



Smarter Campus

Guiding Principle

Exploit the Value of Data & Technology

Elements

- a) Establish an Innovation Management Practice
- b) Evolve Business Rules
- c) Make Streamlining a Norm
- d) Leverage Data to Drive the Student Experience

Mason students should engage with a smart campus that transparently applies technology toward helping students navigate its complexity, become aware of opportunities, and support social and academic endeavors.

This path contains foundational elements ranging from establishing an innovation practice for launching initiatives and programs to transforming the integration and use of data, which together address behind-the-scenes issues that currently feed the “Mason shuffle.” These elements include policies, business processes, trust in and use of data, and enabling capabilities, which apply to developing and delivering self-service, on-demand, human-mediated and data-informed services for students, faculty, etc.

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Broadly speaking, **Mason is a university that is student-centric in its engagement with students**; it places each student at the center and surrounds students with myriad options. When viewed from the perspective of a student, however, **there are far too many service options for each student to know about, be aware of and use**. In essence, each Mason provider (office, school, college, unit, etc.) struggles for student mindshare or “air time” and as a result, students don’t necessarily receive the benefit of all that Mason has to offer and fall into the Mason Shuffle.

Mason should embrace the use of data and technology to proactively and continually improve the quality of the student experience through everyday interactions, transactions and services. Mason should evolve from being student-centric – looking at the student through multiple unit-level university lenses, to student-focused – looking at the university through the eyes of a student who sees Mason as a proactive and supportive community that anticipates needs and is there when needed.

Exploit the Value of Data & Technology continued



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With the confluence of accessible data, ubiquitous connectivity, and the Internet of Things, Smart City¹ models are emerging to exploit the value of data and technology investments for serving the needs of people who live and work in connected communities.

Mason faculty are engaged in multiple levels of Smart Cities research.² The university possesses academic expertise to help rethink the applied use of data and technology to serve students, faculty and staff on a day-to-day basis, and a commitment to its students that could come together to define a new model for proactive engagement for higher education.

A Smart Campus embracing Smart City principles can exploit data and technology to improve the quality of life for each student and continually improve the provisioning and delivery of services to meet and anticipate current and future needs. In terms of Mason, the focus shifts toward a student being part of a connected Mason community that supports and reinforces their goals, ideas and actions, rather than being one among many who are left to uncover, sift through, and interpret the countless options of what Mason has to offer.

¹ Smart Cities Council defines a smart city as having “digital technology embedded across all city functions” and has multiple levels of engagement across government, industry and citizenry. The smart campus idea stems from the evolving definition of a smart city where people, processes, technology and data are working in harmony to create a better, more responsive environment (<http://smartcitiescouncil.com/smart-cities-information-center/definitions-and-overviews>).

² As of October 2016, some faculty whose research interests incorporate smart cities and infrastructure include: Brenda Bannon, PhD (CEHD); John Dale, PhD (CHSS); Elise Miller-Hooks, PhD (VSE); Roy Nyberg, PhD (CHSS); and Kai Zeng, PhD (VSE).

Smarter Campus Gaps & Issues (1)



Innovation Debt	Change Fatigue	Expectation Gap	Business Processes
<p>By centralizing communication and tracking around the analysis, design, testing, implementation, and maintenance stages of initiatives, Mason staff will keep one another accountable to making sure programs services are started stewarded well.</p> <p>Creates capacity to build services on top of existing capabilities to focus more on students and less on creating more innovation debt to maintain unique, single-purpose infrastructure, services, etc.</p>	<p>Resourcing of initiatives would be supported by process and infrastructure to better drive appropriate staffing for success, visibility into the capacity of the entire organization, and greater transparency into resource allocation to balance workload.</p>	<p>By having visibility into the entire ecosystem of programs and services, the university will be able to appropriately prioritize areas where students could be served better, and reduce the barriers students currently face between accessing services.</p> <p>Draws Mason closer to a unified data experience that incoming students expect, but are typically not aware of until processes deviate from consumer norms.</p>	<p>The innovation practice will create a standard business process for new programs, services, technology, and other initiatives, specifically around communication, human resource allocation, and mapping towards outcomes and success criteria.</p> <p>Addresses some of the disconnect among policies, business rules, and processes by focusing on practice intent within an updated context of a larger, more complex institution.</p>

Smarter Campus Gaps & Issues (2)



Communication Gap	Data (and Trust) Gap	Context Gap	Lifecycle Coherence
<p>Establishes and promotes common and shared infrastructure for consistent and timely communication and collaboration.</p>	<p>Begins to address data trust issues and moves Mason toward a proactive approach toward data and students.</p>	<p>Strong program management centralizes communication around specific initiatives, drives transparency, and minimizes misunderstanding regarding action, activities, resources and/or effort.</p>	<p>Enables consistency of information across the entire student lifecycle.</p>

