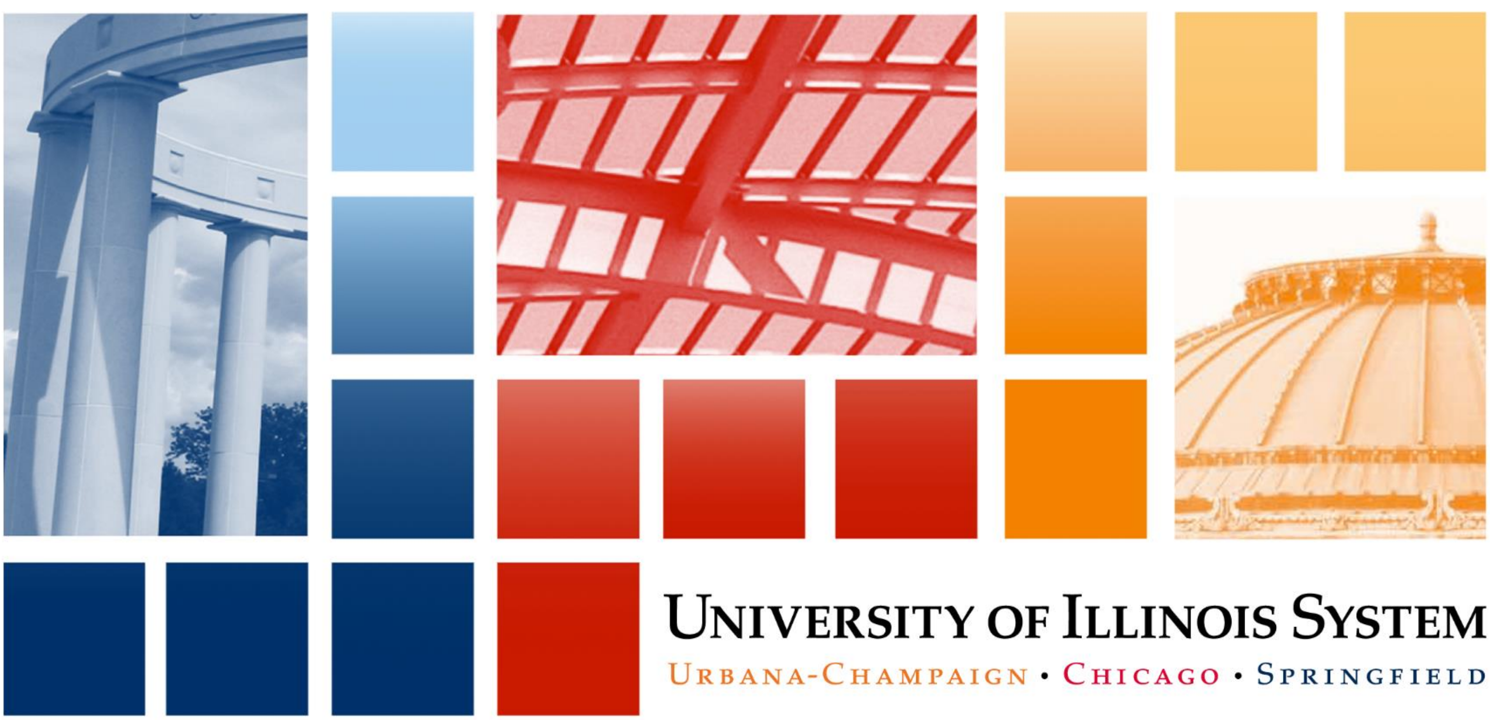
OFFICE OF BUSINESS AND FINANCIAL SERVICES

Procurement Services

19.0 Data Analytics and Metrics

Process Report

September 2017



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Overview

The Data Analytics and Metrics process is the ability to use procurement & payable data to create reports on an as needed basis.

The following mandates and policies are complied with in this process.

Illinois Mandate Symbol -

University Policy Symbol -

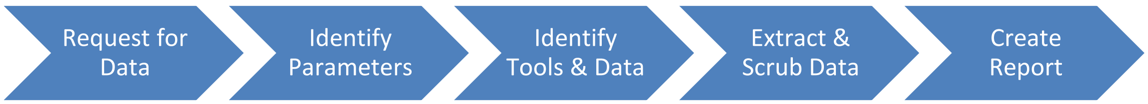
Professional Mandate Symbol -

Process Executive Summary

Business Process

The process begins when data or information is needed by a University department or requestor. The department determines if they have access to generate the data internally or if they need to make a request to Payables or Purchasing. If they make a request, procurement services confirms the data requirements are clear, determines if an existing report template already exists and communicates the data points with the requestor. After consultation, the reporter identifies which tools to use, extracts, scrubs and validates the data by confirming the findings with the requesting department. If not, the reporter corrects or starts the process over. If okay, the report gets formatted, sorted, filtered and finally sent to the requestor usually along with a description of the data and methodology. Most often, the report will be saved as a template for future use and editing.

