Develop a Highly Efficient IR Office

Mānoa Institutional Research Office (MIRO)
University of Hawai‘i at Mānoa

Newsletter and Symposium

18 issues & over **1,000** newsletter subscribers

12 symposiums that document major aspects of our office's work

An Efficient IR Office

3 full-time staff
2 student helpers

- **Regular IR data reporting responsibilities**
- **Many best practices and innovations**
  - website design
  - Homegrown data reporting software
  - Survey design and administration
  - Support sustainability efforts
  - Ranking information management and usage
  - Qualitative data analysis and dissemination
  - Effective data education and communication efforts
- **Acknowledgements in the IR field**

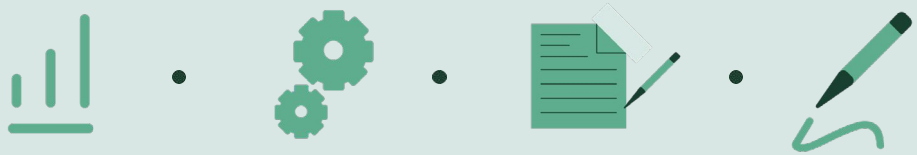
Overview

Reduce repetitive work and **inefficient communication**.
Automate data preparation, reporting, & communication efforts

1. Address major IR Bottleneck Issues

2. Key decisions: develop homegrown data reporting tools vs. using Tableau

3. Helpful skills & tools to improve efficiency



Yang Zhang

Director of Institutional Research

Bryson Kalani McFeeley

IT Specialist

Diego Yip

Multimedia Specialist

Kelly Jung-ts Lin

Institutional Research Analyst

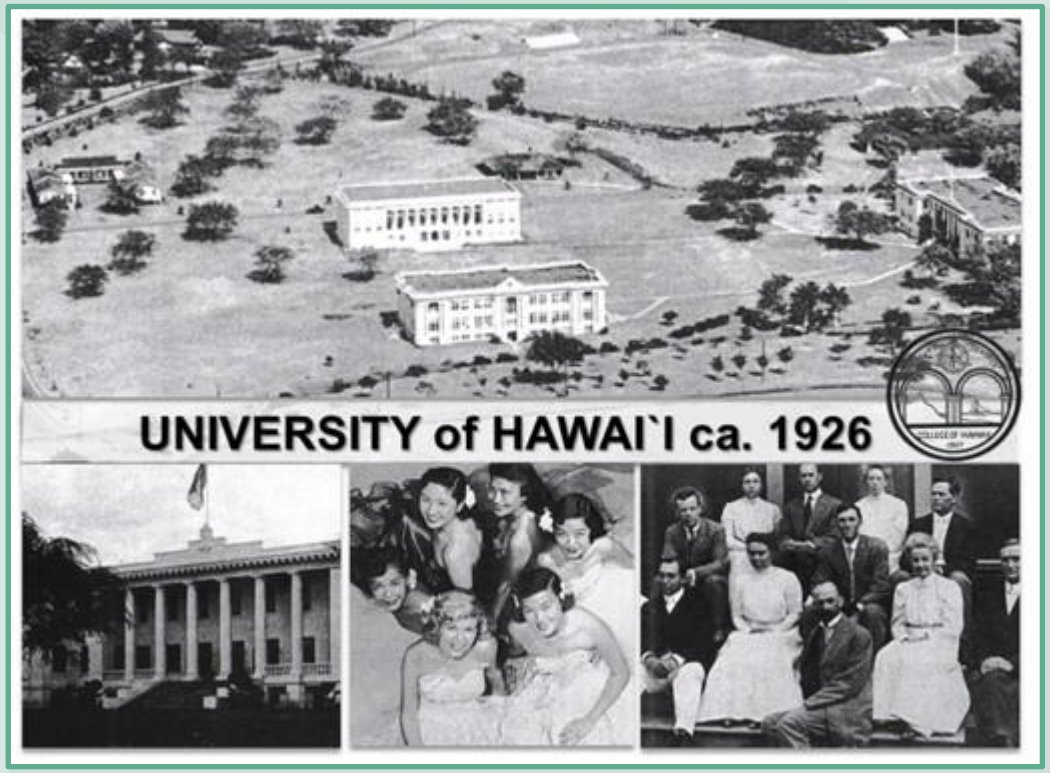
Karese Kaw-uh

Graduate Assistant

Location


Kaua'i Community College
University of Hawai'i-West O'ahu
Windward Community College
University of Hawai'i at Mānoa
Leeward Community College
Honolulu Community College
Kapi'olani Community College
Maui College
University of Hawai'i at Hilo
Hawai'i Community College
UNIVERSITY of HAWAI'I SYSTEM

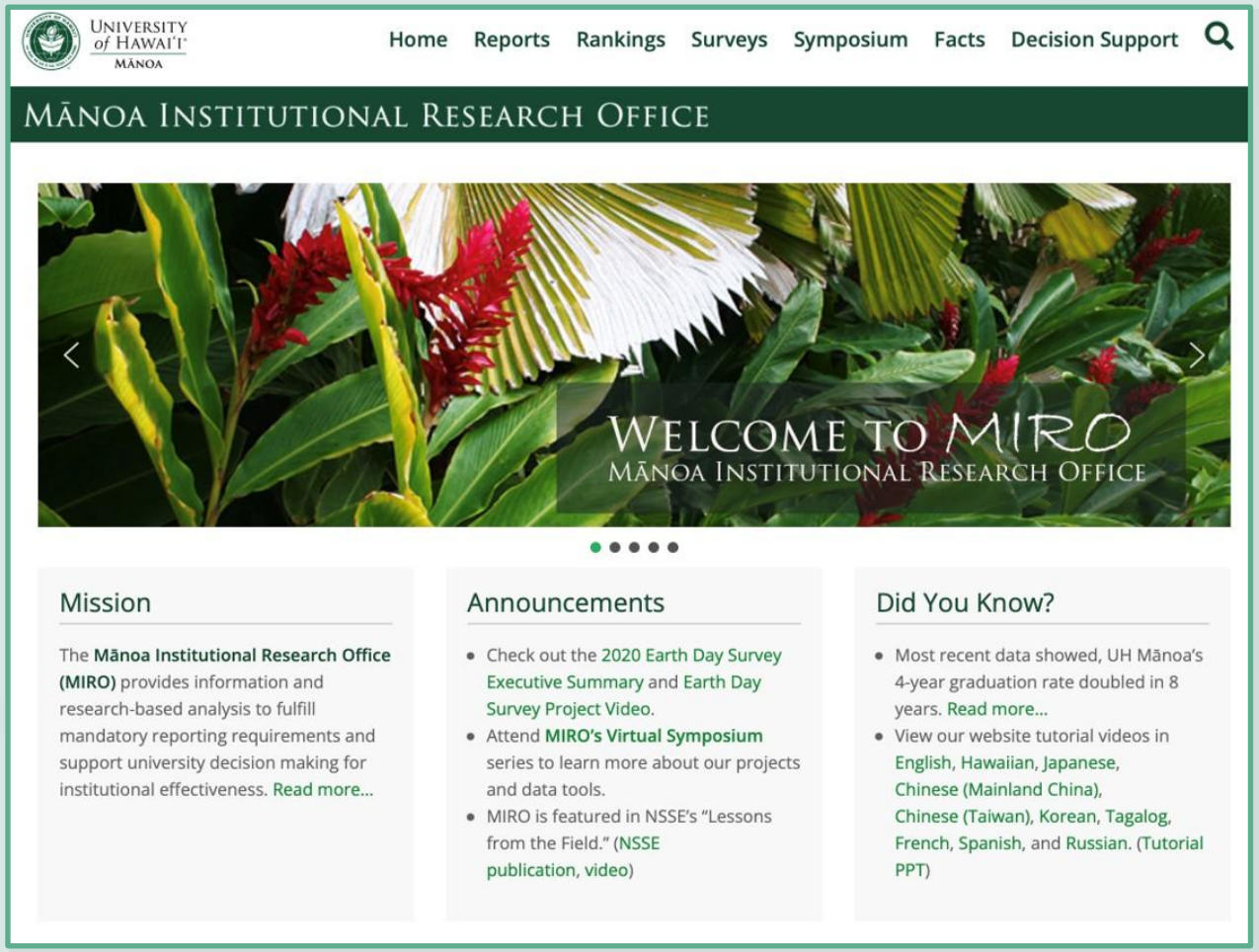
Flagship Campus of the University of Hawai‘i System



