
Capability Traceability Framework

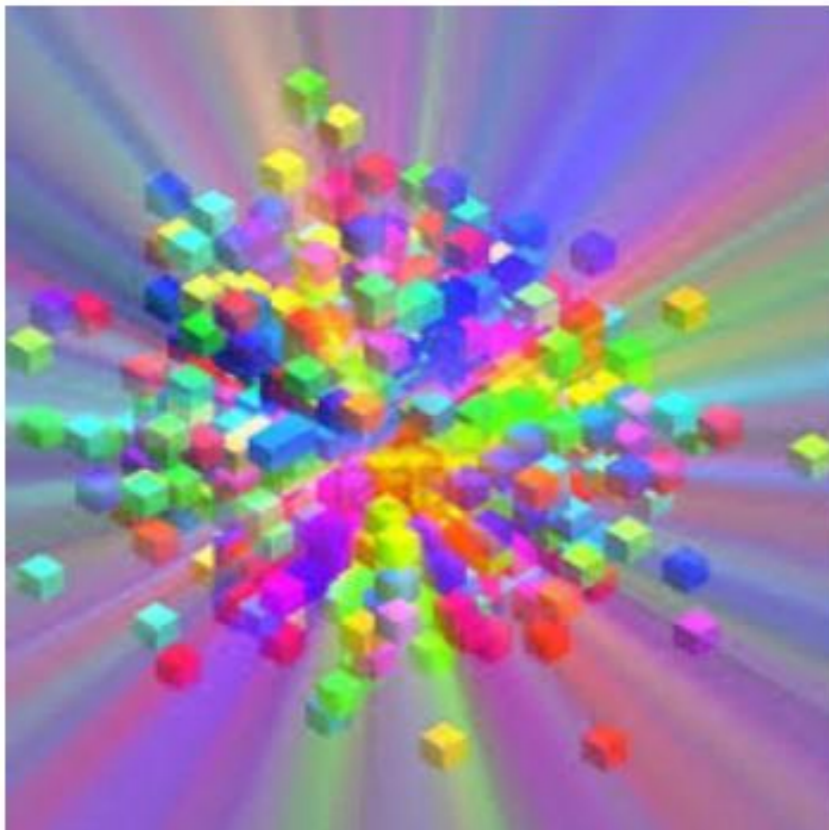
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Lead Enterprise Architect – Canadian Food Inspection Agency

Presentation to the Association of Enterprise Architects (AEA) and ISACA

February 15, 2018





Business capabilities are a hierarchical decomposition of 'what' the enterprise does. Business capabilities do nothing by themselves, all the work is actually done by business processes which are the 'how' part of the question. All resources, business applications, etc. belong to business processes. While at age of information, all key business processes are enabled by enterprise IT capabilities. Therefore, the crucial question needs to be asked: How to map IT capabilities to business capabilities in one page?

Future of CIO

<http://futureofcio.blogspot.ca/2013/06/how-to-map-it-capabilities-to-business.html>

Purpose

- The purpose of the presentation is to:
 - Introduce a framework for tracing IT assets from the IT services/application functions that they support through to the Agency's business capabilities ("what the organization does") and its outcomes
 - Define why the framework is important - why should I care?

Background

- As part of a business capability modelling exercise, a framework was established for ...
 - ... tracing from the business capabilities to the business processes of the Agency
 - ... tracing from the business processes to the IT services and assets that implement them
 - ... tracing from the business capabilities (through the business processes) to the organizational units, programs / activities of the Agency that realize the capabilities
 - ... tracing from the business capabilities to the Agency outcomes they support

Why should I care?

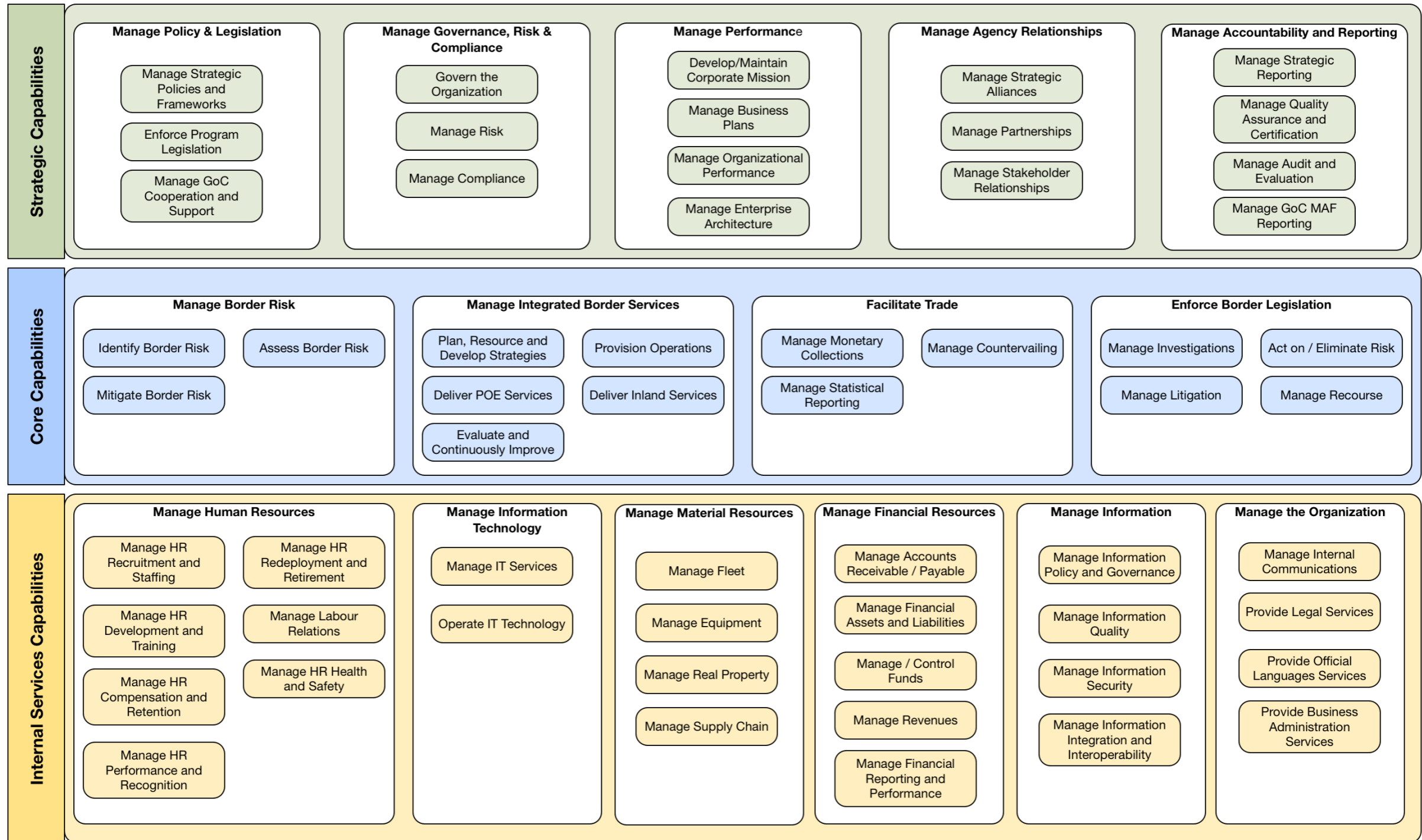
- The traceability framework provides the basis for answering questions about the business processes of the Agency as well as questions about IT services and assets that support these business processes ...

Why should I care?

- From an executive perspective:
 - What does the organization do? What are the organization's capabilities?

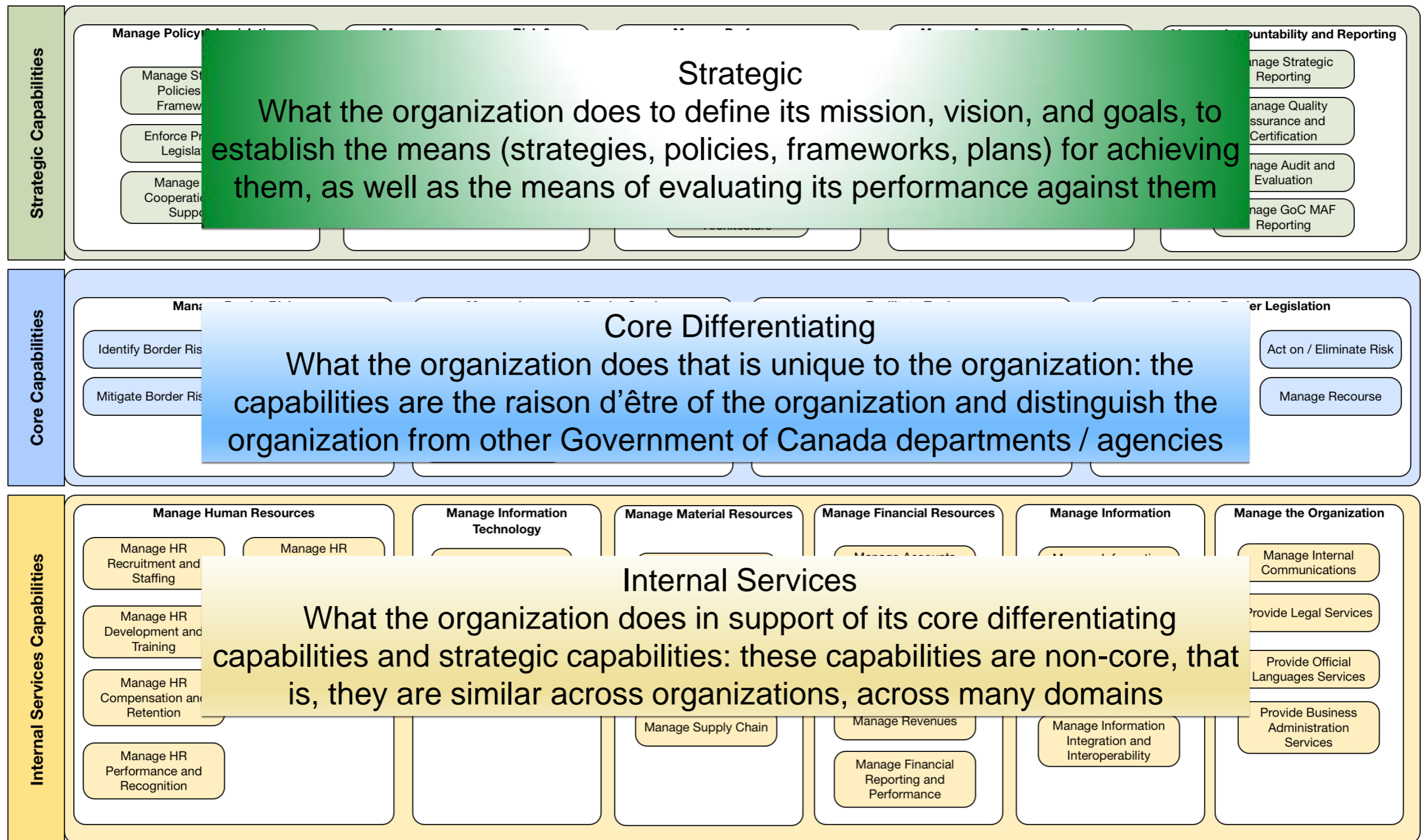
What does the Agency do?