Current Process Activities



Approach

The current state process activities were mapped by the Subject Matter Experts, SME, and project process team. A SIPOC diagram was created to capture the tasks executed by the University System departments. The SME project team identified opportunities for improvement and brainstormed potential solutions. In addition, the SME project team came up with a questionnaire to be distributed to the customer focus group asking what reporting needs they would need in the future. The current state was presented, issues were identified, and recommendations were discussed at customer focus group meetings in the University System. The process report was presented to the Source2Pay Director Council where they ranked the proposed recommendations for implementation.

Key Findings

- Incomplete data and requests
- Multiple systems
- Users don’t know who to ask
- Users are not even aware they can ask for reports and data
- Systems do not interface
- Timeliness of running reports

Improvement Recommendations

The process team identified 6 suggested improvements. From the 6 suggested improvements, the team selected 5 improvements to recommend for implementation. The Director Council reviewed the 5 recommendations and ranked the proposed recommendations for implementation.

Listed are the top recommendations for implementation:

1. Develop a template and workflow for requesting data/reports
2. Create list of reports that can be self-generated vs. requested

Chapter 1: SIPOC Diagram

Process Name	Date
19.0 – Data Analytics and Metrics	July 2017

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
Who provides input to the process	***What*** goes into the process	***How*** the inputs are transformed to outputs	***What*** comes out of the process	***Who*** received the outputs of the process
University System Department Office of Procurement Diversity Campus Purchasing Units Payables Strategic Procurement Internal and external auditors State and federal agencies Vendor	FOIA Request Legislator Request Grant/Contract Request State Report Requirements Fed Report Requirements Performance Metrics Services Staff/Admin reporting Ad hoc requests Audit requests	1.Request for data or report/Clarify the request 2. Identify what parameters are needed 3. Identify where the data resides (tool to use) 4. Extract & scrub the data 5. Create Report (validate the data extracted, formatted, sortable)	Data file Reports Explanation of data results Dashboards Saved scripts for future use	University System Department Procurement Services Public FOIA Requestors Payables Grant Requestors State and Federal Requestors Legislator requestors Audit requestors Vendors

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
Who provides input to the process	***What*** goes into the process	***How*** the inputs are transformed to outputs	***What*** comes out of the process	***Who*** received the outputs of the process
				Office of Procurement Diversity

Chapter 2: Suppliers

Suppliers provide input to the process:

University System Departments

What they care about: The data they are requesting so they can manage their purchasing and payables decisions.

When they care: When they need to make decisions on their purchasing and payable functions such as performance, productivity and opportunities and when they want data for their internal data and tracking purpose.

Campus Purchasing Units

What they care about: Making sure the requested requirements are clearly defined and that they have access to the tools and data being requested.

When they care: When they are assigned a request, and when they want data for their internal data and tracking purpose.

Office of Procurement Diversity

What they care about: Any reports or data in relation to BEP and diversity goals and spending.

When they care: Throughout the life of a contract or when payment is due to a BEP vendor to make sure the BEP diversity goals have been met, in addition for their annual reporting requirements to CPO and General Assembly:

Strategic Procurement

What they care about: Making sure the request for University wide reporting requirements are clearly defined and that they have access to the tools and data being requested.

When they care: When a request is made

Payables

What they care about: Making sure the request requirements are clearly defined and that they have access to the tools and data being requested.

When they care: When they are assigned a request:

Internal & External Auditors

What they care about: Compliance as it relates to reports and data that validate their findings.

When they care: Prior to and during an Audit

State & Federal Agencies

What they care about: Any and all state and federal related data

When they care: When they make a request for data or a report

Vendors

What they care about: Continue doing business with the university, getting paid, purchasing & payables data related to procurements.

When they care: At any point, but typically when they have not received payment.

Business Rules

None

Chapter 3: Inputs

Inputs are information or verification which goes into the process

FOIA Request

Freedom of information act requests from the public.

Legislator Request

A request for information from a state representative.

Grant/Contract Request

Reporting on specific grant spending.

State Report Requirements

Requests on BEP spend, Small Business reporting and total spend

Federal Report Requirements

Overall university spend related to grants

Performance Metrics / Admin reporting

Internal admin performance tracking & workload and process cycle times.

Ad Hoc reporting

Individual special requested data or reports. Examples include:

- Ad Hoc Reports around Vendor Invoices and Payments
- Ad Hoc Audit Reports
- Ad Hoc management report
- Ad Hoc reports around T-Card and P-Card transactions
- Ad Hoc reports around TEM data
- Ad Hoc reports for system testing

Audit reporting

Reports or data for or from auditors.