UHM in past

UHM now

Mānoa Institutional Research Office (MIRO)



- Preparing internal & external reports
- Supporting accreditation & program review's data needs
- Conducting surveys
- Addressing data inquiries from campus decision makers & general public

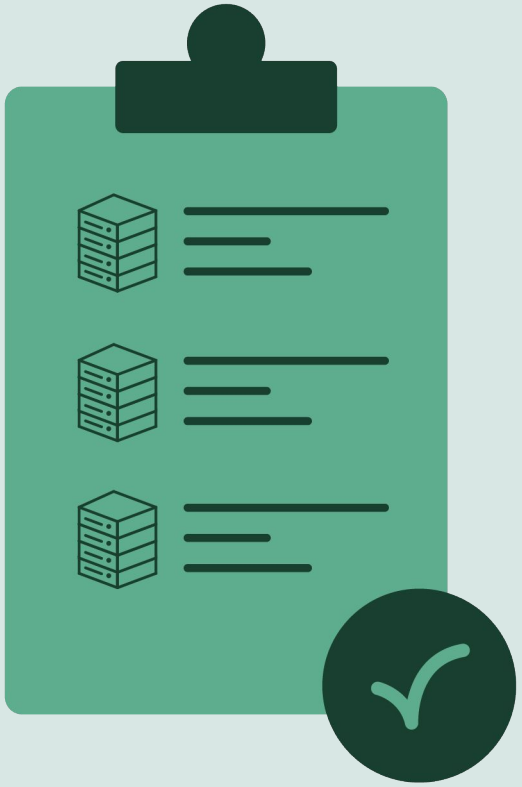
What Does Efficiency Mean to You?

Google definition: “achieve maximum productivity with minimum wasted effort or expense.”

At MIRO, we consider efficiency as:

- How efficient we can fulfill our data reporting responsibilities
- How effectively we can improve **data accessibility**; provide more **actionable data**; and promote a campuswide **data-informed decision culture**

Laundry List Approach



Processes data
requests one at a time

Repetitive work causes:

- Negotiations about priorities
- Stress & burnout
- A hierarchical data support system

Not sustainable & not productive

Systematic Thinking

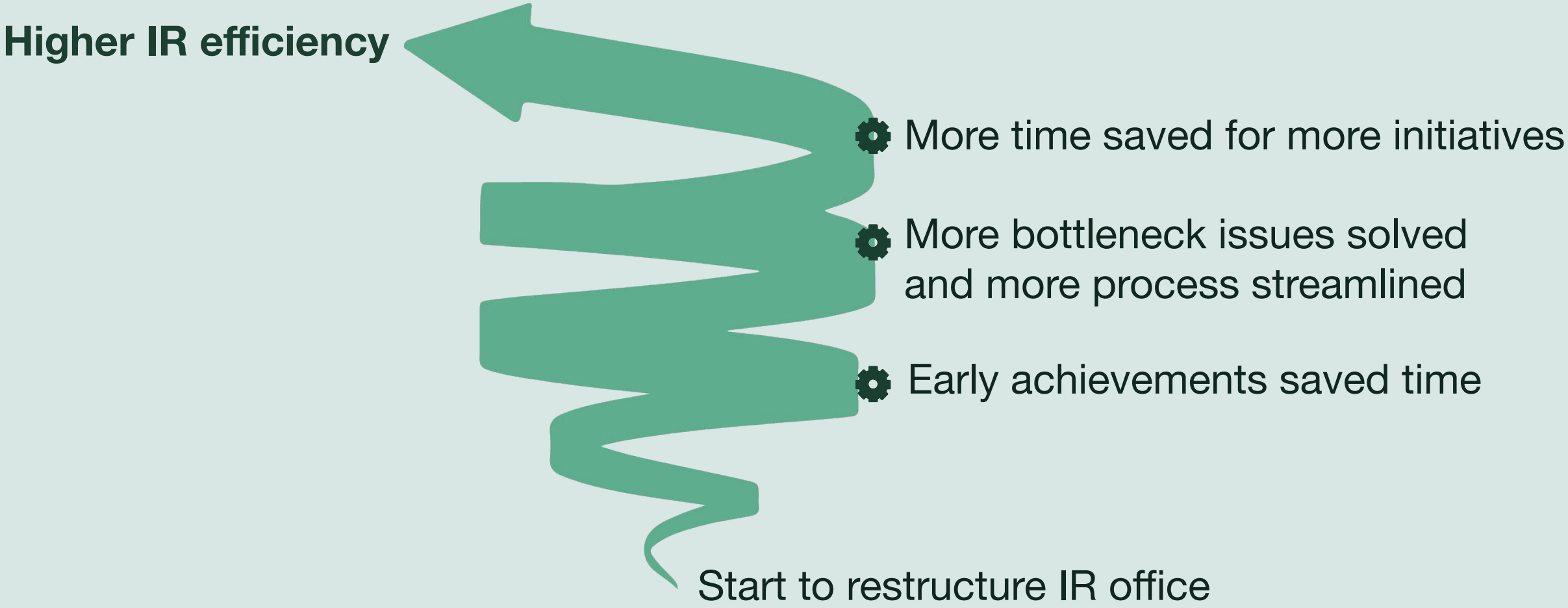
- **80/20 rule:** Roughly 80% of consequences come from 20% of the causes.

- **“System-thinking” mindset:** systematically address IR bottleneck issues and provides consistent and standardized data support to a large audience.

Prepare to Address Bottleneck Issues

- Visit offices to identify their data needs
- Data accessibility as common data challenge
- Rewrite mission statement and create short/long term goals
- Gain buy-in for office restructuring work for efficiency.

An Upward Spiral



IR Bottleneck Issue 1: Data Methods

It **occurs** when they are not clearly defined or well documented

Often **results** in a lot of guessing & attempts to match number reported in the past

MIRO's Approach: Clarify Data Definition and Calculation

Glossary

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Index of Acronyms

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AIR Association of Institutional Research

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FTE Full-time Equivalent

SSH Student Semester Hour

CIP Classification of Instructional Programs

GPA Grade Point Average

NSSE National Survey of Student Engagement

- **Industry** data knowledge:
  - IPEDS and Common Data Set
- **Local** data knowledge:
  - How data is defined and structured in the **university's** database
  - How data is collected and processed by **different** offices
- Collaborate with data users and colleagues who have local data knowledge to create new data calculation methods.

