in the market
- Existing legacy programmers using the new technology will have an easier transition

Re-platform / Refactoring

❑ Cons

- Legacy program coding structure is carried forward.
- Commercial components integrated into the legacy system may not have a new technology equivalent
- Some modules may not be able to be automatically converted which will require the functionality to be migrated by a programmer
- Some vendors will provide replacement or run-time modules that will be needed for the system to operate on the new platform. States should be fully aware of these modules, licensing costs, as well as how will the vendor keep them updated over the life of the system.

Re-platform / Refactoring

❑ Common Pitfalls

- Application code that is missing, doesn't compile, or that produces different results when compared to the compiled modules in the legacy platform
- Business processes that are inefficient in the current system are carried over and continue to produce the same results
- Data anomalies when uncovered can lead to additional data cleanup actions
- Ineffective and poor code structure could degrade system performance. Batch processing may be slower without some refactoring
- Re-platformed systems aren't necessarily easier to modify than the legacy systems because they bring some of the legacy structures forward at the program level.
- Because some legacy code structure is brought forward in most re-platformed systems new staff will require assistance to understand the system and how it was converted.
- The lines of code will usually increase due to an automated re-platforming process.

Re-platform / Refactoring

❑ How to prepare for this type of project

- Preliminary assessment and evaluation of current system
- Identify the preferred technology stack, procurement guidelines, and timelines
- Review strategy to evaluate alignment with the long term plan for the agency and or state
- Delete programs and utilities that aren't used anymore
- Create a data cleansing plan and perform data cleansing
- Identify components that will need a corresponding product that runs on the new platform
- Define criteria to measure code conversion for quality and maintainability
- Define approach to handle system enhancements after modernization is completed

Re-platform / Refactoring

❑ Will this help in moving towards an Enterprise Solution?

- If using a standard technology platform for the enterprise the migration of the child support system to the same technology can make data sharing easier
- Helps develop programming resources that understand the child support program and the enterprise technology, put data into structures that are easier to access, and eliminate unique system technologies that require specialized resources to support
- Re-platforming will force the agency to go through the process of identifying unused programs/utilities, develop a more updated set of test scenarios, update system documentation, and clean up system data
- New technology products may be available to exchange data in real-time with the enterprise system

Note: Our view is that re-platforming/refactoring is a step in the modernization process. It should not be avoided even if the agency uses a commercial or custom developed enterprise platform.

Re-platform / Refactoring

❑ Additional Considerations (Questions to be asked)

- Will the state perform the testing which is a major issue as it pertains to staff availability and associated cost?
- How many State resources will be needed for the project?
- Many clients see this as an IT project, but adequate conversion and system testing requires business knowledge.
- What percentage of automated conversion should I expect?

Low Code/COTS

CONDUENT

Low Code / COTS

❑ Definition

- "Low Code/COTS" is a software product that allows business processes and user interactions with the system to be built largely through configuration of the product.
- COTS (Commercial Off the Shelf) products offer a wide range of functions and features that can be configured and customized with minimal code changes
- Commercial products that Conduent has used include Microsoft Dynamics, Salesforce, and Pega for case management, CRM, and sales systems. Open source products like Cardinality are also available and being used for low code case management systems.

❑ Features of COTS products

- A secure platform with security functions to manage system users, authorizations, and data access management
- Case management functionality for entry of member information, demographics, address and social media information that can be edited, managed and maintained
- Tools to define user screens, workflows, and business rules
- Forms and notice design, generation and management
- Reporting, dashboards and analytics capabilities
- Integration points with external systems and software products
- Internal portals for workers, and frequently the ability to deploy external portals for clients and partners

Low Code / COTS

- **Third party solutions that provide add on functionality for COTS products**
  - COTS products seamlessly integrate BPM (Business Process Modeling), rules engine, document management solutions
  - Data warehouse tools and ad hoc reporting products
  - Enterprise Content Management (imaging and document generation)
  - System Interfaces that support common data sharing
  - Cloud based services platform (Amazon Web Services or Microsoft Azure)
  - Batch Schedulers
  - Address Validation software or plug-ins

