



DATA AND ANALYTICS STRATEGY

2022 - 2025

SOLIDIFYING THE FUTURE

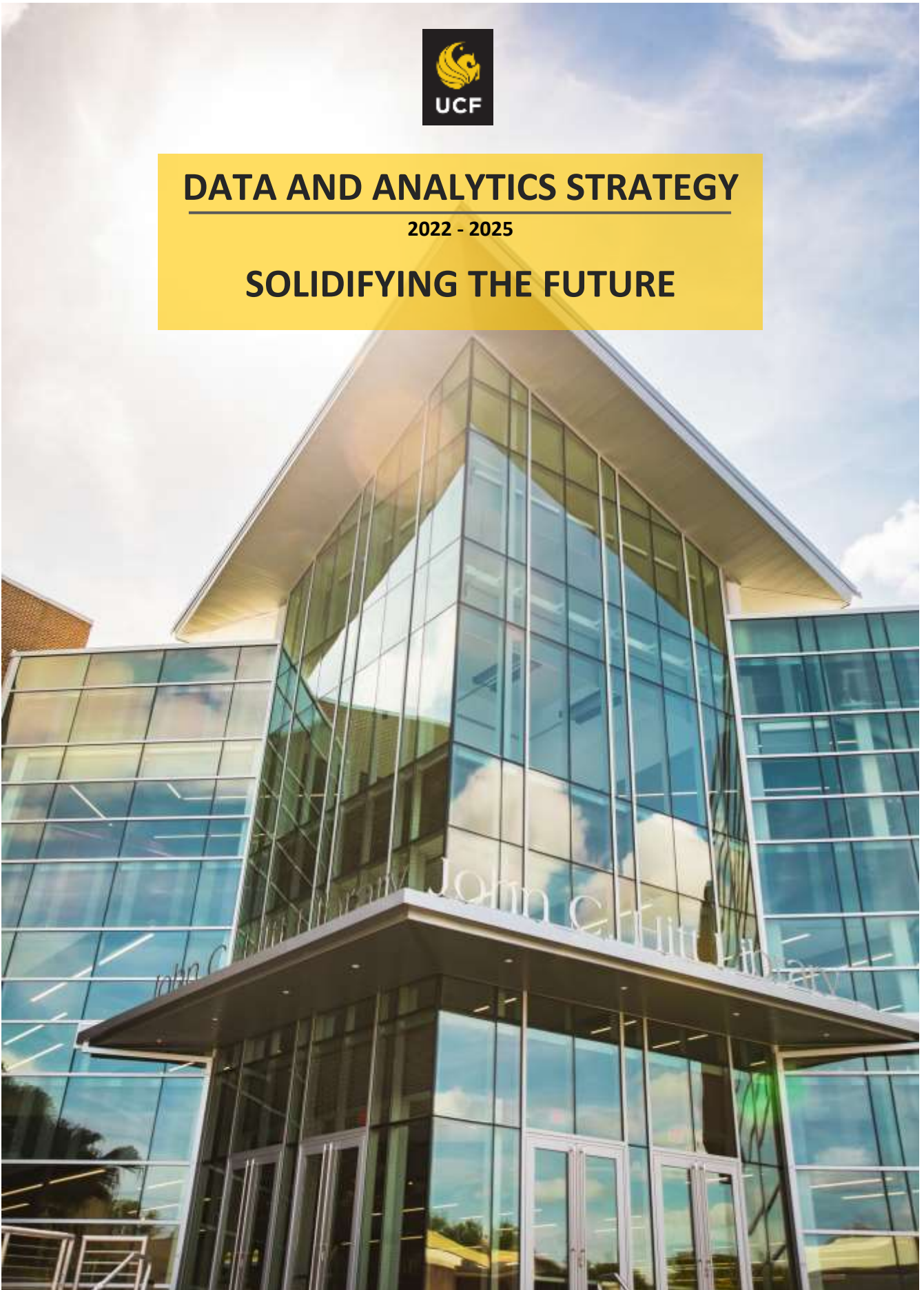


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FOREWORD

HISTORY OF ANALYTICS at UCF

- ❖ 2005 – First generation data warehouse is released
- ❖ 2008 – Pegasus Mine Portal mature with on-going development
- ❖ 2012 – Upgrade to Visual Analytics tool set
- ❖ 2014 – First Insight Dashboard released (26 now available)
- ❖ 2015 – Coordinated the vendor-based 4-year graduation risk model
- ❖ 2016 – Static UCF Factbook reconfigured to Interactive Facts (13 now available)
- ❖ 2019 – Established the new Analytics and Integrated Planning division
- ❖ 2020 – First-year retention predictive model developed by in-house team
- ❖ Jan 2022 – Inaugural Chief Analytics Officer designated and elevated to President’s Cabinet
- ❖ Apr 2022 – Data Governance software fully implemented
- ❖ Jun 2022 – Cloud-based Data and Analytics Reporting Ecosystem (DARE) Phase I complete
- ❖ Oct 2022 – Data Governance Council and organization implemented
- ❖ Dec 2022 – DARE Phase II

The University of Central Florida has a long tradition of elevating data, highlighting insights, and innovating new solutions. The 2022-2027 strategic plan, *Unleashing Potential*, reinforces the escalation of increased outcomes and efficiencies. To achieve these enhancements, UCF will need to continue building an analytics culture that values data-driven ideas while investing in the next generation of tools providing faster insights to outcomes. An analytics strategy is the documented roadmap for intentionally capitalizing upon data to achieve UCF’s mission and goals.