Business Capability Anchor (Reference) Model Diagram



What does the Agency do?

Business Capability Anchor (Reference) Model Diagram



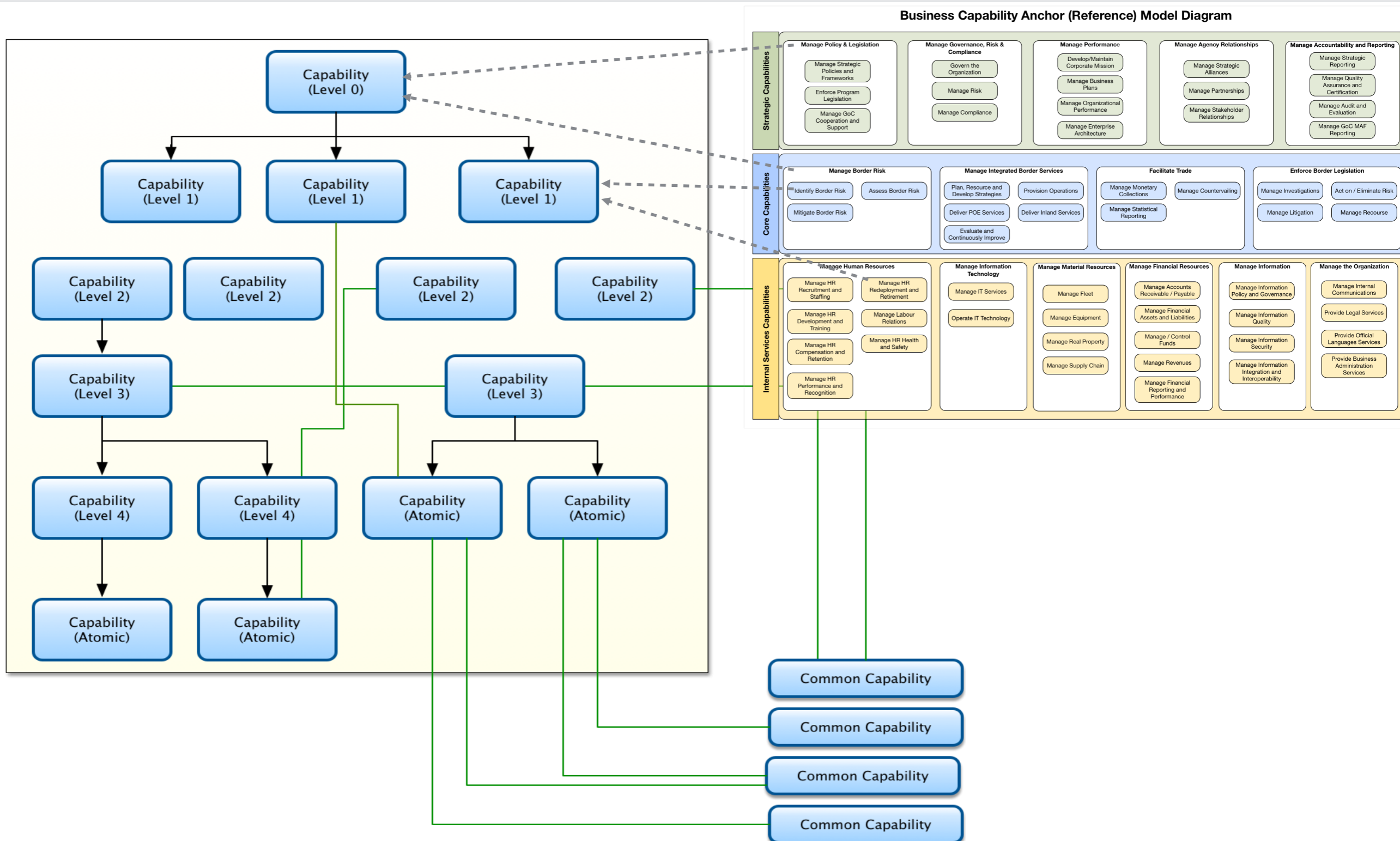
Why should I care?

- From an executive perspective:
 - Where are my investment opportunities? What types of improvement opportunities should be pursued?

What does the Agency do?

THE BUSINESS CAPABILITY MODEL:
THE DETAILS

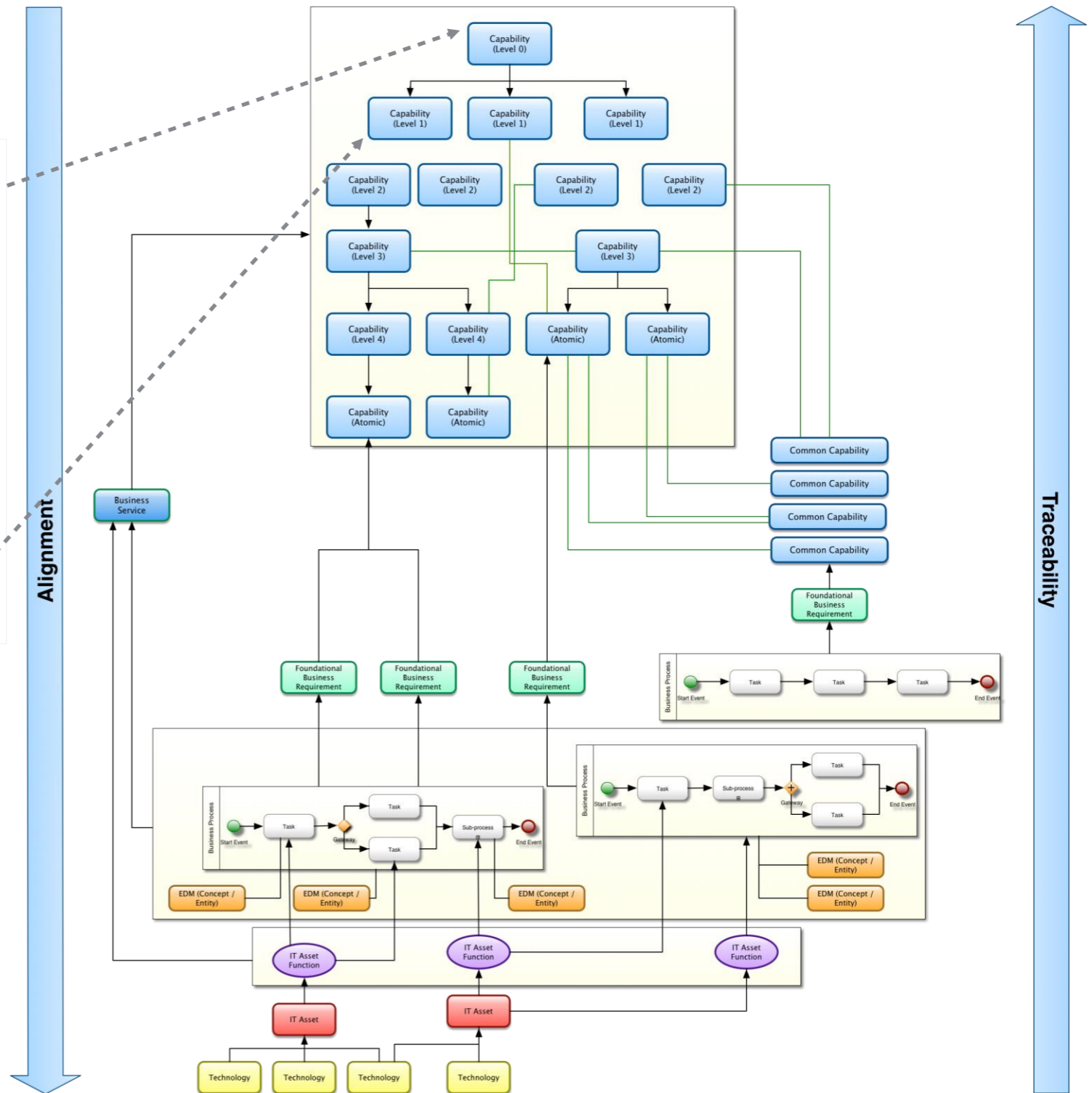
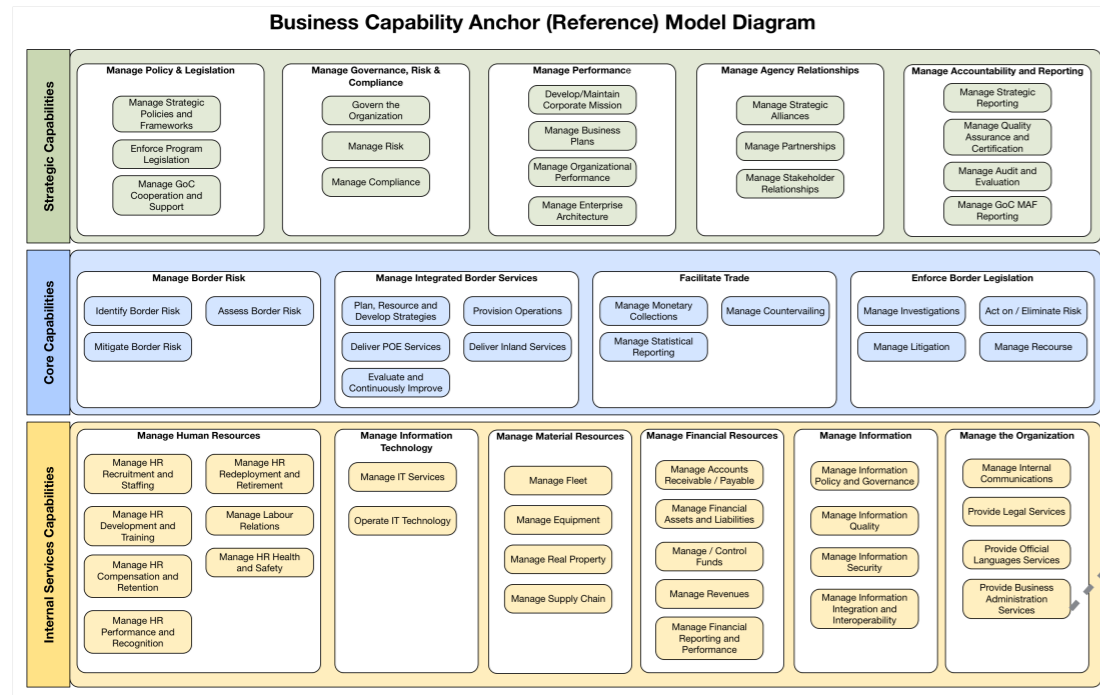
What does the Agency do?



What does the Agency do and how?