MIRO's Approach: Organize & Document Data Methods

Externally: Use MIRO office website & decision support system

Internally: Use Confluence & Bitbucket

Confluence

BitBucket

IR Bottleneck Issue 2: Data Extraction & Preparation

It **occurs** when data is not readily prepared for reporting

Results in repetitive work in data extraction and preparation before IR can conduct any analysis

MIRO’s Approach: IR’s Solution

Download & transform data to meet reporting needs using SPSS and Excel

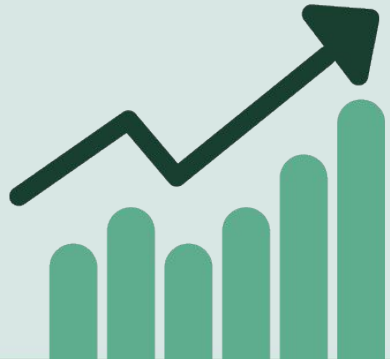
Helpful but not enough

Need to go beyond the typical IR analysis skills and include IT programming and computing

MIRO's Approach: IT solution

- Created an in-house IT specialist position
- Use Programming to transform work processes and "scale up" IR production

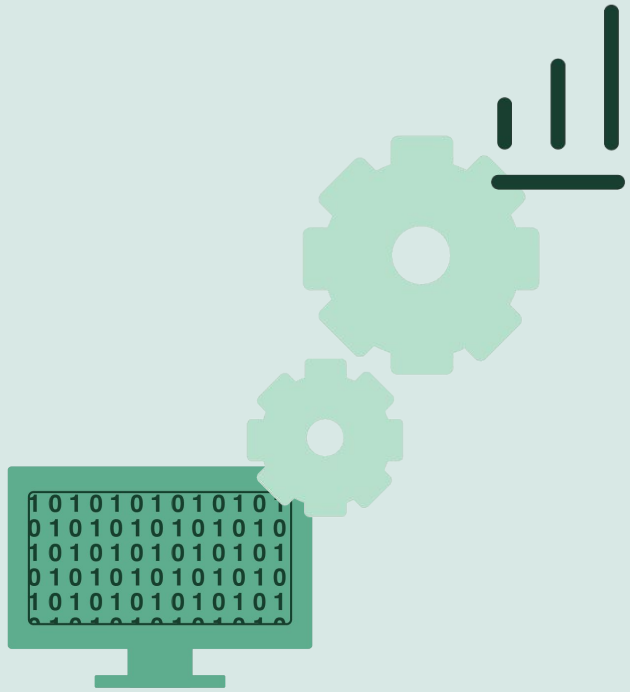
Scaling up



MIRO's Approach: Linking IR & IT

- Benefits of having an in-house IT specialist
  - prioritize IR office's needs
  - gain IR data knowledge to help advance IR's work

- IR/IT collaboration

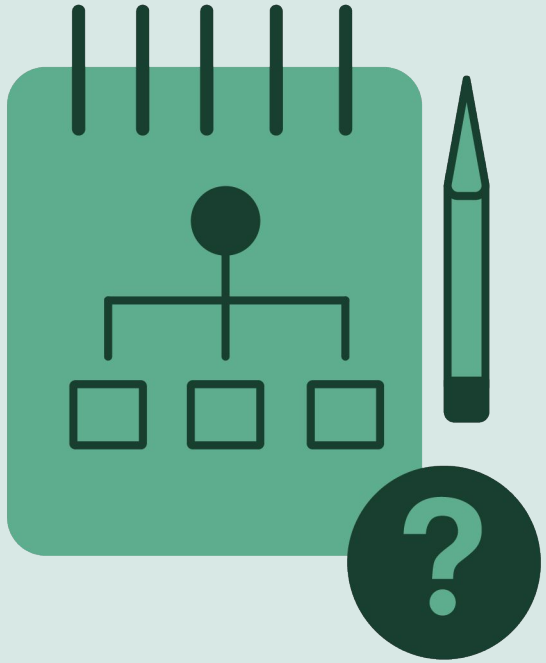


Kelly Lin

Institutional Research Analyst

8 years at MIRO

Challenges For IR



Use different software

- Time-consuming

- Easy to have errors

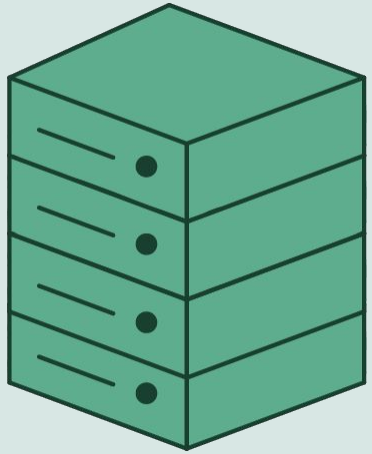
- Hard to identify and fix errors

Getting Started

- Witnessed the power of programming

- Start with a simple SQL query from the IT specialist

- Use free SQL online resources



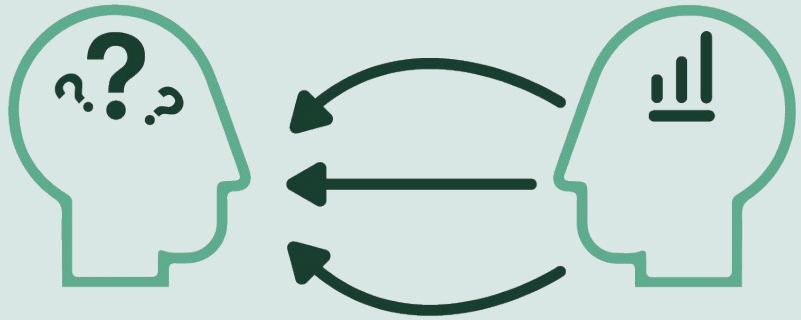
Structured Query Language, SQL

Learn More Complex Queries

- Learn more complex queries from IT specialist

- Building up programming knowledge from **real-life cases**

- Highly motivated in learning after seeing improvements at work



Taking Online Courses

- Take SQL online course at **Udemy**

- Replay the videos until fully understand the content

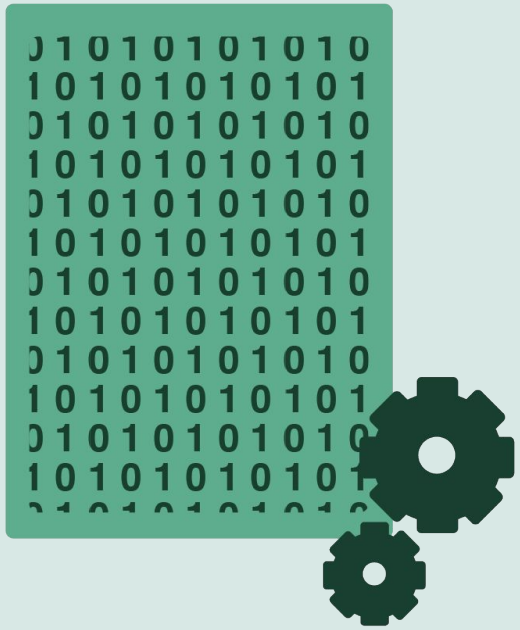
- Start to **write simple queries**

- Data validation

Applying Programming Skills in CDS Reporting

- Write SQL queries to consolidate data extracting, converting, and reporting processes