Business Rules/Notes

Payables' most frequently asked reports or data:

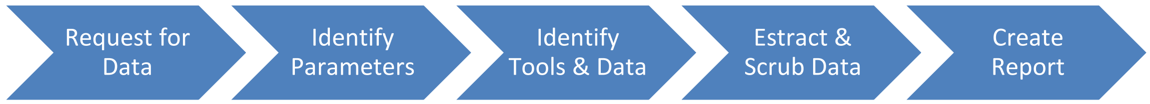
- TEM Report – utilized by Payables staff to distribute TEM work queue. Run by Payables daily.
- Card Services – MANY different reports (50+) to support Card Services' production activities
- Ad Hoc Reports around Vendor Invoices and Payments
    - Ad Hoc Audit Reports
    - Ad Hoc management report
- Ad Hoc reports around T-Card and P-Card transactions
- Ad Hoc reports around TEM data

Purchasing's most frequently asked reports or data:

- Spend reporting
- FOIA
- Comparison evaluations
- PPI (Producer Price Index) reports
- Trend reports
- Audit reports
- Compliance reports
- Admin productivity reports

Chapter 4: Process

A process is defined as the method for transforming inputs into outputs:



Request for Data or Report

The actual request for a report or data; currently requests come in via emails, phone, ticket, and meetings on a daily, monthly or annual basis. This phase involves determining who to contact to request the report and whether or not the reporter has access to the data.

Identify Parameters

Communicate and clarify requirements with requestor.

Identify Where Data Resides

The steps involved in determining where the data resides and communicate with SMEs and consult documentation.

Extract and Scrub Data

The steps involved in identify tools to use to extract, scrub, clean up and validate data.

Create Report

The steps involved in the final formatting, look and design and distribution of a report or data set.

Business Rules

None

Chapter 5: Outputs

Outputs are the resulting information or entities that are produced as part of the process:

Data File

The actual created and formatted data file as a result of running the process.

Reports

The actual created and formatted report as a result of running the process.

Explanation of Data Results

Explanation of the methodology used as either a cover page or email documentation of the data extracted.

Dashboards

Summaries of data that is displayed within systems as views to the user. Example: Tableau

Saved Scripts for Future Use

The actual report or data templates saved for re-use in the future.

Business Rules

None

Chapter 6: Customers

Customers receive the output of the process.

University System Departments

What they want: The specific Purchasing and Payables data or report they requested related to their department within a specified timeframe.

Procurement Services

What they want: Reports with the clearly defined requirements, the ability to save templates and access to the appropriate system tools and data.

Public

What they want: Information on the University System Payables and Purchasing data and practices. For example, the Illinois Procurement Bulletin postings.

FOIA Requestors

What they want: The specific information they requested about the University System's purchasing practices.

Payables

What they want: Reports with the clearly defined requirements, the ability to save templates and access to the appropriate system tools and data.

Grant Requestors

What they want: Typically reports on grant spending and funding.

State and Federal Requestors

What they want: Any and all state and federal related reporting.

Legislator Requestors

What they want: Reports on any data as it relates or impacts legislative laws and policies.

Audit Requestors

What they want: Budget and process data as it relates to being compliant with audit findings.

Vendors

What they want: Data to fulfill and receive payment for purchases and do business with the university systems.

Office of Procurement Diversity

What they want: Data as it relates to diversity spending on contracts.

Business Rules

None

Chapter 7: Customer - Oversight Roles

Customers who provide oversight and what oversight is needed: (Example Funders, OBFS, Auditors, Board of Trustees (BOT), Legislature, Public)

AITS

What they want: Decide if access to data is given

Business Rules

None

Chapter 8: Questionnaire for Current State Analysis

1. **Why does the process exist?**

   To have a process in place to request and report out on University of Illinois Procurement and Payables data.

2. **What is the purpose of the process?**

   To report and manage, track analyze University of Illinois business, data and metrics.

3. **What are the process boundaries (i.e., when does it start and end?)**

   This process begins when the need to extract data from a procurement service system has been identified or when a request for data or report is submitted.

4. **What are the major activities/steps in the process?**

   See Chapter 4: Process (Ctrl-click to follow link)

5. **What is the expected outcome or output of the process?**

   See Chapter 5: Outputs (Ctrl-click to follow link)

6. **Who uses the output of the process, and why?**

   See Chapter 6: Customers (Ctrl-click to follow link)

7. **Who benefits from the process, and how?**

   - Faculty
   - Legislators
   - Public
   - Staff
   - Students
   - University System Departments
   - Vendors

8. **What information is necessary for the process?**

   See Chapter 3: Inputs (Ctrl-click to follow link)

9. **Where does that information come from?**

   See Chapter 2: Suppliers (Ctrl-click to follow link)

10. **What effect does that information have on the process and output?**

    The information is used within the process and generates final output.