THE BUSINESS CAPABILITY
TRACEABILITY FRAMEWORK

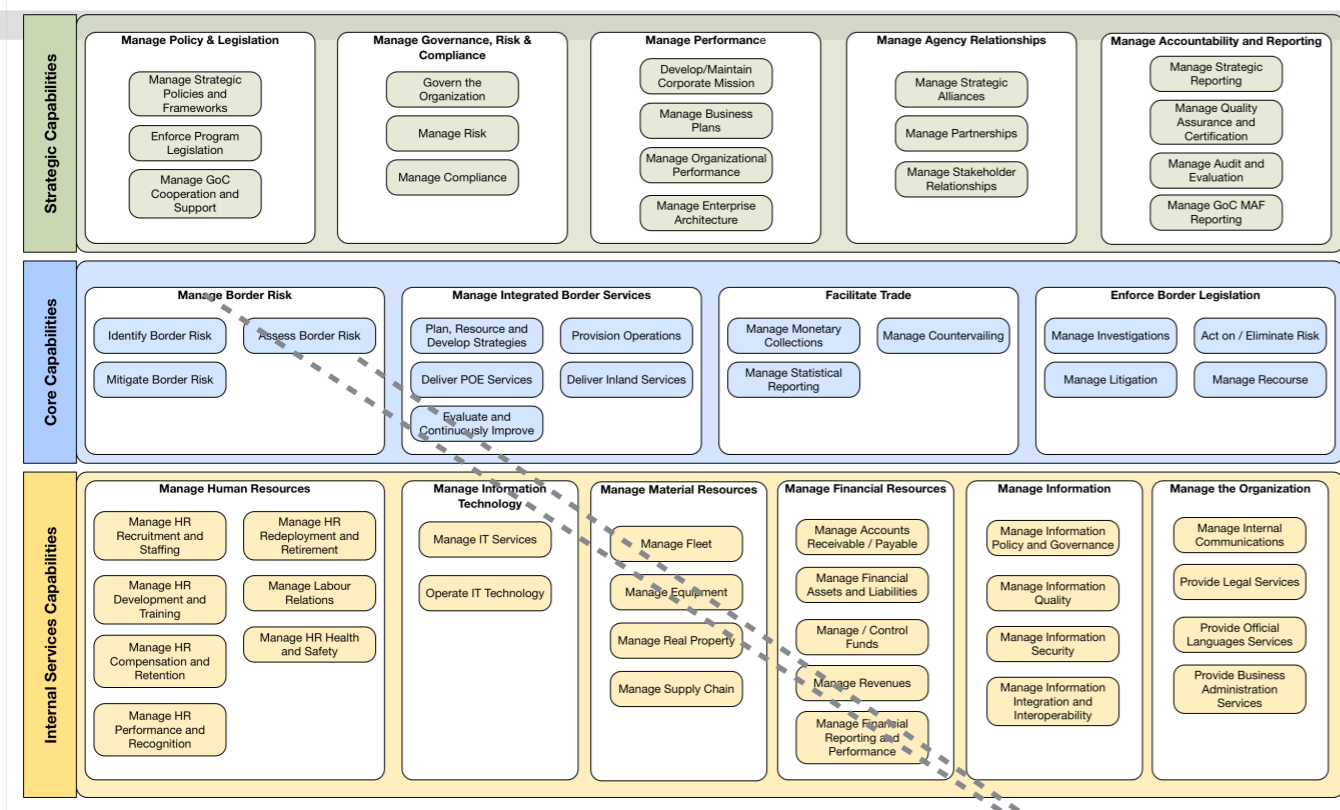
What does the Agency do and how?



Why should I care?

- From an executive perspective:
 - How do these capabilities address the Agency's outcomes?
 - Who is responsible for or realizes these capabilities?
 - How do these capabilities align with the Agency's programs and activities?

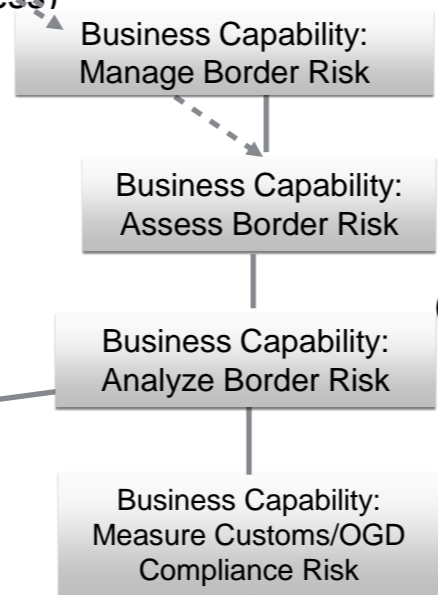
Business Capability Anchor (Reference) Model Diagram



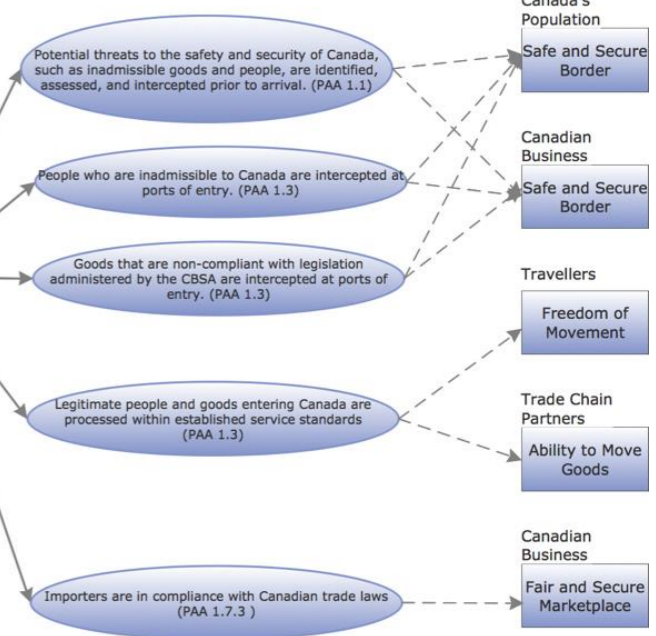
What does the Agency do?

How do business capabilities address the Agency's outcomes?

What are the Agency's (business) capabilities?



Capability: Assess Border Risk



Who is responsible for / realizes the Agency's (business) capabilities?

Atomic Risk Assessment Capability	Organization									
	Programs Branch					Operations Branch				
	Beyond the Border Governance and Implementation Coordination	Anti-Dumping and Countervailing	Pre-Border Programs	Border Programs	Enforcement and Intelligence Programs	Trade Programs	Strategic Risk and Modernization	International and Partnerships	Business Systems Support	National Border Operations Centre
Estimate Likelihood of Security Risk										
Estimate Magnitude of Security Risk Impact										
Estimate Likelihood of Non-compliance (Customs/OGD) Risk										
Estimate Magnitude Non-compliance (Customs/OGD) Impact										
Estimate Likelihood of Non-compliance (Immigration) Risk										
Estimate Magnitude Non-compliance (Immigration) Impact										

How do the Agency's (business) capabilities align with its activities?

Atomic Risk Assessment Capability	Program Activity																				
	1.1.1 Intelligence	1.1.2 Targeting	1.1.3 Security Screening	1.2.1 Trusted Travellers	1.2.2 Trusted Traders	1.3.1 Highway Mode	1.3.2 Air Mode	1.3.3 Rail Mode	1.3.4 Marine Mode	1.3.5 Postal	1.3.6 Courier Low-Value Shipment	1.4 Criminal Investigations	1.5.1 Immigration Investigations	1.5.2 Detentions	1.5.3 Immigration Hearings	1.5.4 Removals	1.6 Recourse	1.7.1 Anti-Dumping and Countervailing	1.7.2 Trade Policy	1.7.3 Trade Compliance	
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Business Capability: Estimate Magnitude of Security Impact

Business Capability: Estimate Likelihood of Non-compliance (Customs/OGD) Risk

Business Capability: Calculate Non-compliance (Customs/OGD) Risk

Business Capability: Estimate Magnitude of Non-compliance (Customs/OGD) Impact

**THE EXECUTIVE PERSPECTIVE – RISK
ASSESSMENT AN EXAMPLE:
IDENTIFY AN INDIVIDUAL AND ACCESS
INTELLIGENCE ON THE INDIVIDUAL**

Why should I care?

- From an executive perspective:
 - What business processes support these capabilities?
 - What IT services / assets support these business processes?
 - Is investment in specific IT services / assets justified?
 - Which IT assets need to be “matured” (e.g., where the IT asset maturity is lower than the people / process dimensions)?
 - Can an IT asset be matured and the benefits realized?

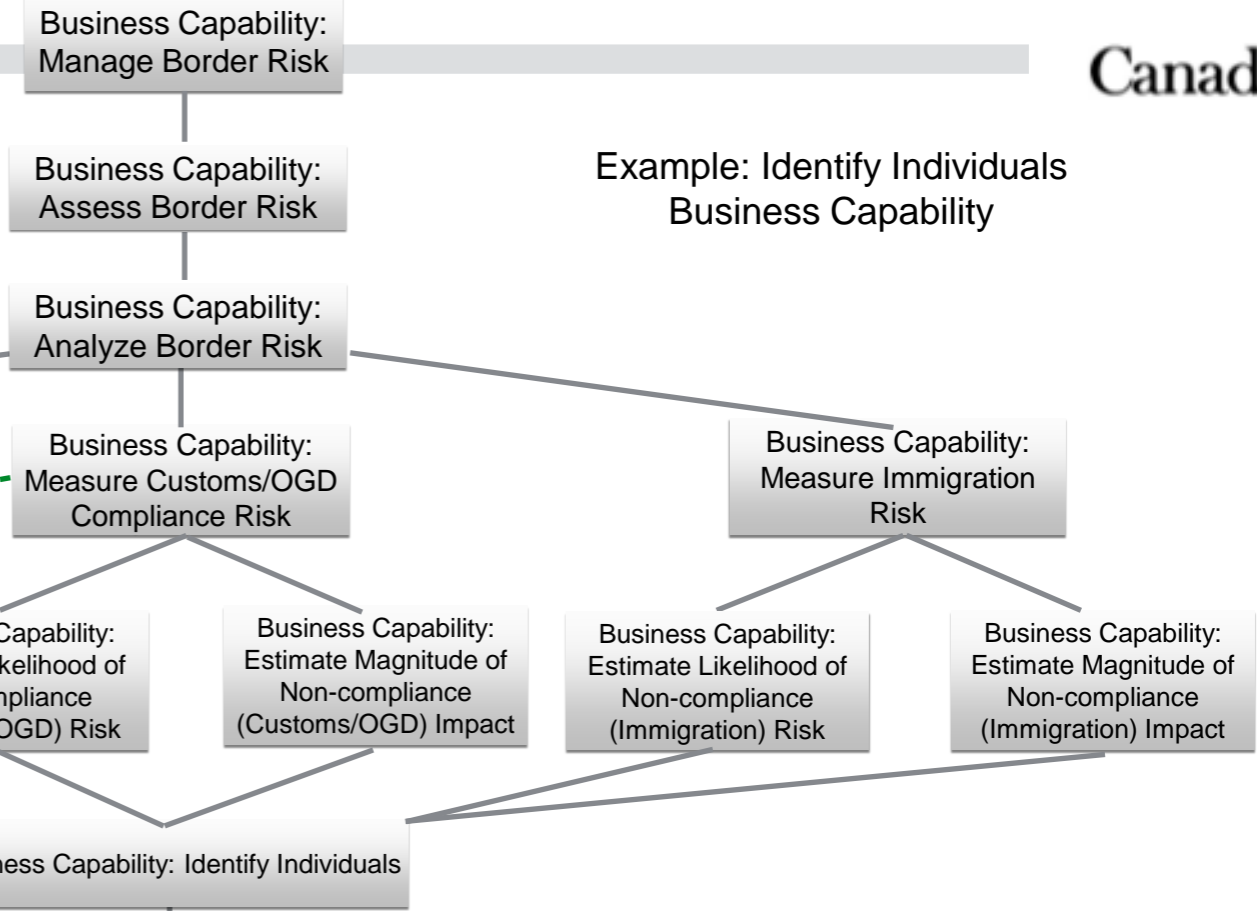
Can I mature the technology (e.g., MDM) and realize the benefits or must other actions be taken (e.g., maturing the process, information, or people dimensions) at the same time (or as a pre-requisite)?