- Improve SQL queries to generate data in report ready format



Benefits of Learning Programming

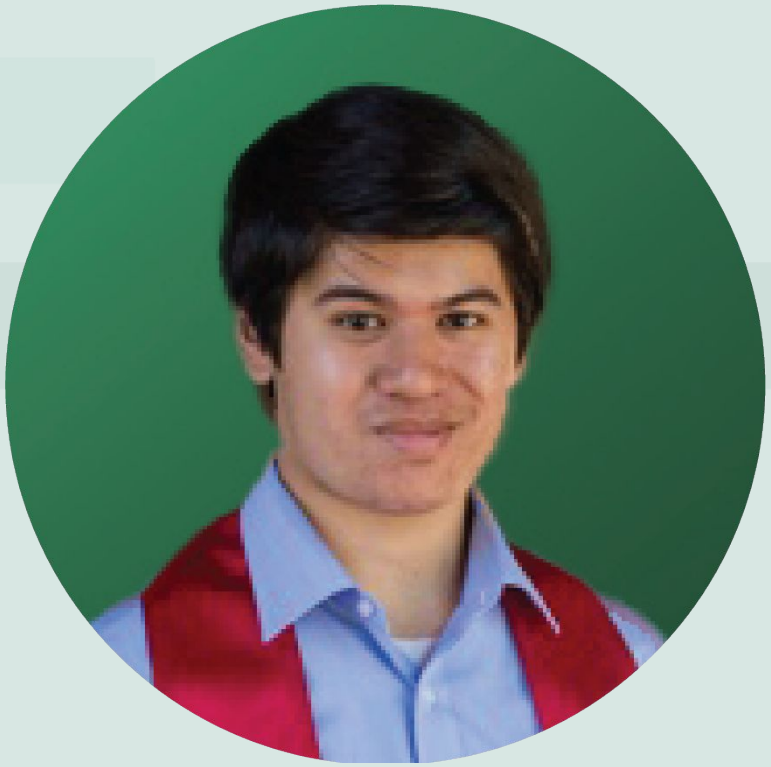
- Explain data needs more efficiently

- Understand the queries IT write

- Speak confidently and effectively about data issues

- Save time from cutting repetitive work and improve quality of work

- Capacity to learning new skills

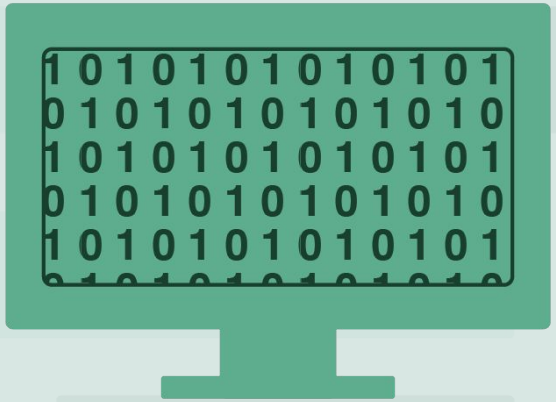


Bryson McFeeley

IT Specialist

4 years at MIRO

In-House IT Responsibilities in Data Management



- Extract data from the university's official databases of record
- Clean and transform data to better suit IR office's needs
- Address new challenges stemming from increasing size and scope of database

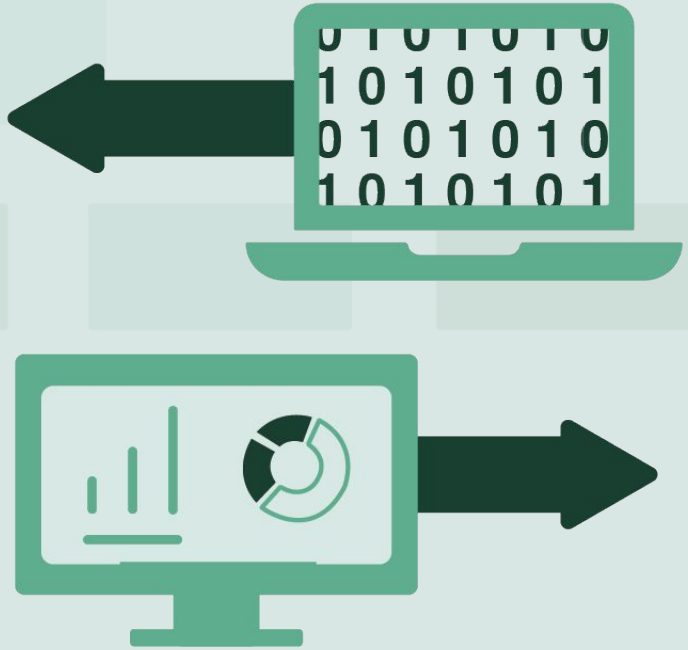
Databases Become More Complex, Requiring Greater Care

- **New data variable** brings more complexity to the database structure and data transformation process

- Some data is **constantly changing** due to the change of the program and unit reorganization

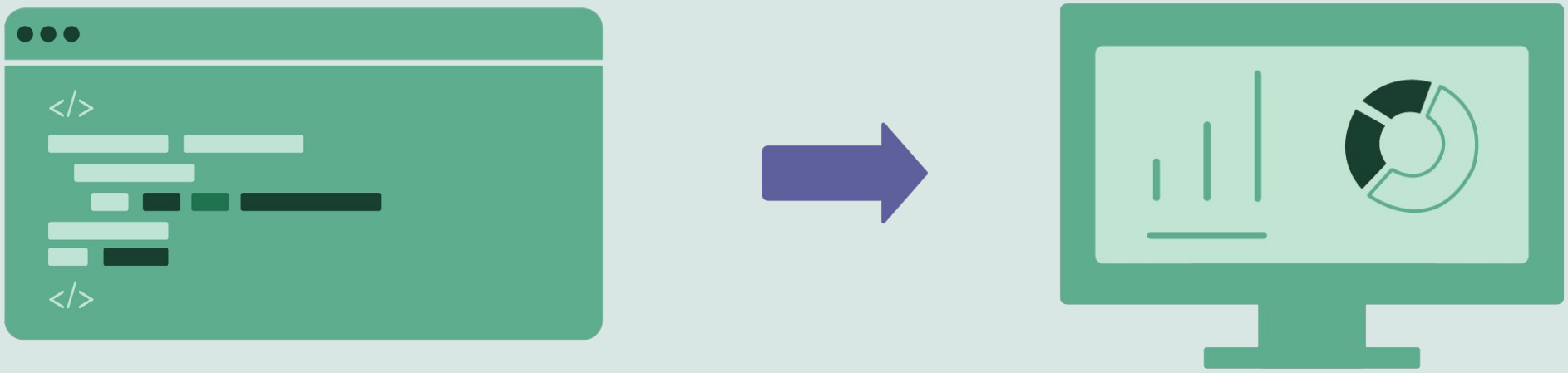
- **More complex work**, more sophisticated procedures, and higher standards for both IR and IT specialists

IR and IT Shared Knowledge



Crossover skills in programming & data analysis
increase work efficiency and improve communication

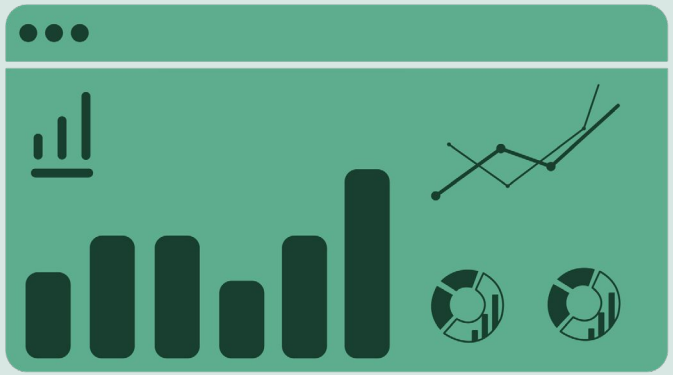
Creating Data Visualization Web Apps



- Creating data visualization web apps as a **team effort**
- Use **PHP** to process data and create web apps
- Updating existing **web apps** and creating new ones
- Rely on **data users** for continuous web app improvements

IR Bottleneck Issue 3: Data Reporting

It **occurs** when report templates are not available & repetitive formatting work is required