11. **Who is primarily responsible for the process?**

    - Payables
    - University department units
    - University Purchasing

12. **What other units/organizations participate in or support the process?**

    - AITS
    - OBFS – Business Solutions & Support

13. **What Information Technology system(s) support the process?**

    - Access Database*

- Banner*
- BDM (extender) *
- Crystal reports*
- Department Databases for specific functions* (1099 payments, card exception requests)
- EDW (business objects)* //eddie
- E-mail
- File maker*
- iBuy*
- iCS*
- Microsoft office suite
- My UI Financials*
- Olap cubes (data from the EDW, an excel pivot table)*
- P-Card web solutions*
- SQL*
- Tableau server and software*
- TEM
- TOAD*

14. What policies guide or constrain the process?

- FOIA requests
- HIPAA
- Protected information (ex. SSN, credit card numbers)
- Security and access to reporting systems

15. How often does the process get executed?

Several times a day

16. What are potential defects with respect to the process?

- Complexity of the process and systems used
- Incomplete data
- Incomplete requests
- Incorrect data
- Lacking documentation (looking for a field that no longer exists)
- Misinterpretation of the data (training)
- Multiple systems to pull data
- System downtime
- Systems not interfacing
- Timeliness to run reports

a. How often do the potential defects occur?

Daily

17. What types of challenges have employees who participate in the process raised?

- Complicated process to grant access to systems for reporting
- Creating custom reports
- No consistency in Field names (ex. Fields in Banner forms are different than data tables)

- Not enough time to learn how to run reports
- Not enough training
- Not knowing what access to give users to run reports
- Systems not user friendly
- Too many systems

18. What types of challenges or concerns have customers raised?

- Complicated process to grant access to systems for reporting
- Creating custom reports
- Not knowing what systems they have to use

19. Will the process be changed by another initiative in the near future?

System upgrades (ex. Banner 9)

Chapter 9: Questionnaire for Potential Process Improvement Candidates

1. **How would the process operate differently in the "Perfect Situation?"**
   - One system
   - Reduced number of steps & time it takes to request and run data
   - Complete documentation
   - A menu of standard and customizable reports
   - If using multiple tools, a clear definition of each tool and what they are used for
   - Be able to tailor reports based on the level of information they need
2. **What does the team hope to achieve through this improvement?**
   - Simplified process
   - More department generated reporting options
   - Gain efficiencies such as getting the data to the departments faster
   - Consistent understanding of the data presented
3. **Who would benefit from the desired improvement to the process?**
   - Payables
   - University department business units
   - University Purchasing
   - University System Services
      a. **How would we know?**
         - Fewer steps
         - Fewer requests
         - Increased self-serving functionality for units
         - Reduction in report errors and parameters
         - Reduction in ad hoc requests
         - More consistent reporting
4. **What data can be provided with respect to the process performance (e.g. service rating, cycle time, customer survey responses, etc.)?**
   - Reduce the amount of time it takes for the person requesting the data to receiving the report
   - Reduction in number of requests
   - Improved customer satisfaction on survey responses
5. **Who should be included in any improvement discussions for the process?**
   - AITS
   - Auditors
   - Grant Administrator (including a PI)
   - OBFS – Business Solutions & Support (BSS)

- OPD
- Payables
- Purchasing
- University Departments

Chapter 10: Current State Metrics

Metrics in three areas is being collected on each process. These metrics will be used to measure success in the future state. [Enter the metrics to each question listed below.]

- How long does the process take from start to finish?

  Requested report: 5min to several months

  Internally generated report: 5min to 1+ days
- How many touchpoints are there per process?

  At least 2, but could be multiple
- How many steps are involved in each process?

  At least 29 steps to process a requested report

  At least 18 steps to process an internal report

Chapter 11: Feedback from Customer Focus Groups – Current State

The Current State process questions was sent to each University's Customer Focus Group on July 24 in the form of a survey. A total of 7 people responded with 5 from UIC, 1 from UIS, and 1 from UIUC.

Q1.List and describe the most common reports or requested data you ask Purchasing or Payables for today?

Mostly Status and Payment reports

- None. Did not know Payable and purchasing provides custom reports when requested.
- Open encumbrances, Status of Vendor Identification Form, Status of Requisition, Purchase Order, Invoice, and payment
- Subcontractor Payments, Employee reimbursements, Contract processing updates, Consultant payments, Vendor payments
- I request purchasing to approve non-conforming PO. I only ask Payables for check status information such as if the check has been cashed.
- Don't ask for reports.
- I generally run reports myself; I did ask Procurement for information related to whether there was a contract in place with a vendor.
- When a check will be issued, and what address did the check get mailed to (especially if the BR address was recently changed). 2) Status of submitted invoices -- sometimes they go missing. 3) Verify specific ways to do rejected TEM ERs, or call and clarify that there is a misunderstanding.

Q2.List and describe the reports or data you run yourself for your department. What tools do you use to generate this data?