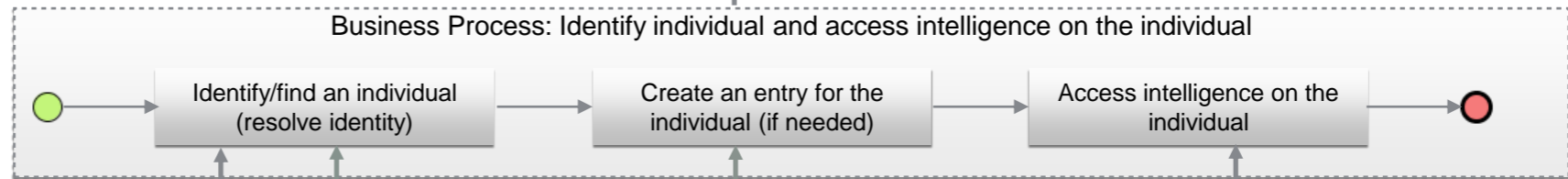
What is (are) the foundational business requirement(s) to be addressed?

Requirement: Identify and access intelligence on an individual within a specified time frame (e.g., near real time) where the time frame will vary by mode and by program

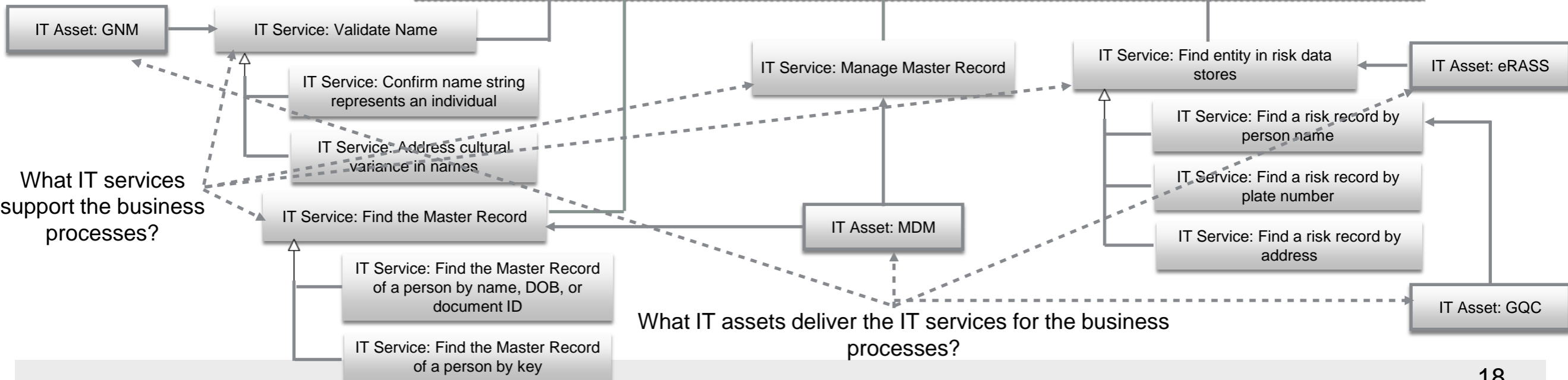
Example: Identify Individuals Business Capability



What business processes support the requirement?



What IT services support the business processes?

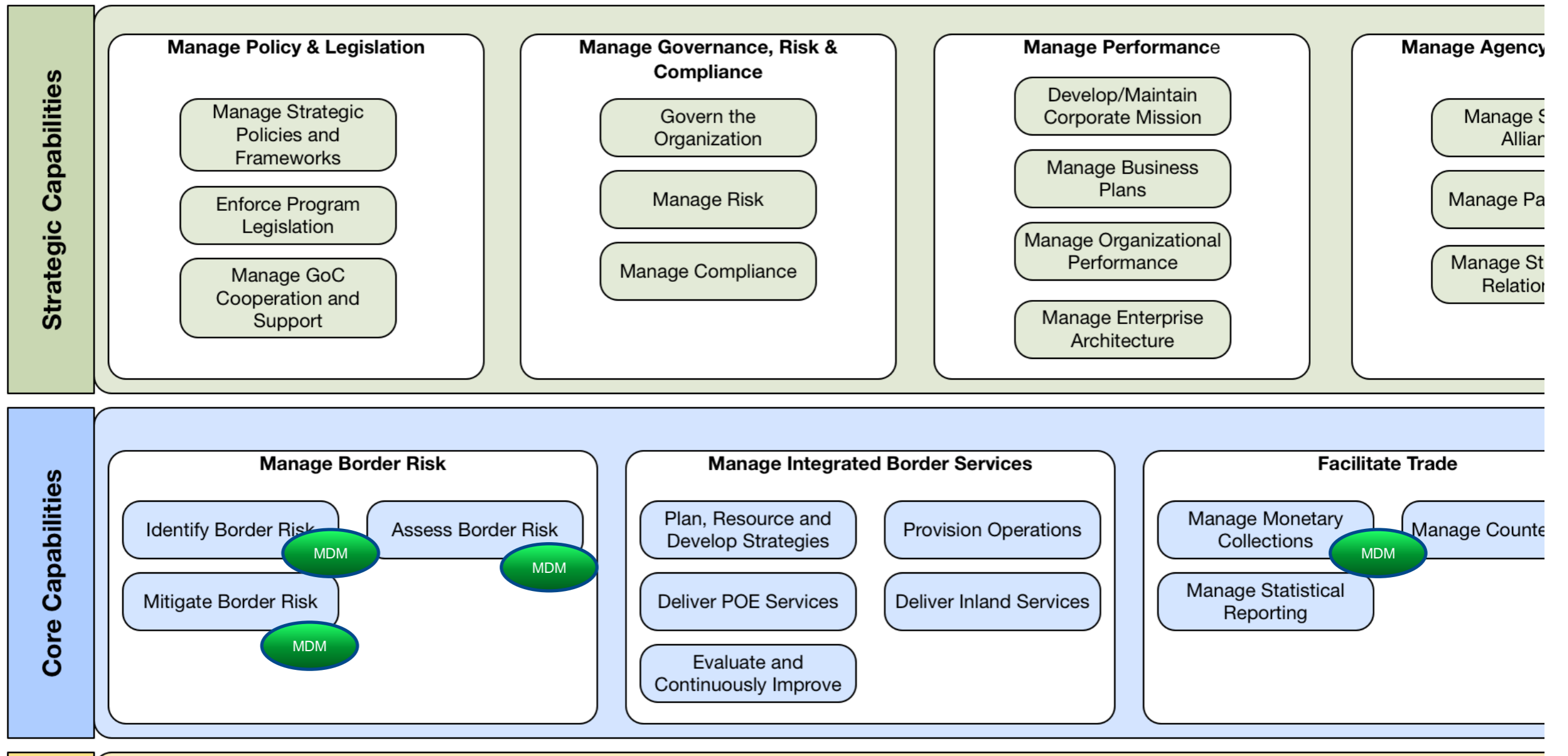


What IT assets deliver the IT services for the business processes?

**IS AN INVESTMENT IN TECHNOLOGY
JUSTIFIED?
...THE MDM HEAT MAP ...**

Why should I care ... the MDM Heat Map

Business Capability Anchor (Reference) Model Diagram



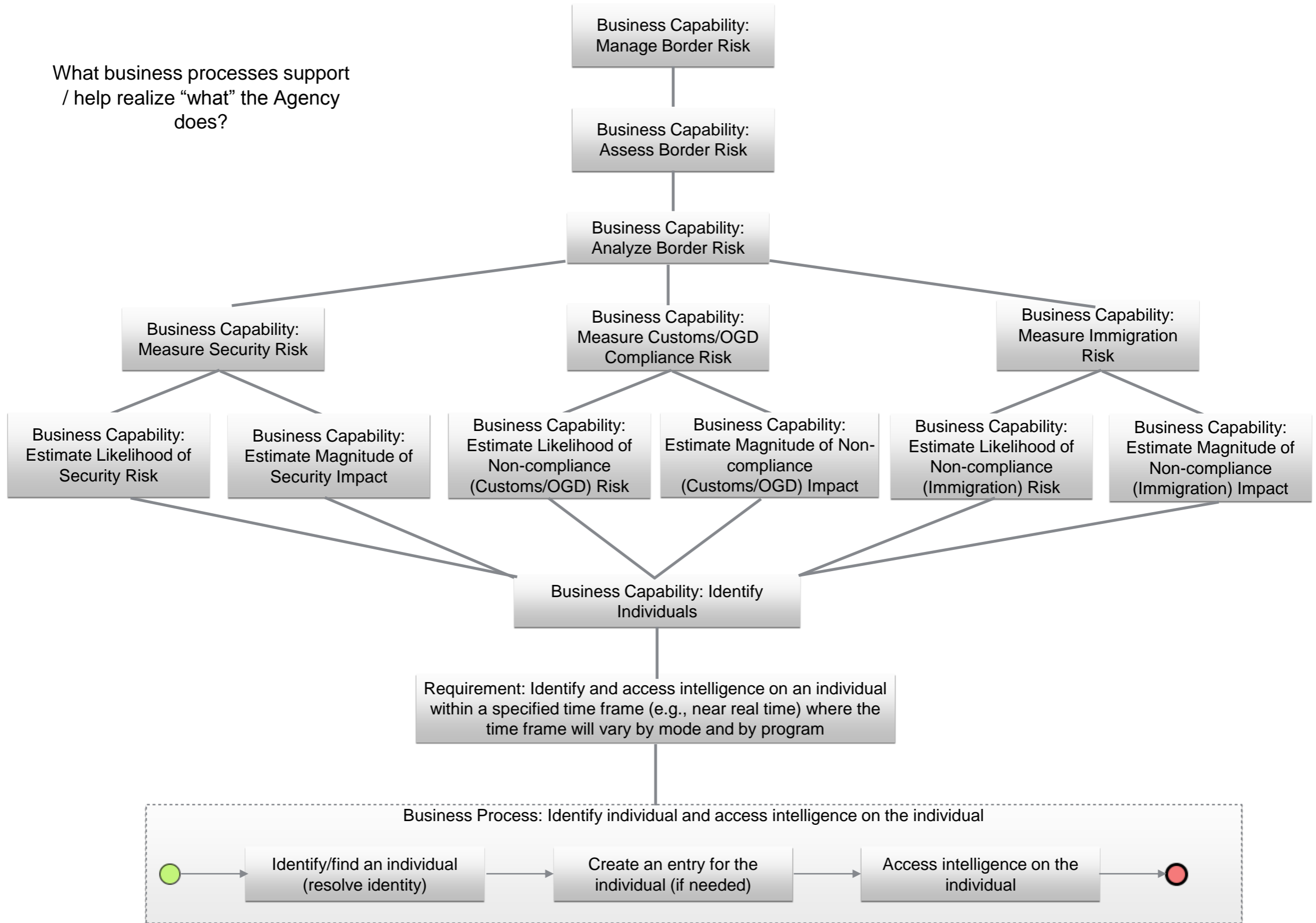
AND ... THERE ARE OTHER PERSPECTIVES ...