The 2022-2025 data and analytics strategy, *Solidifying the Future*, details the guiding principles, goals and objectives, and the necessary actions required to achieve a strong data foundation. The work detailed capitalizes on long-term and recent investments in analytics.

As Thomas Edison once said...

“Vision without execution is hallucination.”

It’s now up to us to make this next evolution a reality and the Division of Analytics and Integrated Planning is proud to work with our partners across the institution to realize these goals, improve the university’s outcomes, and maximize the ideals of UCF’s strategic plan.

As always, Go Knights. Charge On.



M. Paige Borden, Ed.D.
Chief Analytics Officer

SCOPE

The Data Strategy laid out in this document is a framework and road map for how the University of Central Florida will oversee, govern, and use data to modernize the large-scale delivery of high-end reporting and analytics for the institution. This strategy will focus on the following guiding principles and elements to deliver on its goals:

GUIDING PRINCIPLES

- ❖ Treating Data as an Asset
- ❖ Strengthening Analytics Oversight and Governance
- ❖ Advancing Capabilities for Delivering Actionable Insights
- ❖ Cultivating Data Culture and Proficiency

ELEMENTS

- Delivery of the first strategy and framework for data and analytics at the University of Central Florida.
- Set the foundation for effectively treating data as a core and strategic asset.
- Identify goals and actions to implement and begin maturing data governance, reporting, and advanced analytics capabilities over the next three years.
- Recognizing that increasing data and analytics proficiencies at the institution will be paramount to achieving mature data practices at UCF.
- Acknowledging the importance that technology plays in enhancing the university's data and analytics maturity aspirations.

Data and its effective deployment are integral to all aspects of UCF operations and goals of meeting the university's mission to provide high-quality, broad-based education and experienced-based learning to its students. The principles and goals documented in this Data Strategy will help strategize and organize activities that set the long-term approach to the strategic management of data and purposeful delivery of highly impactful analytics.



EXECUTIVE SUMMARY

The use of data and analytics are transforming education in ways that were inconceivable 15 years ago. There are few areas where data is not available for use in strategic decision-making and other operational needs. Over the last ten years, UCF has seen a dramatic increase in its usage of data and analytics to support strategic initiatives directed toward the institution's mission. While UCF has improved its reporting efforts and overall technology, it still lacks a cohesive data-centric approach to managing data efficiently, ensuring availability and



Figure 1 - Data Strategy Guiding Principles

trustworthiness. UCF needs to accelerate its progress by implementing a collaborative, consistent, and efficient Data Strategy to leverage data and analytics to support its mission fully.

In March 2020, UCF set out to assess its current data, reporting, and analytics capabilities to fully understand the environment and how it fits current and future needs. Numerous workshops and design thinking sessions were conducted with colleges and departments to help uncover the university's strengths and weaknesses in using data and delivering analytics and reporting. Based on the results, this strategy lays out four guiding principles (Figure 1) that were found to be foundational to enhancing and maturing UCF's capabilities. The goals and actions laid out in this Data Strategy and aligned to these guiding principles will allow the University to modernize its data and reporting capabilities and enable true data-driven decision-making.

This inaugural UCF Data Strategy outlines a long-term vision for how the university will govern and manage data, leverage technology, and develop the institution's skills and capabilities over the next three years to improve student outcomes, optimize operations, and increase transparency. Finally, this strategy puts forth frameworks that highlight the key roles institutional leadership and broad collaboration play in allowing UCF to fully govern its data and empower its data professionals to perform the types of analyses that will propel the institution forward.

Achieving The Vision

To create an environment which maximizes the value of data and expands reporting and analytics capabilities allowing the University to deliver high-value insights that drive efficient operations and improve student outcomes.

UCF has learned many valuable lessons about how data and analytics have been used over the years, which were invaluable to developing this Data Strategy. During 2020, numerous workshops and user sessions took place to gain a rich understanding of the university's current state and how UCF will mature its data and analytics environment in the future. This work is the foundation for developing this Data Strategy and will be vital to fulfilling its vision.

The work done in 2020 identified UCF as "Opportunistic" in its use of data and analytics (Figure 2). This Data Strategy aims to put UCF on a path to being truly transformational in the future. It does so by setting a primary goal of getting UCF to a "Managed" state by 2025 while placing the necessary pillars for future growth. To achieve this vision, the foundation of this strategy is built upon a set of core guiding principles. These core guiding principles and their goals will give UCF a firm foundation for attaining its short and long-term data maturity aspirations. This strategy sets out to implement the necessary support structures, processes, and technology to firmly align with UCF's broader strategic goals that chart pathways to grow the university's data and reporting capabilities.

