The Successful Launch of a Data Governance Regime

CIRPA Annual Conference, Toronto, October 2017

Brian Christie – Associate Vice-President, Resource Planning
Keith Fortowsky – Director, Institutional Research and Data Governance Officer
Office of Resource Planning, University of Regina

University of Regina

Brian Christie

Associate Vice-President, Resource Planning
Chair of Data Governance Council
University of Regina

- Degrees in Math & Physics and Economics, University of Toronto
- Studied Computer Science in days of Fortran IV and punch cards
- Began career as faculty member (Money & Banking)
- Associate Member, Johnson-Shoyama Graduate School of Public Policy and Dept of Economics, U of R
- Consulting: strategic planning, business intelligence
- Office of Resource Planning (ORP): institutional research; budgeting, financial planning and government financial relations; and strategic planning support (7 people)

Keith Fortowsky

Director of Institutional Research
Data Governance Officer
University of Regina

- B.A. Economics, University of Saskatchewan (1984)
- M.Sc. Applied Economics, University of Minnesota (2004)
- Some PhD research in Policy Analysis at TU Delft – studying "innovation commons"; connecting specializations to co-create emergent value.
- "data geek"
- Began career with 15+ years in Saskatchewan Ministry of Transportation as Freight Logistics Economist – tracking freight flows was my intro to data, and measuring and modelling supply chains was my intro to complex systems.
- U Regina Institutional Research since 2004

University of Regina

- Small comprehensive university principally located in Regina and Saskatoon, SK
- 15,300 students
- Total budgeted expenditures, 2017-18 (all funds): $331 million
- Programs in Arts, Science, Education, Business, Engineering, Kinesiology & Health Studies, Media, Art & Performance, Social Work, Nursing, and Public Policy
- Known especially for Petroleum Engineering, Clinical Psychology, Subatomic Physics, Data Mining, …
- THE Top 150 Young University, 2016 & 2017

Today's Presentation

- What is data governance and why do it
- Components of data governance: preparation, structure, tools, people, policies, plans
- Proof of concept: retention dashboard
- Why we have launched successfully

idata
Data Management for Higher Education

data cookbook

Solving the hardest part of reporting: Adoption

Pragmatic Data Governance

Webinar #4

Three Aspects of Data Governance

Technology

1. IT Tools for Data Management
   ex MDM (Master Data Management)
   > **Central IT driven**

Processes

2. Organizational Policies and Processes
   (todays U Regina example)
   > Central management driven

People

3. Workforce Enablement
   (knowledge focussed; “transformational”)
   > Driven by ??

Greater Value from *Formal* Data Governance

"All organizations already govern data. They may do it informally, sometimes inefficiently, often ineffectively, but they already govern data. And they all can do it better."

"Organizations can get more value from their data by moving from informal to formal data governance practices."

Robert S. Seiner, *Non-Invasive Data Governance: The Path of Least Resistance and Greatest Success*, Technics Publications, 2014

idata
Data Management
for Higher Education

EDUCAUSE

Issue #6: Data Management and Governance

"Improving the management of institutional data through data standards, integration, protection, and governance"

What is Data Governance?

- Data Governance is the activity that, through a combination of people, processes, and technologies, ensures that an organization is able to maximize the benefits of its data assets.
- The main objective of a Data Governance program is to improve the efficiency and effectiveness of the business processes throughout the organization as the result of the effective management and provision of data.
- Data Governance is about knowing that your data are performing. It is the framework that ensures all the data pieces and stakeholders are in place and aligned.
- Focus on data that informs (information)

Data Governance for the University of Regina

Data Governance is the glue that binds Data Strategy and Data Management together

Its aims:

- That data performance reflects the organization's expectations,
- That the expectations are well-defined and are aligned to the organization's strategy,
- That the right people, reference materials, plans, and tools are in place to define how to handle the data,
- That the decision-making process includes the appropriate stakeholders such as data users and custodians,
- That the stakeholders are equipped with the right reference material to make decisions, and
- That the organization makes better decisions, achieves better outcomes.

What is Data Governance?

idata
Data Management
for Higher Education

Data Governance

Governing What?

- Data Definitions
- Specs - Reports/Extracts
- Data Requests
- Data Inventory and Lineage
- Data Quality
- Data Access
- Data Security

Content

What is Governance?

- Stewardship
- Standard, controlled and understood Processes
- Agreed-upon and consistent information
- Adoption, buy-in, and use of information

Stewardship

Processes

Completeness

Adoption

The data-enabled organization | benefits of data governance

When data becomes an organizational asset, rather than being a liability, it “powers” the institution.

Transparency

Informed decisions

Improved operational efficiencies and reduced risks

Reduced system costs

Single source of the truth

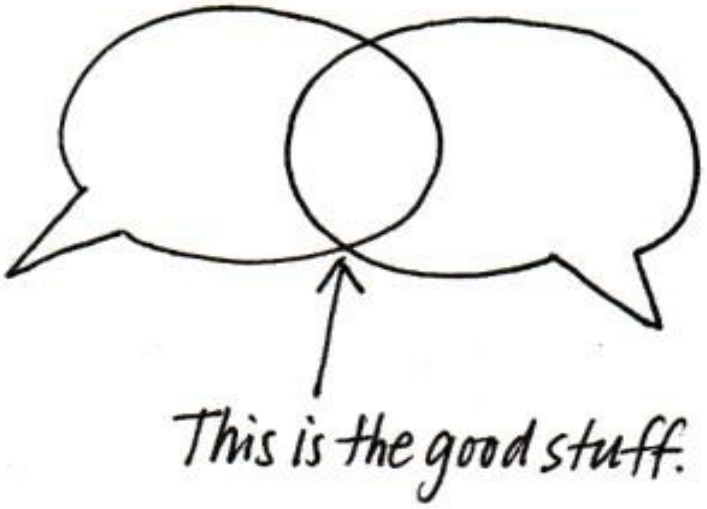
Trusted results

10 Steps for Building Trust in your Data

idata
Data Management
for Higher Education

1. Data requests should be a conversation

- Ask more questions of each other.
- Place importance on the purpose of each report.
- Ask “Why” not “What”



The Data Governance Project

Data Governance Working Group (began 2014)

Faculty of Graduate Studies and Research – Dean

Faculty of Engineering and Applied Science – Dean

Faculty of Business Administration – Dean

Faculty of Arts – Dean (first year)

Academic and Research – AVP

Student Services – Registrar

University Governance – Executive Director

Institutional Research (RP) – Director

Information Services (IS) – AVP

Information Services – Director

Sponsors: AVPs, RP and IS

Consultants: Deloitte

The Data Governance Project

24 months preparing to evolve the U of R from an information consumer organization to a data-enabled organization