Mostly Payments, PO, Credit Card charges, HR and Status report from Banner, EDW, Web Intelligence and TEM & P-Card

- Excel front-end application that accesses EDW. Banner Purchasing and Payable screens.
- Subcontractor Payments, Vendor payments and consultant pmts. accessed via BANNER, Employee reimbursements, via TEM
- I use web intelligence. Transaction data for payments and HR data
- C_FOPAL statement and transactions, Requisitions, POs, Credit card charges. Banner, Eddie, My-UI-Financials, P-card, TEM.
- I use primarily Web Intelligence to run reports for purchase order and invoice details for specific departments, System wide spend analysis (by vendor, by employee and vendor), P-Card and TEM payments
- Not exactly reports, but this is the kind of information we look for:
  1) Check status of invoices processed and checks issued: Banner data screens, FOIDOCH, FAIINVE, FTICHKS, FAICHKH, 2) Check status of POs (iBuy screens), I run monthly transactions

Q3.Describe the reports you currently desire that you can NOT generate yourself.

- List of payable invoices on Hold. List of invoices submitted to UPAY but not entered into Banner. Payment request outstanding that the estimated date of payment.

- I would love an easy breezy status report
- Employee reimbursements reports have to be combined with proxy from each employee, Contract processing updates have to be accessed individually, and combined for a report for the college, Grant expenditure reports are individual per grant and cannot
- I would like a report that shows the request for a PO and all the data including if the check has been cashed.
- none that I can think of
- I am interested in getting complete purchasing data in one report if possible - regardless of method of purchase (P-Card, iBuy, TEM, etc.). And I would like to have complete vendor (already have saved template) information included (name, FEIN, Banner ID, address. etc.). and employee information in the same format.
- A list of vendors in Banner (have a vendor ID) with a short description of their services and maybe the units that have used them. Example: who does carpet cleaning with the university and who has used them so that I can contact that department for a reference. 2) It would be great to have the monthly OBFS encumbrance list updated more regularly during fiscal year end. (It's a great resource to see all encumbrances at once -- especially for our unit that uses a complicated and expansive org structure).

Q4.List any reports you receive that have no value.

- Sometimes but no always, I receive an email from Payables that references the Banner Invoice Number and states the invoice cannot be processed WITHOUT providing an explanation of why. – currently the why should be in the body of the email, this is just a notification and not a report
- Some Banner screens are not helpful/intuitive
- None. Actually there are many that I could use that I don't receive/don't know how to generate/access.
- I do not received any reports.
- We don't currently receive any reports form Purchasing/Payables. Are there?

Q5.What are your pain points in regards to reports and data? For example, don't know who to ask, lack of training on tools etc.

- Once I submit a payment request, I am finished with the matters. If there is a Vendor issue, Vendor maintenance should resolve directly with vendor and not come back and ask me to. If the invoice has issues and cannot be processed, I would like to know this and the reason. Huge problem in getting email responses from the helpline and delays or no return of voice mail messages left.
- BANNER, BANNER, BANNER...and EDDIE
- I need help with the tool. Recently, I did learn who I could ask.
- Browser issues. never know what browser works with what application.
- Finding some of the data fields in the EDW universes (e.g. the vendor ID in TEM for vendor pmts) and that some of the data fields are in different formats in the different systems. For example, in iBuy the buyer name might be first then last name but in Banner the requester name might be last then first; and the employee UIN may not be in all of the source systems. Finding bid/RFP and/or contract information. The fact that all P-Card vendors are not included in Banner and therefore don't have a Banner ID
- A lot of the information is in Banner, but it requires you to go to several different screens to get all of the info you might be looking for, and piece mail, and one PO/Invoice/vendor at a time. I wish there was a report that could have all of the info, in one place, for the entire unit (college level in my case). 2) lack of training tools on specific details of Banner screens (example: bank ID

descriptions) 3) lack of communication for missing invoices (understandable, but definitely a pain point)

Q6. Circle which systems and tools you currently use today to run or request data

- Banner = 7
- SQL = 1
- MY UI Financials = 4
- EDW (business objects)/EDDIE = 7
- OLAP cubes (data from the EDW, an excel pivot table) = 2
- iCS = 1
- iBuy = 7
- P-Card web solutions = 5
- Department Databases for specific functions (1099 payments, card exception requests) = 1
- Access Database = 3
- BDM (extender) = 2
- TOAD = 1
- TEM = 1
- OBFS encumbrance list = 1

Q7.What would you like to improve about the process of requesting data & reports and what is your preferred format(s)?