Establish an Innovation Management Practice



Path Element

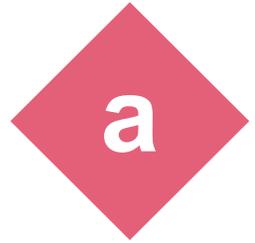


- **Establish an Innovation Management capability for university initiatives.** Leading this effort would be a senior leader who ideally reports into the Provost's Office and would have a background in product and/or program management. This individual would own the planning, design, and implementation of a campus-wide program for innovation management that empowers faculty, staff and leadership to:
 - **More efficiently and effectively communicate and collaborate around new initiatives** in a way that gives all the campus and its stakeholders visibility into this activity.
 - **Keep everyone accountable** to taking new initiatives “across the finish line”.
 - **Analyze the optimization of human resources** and identify where there may be resources to put on new initiatives or existing initiatives where support may be lacking.
 - **Understand where time is being spent**, who is working on what, and how much time are they spending.
 - **Keep colleges and academic units accountable** to investing time in the types of programs, services, and technology that propel Mason towards its strategic vision.
 - **Grant appropriate responsibility and authority** to this individual to coordinate and drive initiatives forward of institutional importance.

Establish an Innovation Management Practice continued



Path Element



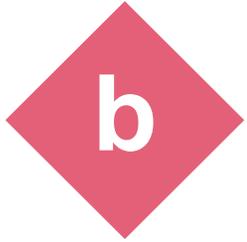
- **Create and support the adoption of proposal criteria for programs and initiatives** that span the breadth of the institution.¹
- **Select and adopt a platform to support the innovation practice.**²
 - **Create and implement a taxonomy and tagging system for projects and resources**, specifically identifying (among other things) the level of details required for each project.
 - **Create and implement an escalation and communication plan** for all projects.

¹ Idea: create and/or integrate a cross-program, cross-departmental internal innovation grant program to seed new initiatives and introduce academic units, faculty and staff to the innovation management approach through actual practice.

² Ideally, the platform would enable creating individual accounts and tagging of resources based on role, level, talent/ability, etc.; proposing and voting on new ideas; coordinating program and project communication including status updates; assigning estimated time, people, and budget; seeing the amount of total time and time per project each resource is assigned; assigning dates for key deliveries and milestones; and delivering dashboard rollups of time, budget and resources and how they are being spent.



Path Element



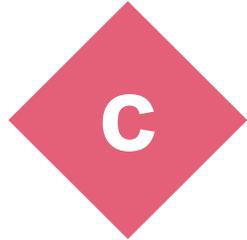
- **Review policies to identify areas where practice and need is no longer in sync or served by the policies**, paying particular attention to changes to adapt to institutional scale, modalities of student access to the institution (traditional, online, abroad), and self-service and on-demand services; update and revise accordingly, prioritizing policies that affect the next incoming class and manage tactical risk.¹
- **Update, unify and publish student-affecting business rules** as follows:
 - Systematically deprecate and retire outdated and/or non-conforming rules
 - Update and/or define consolidated business rules that can be expressed as implementable logic
 - Convert common exceptions to norms that can be expressed as implementable logic
 - Eliminate manual forms and double-entry activities with digital and data-informed alternatives

¹ Example: Revise policy to appropriately address the common need of purchasing food for student events. At present, individuals use personal funds to procure food for events because the purchasing limits are too low and don't seem to recognize the need and/or change in scale of the institution.

Make Streamlining a Norm



Path Element



- **Adopt and apply a “remove one” philosophy toward student business processes.** “Remove one” can be remove one step, field, form, web page, decision tree, parallel pathway, etc.
- **Streamline student-facing processes** by identifying and actively eliminating manual, replicated, and/or superfluous steps as viewed from the prospect, parent, student and alumnus perspectives. The processes should be examined from the point of entry/referral to the transmission or trigger of action, not just within the business process and/or workflow itself.¹
- **Establish a calendar year annual review of the student-facing business process experience** as viewed from the perspective of a prospect/student. Identify and prioritize processes for streamlining and feed recommendations into appropriate innovation, governance, and remediation activities.²

¹ Example: Asking for the same basic information over and over on forms or a sequence of online forms from different offices by placing oneself into a student perspective to address the question: “doesn’t Mason already have this information?” If so, streamline by minimally removing one _____.