- Identifying the information needs of the multiple stakeholder groups to fulfil their day-to-day roles with more than 50 interviews
- Refining an information model that will satisfy the majority of the stakeholders' information needs
- Identifying necessary tools
- Documenting the 6 basic data governance processes and associated policies:

Data definition

Data collection

Data processing or data request

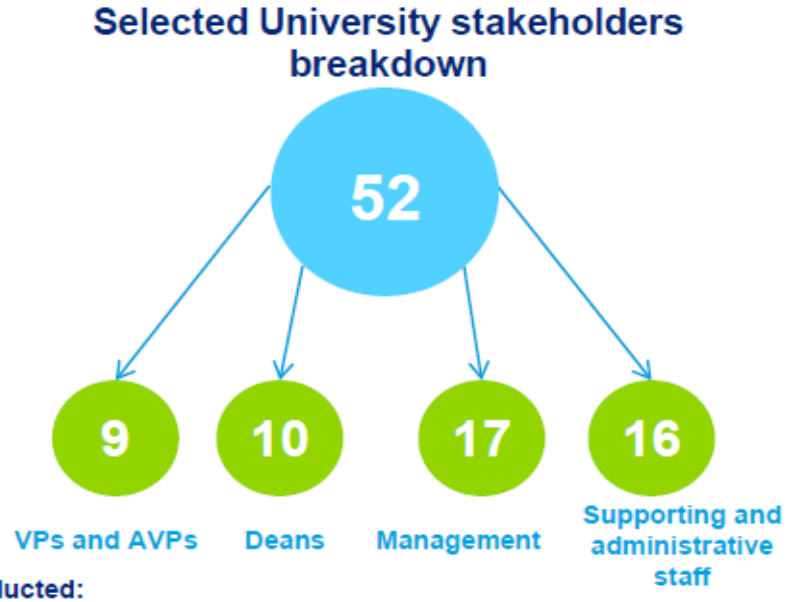
Data storage

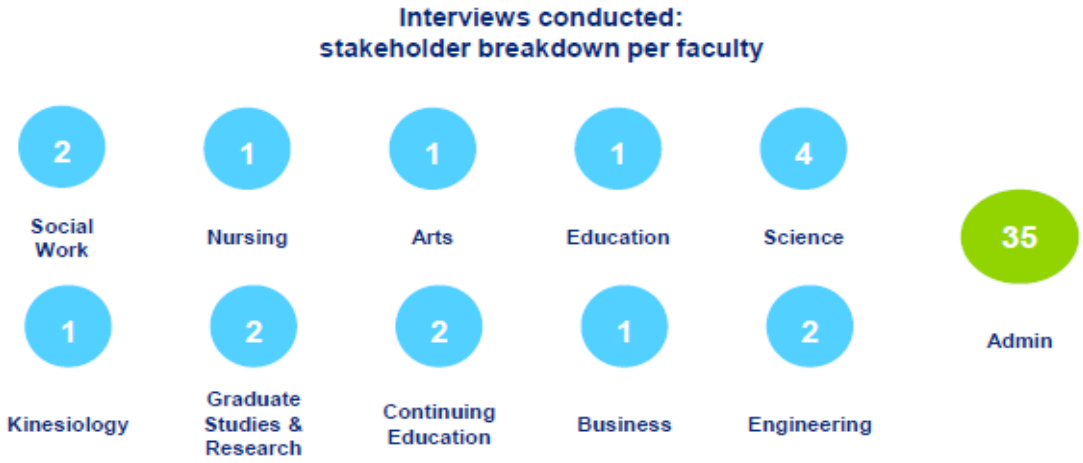
Data access

Data quality

Stakeholders from across the entire organizational landscape built a complete picture of the University's reporting needs

25 interviews with 52 stakeholders





The technology enabler | Cognos Analytics (IBM)

The University followed an RFP process to select the technology solution which best meets the University's requirements.

Newcomp Analytics = vendor and installation/start-up consultant

Defined requirements (business and technical)