- One system, one report that is easy to use and intuitive
- I would like the ability to produce or access College level reports of all (all =multi-departmental) grant submissions, contract submissions, grant awards (new separated from continued), grant contracts (new separated from continued), grant expenditures (within our unit and from other units on our staff) and grant activities within the college and collaborations outside of our college. It would also be nice to differentiate Co-I activity from Co-PI activity. Currently BANNER does not differentiate these, so all of the reports that pull data from BANNER combine the two statuses. My preferred format is Excel because it is flexible and easy to add calculations, headers..etc..
- I need better/more training on report writing. I need the ability to do better ad-hoc queries, management ask for different information the request are not usually the same.
- I am not familiar with the current process.
- I wish there was some standard reports created that could be run in EDW and that could pull all details into one massive list (Vendor, POs, Invoices, check details, encumbrance) by college/org code.
  2) On that same note, if there was standard monthly reports (sanctioned by purchasing/payables) for TEM/PCard reconciliation, etc.3) having CSV/Excel output is important, so that data can be filtered, sorted, and edited.4) If purchasing is willing to provide custom reports, maybe a portal where you could submit requests?

Q8.Additional comments:

- The issues that I addressed in this survey has obvious resolutions and easily fixed in my view. The problems are not caused by staffing or transaction volumes but it rest with Management.
- Thank you for the opportunity to communicate our needs. We appreciate any guidance or assistance that you provide to help us generate/access this data.
- I realize I am likely coming from a different perspective being with University Audits. But in general, we would like to get as much data as possible in one report to be able to analyze it in many different ways. We like to analyze spending by employee - by all methods together and individually, total vendor spend, spending by department, etc. Then after we analyze at the high levels, we usually have detail reports that we can filter on to dig into the details.

Chapter 12: Opportunities for Improvements

The following opportunities for improvement were identified through team discussions, and feedback provided from focus groups, and Director Council. Issues were categorized into six categories covering Communications, Documentation, Policy/Procedures, Recourses, Technology, and Training. Issues shown in **Bold** are connected to a Recommendation for Improvement in Chapter 15: Recommendations for Improvements

Communications – Issues related to providing information	
C1	**Incomplete Data**
C2	**Incomplete requests**
C3	Timeliness to run reports
C4	**Multiple names for systems**
C5	**Reports are often duplicated because they are not listed someplace where they can be viewed**
C6	**Users don't know where to look or who to ask about generating reports**
C7	**Inconsistent submission of requests**
C8	**People in units do not know they can request reports**

Documentation – Issues related to lack of documentation	
D1	Incomplete data
D2	**Lacking documentation (looking for a field that no longer exists)**
D3	Current documentation not updated

Policy/Procedures – Issues related to Policies and Procedures	
P1	**Users don't have the access to certain data tables/technology**

Resources (Financial, Human) – Issues related to lack of sufficient staff or funding	
R1	**Users not knowing what systems to use**
R2	Timeliness to run reports
R3	**Users don't have access to systems**
R4	**Users don't know what to ask for**

Technology – Issues related to system's lack of functionality to support the process	
T1	Incomplete data
T2	**Multiple systems to pull data**
T3	**Systems not interfacing**
T4	System downtime
T5	Lack of tools to request and track reports

Training – Issues related to lack of understanding the process	
TR1	Users need substantial training time to develop reports
TR2	Inaccurate data
TR3	**Users not knowing what systems they have to use**
TR4	People don't know they can request reports
TR5	Complexity of the process and systems used
TR6	Misinterpretation of the data
TR7	**There are multiple names of systems that often mean the same thing**
TR8	**Users don't have a set of questions to ask when requesting reports**
TR9	**Users don't know who to ask**

Chapter 13: Suggested Improvements

The following recommendations came from discussions with the process team members, and/or the Director Council, and/or University System focus groups. Not all improvements were selected by the process team. The selected improvements were presented to the University focus groups for feedback, and are recommended from review by the Director Council. A Suggested Improvement displayed in **bold** is associated with a Recommendation for Improvement, and is further discussed in Chapter 15: Recommendations for Improvements

Number	Category	Suggested Improvement
1	**Communication**	**Publicize the individuals/units that create reports**
2	Communication	Form a report taskforce for business managers or financial people
3	Documentation	Develop a glossary of report terms
4	Documentation	Categorize reports based on how they are used
5	Documentation	Create a list of standard reports available and their description
6	**Documentation**	**Entity Relationship Diagram (ERD)**
7	**Documentation**	**Create list of reports that can be self-generated vs. requested**
8	**Policy/Procedure**	**Establish hierarchy of reporting decision making**
9	Resources	Hire more data analytics employees
10	**Resources**	**Centralized resources**
11	**Resources**	**Develop a website for requesting reporting**
12	**Technology**	**Develop a template for requesting data/reports**
13	**Technology**	**Develop a website for just requesting or viewing certain reports**
14	**Technology**	**Require standardized coding for data entry use**
15	**Technology**	**Workflow in systems**
16	**Technology**	**Fewer systems**
17	Training	Develop a glossary of report terms
18	**Training**	**Create a list of reports with descriptions**
19	**Training**	**Create list of reports that can be self-generated vs. requested**

Chapter 14: Feedback from Customer Focus Groups – Future State

The Future State process was presented to each University's Customer Focus Group in August 2017. A total of 8 people attended with 3 person in attendance from UIC, 1 person from UIS, and 4 people from UIUC.