² Possible Taskforce Topic: *Now that the academic year has started, what worked well, what needs to be changed?*

Exploit Data to Drive the Student Experience



Path Element



- **Consider the creation of a Chief Data Officer (CDO) role** who “bears responsibility for [Mason’s] enterprise wide data and information strategy, governance, control, policy development, and effective exploitation. The CDO’s role will combine accountability and responsibility for information protection and privacy, information governance, data quality and data life cycle management, along with the exploitation of data assets to create business value.”¹
- **Adopt an Institutional Data Asset (IDA) approach toward shared information** to support the smart campus vision where technology and data are integrated, used and trusted to actively support students in the pursuit of their personal, professional and academic well-being and success.
 - **Develop an Institutional Data Asset policy** that clearly articulates and promotes the adoption and use of institutional data to serve the needs of students and the university community. The policy should include references to adoption requirements, operational guidance, and practice, and contain criteria and references to processes for defining and maintaining shared data and associated data dictionaries.²
 - **Revise the Mason “Data Stewardship Policy 1114” as needed** to encourage adoption of IDAs by shifting the language toward balancing risk and usage. Address other policies as appropriate.³

¹ Gartner (<http://www.gartner.com/smarterwithgartner/understanding-the-chief-data-officer-role/>)

² Example: University of Michigan “Institutional Data Resource Management Policy 601.12” <http://spg.umich.edu/policy/601.12>

³ See <http://universitypolicy.gmu.edu/policies/data-stewardship/>



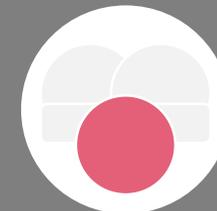
Path Element



- **Establish an Institutional Data Asset (IDA) brokering service** to promote the adoption, sharing, appropriate and trusted use of of IDAs in business processes, reporting, service delivery, resource planning and service management.
 - **Define streamlined processes to request, access, and use data** by service providers, colleges, schools, etc. to facilitate responsive and rapid use of appropriate data and information in order to build trust and minimize shadow systems, shadow data sets, and shadow integration.
 - **Provide services to facilitate standardized integration and adoption** of APIs, data dictionaries, etc. with audit trails, change management processes, etc. that interface with stakeholder processes.
 - **Identify datasets in the data mart that should transition to IDA status.** Shift the management of the assets and data stewardship as appropriate.
 - **Provision IDAs via defined APIs and broker data assets for campus use.** Using the mechanisms and processes that have been defined, and document Mason quality practice regarding integration, adoption and use of IDAs in day-to-day student interactions and services.
 - As part of routine application maintenance and in alignment with established stakeholder governance protocols, **systematically update existing application integrations to use IDAs and integration methods.**

Ideal Implementation

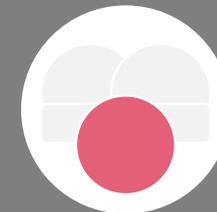
- One-time action or activity
- Ongoing activity or effort
- Periodic, scheduled activity or effort
- Disbanding of a group



Start Month (based on 4-month periods, 64 months total)															Task Description	Key Dependencies		
1	5	9	13	17	21	25	29	33	37	41	45	49	53	57			61	
a) Establish an Innovation Management Practice																		
																	Define the Innovation Management (IM) practice by including campus stakeholders and drawing on established program management models.	Identifying a leader for IM, key stakeholder participation.
																	Develop and implement the program management methodology including a campus communications and awareness approach. Hire project managers/staff as appropriate. Ongoing.	
																	Identify and adopt technology to support IM practice. Train stakeholders and staff. Evolve and adapt as needed. Ongoing.	Program management methodology.
																	Conduct an external review of IM practice on a scheduled basis. Periodic.	Access to SMEs from peer institutions, industry.
b) Evolve Business Rules																		
																	Charge a task force (TF) to modernize business rules and practices for student services and activities. Define modernization criteria. Periodic.	Stakeholder engagement
																	Define a process and charge a working group to catalog business rules that directly or indirectly affect students using the criteria. Disband working group when work is complete. Periodic.	
																	TF prioritizes the cataloged business rules for modernization and apply an update, replace or retire classification. Assign to working groups to update or replace business rules or assess impact of retirement. Periodic.	Business rule catalog, classified business rules.
																	Test business rules to validate intent, logic, and identify defects. Confirm rules don't cause harm. Revise as needed. Periodic.	
																	Implement the rules and update the catalog. TF monitors as appropriate, addresses defects. Disband TF after monitoring period. Periodic.	