Issued RFP

Evaluated vendor responses

Conducted demonstrations using University specific data

Identified preferred solution (Cognos) based on evaluation criteria

Conducted Proof of Concept leveraging Cognos

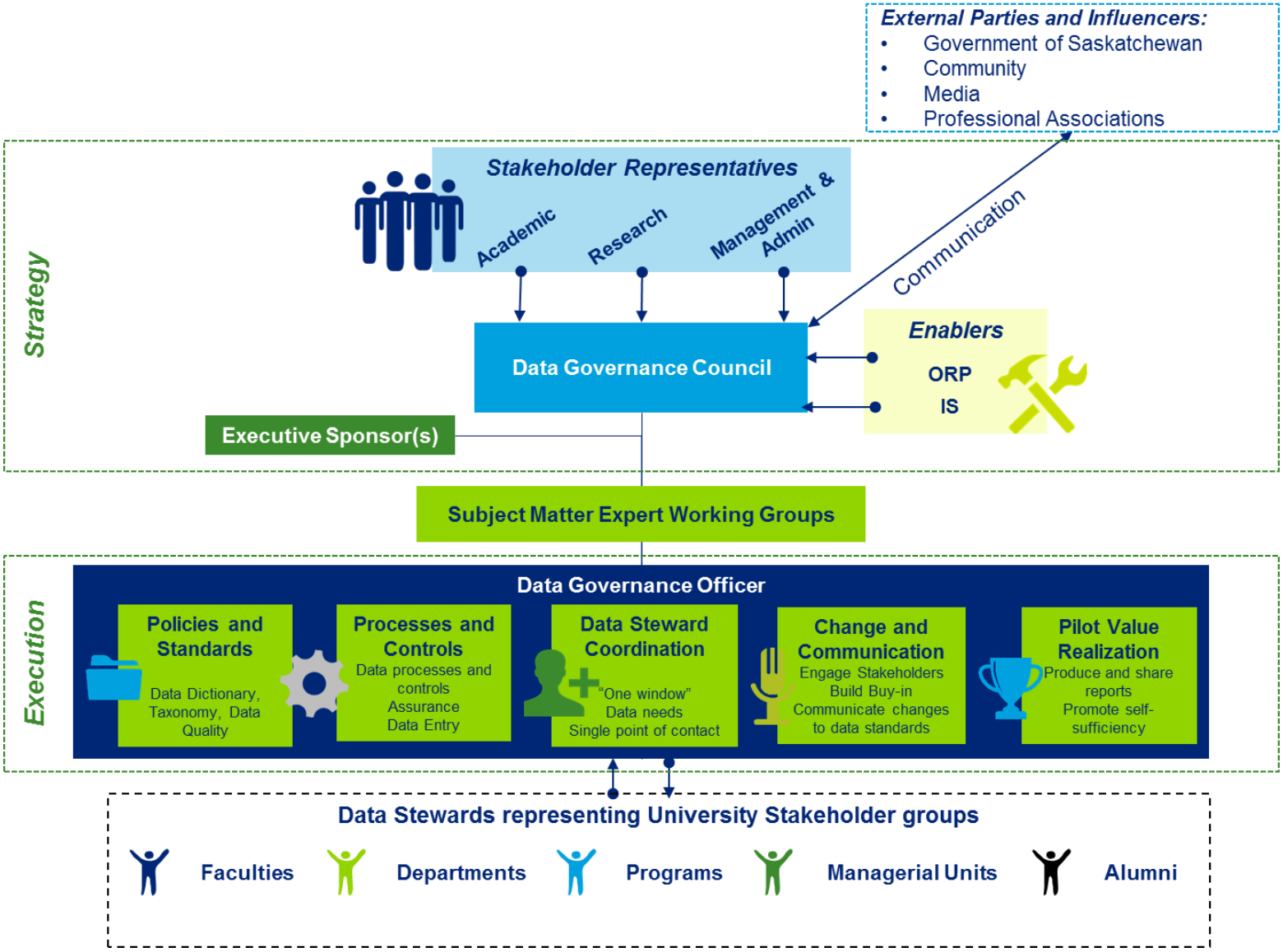
The Tools

- Cognos Analytics 11 – reporting tool, dashboards
- IBM InfoSphere DataStage – ETL: extract, transform and load
- Data Cookbook – metadata documentation
- Team Dynamix – project management

Data Cookbook New Relevant Features

- Custom workflow for definition and report specification approvals and information requests
- Custom additional attribute fields for specifications
- Quality rules - creation and approvals
- Reference data (valid value lists) - creation and approvals
- Quality issues - users can report quality issues on their own or in relation to a quality rule, definition, or specification
- Quality assessments - users can document tests of quality rules and see visual indications of the quality of the rule or definition
- Data system inventory and technical metadata
- Collections - documentation of a related group of specifications (e.g. annual fact book or dashboard)
- Impact analysis - identifies potential impact on other items of changing a definition or specification

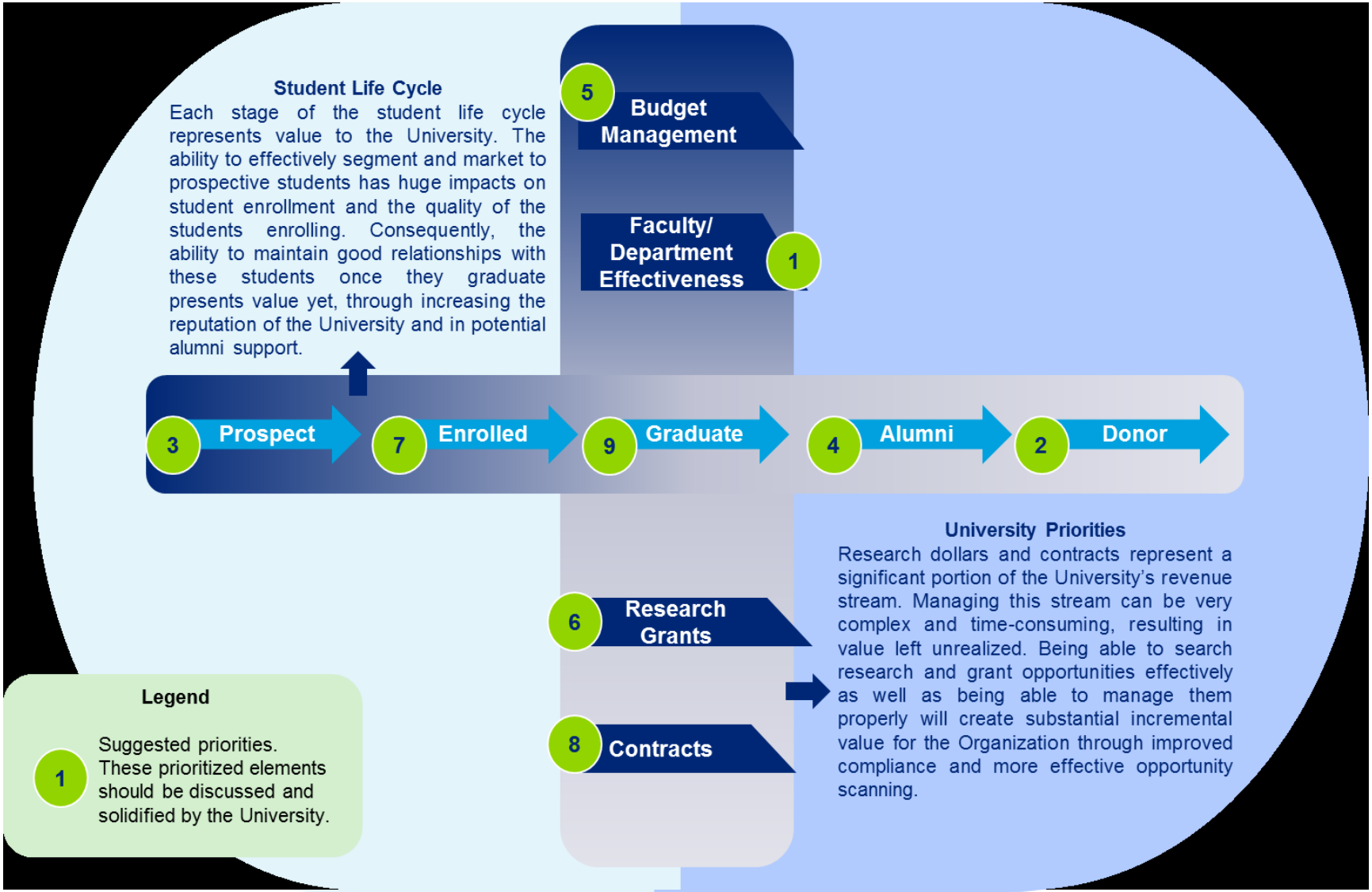
Data Governance structure | elemental



DATA GOVERNANCE COUNCIL (DGC)

- The DGC is accountable for effective oversight and control of all data within the University administrative data systems architecture (primarily Banner enterprise applications) and for making these data readily available for organizational decision-making. The DGC produces recommendations and policy on how data governance and data quality can be improved to better enable the achievement of the University's strategic goals. The DGC develops priorities and monitors progress towards this end.
- The DGC also oversees implementation of the University's new data reporting and data warehousing (DW) technologies: IBM Cognos and IBM DataStage. The Data Governance Officer reports to the DGC and is responsible to recommend and lead actions on behalf of the DGC, including day to day implementation of the Cognos and DataStage platforms.
- The current mandate of the Data Governance Council encompasses data located in the databases of centralized university applications. This mandate does not include unstructured information and records like electronic files stored on the University network, emails, or paper-based records. This mandate also does not include datasets collected or produced through faculty research, other than administrative data related to research activities and staffing at the University.