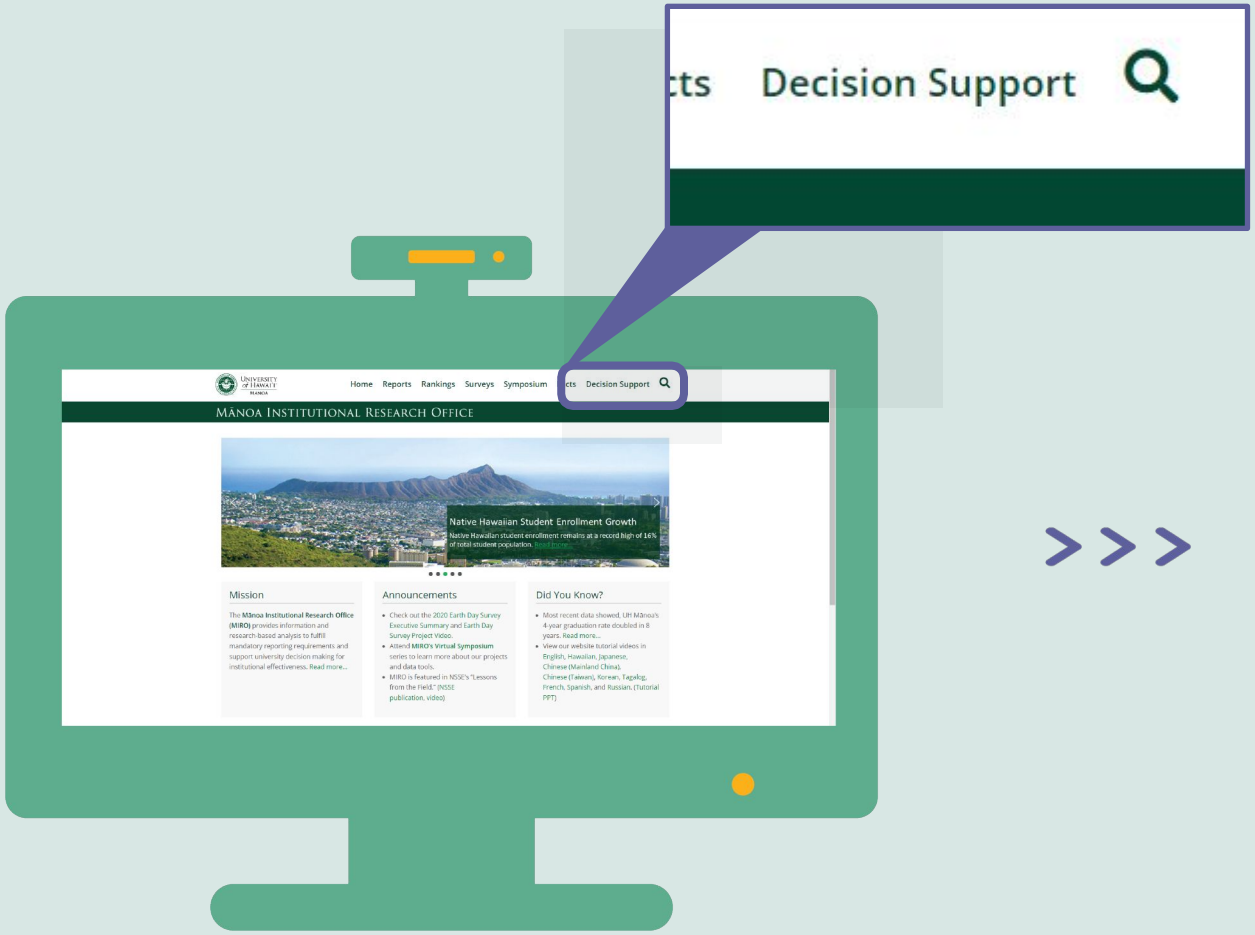
Results in repetitive & non-value added formatting work, and longer report turnaround time

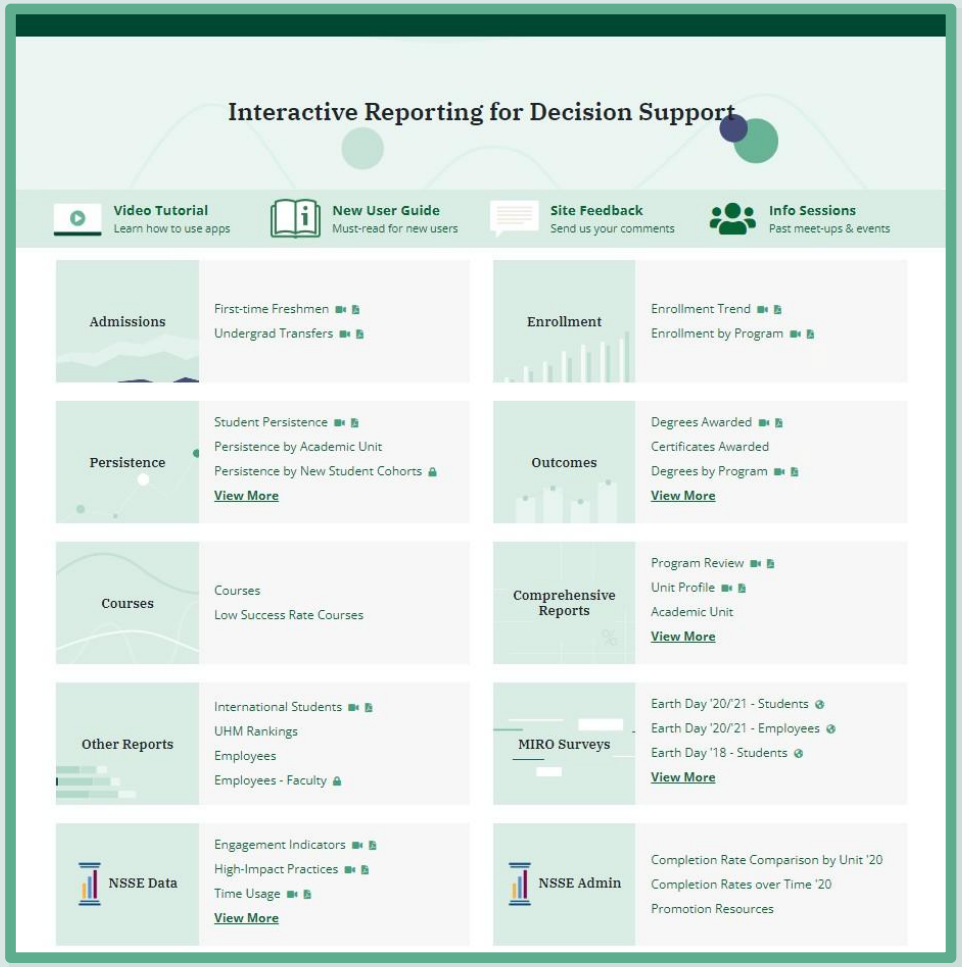
In-house IT Service vs. Commercial Software Service