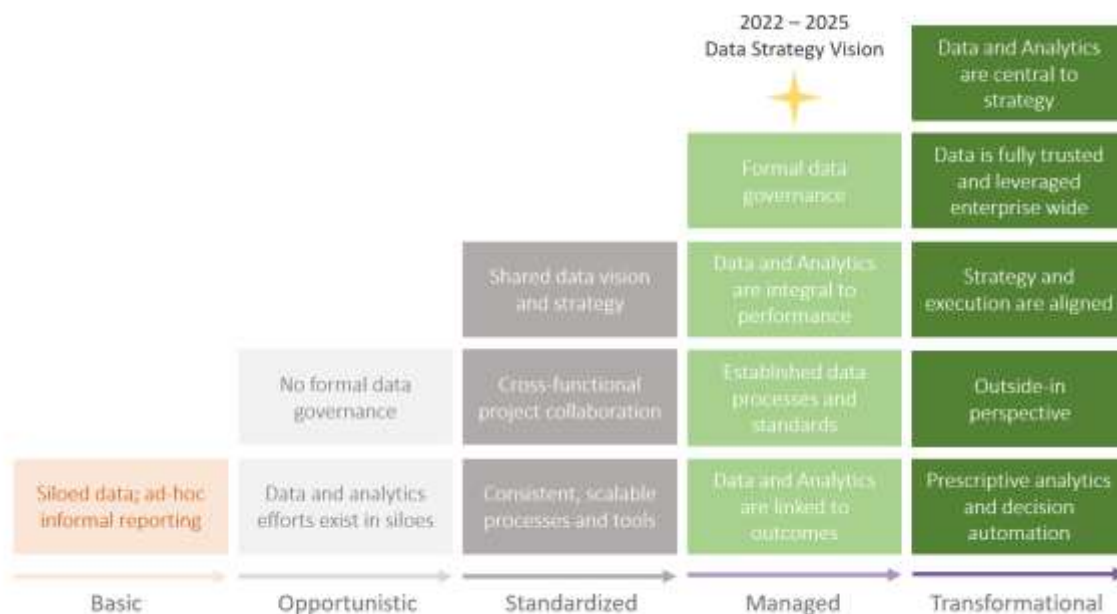


Figure 2 - Maturity Curve; Adapted from Gartner

Guiding Principles

Treating data as an asset will ensure that the data used at the university is governed to be discoverable, consistent, and protected to maximize its usage in reporting activities. It starts by recognizing that data is a critical university asset that demands keen attention and oversight, ensuring its effective use in reporting. Oversight is accomplished by the purposeful discovery of data assets and by putting in place standardized, repeatable, and scalable data governance processes and data policies all centered around ethics and access. Additionally, modern technology will power data governance and help develop the necessary governing structures to strengthen and improve data usability.

Strengthening analytics oversight and governance to ensure data analytics projects and resources –financial, human, data, and technical – align with university strategic objectives. Spearheading this principle is university leadership, who will guide, focus, and align data activities to strategic goals. Paramount to these efforts will be establishing formal processes and methods to prioritize objectives, plan, assess, and coordinate data and analytics projects that minimize costs while maximizing the value of analytics initiatives. High collaboration, coordination, and oversight will reduce duplication of efforts and focus university colleges, departments, and other units on the strategic deployment of data and reporting.

Advancing capabilities for delivering actionable insights to improve the availability and quality of information available to university decision-makers. Improving the processes and technology that manages data, increases analytical capabilities, and accelerates the institution's ability to generate insights will improve decision-making processes around operations and student outcomes. These advancements are supported by technology identification, acquisition, and implementation by closely collaborating with UCF Information Technology and other key university technology stakeholders to ensure alignment with this guiding principle of the Data Strategy.

Cultivating data culture and proficiency to ensure UCF staff understand how best to use data to support informed decisions aligned with university strategic goals. These activities and processes will equip staff with the necessary skills to use data effectively and create the types of reporting that drive decision-making. Improving the university's data culture is made possible by establishing data and analytics leadership oversight, assessing the UCF's analytics maturity, educating users on the proper use of data, and establishing communities to promote collaboration and learning.