Why should I care?

- From a management perspective:
 - What business processes support the Agency's objectives? How does a given business process support what the Agency does?
 - Who uses a given business process? How does a given business process help the Agency achieve its outcomes?
 - What IT assets implement these business processes? what business process(es) does a given IT asset support?
 - Is the planned expenditure on a given IT asset justified? does it support the Agency's outcomes?

**THE MANAGEMENT PERSPECTIVE - AN EXAMPLE:
IDENTIFY AN INDIVIDUAL AND ACCESS
INTELLIGENCE ON THE INDIVIDUAL**

What business processes support / help realize “what” the Agency does?

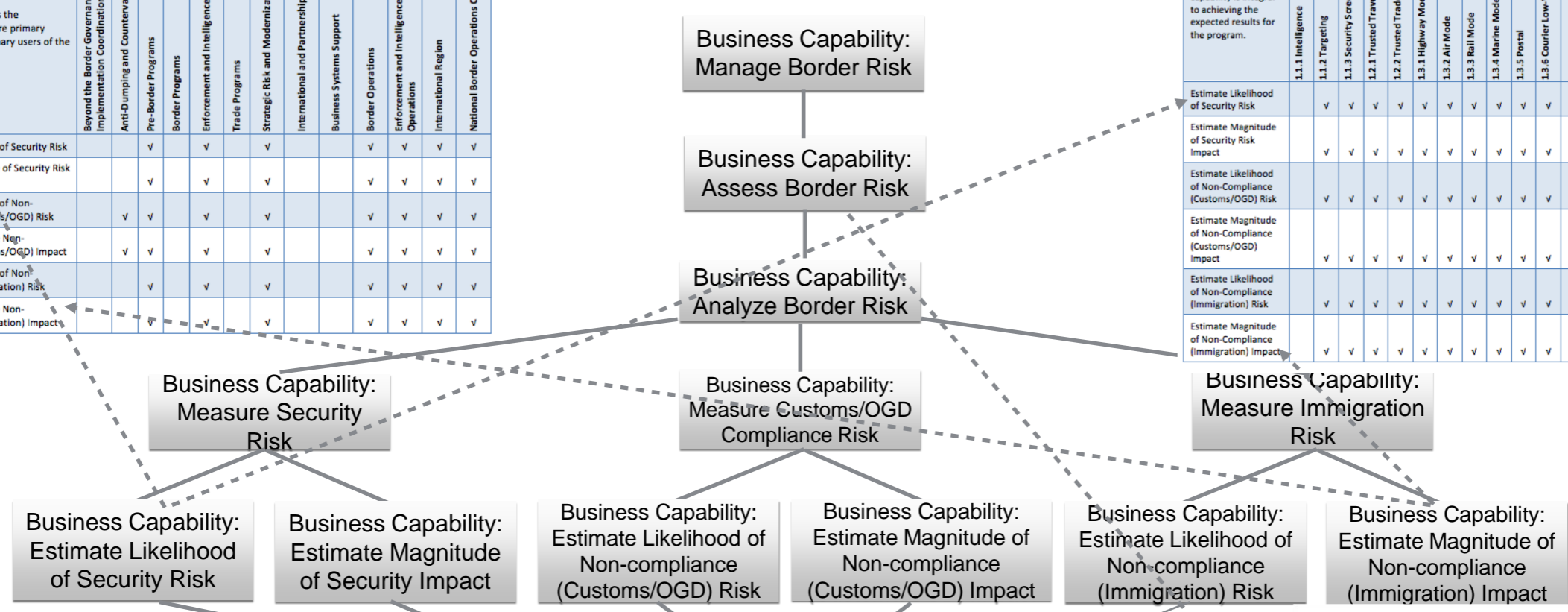


Which organizations use / implement the business process?

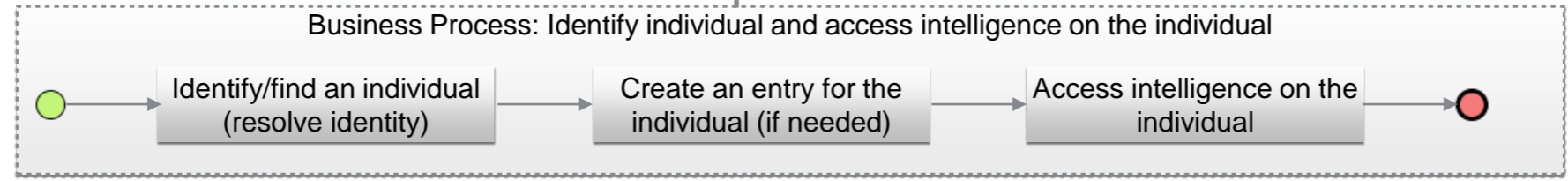
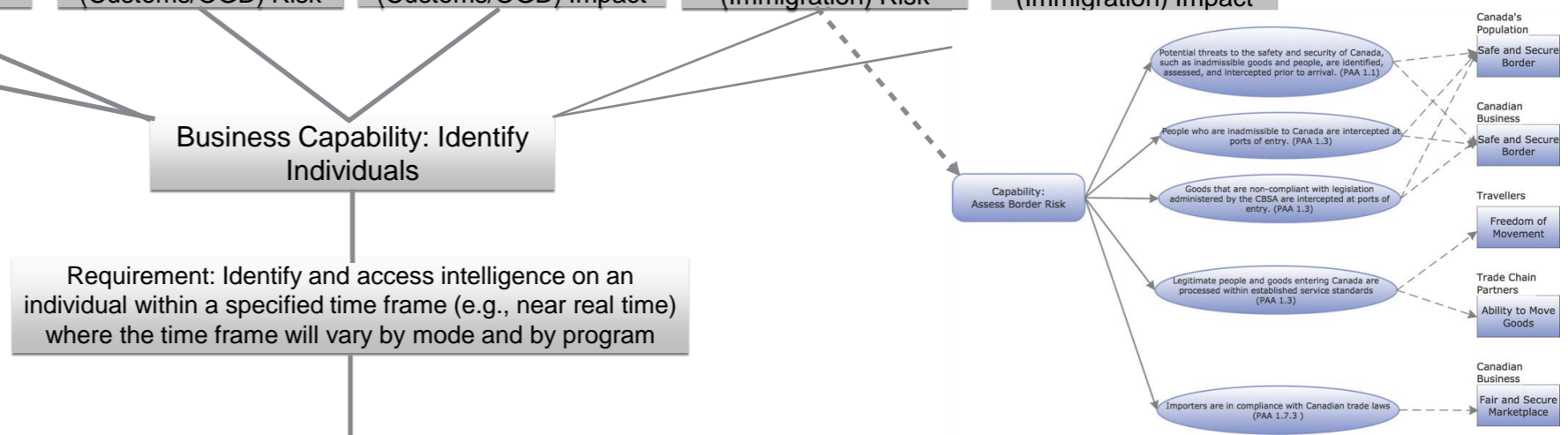
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Estimate Likelihood of Security Risk			✓	✓	✓	✓			✓	✓	✓	✓
Estimate Magnitude of Security Risk Impact			✓	✓	✓	✓			✓	✓	✓	✓
Estimate Likelihood of Non-compliance (Customs/OGD) Risk		✓	✓	✓	✓	✓			✓	✓	✓	✓
Estimate Magnitude Non-compliance (Customs/OGD) Impact		✓	✓	✓	✓	✓			✓	✓	✓	✓
Estimate Likelihood of Non-compliance (Immigration) Risk			✓	✓	✓	✓			✓	✓	✓	✓
Estimate Magnitude Non-compliance (Immigration) Impact			✓	✓	✓	✓			✓	✓	✓	✓

Which programs/activities does the business process support?

Atomic Risk Assessment Capability	Program Activity																			
	1.1 Risk Assessment		1.3 Secure and Trusted Partnerships		1.3 Admissibility Determination						1.5 Immigration Enforcement			1.7 Revenue and Trade Management						
	1.1.1 Intelligence	1.1.2 Targeting	1.1.3 Security Screening	1.2.1 Trusted Travellers	1.2.2 Trusted Traders	1.3.1 Highway Mode	1.3.2 Air Mode	1.3.3 Rail Mode	1.3.4 Marine Mode	1.3.5 Postal	1.3.6 Courier Low-Value Shipment	1.4 Criminal Investigations	1.5.1 Immigration Investigations	1.5.2 Detentions	1.5.3 Immigration Hearings	1.5.4 Removals	1.6 Recourse	1.7.1 Anti-Dumping and Countervailing	1.7.2 Trade Policy	1.7.3 Trade Compliance
Estimate Likelihood of Security Risk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	?	?				
Estimate Magnitude of Security Risk Impact	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	?	?				
Estimate Likelihood of Non-compliance (Customs/OGD) Risk																				✓
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Estimate Likelihood of Non-compliance (Immigration) Risk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	?	?				
Estimate Magnitude of Non-compliance (Immigration) Impact	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	?	?				