Practical reason: Funding & position

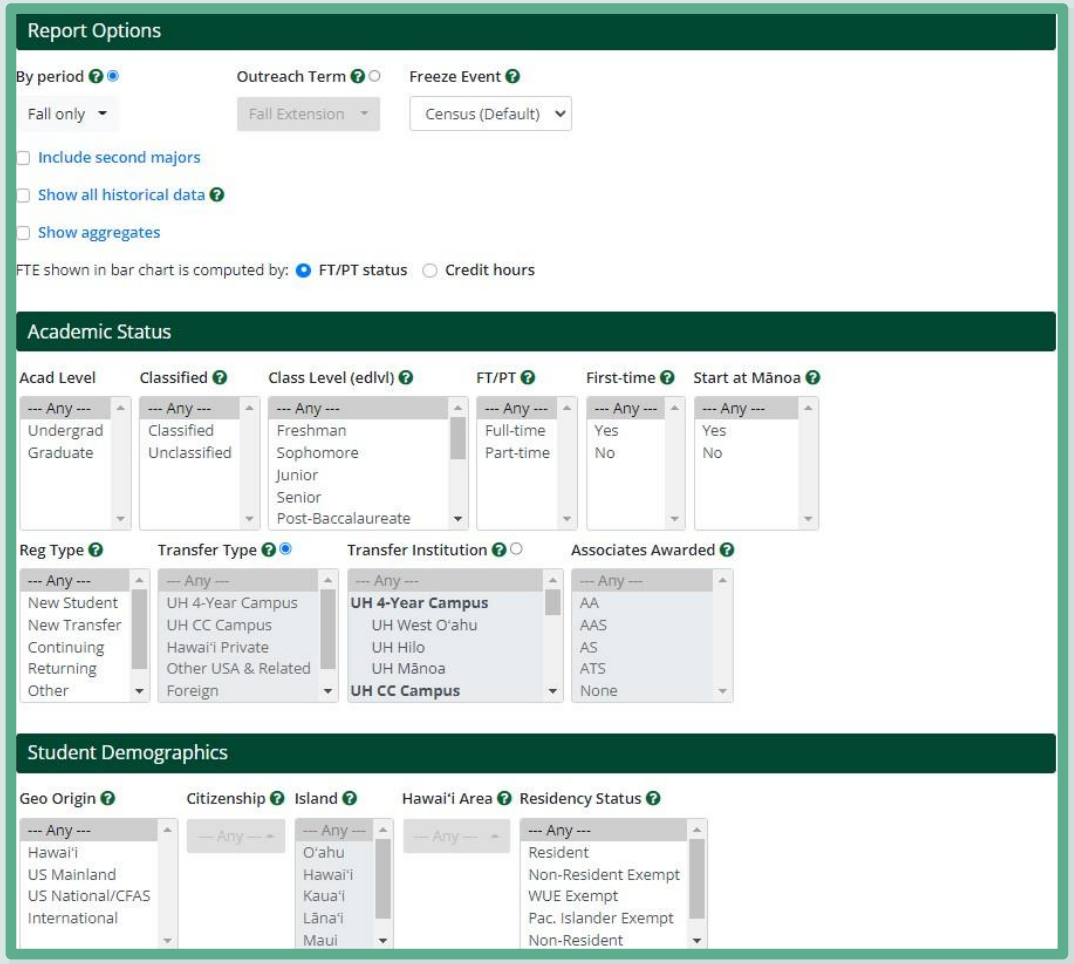
	In-house IT Specialist	Commercial software
Backend Work	Sophisticated data extraction, database management, accumulated data knowledge	Not Meant to conduct sophisticated backend data preparation work
Frontend Work	Great flexibility in adding and changing features, provide more data access	Less freedom to add features and change design