Strategy Summary

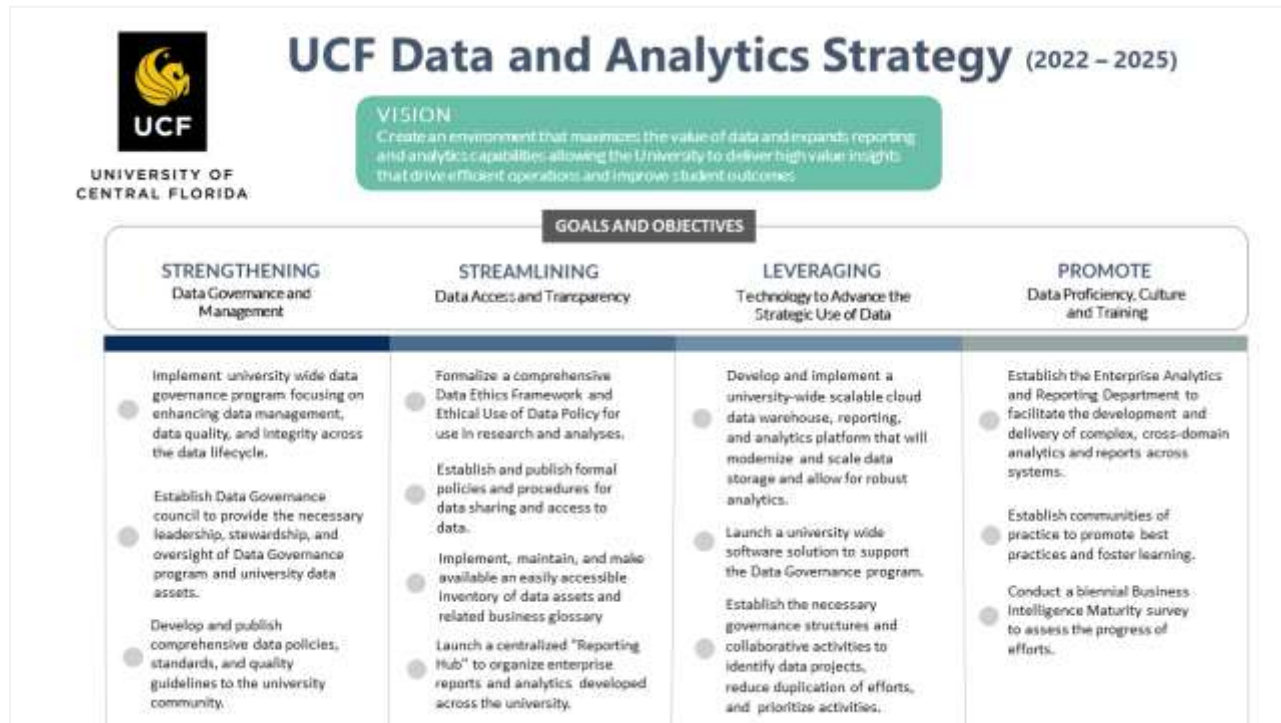


Figure 3 - UCF Data Strategy Summary

As summarized in Figure 3 above, the UCF Data and Analytics Strategy outline a vision, goals, and objectives aligned with the core guiding principles to advance the university's data and analytics capabilities. These goals and objectives focus on data governance and access, expanding on an already strong data culture, and building a solid technology infrastructure as a foundation behind it. Efforts to meet the goals and objectives of this strategy will include deep collaboration and coordination across the institution to prioritize activities and ensure that institutional data is used to its maximum capabilities for reporting efforts.

For many years UCF has garnered recognition for how the institution has used data and analytics to advance student outcomes. This data strategy will further streamline and scale capabilities to meet the increasing need to optimize operations and improve student outcomes. Successfully achieving the vision and goals of this strategy summarized above will allow UCF to answer the many cross-domain and complex questions with a level of detail and speed that UCF cannot efficiently perform today.

A key area this strategy addresses is putting in place the data governance oversight, ethical data practices, and technological advancements necessary for increased usage of broader advanced analytics. These advanced methods, such as Deep Learning and Artificial Intelligence (AI), are growing in use and importance within higher education and will mature and enhance UCF's reporting inventory. The framework outlined in this Data Strategy will allow UCF to fully leverage

these methods and produce the types of rich insights that extend beyond the current and limited descriptive kinds of information which currently make up a majority of university reporting.

Taking advantage of modern technology and improved data governance processes requires proficient users who can use data at a high level to generate the insights necessary for decision-making. The strategy addresses data proficiency, highlighting leadership, assessment, and community to ensure that the UCF increases its maturity and capabilities and evolves in how the university uses and reports on various data sources.



GOALS AND OBJECTIVES

Goal 1: Strengthening Data Governance and Management

Principles

- Treating and managing data as a critical value asset, ensuring its quality and protection throughout the data lifecycle. These activities include managing data quality and using data standards that make data reliable for use and sharing.
 - Instituting procedures, policies, and standards around data that support a collaborative and effective governance structure.
 - Ensure that university funds used towards capital expenditures in data-related projects and activities are used efficiently towards managing data as a long-term strategic investment.
-

Overview

It is universally recognized that having high-quality and understood data is the backbone to delivering outcomes regardless of industry or domain. Central to data governance is having a sound framework that establishes the strategies, objectives, and policies for managing data is paramount to reducing data sprawl and providing high levels of data quality for impactful analytics.

UCF recognizes this strategic need for uniform data governance and management of the university's data assets. This goal aims to strengthen data governance at UCF by establishing the critical groups, roles, functions, processes, and policies across the institution. It builds a robust framework that will allow for a sustained maturity in data governance. As UCF matures in this area, data practitioners at the university will be better equipped to quickly identify critical data elements for analysis activities and reduce development time.