Campus Focus Group Summary

- In favor of all recommendations, want to make sure a member of AITS is part of the centralized reporting group.
- Also favor enhancing the EDW with more data fields
- Make sure any lists are publicized and easily accessible and kept up to date

Campus Focus Group Report

- Create list of reports that can be self-generated vs. requested - no questions, liked it
- Centralized reporting resources – yes like this, just make sure a member of AITS is involved in this group to help with the technical side
- Publicize the individuals/units that create reports – in favor of this
- Develop a template and workflow for requesting data/reports - yes in favor
- Enhance the EDW to include additional data - yes in favor
- Workflow in new system(s) – yes but would like this for everything starting from the requisition with statuses
- Notes: really liked the central reporting group so they know where to go and the enhance EDW options

Chapter 15: Recommendations for Improvements

The recommendations have been identified for improvement. Three different categories were identified for the improvements, and each improvement received a level of implementation. The categories include Training, Policy and Procedure, and Technology. There are two levels of implementation: "short-term" indicates improvements suggested for the current system and process prior to the development of an RFP, and "long-term" indicates improvement to the process with an RFP for a new system. The recommendations are in order to make the process better, help the users understand the process, and make sure the process works.

Number	Describe Potential Solutions	Category	Implementation Level	Related Issue(s)
1	**Create list of reports that can be self-generated vs. requested** We are recommending the creation of a listing of all standard reports that are available to Users that can be easily customized by the User. This would also include reports that can be requested that require additional values that are not stored in the EDW and require assistance from Procurement Services. We also recommend additional training materials (webinar, job aids, etc) to be created to allow the User to become familiar with the reporting capabilities. This would enhance the self-service capabilities for the departments and allow for better service to the departments and reduce the number of requests through Procurement Services.	Training & Documentation	Short term	C5,C6,C7, C8, D2, R4, TR7 TR9
2	**Reduction in the number of systems** We are recommending the consolidation of our Procurement Systems (Banner, TEM, PCard, iBuy, etc) to reduce the number of issues encountered due to multiple interpretations of the data housed within each system. While this could all be routed to a central data warehouse, the additional complexities of multiple systems adds to the confusion and difficulties for the creation of accurate and consistent reports.	Technology	Long term	C4, R1, R4, T2, T3, TR3, TR7
3	**Centralized reporting resources**	Resources	Short term	All

Number	Describe Potential Solutions	Category	Implementation Level	Related Issue(s)
	We recommend the creation of a centralized reporting group with regard to Procurement Services data for the University System to act as knowledge base for all University System reporting teams. The consolidation of knowledge of various current reporting departments (AITS, Decision Support, various University reporting groups, etc), and which data sources are used by those groups (REPTPROD, EDW, etc), would reduce inconsistencies in reporting across the System, as the centralized structure would assist in information sharing and knowledge transfer within the University System. It would also provide greater assistance to the stakeholders across the University System as any data needs related to Procurement Services could be addressed by the central unit. This would enhance the interpretation of the data, and provide better consistency of the output.			
4	**Publicize the individuals/units that create reports** We recommend the creation and publication that informs Users as which Procurement resources are available for assistance in creating reports. This will reduce the issues encountered by Users in the knowledge of who can assist when they have reporting requests for which they are unfamiliar, and greatly enhance the consistency of reports created across the University system**.**	Communications	Short term	R4, TR9
5	**Develop a template and define & manage workflow within service desk for requesting data/reports** We recommend the evaluation of the current "Reporting and Data Analytics Request Form, combined with the use of a "Service Desk" ticketing system to track and monitor requests. This template would assist Users when creating a report request, and would prompt the User in providing all necessary information that is to be included in the report. This would be needed when the requesting department does not have access to or knowledge of where the data is located, or when there is a unique reporting need that is not addressed with a current standard report.	Technology	Short term	C1, C2, C7, R4, TR8, TR9
6	**Enhance the EDW to include additional data**	Technology	Short term	P1

Number	Describe Potential Solutions	Category	Implementation Level	Related Issue(s)
	We recommend a working group for the analysis of the Enterprise Data Warehouse (EDW) as it relates to Procurement Services. This group would determine additional data elements that should be included in the EDW, and an analysis of the location of all procurement data across all the various University System systems. This working group would include representatives from Procurement Services, AITS, Purchasing at each University, and selected University department Users.			
7	**Workflow in new system(s)** We recommend the inclusion of workflow capabilities in any new Procurement System that is chosen for the University System. This will reduce the number of reports currently required to manage the work done within those current systems, such as TEM, Banner, etc.	Technology	Long term	T2, T3

Chapter 16: Solutions Prioritization Matrix

The recommendation for improvements were reviewed and the potential solutions were prioritized by the Director Council. The below matrix contains the potential solutions for short term implementation and each ranked score.