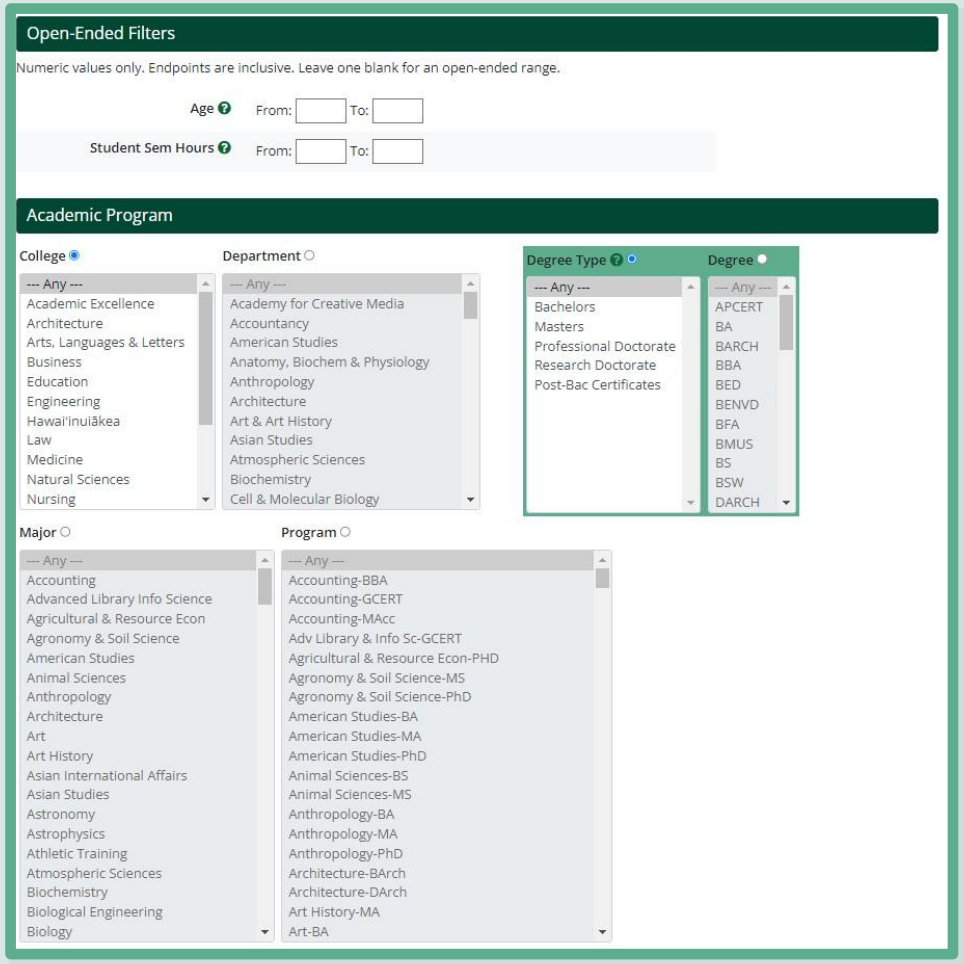
MIRO Web Apps & Decision Support System



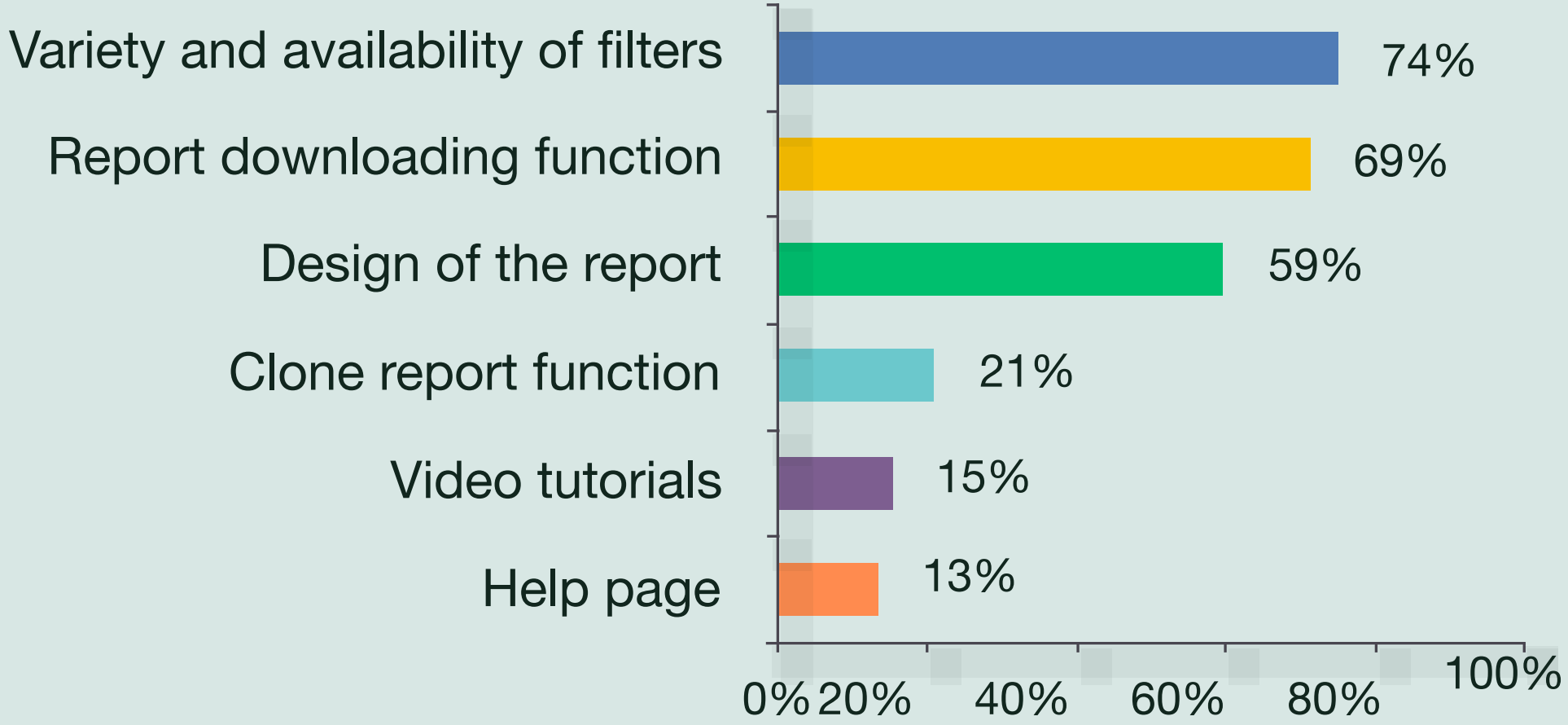


MIRO Web App Flexibility





Most Helpful Web App Features According to USERS



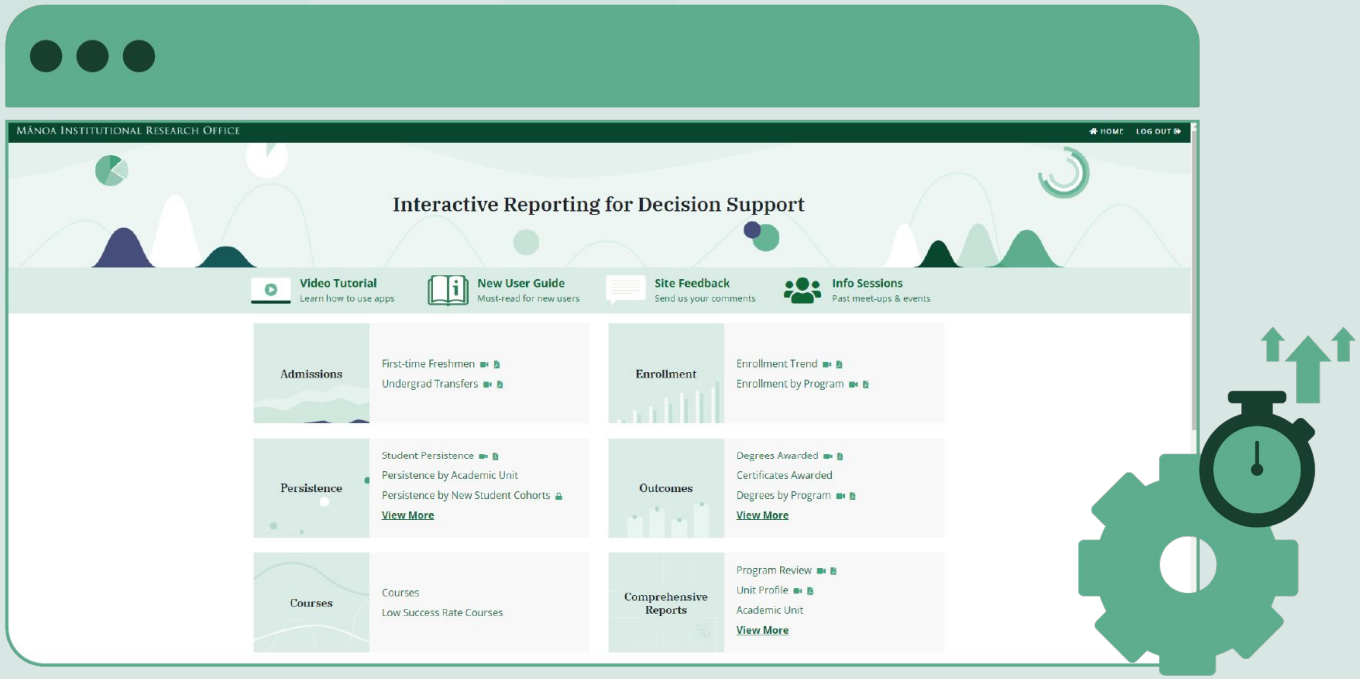
User Feedback

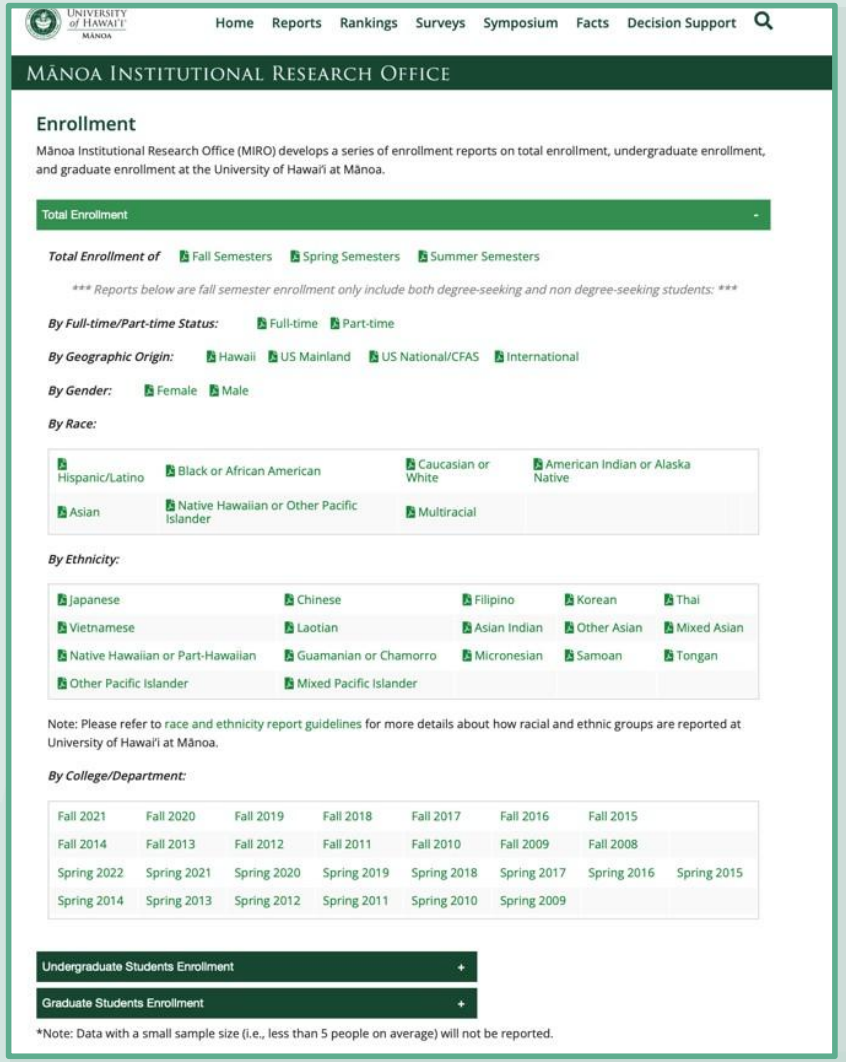
I mainly use MIRO's web apps for looking at NSSE data results and open-ended student responses.I appreciate the thoughtful presentation of the data and the ability to disaggregate data by colleges, programs, and student characteristics. I appreciate the painstaking effort of MIRO to collect and analyze qualitative data and present them in a way that is useful yet allowing the audience to make our own interpretations.