The data-enabled U of R | an analytical model



Proof of Concept

- The Data Governance project tested the basic Data Governance processes through a pilot dashboard.
- The pilot was a *student retention* dashboard.
- The pilot dashboard provides student retention insights to a Board or executive member (institutional view), a Dean or Associate dean (Faculty view), and a Student Advisor (Individual student view).
- All views used live data and employed Cognos 10 for visualization (housed at Deloitte). We are an early adopter of Cognos 11 - more “Tableau-like”.
- The Proof of Concept purposes: to demonstrate the value of Data Governance to the institution, to test the process of creating dashboards, and test/illustrate use of Cognos as the visualization tool.

Selection of the Retention PoC

- A working team engaged in a Dashboard Proof of Concept Workshop to select and design a managerial dashboard to be implemented as part of a proof of concept (PoC).
- Potential PoCs were evaluated on a combination of value and current data availability (“effort”)
- Better access to information about “Enrolled” students was the clear priority.
- Retention subject matter was selected due to high priority at the University & availability of a detailed (but hard to access and to use) dataset developed iteratively in the ORP office over several years.
- Success of Retention dashboard resulted in dropping plans for more PoC dashboards.

Next Steps

Deloitte (spring 2016): "You are ready!"

- Install Cognos on a U of R server √
- Move PoC into UR environment (underway) and refine
- Establish the Data Governance Council √
  - Membership of the working group retained
  - AVP RP appointed by Executive as chair
- Finalize Terms of Reference for the DGC √
- Designate the Data Governance Officer: Director of Institutional Research √
- Expose the learnings to a broader audience within the University √
  - support and buy-in
  - demonstrating the power of well managed data
- Select ETL product and install √

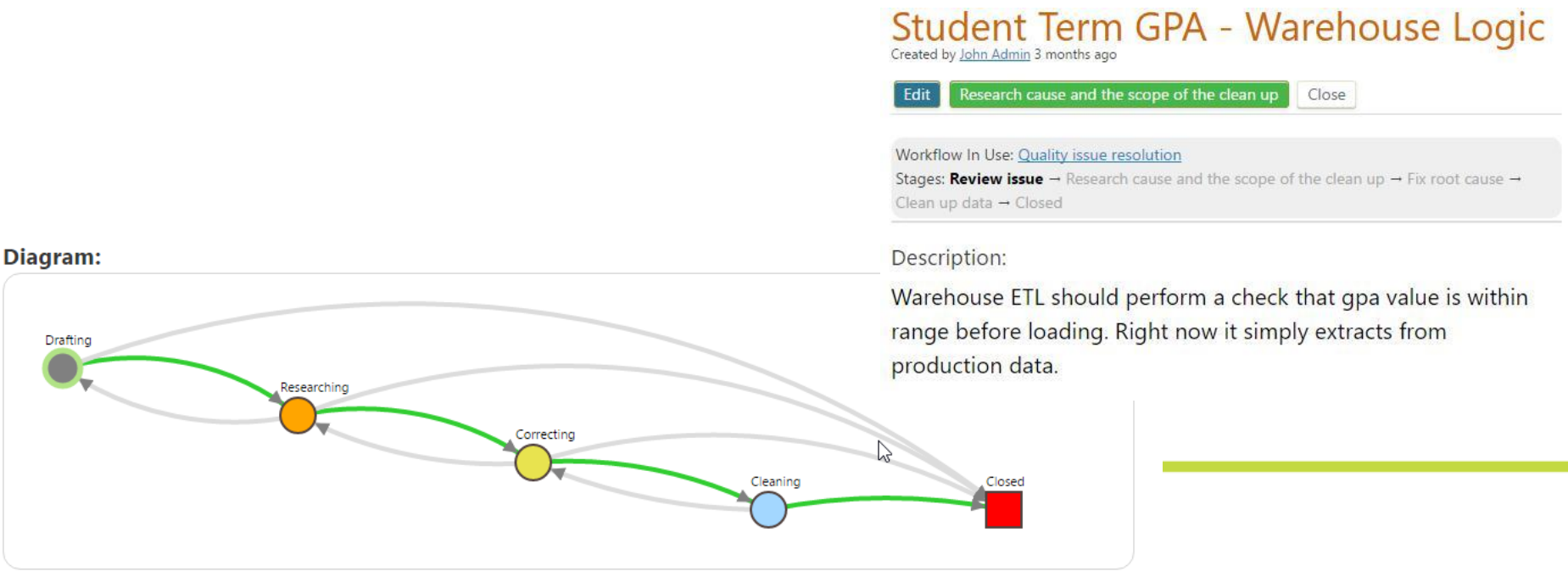
More Steps

- Finalize Data Governance policies and processes
  - Move draft material into University policy template
- Recruit additional staff: one in ORP √, two in Information Services (funded, one being recruited, two current staff being trained)
- Training on tools (underway, starting with ORP, IS, Reg Office, FGSR)
- Qualify analytics vendors √
- User Interface (Ux) design for reporting workshop: editor of Smashing Magazine (Sept 2016) √
- Develop report design standards and processes
- Select and create initial dashboards in Cognos 11 (including re-created retention dashboard, PMF)

idata
Data Management
for Higher Education

7. Create a data quality resolution process

- Give people more to do than complaining when they find a possible data quality issue.
- Don’t just apply a band-aid.