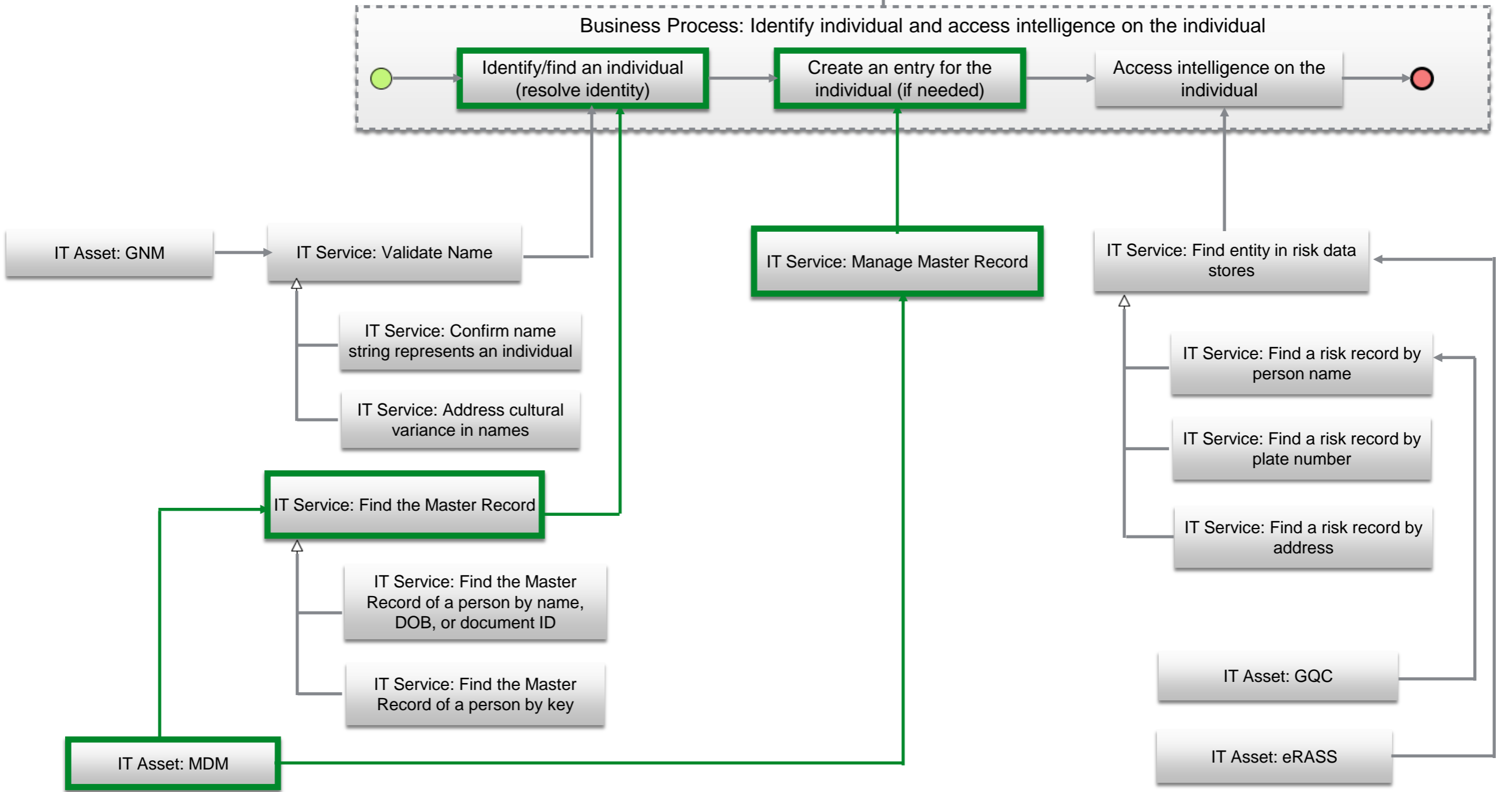


How does the business process support the Agency's outcomes?



What business processes does an IT Asset support?

Requirement: Identify and access intelligence on an individual within a specified time frame (e.g., near real time) where the time frame will vary by mode and by program



Why should I care?

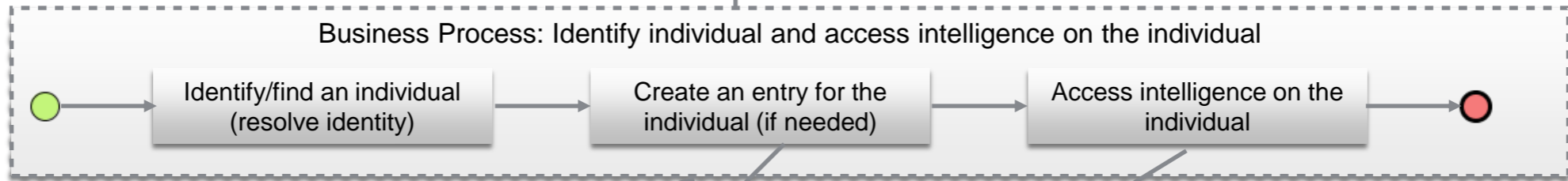
- From a business perspective:
 - What business requirements are addressed?
 - What business processes exist to address these business requirements?
 - Is there a business process that can be used as a pattern to meet our requirements?
 - How are the business processes implemented? what IT services are used? what IT assets support the business processes?
 - How do I know that the right requirements / processes have been accounted for?

**THE BUSINESS PERSPECTIVE - AN EXAMPLE:
IDENTIFY AN INDIVIDUAL AND ACCESS
INTELLIGENCE ON THE INDIVIDUAL**

I need to ...

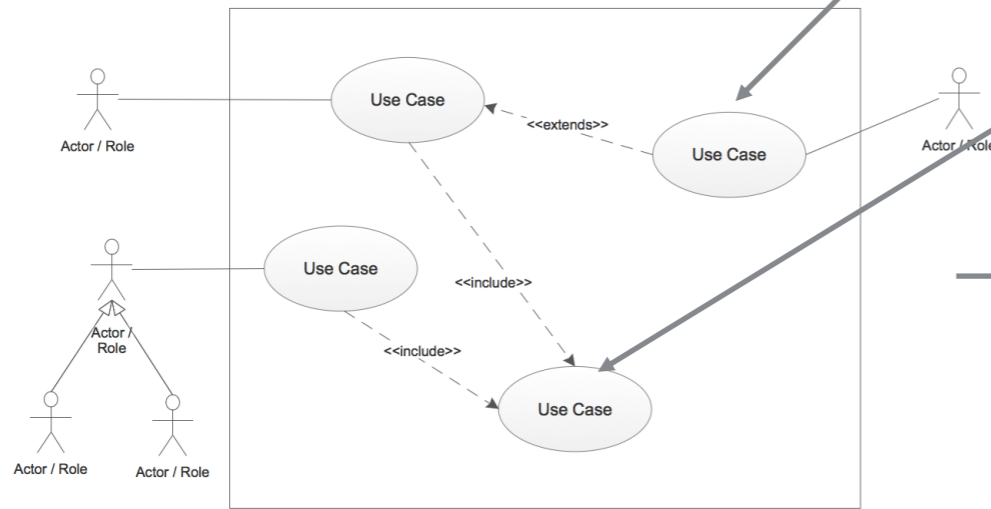
Requirement: Identify and access intelligence on an individual within a specified time frame (e.g., near real time) where the time frame will vary by mode and by program

Does a business process exist?



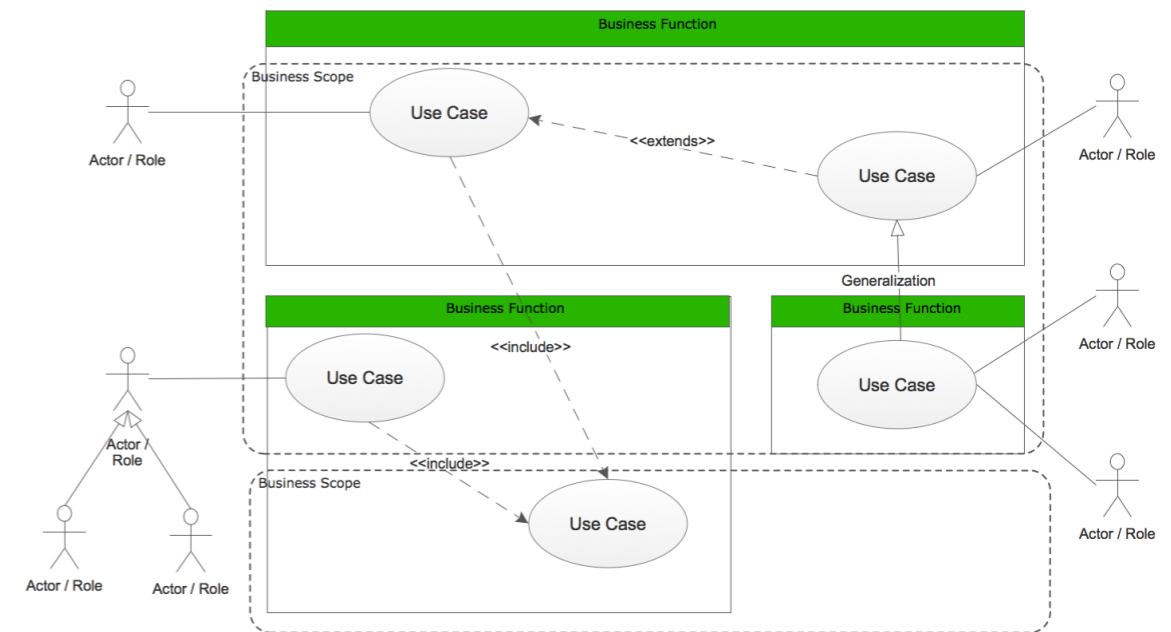
Where is the business process described?

Business Use Case (BUC)



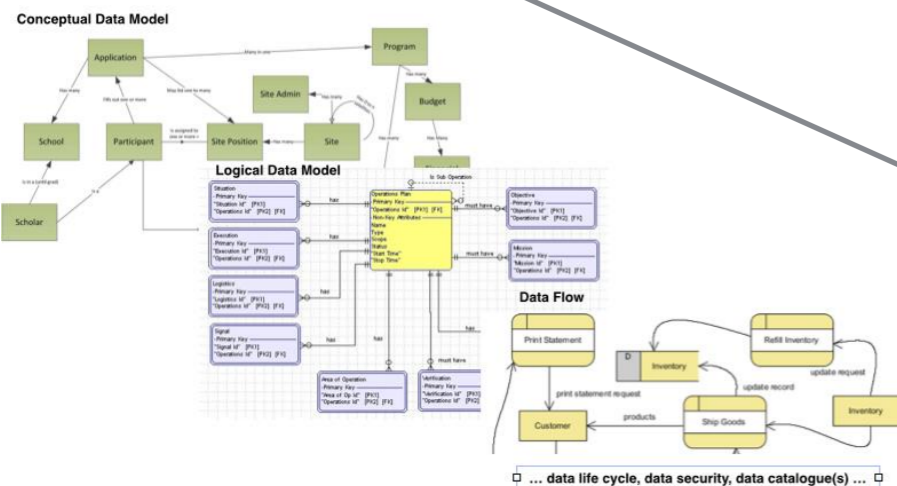
How does the business process relate to other business processes?