Ideal Implementation continued

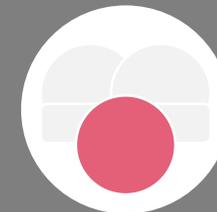
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c) Make Streamlining a Norm																		
																	Establish a staff task force (TF) to closely examine student lifecycle processes as offered online, mobile, phone, chat, face-to-face, etc.	
																	Define and share streamlining criteria incorporating access and flexibility throughout. Gather stakeholder input and feedback. Involve students-as-evaluators from programs such as VSE, Business, CVPA, and/or student organizations like AIGA-Mason. Revise. Students-as-evaluators conducts a lifecycle-based assessment of student-facing processes using the criteria; identify critical areas to be addressed. Findings are shared with the TF as use cases.	Academic interest, appropriate incentives, student involvement.
																	TF prioritizes the findings and selects a subset to be addressed for incoming students in the fall (low hanging). Ongoing.	
																	Integrate findings with Evolve Business Rules to minimize replication and accelerate action. Evaluate the effectiveness of incorporating students into the process. Determine if the activity should be repeated or changed. Communicate methodology and guidance. Disband Task Force.	
																	Establish a standing cross-unit group to focus on streamlining the student user experience. Implement students-as-evaluators for user experience input. Integrate into campus practice. Ongoing.	Assumes student involvement, academic engagement
																	Work with academic partners to host events around user experience, streamlining, design, etc. to intentionally connect staff and students. Periodic.	Academic engagement, funding for food, speakers

Ideal Implementation continued

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d) Exploit Data to Drive the Student Experience																		
																	Establish a task force to define an institutional data asset (IDA). Develop IDA criteria, policies and acceptable use; review and recommend new and/or revised policies; update data governance for IDAs. Limit scope of IDAs until quality practice and trust is established. Transfer responsibility and authority of IDAs to formal data governance. Disband the task force.	Development of an IDA policy, establishment of data governance.
																	Continue to evolve data governance. Add IDAs as appropriate. Revise and update policies to enable use of data on campus. Ongoing.	
																	Establish a Chief Data Officer whose baseline responsibility is centered around IDAs. Define with key campus stakeholders a brokering service to promote the adoption, sharing, appropriate and trusted use of IDAs.	Data governance, standardization of IDAs
																	Develop a communication plan to inform stakeholders of the IDA approach and facilitate cultural change. Ongoing.	
																	Conduct a technical pilot of the service. Identify and document common standards, specifications, practices, APIs, etc. Define operational processes to request, access, and use data by service providers and units.	Standardized APIs, interfaces
																	Launch and operationalize the IDA brokering service. Launch and continue an awareness and adoption campaign to encourage service use across campus. Incorporate training. Ongoing.	IDA brokering service
																	Identify datasets in the data mart that should transition to IDA status. Shift management of the assets and data stewardship.	
																	Adjust data governance to accommodate new IDAs. Examine business process impact and remediate. Provision IDAs via APIs and broker data assets for campus use. Systematically update existing application integrations to use the core IDAs and integration methods. Ongoing.	

Projected ROI/Value on Investment



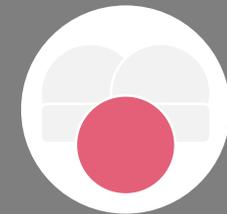
- **Operational efficiency** measured in available staff hours resulting from automation of processes, fewer manual transactions, reduction in redundant services, processes, etc.
- **Reduction of shadow systems** via the adoption and use of common, shared data.
- **Containment of risk** associated with shadow systems and shadow data.
- **Timely rollout of new services and initiatives**, thus reducing operational or budgetary impact because of unanticipated delays, unexpected circumstances, or uncertain scale or adoption.
- **Expanded operational transparency** as services will be using shared capabilities and shared data, thus working from a common source of truth.
- **Cross-unit sharing of services and capabilities.** Shared data and increased operational transparency will make it easier for units to adopt practices used elsewhere on campus, shifting the model from customization to reconfiguration.
- **Access to more services.** Shared data and a smarter infrastructure will make it easier for Mason to respond to changing needs by simplifying and normalizing data integration process, standards and services.

Key Performance Indicators (KPIs)



- **Transaction Time:** measurement of the time required to process a transaction. Ideally reducing transactions from days to minutes.
- **Paperwork Expenditures:** reduction in expenditures related to specialized paper forms and other “classic” data processing.
- **Reimbursements:** reduction in the number of exceptions to procurement processes.
- **Custom Data Integrations:** reduction in the number of custom data views, integrations, and other system-related processes.
- **Innovation to Production Time:** measurement of the amount of time needed to define and launch a new service with “access for all.”
- **Adoption of Institutional Data Assets:** measured in services, transactions, and/or integrations.
- **Business Process Exceptions:** measurement of the number of exceptions processed in an academic term.

Anticipated Key Resource Needs



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- Stakeholder and business unit time and participation.
- Investment in additional or realignment of existing staff into new roles (leader for Innovation Management, Chief Data Officer, program managers and support staff, etc.)
- Investment in or expanded licensing of enterprise software (CRM platform) and tools (program management software).
- Investment in middleware to broker the adoption and use of shared data.
- Funding for training, incentivizing cultural change, and encouraging participation.
- Project-level budget allocation as part of ongoing maintenance and upgrades to shift institutional applications and systems to use IDAs.