Policy Sample

Draft: Data Retention and Disposal Policy Core

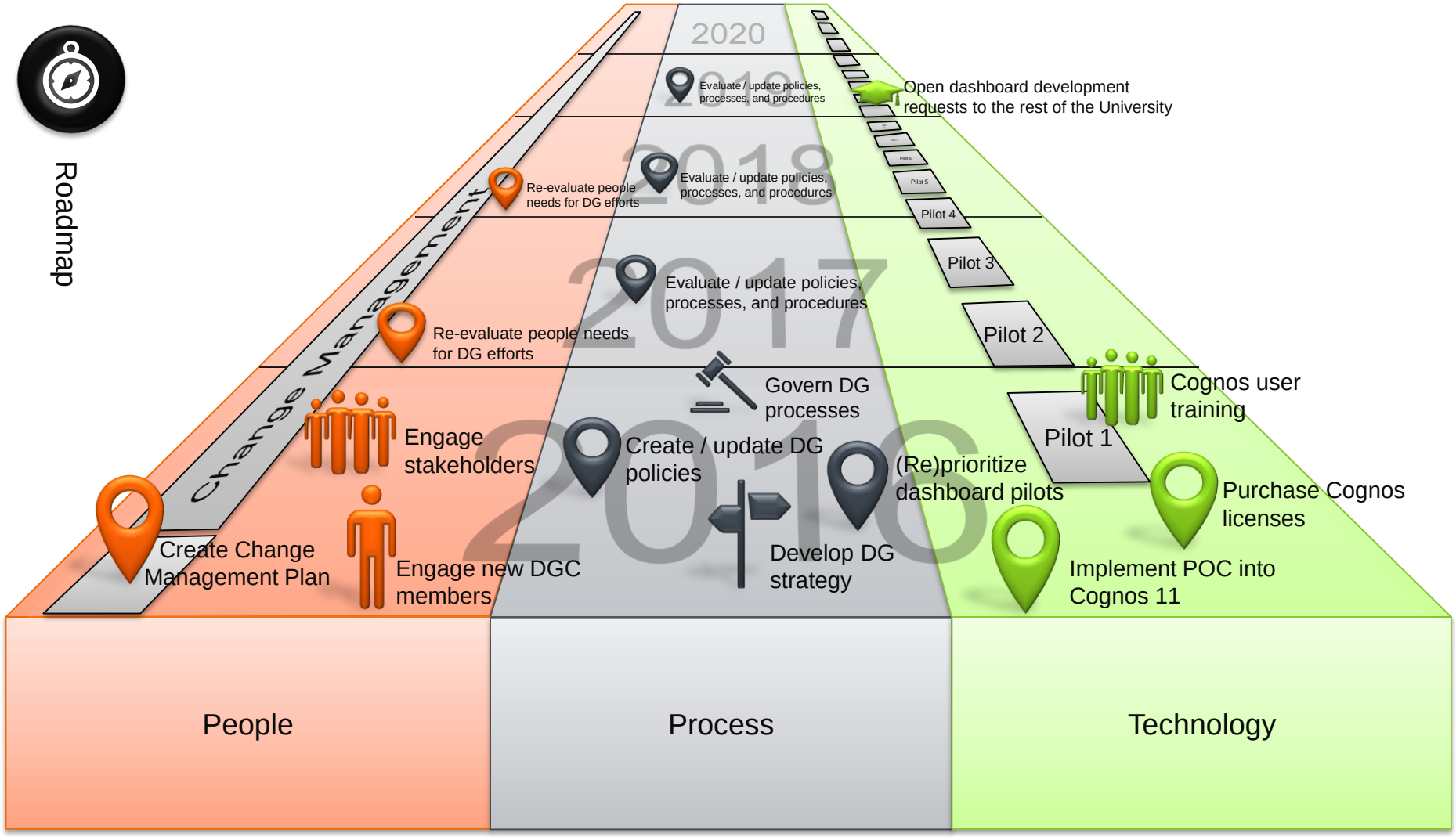
Policy Highlights

- University of Regina data residing within Cognos reports / dashboards is subject to numerous requirements for retention, storage, and disposal. The University of Regina is committed to complying with these requirements.
- A section for Cognos reports / dashboards will be added to the University's existing data retention and disposal policy
- It is the University's policy to maintain and use the data residing within Cognos in a manner that meets its strategic, tactical, and operational needs and is in compliance with all known federal, provincial, and industry requirements.
- The intention of this policy is to provide appropriate guidance to ensure that the University retains its records long enough to meet all legal requirements, has records available that are necessary to fulfill its obligations, that such records are readily available to satisfy research inquiries, and that eligible records are routinely and non-selectively disposed of in the normal course of activities.
- Premature destruction of records or excessively long retention of records, in conflict with this Policy, create the risk that the University will not fulfill its legal, regulatory, or operational obligations and is unacceptable.
- The University's Data Governance Officer will collaborate with the University Archivist to develop a Data Retention Guideline for data elements residing within Cognos reports / dashboards.

Consequences for Noncompliance

- Any University employee who does not manage records and information in accordance with this policy may be subject to disciplinary action.

Roadmap


Roadmap
Change Management
2020
2019
2018
2017
2016
Evaluate / update policies, processes, and procedures
Open dashboard development requests to the rest of the University
Re-evaluate people needs for DG efforts
Evaluate / update policies, processes, and procedures
Pilot 6
Pilot 5
Pilot 4
Pilot 3
Evaluate / update policies, processes, and procedures
Pilot 2
Re-evaluate people needs for DG efforts
Cognos user training
Govern DG processes
Pilot 1
Engage stakeholders
Create / update DG policies
(Re)prioritize dashboard pilots
Purchase Cognos licenses
Create Change Management Plan
Engage new DGC members
Develop DG strategy
Implement POC into Cognos 11
People
Process
Technology

Retention Dashboard - Splash Page

University of Regina

Student Retention Dashboards

University Retention Summary

Academic Student Summary

Academic Counseling Summary

Realize. We can all make a difference.

University Retention – Summary Dashboard

University of Regina

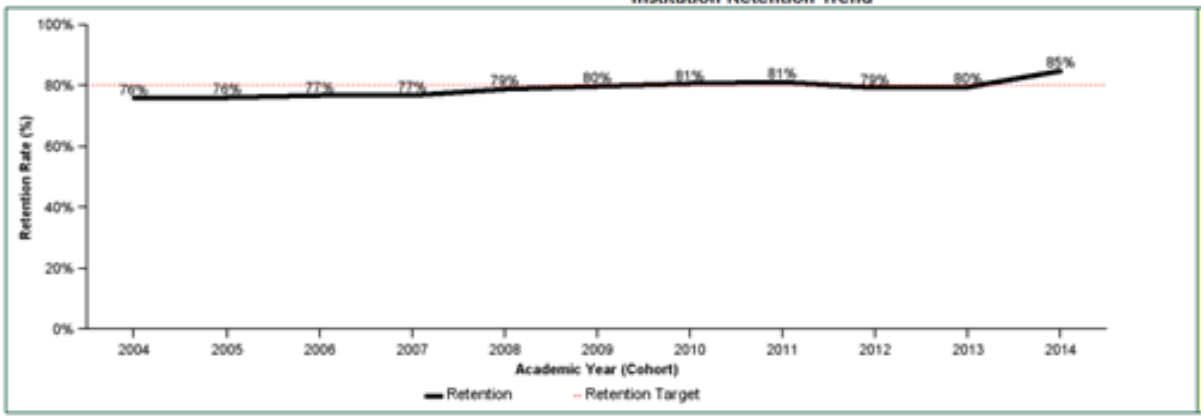
Student Retention

Select Filters

- MacLean's Retention
- All Academic Units
- All Genders
- All Students Nationalities
- All Student Origins
- All Student Credit Hours