Business Use Case (BUC) Model



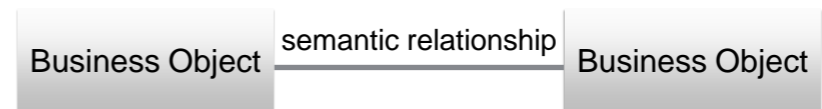
What information / data does the business process access / use / manage?

Data (Information) Architecture



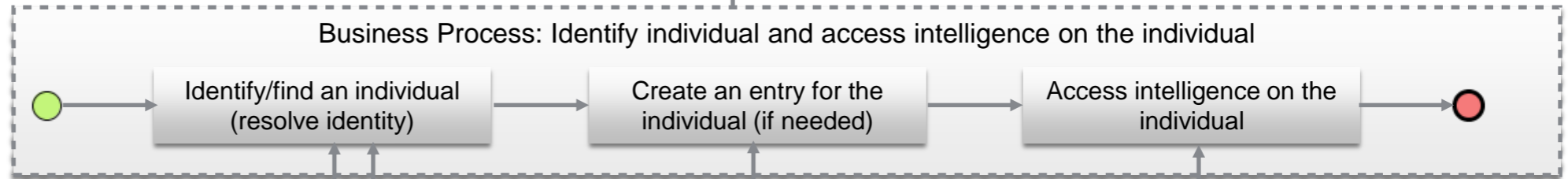
How does this information relate to what the business is interested in?

Business Object Model (BOM)

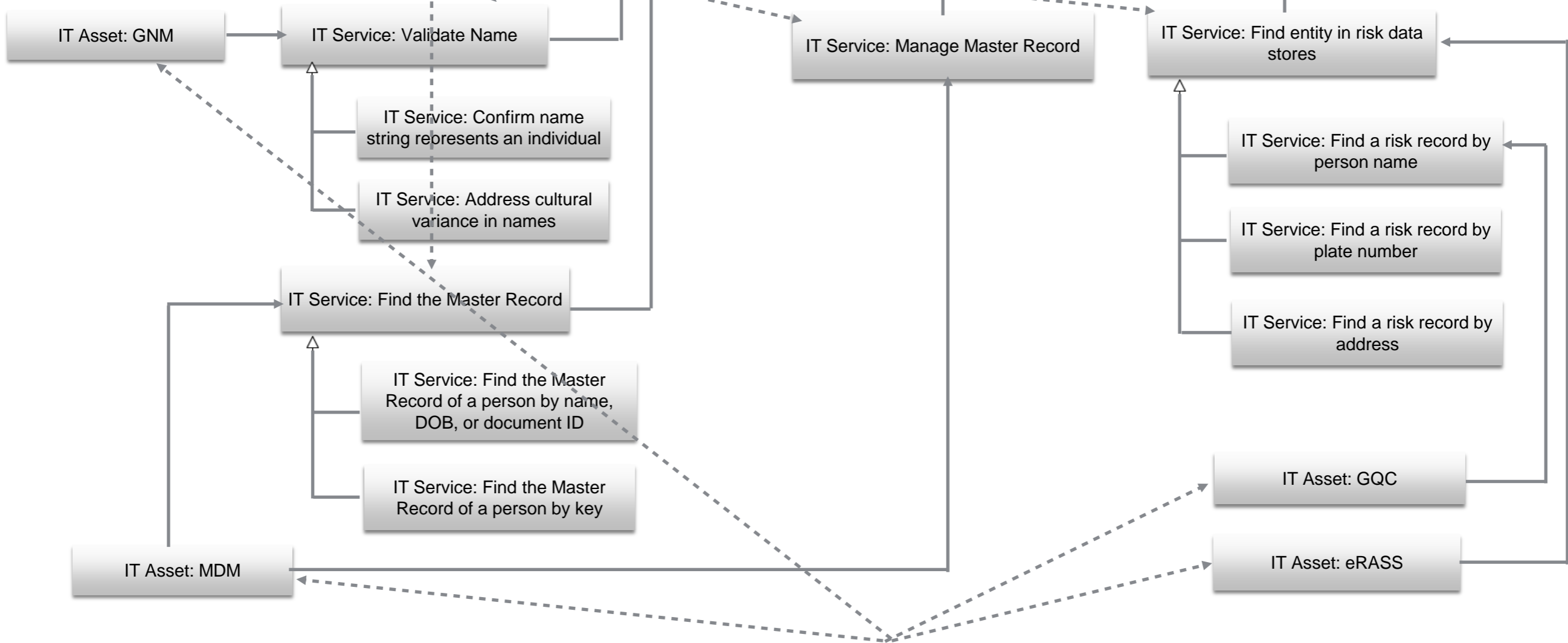


I need to ...

Requirement: Identify and access intelligence on an individual within a specified time frame (e.g., near real time) where the time frame will vary by mode and by program



What IT services are used by the business process?



What IT assets deliver the IT services for the business process?

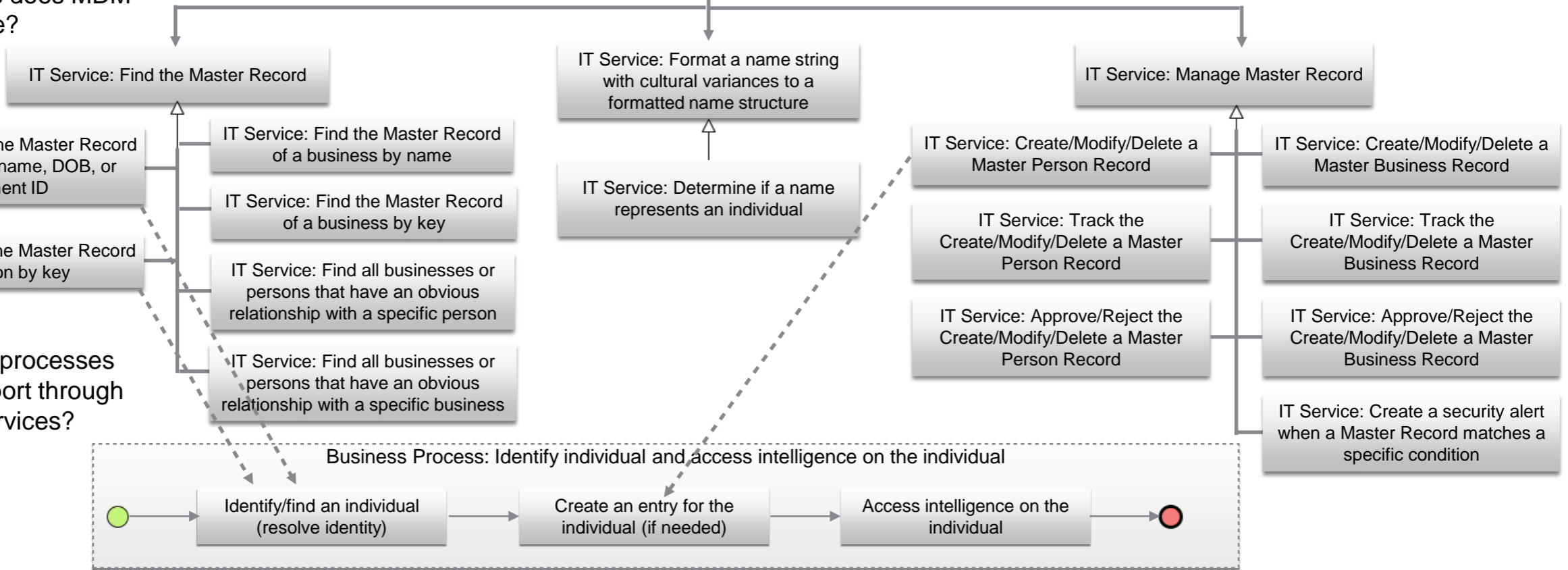
Why should I care?

- From an application / technology architecture:
 - What IT services are provided by an IT Asset?
 - What business processes are supported by these IT Services?
 - What is (are) the foundational business requirement(s), and are they addressed?
 - What business capabilities are supported?
 - What business organizations make use of the IT Services / IT Asset?
 - Which programs/activities the IT Services / IT Asset support?
 - How do the IT Services / IT Assets support the Agency's outcomes?

**THE APPLICATION / TECHNOLOGY
ARCHITECTURE PERSPECTIVE - AN
EXAMPLE:
MASTER DATA MANAGEMENT**

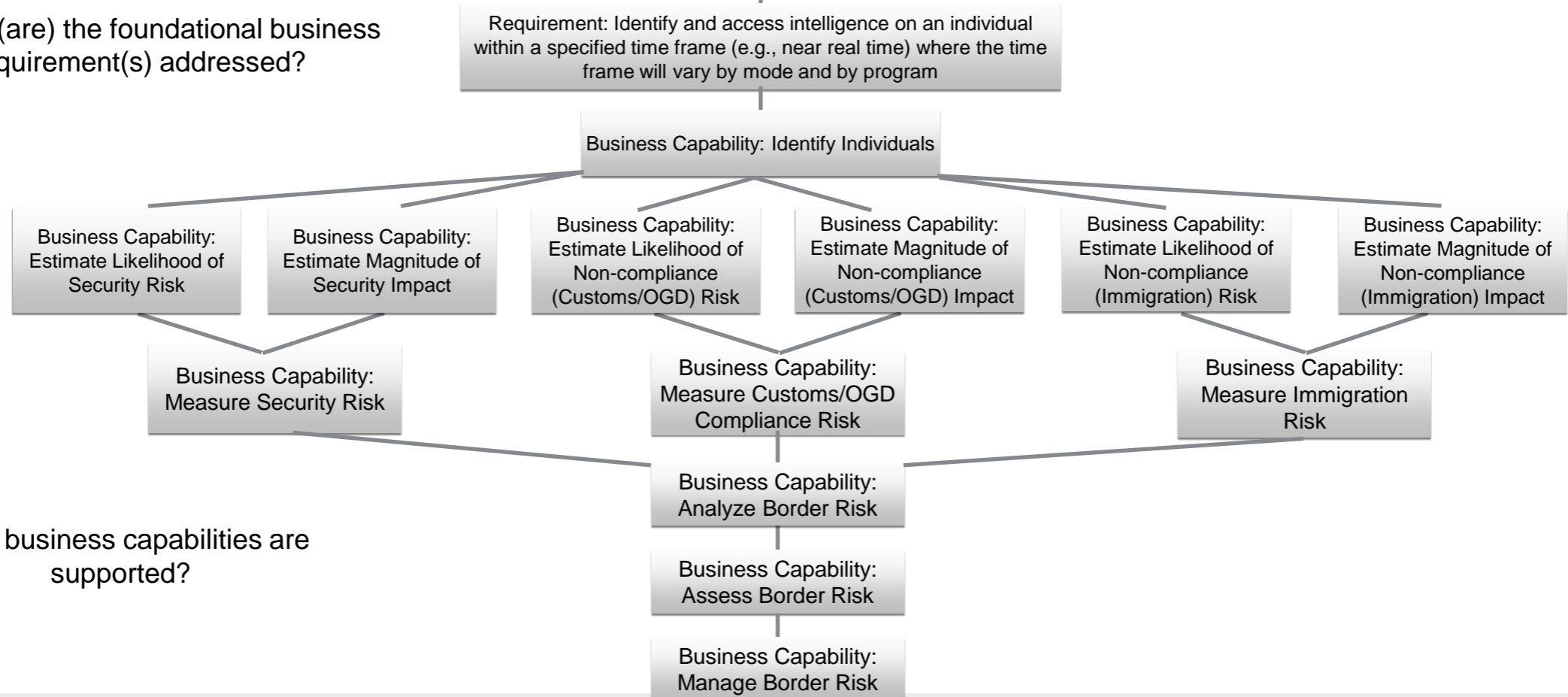
IT Asset: MDM

What IT Services does MDM provide?