I find MIRO web apps easy to use and quick to access for urgent data that needs to be found.

Many of the departments in my college ask me for data on enrollment, persistence, and graduation broken down by gender, ethnicity, geo origin, etc. The web apps provide a stable and reproducible repository of data that generate consistent data.

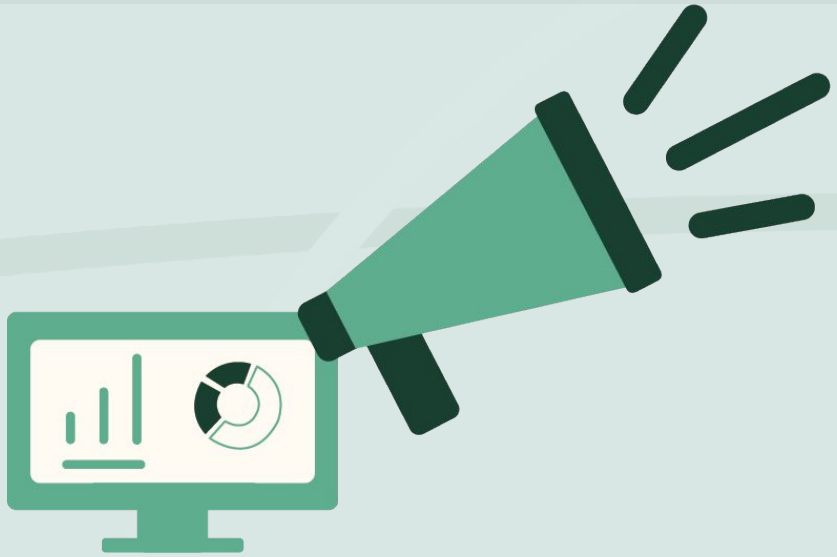
Use Our Own Web Apps for Data Reporting





IR Bottleneck Issue 4: Data Communication

It **occurs** when IR has to: 1) go back and forth with other offices in order to collect information; 2) clarify what data users need and later to help them understand data reported



Results in repetitive communication and distractions for both IR & others

Efficiently Collecting Data for CDS & External Surveys

- The **laundry list approach** generates massive amounts of email threads and cause constant distractions for both IR and other offices

- The **systematic approach** consolidates CDS and external survey questions and email communications with other offices

The streamlined process eliminates manual work and individual communication, lowers risk of human errors. and reduces distractions

Effective Communication Strategies

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NSSE National Survey of Student Engagement

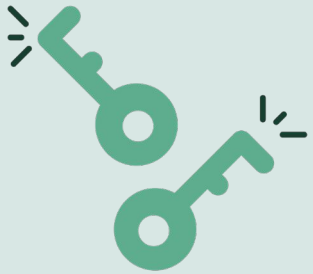
- Glossary of terms
- Web app help pages
- Analysis briefs
- Video Tutorials

- View our website tutorial videos in English, Hawaiian, Japanese, Chinese (Mainland China), Chinese (Taiwan), Korean, Tagalog, French, Spanish, and Russian. (Tutorial PPT)

IR Bottleneck Issues Summary

- Four IR data bottleneck issues: data methods, data extracting, data reporting, and data communication

- Systematically addressing IR bottleneck issues can:
  - Significantly reduce or eliminate repetitive work
  - Gain more consistency, convenience, and efficiency
  - Allows the IR team to learn new skills and continue to find creative solutions to better serve our campus



4 Essential Skills in a Highly Efficient IR Office

Data Analysis: the core function

Programming: dynamic & powerful support system

Multimedia: make ideas more digestible & visually appealing

Marketing: building and engage a wide audience group

4 Essential Skills in a Highly Efficient IR Office

Data Analysis

SQL, SPSS,
Excel, SurveyMonkey

Programming

Multimedia

Marketing

4 Essential Skills in a Highly Efficient IR Office

Data Analysis

Programming

SQL, PHP, HighCharts

Multimedia

Marketing

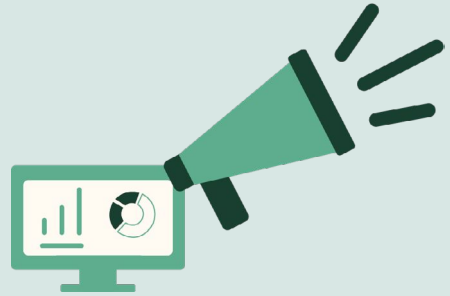
4 Essential Skills in a Highly Efficient IR Office

Data Analysis

Programming

Multimedia

WordPress, InDesign, Canva,
Camtasia, iMovie, Zoom



Marketing

4 Essential Skills in a Highly Efficient IR Office

Data Analysis

Programming

Marketing

Mailchimp, Zoom Webinar

Be Proactive Communicators, Forward Thinkers, and Courageous Leaders

- Say no to repetitive work

- Include non-traditional IR skills

- Create “easy buttons” for efficient solutions

- Use time saved time to do more meaningful and interesting projects

An Announcement

“It’s been a wonderful journey exchanging ideas with colleagues both on and beyond our campus through the virtual symposiums. Mahalo for supporting the MIRO office and our program. I hope our roads will cross again”

Yang Zhang, MIRO Director

Final Reflection: Data is Power

- More access to data and analysis means more influence in decision making

- Balance of IR’s time in serving different groups on campus

- MIRO aims to provide a more equal data access for all employees

Final Reflection: Data is Complicated

- Calculating a simple number involved many factors and decisions

- Data communication and education as an important aspect of the IR job

- Lacking understanding about data causes mistrust

Final Reflection: Data vs. Actionable Data

- Numbers can show us what the trend or the current situation looks like, but not “why” and how to make changes

- Non-actionable data is insufficient for decision making

- Qualitative data is more actionable

- Hearing real voices from students and motivates people to actions

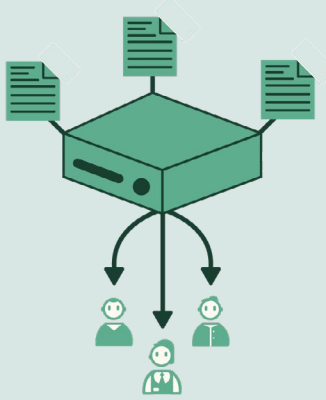
Final Reflection: Data is a Double-Edged Sword

- A tendency to make large scale decisions that ignore individual experiences

- MIRO web apps purposefully avoided some comparisons

- Promote qualitative data that reflect real-life experiences and challenges

Pause and think



Mahalo for viewing!

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