As an institution, UCF collects and stores a tremendous volume of complex data across many domains and external entities that will grow exponentially over the next five years as data collection activities increase and new technologies are implemented. UCF's Data Governance program will manage the magnitude and velocity of data collection by implementing new technology and establishing university-wide data standards to ease, widen, and accelerate data usage.

Managing and Valuing Data

The value of data increases as it moves through the System Development Lifecycle (SDLC) (Figure 3), and if it is poorly maintained it, can become a severe liability in its use. A large part of its value

comes from how effectively data quality management occurs from acquisition to consumption. Data quality and its subsequent value increase as the ease of discovery during collection, metadata management, understanding its history, and accessibility to the community improve.

UCF's data governance policies and processes will integrate with the SDLC to improve

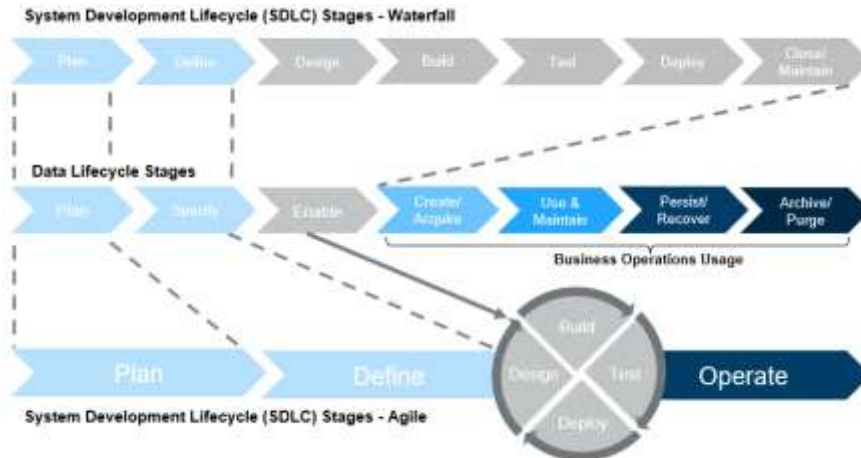


Figure 4 - SDLC Adopted from DMBOK

efficiencies and ensure high data quality and provide maximum value for the data at hand. These activities will give users the trust and confidence that the data they are using is accurate because its quality was controlled and managed from its genesis and tracked through its application and usage.

Effective Stewardship

Data governance is only as effective as the people tasked with its oversight and guidance. UCF will establish oversight and governance bodies to formulate policies and strategies and maintain university data assets' management and quality. Strong coordination between these groups cultivates shared accountability for data management responsibilities. Building and developing a strong community of stewards, SMEs, Domain Owners, and on, will enable the effective execution of the governance program, resolve data challenges, and create multiple lanes for data-related strategic decision-making. These stewardship processes will allow UCF to manage its compliance with critical federal and state privacy laws.

Actions

- > Implement a university-wide data governance program focusing on enhancing data management, data quality, and data integrity across the data lifecycle.
- > Establish a Data Governance council to provide the necessary leadership, stewardship, and oversight of the Data Governance program and university data assets.
- > Develop and publish comprehensive data policies, standards, and quality guidelines to the university community.

Goal 2: Streamlining Data Access and Transparency

Principles

- Recognize that UCF is responsible for ensuring data privacy and upholding the ethical use of data in research and other related activities by having clear guidelines and policies.
 - Cultivate an environment of trust between data providers, systems, and recipients by maintaining security, privacy, and ethical standards during all data and analytics activities.
 - Use highly effective data stewardship and governance.
 - Making information about data and reporting assets easily accessible and promoting effective data use to university users for their data-related activities.
-

Overview

UCF collects and stores large amounts of data about the students, staff, and operations of UCF. The university's digital footprint has increased over the years and will continue as more technology and data find their way into its digital ecosystem. Utilizing this vast array of information allows for a deeper understanding of students, evaluating services, and improving university operations. In conjunction with data, UCF has a wealth of reporting assets developed that have helped the university attain success. Together, these assets are the foundation for decision-making and need to be efficiently organized, maintained, and made available for UCF employees to access and use. In addition, UCF recognizes that proper ethical use and transparency of the data it collects and utilizes for operations, research, and scholarship must be cultivated and sustained as an inherent part of the institutional culture. As a university, UCF is responsible to students, staff, and external partners that the highest levels of data transparency, privacy, and ethics are upheld.

Leading these efforts will require a holistic, collaborative approach across the university, resulting in the effective implementation of the necessary frameworks, policies, processes, and technology to drive practical privacy and data ethics.

Building Trust Through Data Governance

Cultivating trust and transparency is supported by an effective data governance program and related data management practices. The key to this is strong leadership, facilitating the data governance program's growth and leading organizational buy-in. The core activities which data governance presides over are crucial to building high-level trust in data. Data governance supports transparency efforts by enabling the efficient discovery of data assets and allowing employees to search and see the data available via data dictionaries and glossaries. It ensures that data quality, consistency, and privacy exist by providing strong data leadership and stewardship throughout the data life cycle. Data governance offers users confidence because it allows for a complete understanding of data assets through metadata management and lineage. Developing these components and processes to support security and compliance will be a crucial part of UCF's data governance program.