Low Code / COTS

- **Third party solutions that provide add on functionality for COTS products**
  - COTS products seamlessly integrate BPM (Business Process Modeling), rules engine, document management solutions
  - Data warehouse tools and ad hoc reporting products
  - Enterprise Content Management (imaging and document generation)
  - System Interfaces that support common data sharing
  - Cloud based services platform (Amazon Web Services or Microsoft Azure)
  - Batch Schedulers
  - Address Validation software or plug-ins

Low Code / COTS

- **What are “Custom Build” Solutions?**

  - Usually accomplished through a set of products and custom programming.
  - Separate products that provide the system’s security, screen development, business rules, workflow management, data storage, communication, document management, and reporting may be used, or they may be developed by programmers.
  -
  - Allows an agency to take advantage of existing licenses for products that the agency owns.
  - Expertise to implement and support the products may be available from across the agency.
  - Allows the agency to select the “best of breed” technology to be built into the system
  - Offers the most feature rich products, or products with the most important features to be incorporated into the system.

Low Code / COTS

❑ Technical Considerations:

- Evaluate the technology platform(s) the IT department currently uses or has plans to migrate to in the near future
- Does the technology align with the long term plan, skills and ability to support systems?
- Will the platform be able to handle the existing transaction volume within the platform, or will some of that processing need to be accomplished outside of the platform to meeting processing timeframes?
- What functionality will need to be developed by the agency on the platform?
- Can the existing platform tools accomplish the development or will custom programming be needed?
- What integration points are built into the tool to interact with other systems and data repositories?
- Does the platform have a strong user base or third party vendors that support it and provide additional features that can be easily incorporated into the platform?

Low Code / COTS

❑ Cost Implications:

- The feasibility and total cost (time and financial) to transition from legacy systems
- Ongoing operations and maintenance costs
- Costs related to being locked into a single vendor for product support, license costs and technical support could potentially become a risk
- Costs related to data migration can be significant due to technical skills required to handle the source data and complete the conversion to the target platform
- Costs associated with maintaining custom features, and who owns those modifications and the data associated with them

Low Code / COTS

❑ Program Level Evaluation Criteria

- Program level goals related to cost, maintenance and operations have been analyzed and estimated for use in evaluating a COTS platform approach
- Staff with relevant skills to support the platform are available in the agency or can be obtained from the market
- The agency has already selected the COTS platform for new systems. This can help ensure adequate resources are available to enhancement and manage the product. It can also help the agency achieve volume pricing on licensing
- The platform is well established with a history of support, a roadmap for improvements, a large pool of vendors that support and augment the platform
- Is there clear data ownership and access to it when working within an enterprise platform solution?
- The platform doesn't conflict with the vision and strategy of the agency. For example, if the vision is to put everything into the State's private cloud, don't select a PaaS (Platform as a Service) product

CONDUENT

Low Code / COTS

❑ Program Level Evaluation Criteria (cont'd)

- Existing systems are able to easily integrate with the new platform through APIs (Application Programming Interfaces)
- The ability to replace or augment core tools such as the BPM, rules engine, and other functions. This may be needed to handle the complexity of the CSE program, as well as performance requirements
- Some of the tools embedded in the platforms are better suited to straight forward processes. A large set of complex tasks or needs may be difficult to implement in them. This may require the processes to be implemented outside of the platform.
- A custom coding language supported by the platform that is flexible and easy to use.

Low Code / COTS

❑ Implementation Timeline

- Two to three years to install, configure and customize the product to meet the program requirements.
- An established set of technical and functional requirements predefined and readily available for the vendor would accelerate the overall timeline significantly.
- Overall timeframe to build and implement is in the range of 3 to 4 years depending on the number of offices, data conversion requirements, users and desired system rollout timeframe
- Project cost in the range of $40M to $100M – depending on the cost of the product and features.

❑ Factors that heavily influence the timeframes and cost:

- Business processes are clearly identified and mapped to Federal and State requirements
- Choice of COTS product, limiting customization to “must have” features for initial implementation
- State IT procurement process and procedures to buy and install the product
- Adequate set of State staff allocated full time to support the initiatives and be prepared to handle implementation activities and tasks

Low Code / COTS

❑ Continuous Improvement and Life Cycle Management

- Low Code/COTS products offer a very solid platform for case management with configurable tools to build business processes and interface with other systems.
- Continuous improvement can be achieved by using the configurable tools to build and manage the system.
- The platforms will keep the agency current with security needs as well as technology products.
- Custom coding or configurations developed by the agency will need to be managed and upgraded by the agency.
- There are third party products that are made to easily integrate with the COTS platforms that can reduce custom coding, complex configurations, and offer new functionality that can be incorporated into a child support system.