More Analysis

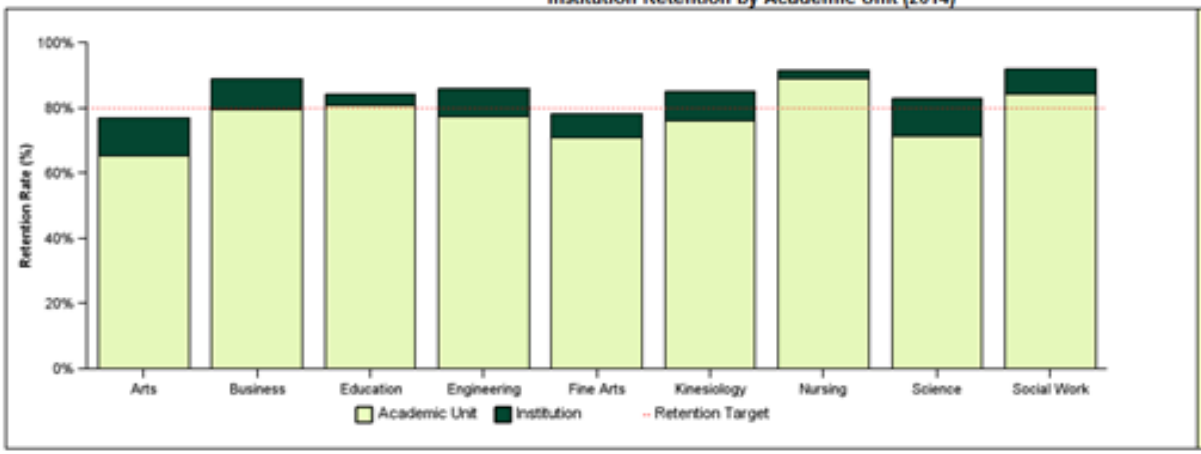
Institution Retention Trend



MacLean's Retention Definition

MacLean's measures the percentage of full-time (12 Credit hours or more), first year (undergraduate) students who return in second year (to the institution).

Institution Retention by Academic Unit (2014)



Academic Unit Retention:

An undergraduate student returns to the same academic unit in their second year of study as they did for their first year of study.

Institution Retention:

An undergraduate student returns to the University of Regina in their second year, but does not return to the same academic unit in which they began their studies.

University Retention – Summary: More Analysis Option

University of Regina

Student Retention

Display Options

- MacLean's Retention
- Total University

Select Filters

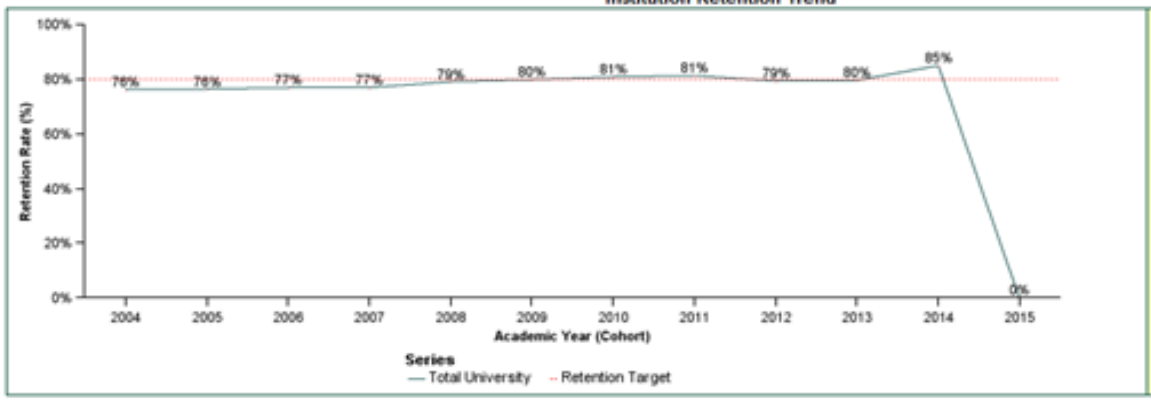
- All Genders
- All Students Nationalities
- All Student Origins
- All Student Credit Hours

Arts
Business
Continuing Education
Education
Engineering
Fine Arts
Kinesiology
Nursing
Science
Social Work
Z-00

Select all Deselect all

Finish

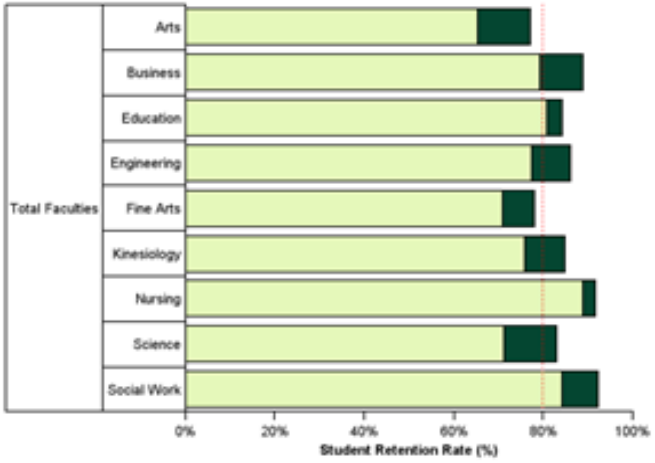
Institution Retention Trend



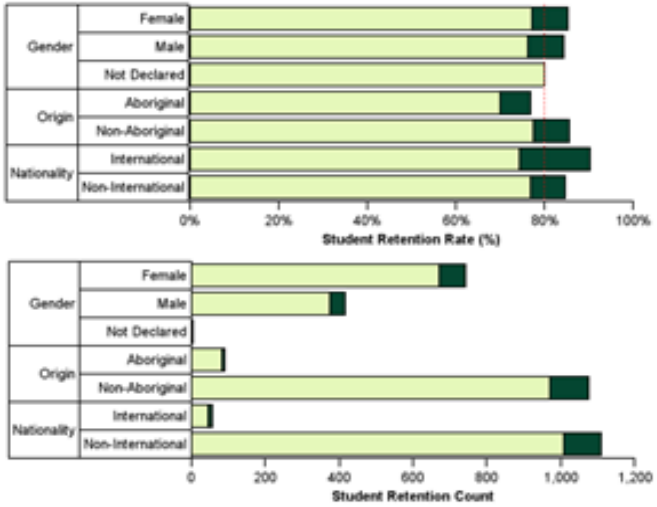
MacLean's Retention Definition

MacLean's measures the percentage of full-time (12 Credit hours or more), first year (undergraduate) students who return in second year (to the institution).