Core Data Ethics



Leveraging new technologies for data collection and analytics is essential to UCF's growth as an institution. However, technology presents ethical data questions that must be given the proper attention. Similarly, deployed software provides a myriad of digital and AI-based services that leave remnants of user information that can be used to improve operations and student outcomes. Having clear guidance on which data points should be integrated, kept separate, or kept indefinitely is critical to security, compliance, and ethics. Implementing a framework and review mechanism centered around governance, people, technology, and process allows these questions to be asked and the data reviewed. Developing an ethical data use policy, with its foundation rooted in a framework, further strengthens trust and

transparency. As the institution matures in its usage of advanced analytics, these data ethics policies will ensure that research and analyses take steps to minimize these data risks.

Actions

- > Formalize a comprehensive Data Ethics Framework and Ethical Use of Data Policy with guidelines on the proper use of data in research and other analyses where the highest levels of ethics and privacy are needed.
- > Establish and publish formal policies and procedures for data sharing and access to data.
- > Implement, maintain, and make available an easily accessible inventory of data assets and related business glossary.
- > Launch a centralized "Reporting Hub" to organize enterprise reports and analytics developed across the university for easier access and use by UCF employees.



Goal 3: Leveraging Technology to Advance the Strategic Use of Data

Principles

- Optimize data management and accelerate the development and delivery of impactful reporting and analytics to decision-makers using modern platforms and tools.
 - Develop a federated data and analytics ecosystem that integrates applications and cross-functional university data to deliver accessible reporting, business intelligence and allow for the development of advanced analytics.
 - Ensure university resources and technology solutions that collect and store data are appropriately leveraged and integrated for reporting usage.
-

Overview

Analytics is the difference between seeing where you're going and flying blind.
- Cassie Kozyrkov

Digital transformation, regardless of industry, is occurring rapidly and can drive the type of change that can redefine how an organization operates - higher education is not immune to this transformation. In this rapidly changing landscape, UCF must be prepared to respond to legislative changes, evolving questions, and emerging technologies in data and analytics. Simply providing answers to inquiries using standard tools and methods is no longer adequate in today's digital world. UCF recognizes that these changing dynamics demand that the university modernize its technology footprint to support data management and the delivery of analytics necessary for meeting current and future strategic goals.

In addition to technology, strengthening the governance of analytics programs and initiatives will be integral in achieving this Data Strategy's overall vision. Strong command of this area will focus on identifying projects, efficiently using university resources to acquire and implement solutions, and coordinating efforts across the institution. Combining governance and modern technology to manage data and deliver analytics will allow for the faster generation of richer insights to key stakeholders and other university constituents.

High Powered Data Governance

A high-performing Data Governance program needs to be fully supported with modern data technology. These technologies allow for efficient metadata collection and understanding of the data assets owned. Implementing and expanding the use of this technology puts in the hands of data governance leaders and steward's tools to ensure accurate collection and identification of data assets and organization of this data for the university community. Modern data governance technology also ensures that data quality is maintained through its lifecycle.

Foundations for the Future

We live amid unprecedented growth in the usage and application of advanced analytics such as Deep Learning and Artificial Intelligence to solve various business needs. Education is no different, and areas in which advanced analytics are the most applicable to both operational needs and enhancing student outcomes center on financial planning, human resources, faculty planning, and student support and academic planning. While UCF's recent strides in operationalizing predictive analytics to identify at-risk students and support advising initiatives are maturing, the objectives of this goal will implement the foundational technology that will prepare UCF to engage in these types of advanced analyses more broadly and at scale.

Actions

- > Develop and implement a university-wide scalable cloud data warehouse, reporting, and analytics platform which will modernize and scale data storage and allow for the development of robust analytics and delivery of business intelligence to university constituents.

- > Implement and expand a university-wide software solution to support the Data Governance program and allow for the comprehensive oversight and management of university data assets.

- > Establish the necessary governance structures and collaborative activities to identify data projects, reduce duplication of efforts, prioritize activities, and efficiently invest in technology to enhance analytics capabilities.

Goal 4: Promote Data Proficiency, Culture, and Development

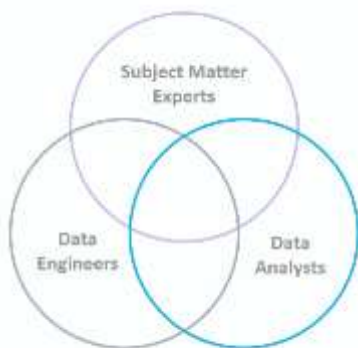
Principles

- Promote a university culture of strategic data use and collaboration through UCF leadership.
 - Nurture data skills and core competencies of staff across the institution with upskilling and development.
 - Develop a Center of Excellence and cross-functional communities to foster collaboration and learning
-