Low Code / COTS

❑ Things to do prior to choosing a COTS product

- Determine what the platform will provide and what will need to be built out for the child support program.
- Use the RFI/ RFP and Orals process to learn exactly what the platform will provide and what the State will ultimately be taking responsibility for to maintain and upgrade.
- Will the IT organization support the chosen platform?
- The State needs to understand how the costs will be different (user licensing, type of programming resources, warranty, technical support)
- Impact on the program's costs once deployed, as well as the initial cost of construction.

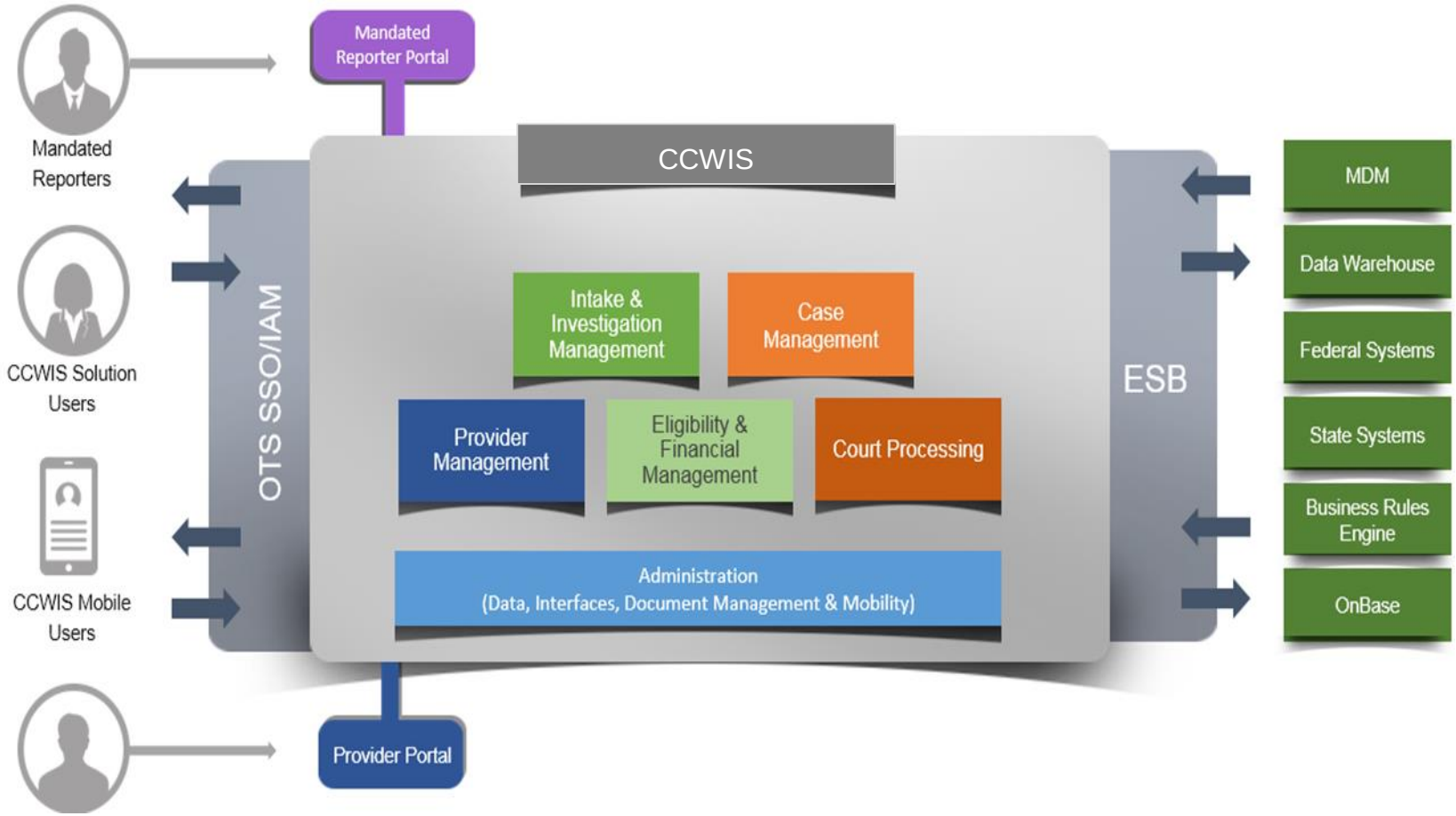
Low Code / COTS

❑ Can the COTS product translate to an Enterprise Solution for the State?