Solution Prioritization Matrix: **Data Analytics and Metrics**

Describe Potential Solutions		Ease of Implementation: 1 (very difficult) - 5 (very easy) Avg of attribute from each participant)	Permanence of the Solution: 1 (temporary) - 5 (permanent) Avg of attribute from each participant)	Impact of the Solution: 1 (low) - 5 (high) Avg of attribute from each participant)	Cost of the Solution: 1 (high) - 5 (low) Avg of attribute from each participant)	Total Score (Average of The total product from each participant):	Ranking
Create list of reports that can be self-generated vs. requested	Documentation and training	3.3	2.2	3.5	3.5	107.1	2
Centralized reporting resources	Communications/ Policy/Training	1.9	3.6	3.7	2.5	82.2	4
Publicize the individuals/units that create reports	Documentation	2.9	1.9	2.2	2.5	54	5
Develop a template and workflow for requesting data/reports	Documentation/Technology	3.1	3.7	3	3.4	133.8	1
Enhance the EDW to include additional data	Technology/Training	2.5	3.7	3.7	2.8	96.6	3

Chapter 17: Future State SIPOC Diagram

Process Name	Date
19.0 Data Analytics and Metrics	September 2017

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
Who provides input to the process	***What*** goes into the process	***How*** the inputs are transformed to outputs	***What*** comes out of the process	***Who*** received the outputs of the process
University System department Procurement Services Office of Procurement Diversity Strategic Procurement	FOIA Request Legislator Request Grant/Contract Request State Report Requirements Fed Report Requirements Performance Matrix Services Staff	Identify needs to extract data Determine data elements to use Extract Data Scrub Data Create Report (data is extracted, readable, and sortable)	Data file Reports Explanation of data results	University System department Procurement Services

Chapter 18: Future State Requirements

This is a comprehensive list of functional requirements and technical requirements for the future state of the Data Analytics and Metrics process. Excluded from this list are any requirements for functionality outside of the scope of this specific process, such as security, accessibility, etc, which will be handled in a different process.

Ability to:

- Access reporting for everyday users – canned & automated reports used & accessed by all University system users that run analytical and spend reports
- Be able to modify canned reports with additional data without vendor assistance or additional costs
- Have access to the data through common query tools (TOAD, SQL, ODBC connections, etc)
- Track and request ad-hoc and standard reports
- Complete and understandable Entity Relationship Diagram and data dictionary
- Standard report repository
- Secure interface to send out reports (FTP client access, PEAR integration, etc)
- Be able to request and route a request for a report or data directly from within the system
- Built-in coding/integrity checks to prevent errant or inaccurate input (note: outside of scope of this process but include as a requirement as part of the RFP, ex. Commodity codes in Banner)
- Run output reports in different formats and file types (Microsoft Office, PDF, etc)
- Mask and unmask sensitive data
- Create or run real-time reports
- Convert existing reporting formats into the new system (ex. Converting Eddie reports into new system)
- Intuitive guidance for Users to advise as to the database field name for on-screen items (help tag or wizard for each field)

Chapter 19: Subject Matter Expert Team

The following individuals participated on the Subject Matter Expert Team of the BPI Data Analytics and Metrics project:

Name	University/Department	Title
Amanda Hemming	UIUC/AITS	Application Specialist
Darren Strater	UIUC/Payables	Associate Director
Frank Alexander	UIUC/Payables	Asst. Director
Jeremiah Yokley	UIUC/Strategic Procurement	Sr Entr Src Data Anlys Coord
Kevin Warner	UIUC/Academic Affairs	Coord Fisc Plng & Bdgt VP
Megan Wells	UIUC Purchasing	Business Admin Associate
Michael Allen Wellens	UIUC/Fine & Applied Arts Admin	Dir of Bdgt & Rsrsc Plng
Michael LaPointe	UIUC/AITS	Asst Dir Bus Intelligence
Michael Nevill	UIUC/AITS	Asst Dir TAM
Mona Marie Knight	UIUC/Prairie Research Institute	Asst Dir For Administration
Ruth Rios	UIC Purchasing	Asst. Director of Purchasing
Samantha Bynum	UIC/Administration	Business Administrative Associate

Chapter 20: University Focus Group Participants

The following list of individuals participated in a University Focus Group meeting either during the current state and/or the future state of the BPI Data Analytics and Metrics project.

Name	University
Carla Gini	UIC
Carla Ross	UIC
Diana Marchan	UIC
Emily Volk	UIUC
Jerry Myers	UIUC
Maureen Sorensen	UIUC
Myra Sully	UIUC

Appendix A: Business Glossary