Overview

Realizing the overall vision of this Data Strategy will require increasing levels of skills and abilities among UCF staff and empowering them to develop complex analyses with high levels of confidence. It starts with senior executive leaders playing an active and supportive role in promoting strategic use of data and ensuring that data fully informs decisions. It also includes routinely assessing the university's data maturity efforts, recalibrating efforts as needed, and making strategic capital investments. Several areas within UCF have well-established capabilities in both data and analytics. However, to fully maximize the university's potential, enhancing current data skills and fully leveraging technology will provide the highest impact long term. As reporting and analytics development at UCF increases in usage and scale, coordination and sharing of ideas will be crucial to maturing UCF's data culture. An essential aspect of realizing this goal is bringing together teams and individuals who perform these activities in a coordinated fashion to share skills, understand the various technologies, and collaborate on work across multiple projects.

The Power of Community



While self-service learning plays a critical role in developing the university's maturity, creating diverse communities of practice energizes data culture and proficiency efforts. These communities put practitioners at UCF together to share best practices and methods across a variety of skillsets. Additionally, implementing cross-functional teams to collaborate on projects eliminates siloed work and brings skills together for better project efficiency. Both communities fully support and align with one another to increase the collective data culture while fostering rich learning and development environments.

These communities are cross-functional and domain-specific to efficiently tackle the complexities of data projects to ensure their delivery. As these communities mature, they organically increase independent collaboration as members better understand the diversity of projects and each other's specialties and roles.

Guiding Proficiency Through Leadership

The vast amounts of data and analysis methods available today render fully centralized reporting a technique of the past. Forms of democratizing data analysis are now becoming the norm rather than simply conceptual. However, attaining this level of proficiency does not happen without committed leadership, capital investment, and collaboration leading the way. One identified method that supports these goals is developing an organization that spearheads university-wide leadership and cooperation in data, analytics, and technology and regularly assesses the institution's capabilities and data maturity. This organization coordinates the communities of practice, but most importantly, is tasked with developing strong collaborative relationships across the institution to understand data usage better and increase reporting and analytics efforts. Maturing UCF capabilities through these collaborations enables more profound and targeted decision-making and support coordinated and more democratized use of data and analytics.

Actions

- > Establish the Enterprise Analytics and Reporting Department to facilitate the development and delivery of complex, cross-domain analytics and reports across systems.

 - > Establish communities of practice and cross-functional teams to promote best practices, foster learning, and improve project efficiencies.

 - > Conduct a biennial Business Intelligence Maturity survey to assess the progress of efforts.
-

THE PATH FORWARD

The approach to meeting and achieving the goals of this Data Strategy will be a collaborative and iterative one. The strategy will be reviewed bi-annually to ensure that the university is on track to fulfilling its vision. The end of this inaugural Data Strategy, with its guiding principles, will build the foundational pillars that will allow UCF to deliver on its strategic analytics goals for the future.

UCF's Envisioned Future State

Guiding Principle #1 – Treating Data as an Asset

- ✓ UCF data is efficiently and effectively managed, easily understood, and provides high value from its usage
- ✓ A structured and collaborative Data Governance program is in place that has complete oversight of UCF's data-related activities
- ✓ Information about UCF data assets is easily accessible and widely available.
- ✓ A modern and robust software platform is in place that provides the necessary tools to manage and support Data Governance

Guiding Principle #2 – Strengthening Analytics Oversight and Governance

- ✓ Established and coordinated and well-developed processes that prioritize the strategic development and deployment of data and analytics activities.
- ✓ Well-developed governance groups ensure that UCF data and analytics initiatives are in strategic alignment with university goals