- Yes, provided the agency is using the same COTS platform across different programs.
- If the programs are on the same platform the technical challenges of aggregating data and services provided to individuals can be greatly reduced.
- If the agency programs are on different systems, the COTS platforms usually offer the ability to easily integrate with other systems to exchange data.
- Budget requirements for the enterprise solution has been defined and mapped to the long term strategic plan

Low Code / COTS – An Illustration

Solution Overview



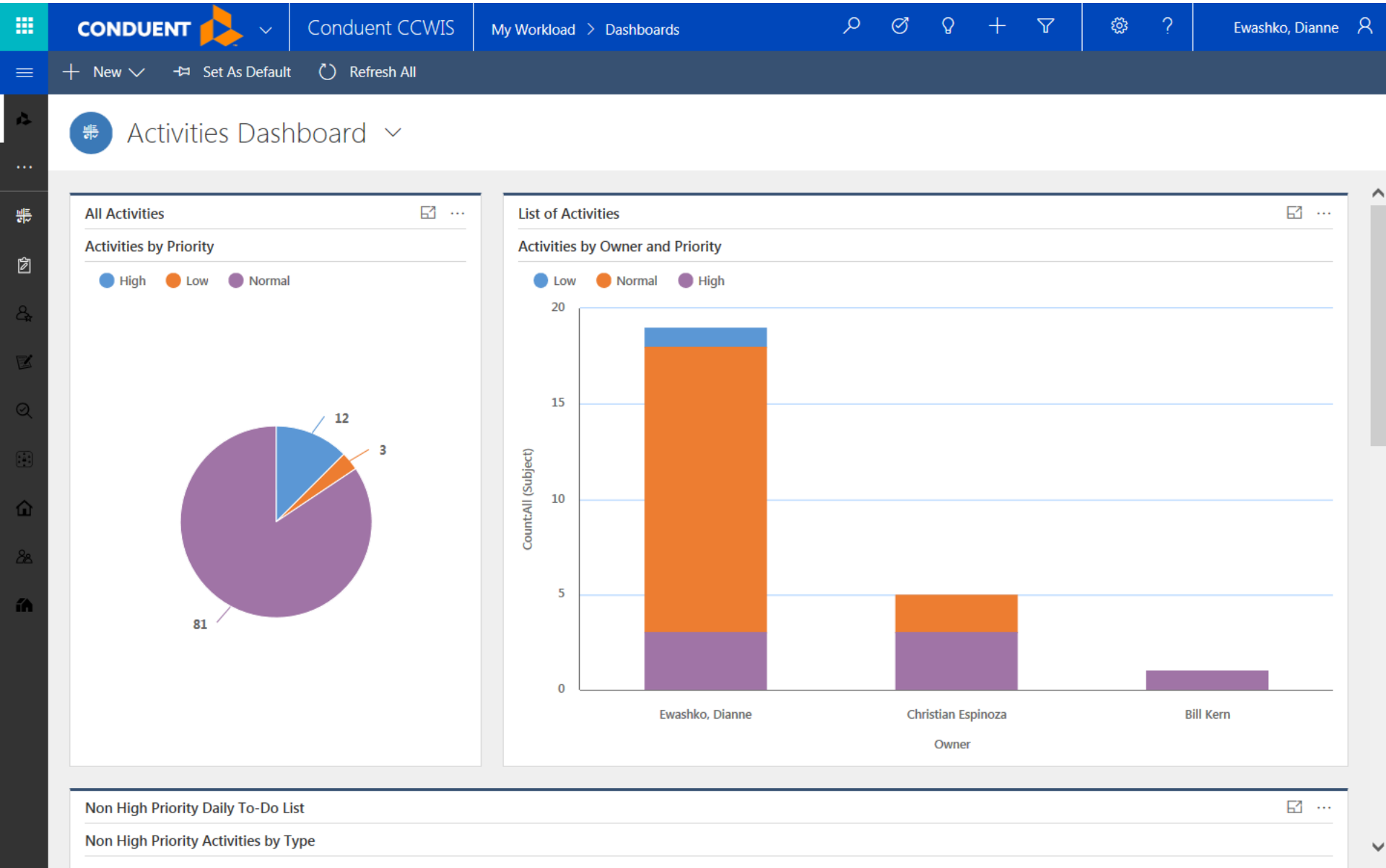