Institution Retention by Academic Unit (2014)



Student Retention Profile



Academic Student Summary

University of Regina

Analysis of Students at Risk

Display Options:

- 201530
- Display Faculties / Program
- Display Current Term Percentage

Select Filter:

- All Years Of Study
- All Faculties
- All Genders
- All Origins
- All Nationalities
- All Accomodations

More Analysis

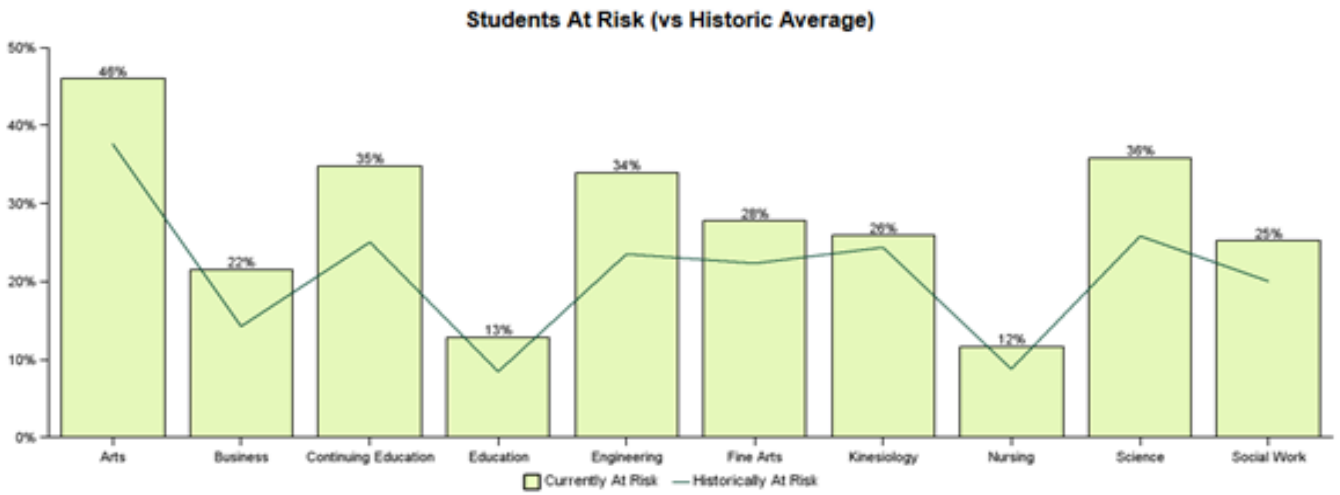
Academic Risk - Grades Distribution

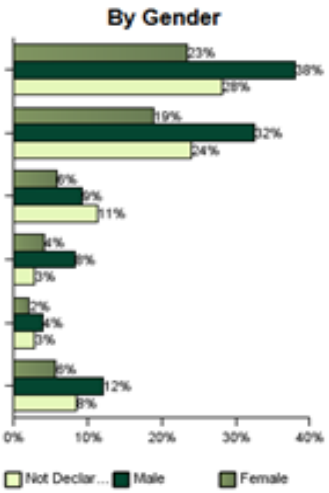
Academic Risk: Students whose UGPA (UG level) or CGPA (GR level) is less than 65% in the current term.

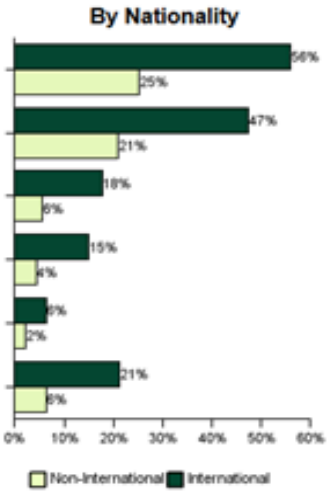
Academic Hold: Students in violation of University or Faculty Academic Standards Policies (e.g. Probation, RTD/MW, Academic Recovery Program, etc.).

Financial Hold: Students with an unfulfilled financial obligation, in excess of $500, to the university at the end of the term.

Other Hold: Students with other administrative holds, which may indicate retention risk (e.g. conditions on registration exist, disciplinary actions, etc.).







Academic Student Summary
More Analysis: Grades Distribution

University of Regina

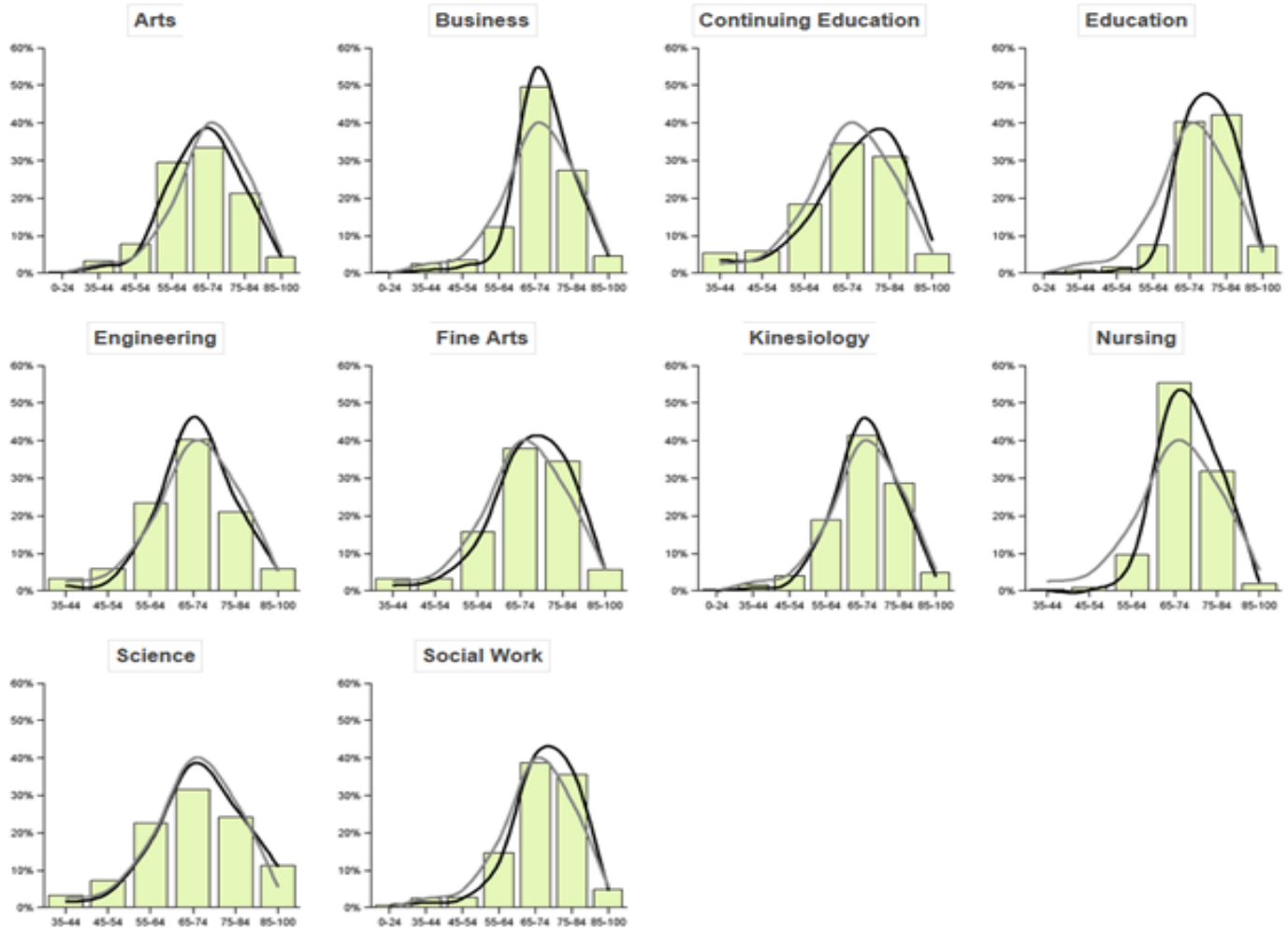
Academic Distribution

Selections:

- 201530
- All Faculties
- All Genders
- All Nationalities

Legend

- Current Term
- Historic Average
- University Average



Academic Counselling Summary

University of Regina

Academic Counseling

Display Options:

- 201530
- Display Faculties / Program
- All Risks

Select Filter:

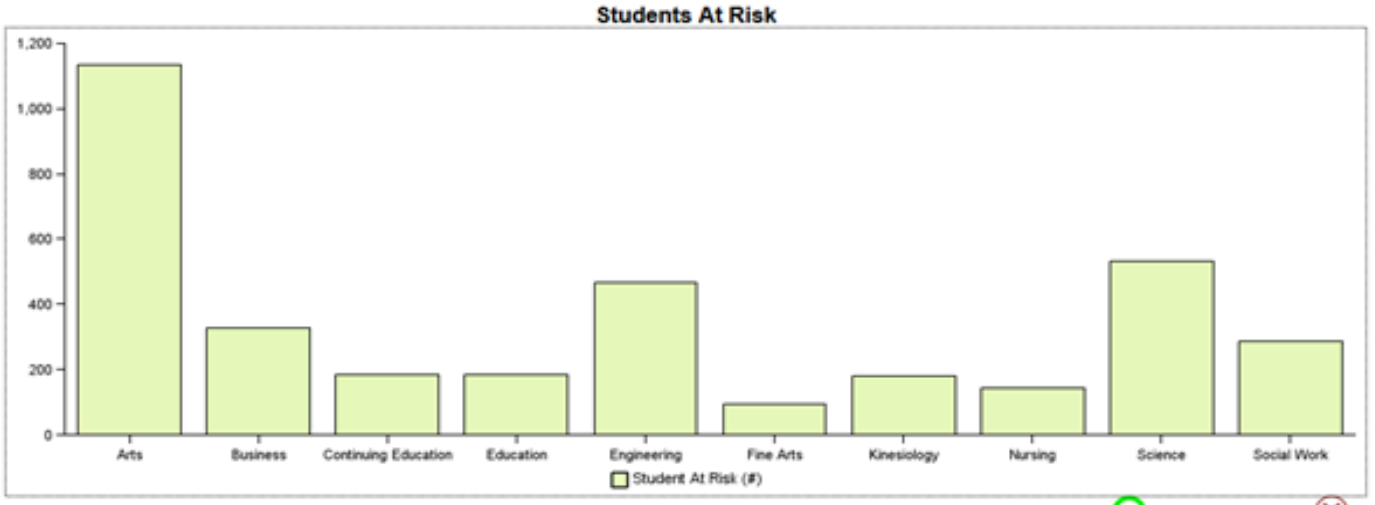
- All Years Of Study
- All Faculties
- All Genders
- All Origins
- All Nationalities
- All Accomodations

Academic Risk: Students whose UGPA (UG level) or CGPA (GR level) is less than 65% in the current term.

Academic Hold: Students in violation of University or Faculty Academic Standards Policies (e.g. Probation, RTD/MW, Academic Recovery Program, etc.).

Financial Hold: Students with an unfulfilled financial obligation, in excess of $500, to the university at the end of the term.

Other Hold: Students with other administrative holds, which may indicate retention risk (e.g. conditions on registration exist, disciplinary actions, etc.).



Not At Risk ⊗ At Risk

Faculty_Name	Student_Last_Name	Student_First_Name	Gender	Nationality	Origin	Academic Risk Status	Academic Hold Status	Financial Hold Status	Other Hold Status
Arts	Gomez	Sarah	Female	International	Aboriginal	⊗	⊗	○	○
Arts	Miller	Hadley	Female	Non-International	Aboriginal	⊗	○	⊗	○
Arts	Hill	Natalie	Female	Non-International	Aboriginal	⊗	○	○	○
Arts	Miller	Zoey	Female	Non-International	Aboriginal	⊗	○	○	⊗
Arts	Ford	Faith	Female	Non-International	Aboriginal	⊗	○	○	○
Arts	Adams	Emma	Female	Non-International	Aboriginal	⊗	⊗	○	○
Arts	Young	Annabelle	Female	Non-International	Aboriginal	⊗	○	○	○
Arts	Rodriguez	Avery	Female	Non-International	Aboriginal	⊗	○	○	○
Arts	Sanchez	Brooklyn	Female	Non-International	Aboriginal	⊗	○	○	○
Arts	Collins	Peyton	Female	Non-International	Aboriginal	⊗	⊗	○	○

Top Page up Page down Bottom

Academic Counselling Summary – Individual Student

University of Regina

SarahGomez

Note: Student information has been disguised

My Risk Factors:

At Academic Risk
50.28%

Academic Hold
No Financial Hold
No Other Hold

My Contact Details:

123 Easy Street
Regina, SK
S4N 2Z8

(999) 999-9999

Sarah.Gomez@uregina.ca

About Me:

Year 1

Arts
Liberal Arts Certificate

Female

International

Aboriginal

19 Years Old

Current Courses:

Subject Code	Course Number	Course Title	Credit Hours
BIOL	140	Biology I	3
BIOL	140	Lab L2	0
ECON	201	Introductory Microeconomics	3
ECON	202	Introductory Macroeconomics	3

Success Factors

A happy confluence of various trends and events PLUS hard work

- Pent-up demand for better management information (augmented by some new deans with experience elsewhere)
- Emergence of new tools on the market (e.g., Cognos Analytics)
- Willingness of ORP & IS to work together (talents, knowledge, experience)
- Use of consultant – development not done on side of desks
- Data foundations at U of R: views of Banner, etc.
- Interest in new Board members in dashboards, better information
- Successful proof of concept: presentation, topic, multi-level
- Little in way of incremental costs: largely used accumulated funds for one-time costs (software, training, implementation consultancy)
- Provides a coordinating vision for IR work of existing staff

Contact Information

Website for data governance at U of R

http://www.uregina.ca/orp/d-g/

Ux public lecture and workshop information

http://www.uregina.ca/orp/smashing/index.html

Brian Christie, Associate Vice-President, Resource Planning

brian.christie@uregina.ca

Keith Fortowsky, Director, Institutional Research, and Data Governance Officer

keith.fortowsky@uregina.ca

The Data Cookbook http://www.datacookbook.com/