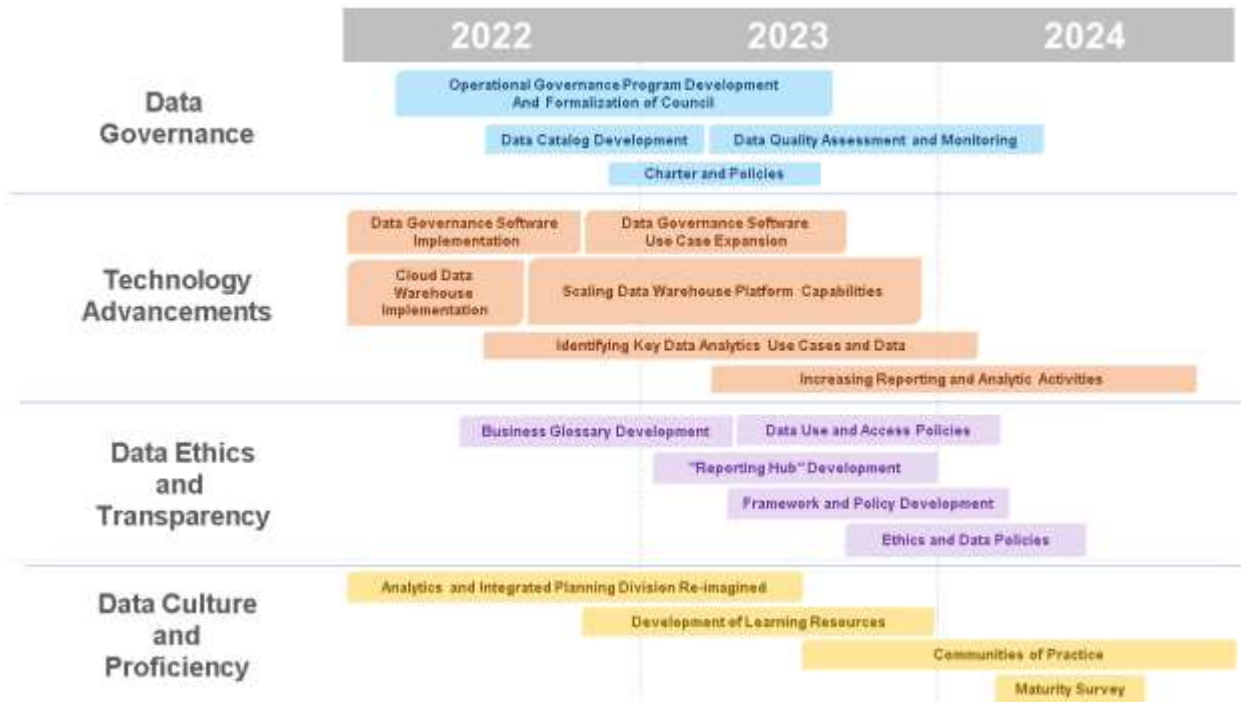
Guiding Principle #3 – Advancing Capabilities for Delivering Actionable Insights

- ✓ A modern and scalable data and analytics platform driving the development and delivery of rich and insightful analytics
- ✓ Insights delivered to stakeholders and other members of the UCF community come through integrated systems and strategic alignment of priorities and activities
- ✓ The UCF community increases its usage of advanced analytical tools and methods

Guiding Principle #4 – Cultivating Data Culture and Proficiency

- ✓ Easily accessible learning resources available to reporting and analytics practitioners.
- ✓ The existence of communities where UCF employees can share work and best practices related to analytics is firmly in place
- ✓ Assessment processes and methods are in place to measure the university's data and analytics maturity

Roadmap



CONCLUSION

The need to maximize its data and analytics capabilities has become a foundational piece of UCF's plan to achieve its long-term goals. To ensure alignment with the university's strategic mission and continue to deliver excellence in education and research, UCF must establish a robust data and analytics infrastructure resilient to change. This inaugural Data Strategy is the initial step toward fulfilling our potential of leveraging advanced analytics and being a data-driven institution. This framework provides a method that will accelerate UCF's progress in developing and maturing our data and analytics initiatives.

This strategy sets out to implement the necessary structures to create an environment where the value of data is maximized, and we can expand on the university's reporting and analytics capabilities. This future landscape will allow UCF to deliver high-value insights, drive efficient operations, and improve student outcomes. The guiding principles laid out in this strategy focus on how the university will govern and manage data, leverage technology, and develop the institution's skills and capabilities to achieve this vision. These principles will prepare the university to address both existing and future data and analytics needs. They will ensure a strong foundation that will allow UCF to continue to evolve. Additionally, strategic direction from leadership and establishing high levels of collaboration and coordination across campus will also be imperative throughout this evolution.

This long-term transformation and evolution will ensure that institutional data is used to its maximum capabilities for reporting and analytics efforts and allow UCF to adapt to change efficiently. With university leadership leading the way, this strategy will propel UCF into becoming a dynamic data-centric institution that focuses on excellence and unlocking its potential for years to come.

APPENDICES

Appendix A – Glossary of Terms

Artificial Intelligence: Simulation of human intelligence capabilities performed by computer systems. Examples of these processes include speech recognition, language translation, natural language processing, decision making.

Data Asset: any resource that is comprised of data and therefore has value to the organization – could be a system, database, or service that is information based.

Data Governance: collection of processes and practices that formalize how an organization manages the availability, integrity, security, and usability of its data.

Data Lake: centralized repository where raw data is stored and easily accessible, which can include structured (relational databases) or unstructured (documents, emails) data, as well as semi-structured (JSON, CSV) and binary (images, videos) data.

Data Warehouse: centralized repository where processed and refined data from one or more sources is stored and accessed. A Data Warehouse contains current and historical data and can be used to create analytical reports and perform advanced analytics.

Deep Learning: field of Machine Learning that studies algorithms called artificial neural networks, which are based on the structure and information processing functions of the brain. These deep learning networks can be applied to fields including image analysis, speech recognition, computer vision, natural language processing.

Descriptive Analytics: analysis of data that answers current or past questions; with current or historical data, tells decision makers what happened and can help an institution understand how it is performing with the use of data visualizations like graphs, reports, dashboards.

Metadata: data that describes or provides information about other data.

Predictive Analytics: analysis of data that identifies key patterns and trends, which applied to current data, helps predict future outcomes. Utilizes data mining and statistical modeling techniques, as well as machine learning algorithms to analyze historical data and predict future outcomes.



UCF