CONDUENT

Low Code / COTS – An Illustration

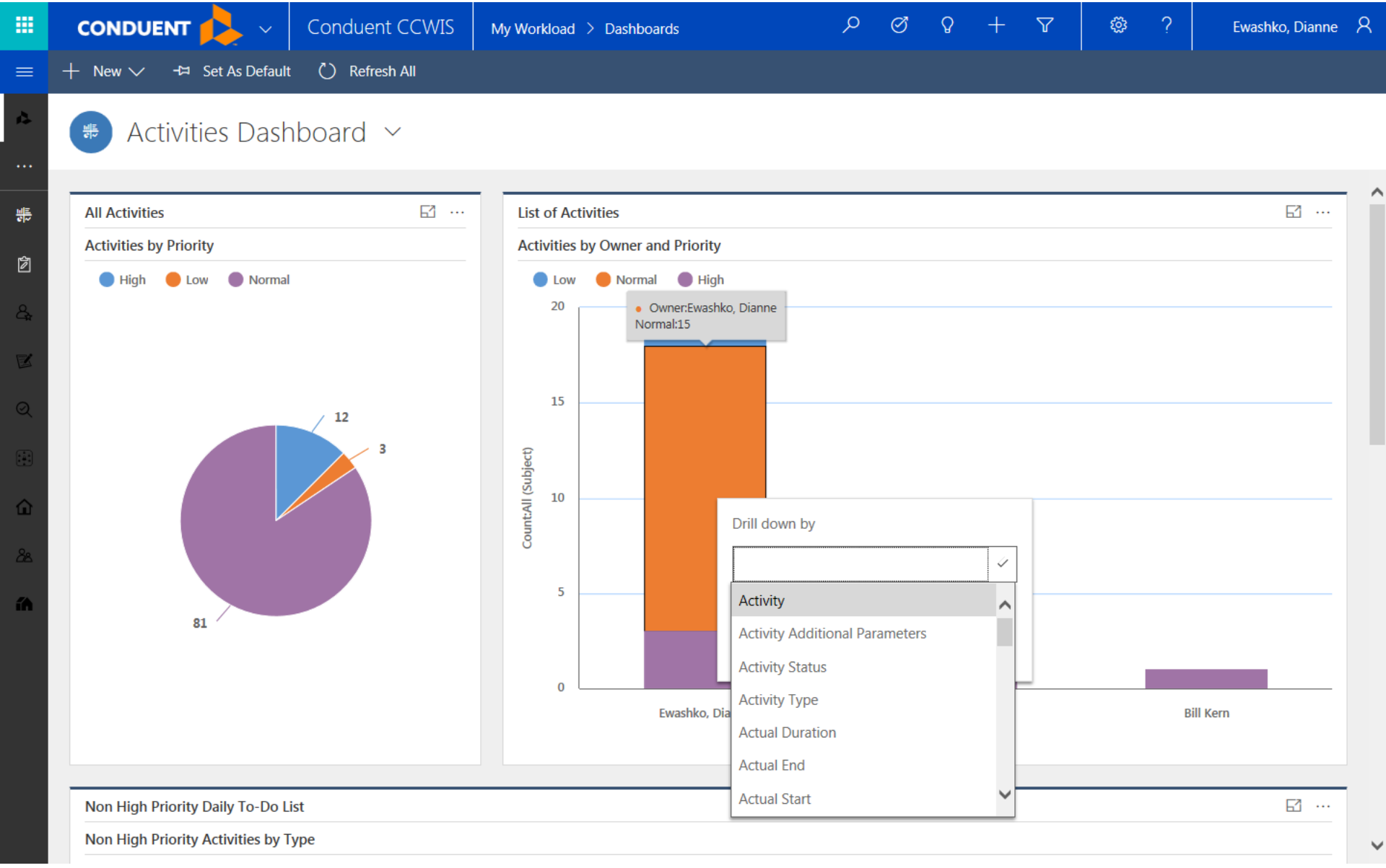
Platform Support of Business Features

CONDUENT

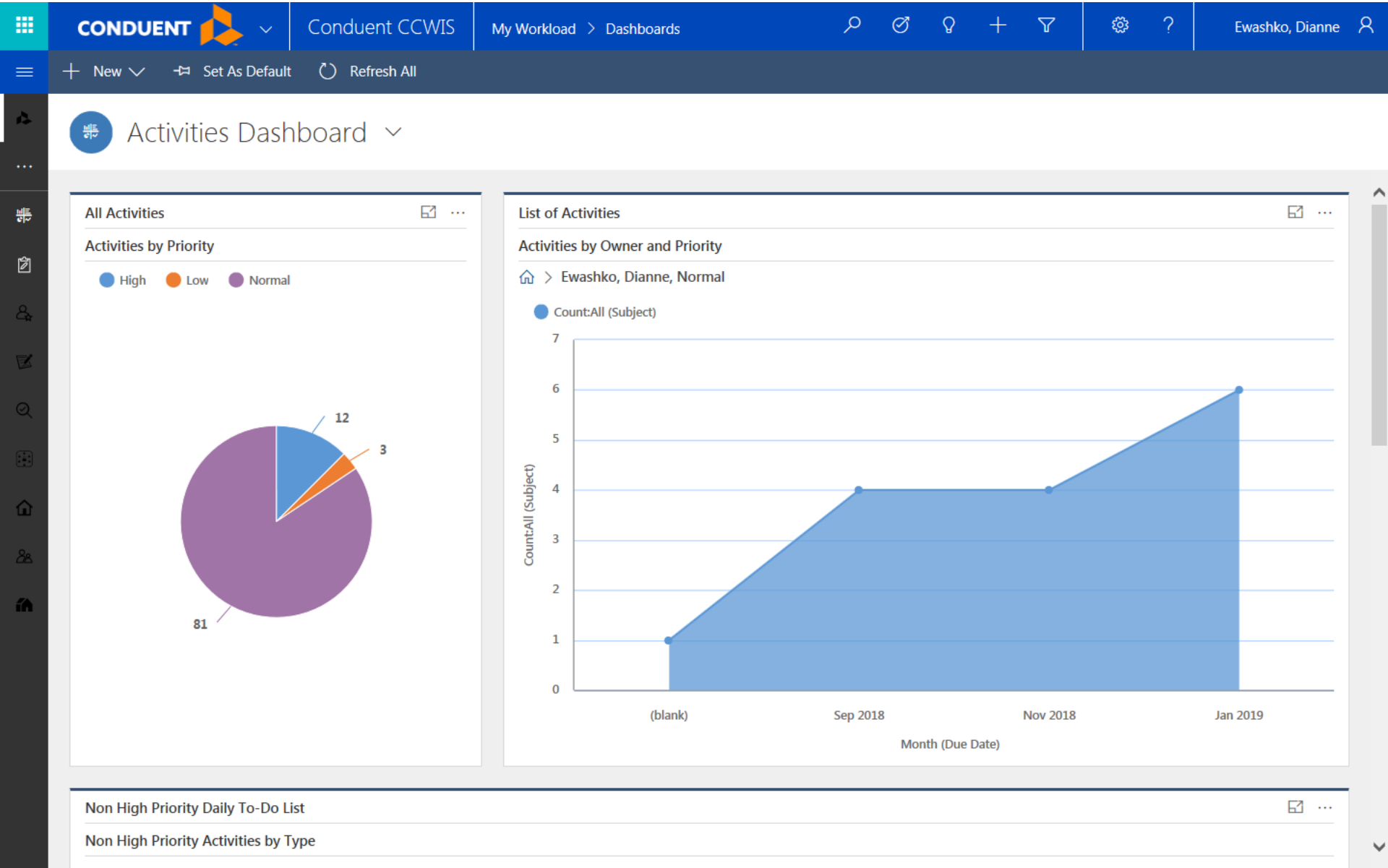
User Activities Audit Trail



User Activities Audit Trail



User Activities Audit Trail



Questions

CONDUENT


CONDUENT
TM