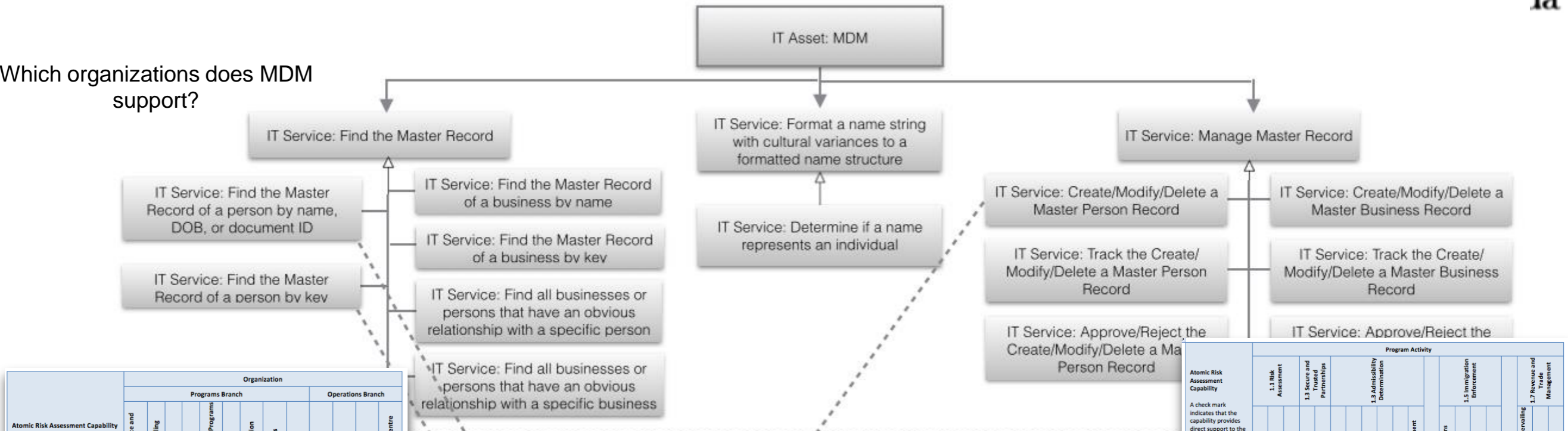
What business processes does MDM support through these IT Services?

What is (are) the foundational business requirement(s) addressed?



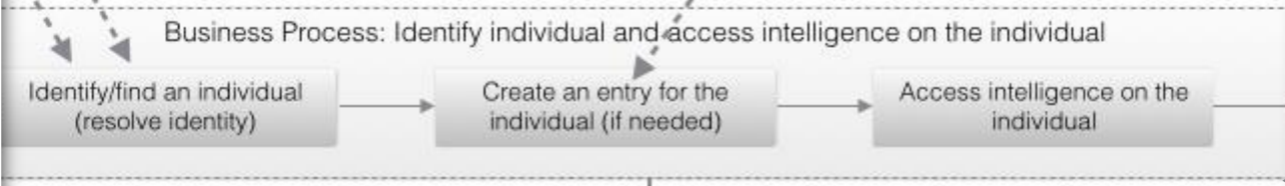
What business capabilities are supported?

Which organizations does MDM support?

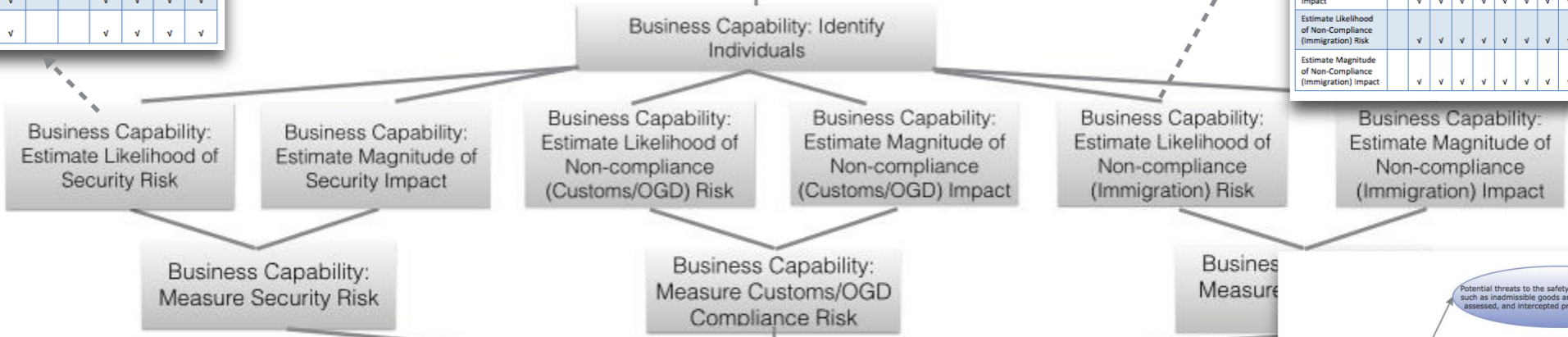


Atomic Risk Assessment Capability
This matrix indicates the organizations that are primary consumers (i.e. primary users of the capability)

	Organization												
	Programs Branch						Operations Branch						
	Beyond the Border Governance and Implementation Coordination	Anti-Dumping and Countervailing	Pre-border Programs	Border Programs	Enforcement and Intelligence Programs	Trade Programs	Strategic Risk and Modernization	International and Partnerships	Business Systems Support	Border Operations	Enforcement and Intelligence Operations	International Region	National Border Operations Centre
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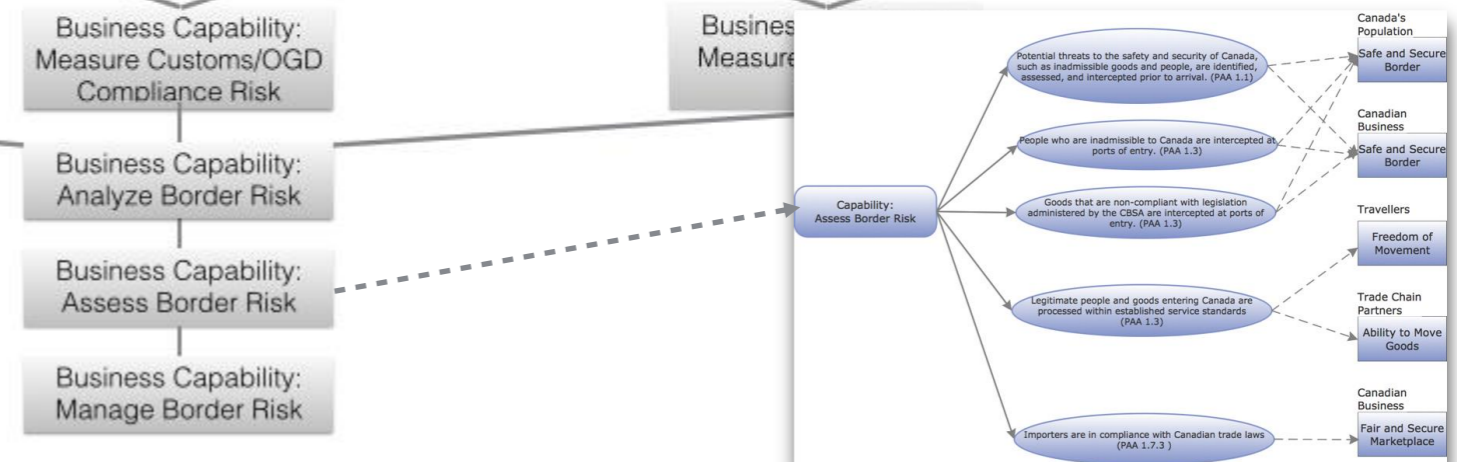


Atomic Risk Assessment Capability
A check mark indicates that the capability provides direct support to the PAA function. By direct support, we mean that the capability is integral to achieving the expected results for the program.

	Program Activity																				
	1.1 Risk Assessment			1.3 Secure and Trusted Partnerships				1.3 Admissibility Determination				1.5 Immigration Enforcement			1.7 Revenue and Trade Management						
	1.1.1 Intelligence	1.1.2 Targeting	1.1.3 Security Screening	1.2.1 Trusted Travelers	1.2.2 Trusted Traders	1.3.1 Highway Mode	1.3.2 Air Mode	1.3.3 Rail Mode	1.3.4 Marine Mode	1.3.5 Postal	1.3.6 Courier Low-Value Shipment	1.4 Criminal Investigations	1.5.1 Immigration Investigations	1.5.2 Detentions	1.5.3 Immigration Hearings	1.5.4 Removals	1.6 Recourse	1.7.1 Anti-Dumping and Countervailing	1.7.2 Trade Policy	1.7.3 Trade Compliance	
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Which programs/activities does MDM support?

How does MDM support the Agency's outcomes?



Why should I care?

- Many other questions can be answered - from an application / technology architecture perspective:
 - If I change an IT asset what business processes will be impacted? what business organizations will be impacted?
 - Which IT assets need to be “matured” (e.g., where the IT asset maturity is lower than the people / process dimensions)?
 - Should I “mature” an IT asset (e.g., does it make sense given the maturity of the process or people dimensions)?
 - If an IT asset is “matured” what will be the impact on the supported business capabilities?
 - Is a business process introducing a new IT service?
 - Can an existing IT asset be used to deliver the new IT service?

Why should I care?

- Many other questions can be answered - from a project management perspective:
 - Do the business processes to be implemented align with the Agency's outcomes? Activities? Who is responsible?
 - Are the business processes to be implemented dependent on other business processes, IT services, or assets? What is the state of their implementation?
 - Are there IT services / assets that can be leveraged for implementing the new business processes?

PORTFOLIO MANAGEMENT ...

Why should I care?

- From a portfolio management perspective:
 - Do the requirements / business processes of different application initiatives overlap (within the same portfolio)?
 - Do the requirements / business processes of different application initiatives (in different portfolios) overlap?
 - Where do these initiatives overlap?
 - Should overlaps in IT services / assets be addressed as enterprise (or common) initiatives? prioritized for delivery?

ON-BOARDING ...

Why should I care?

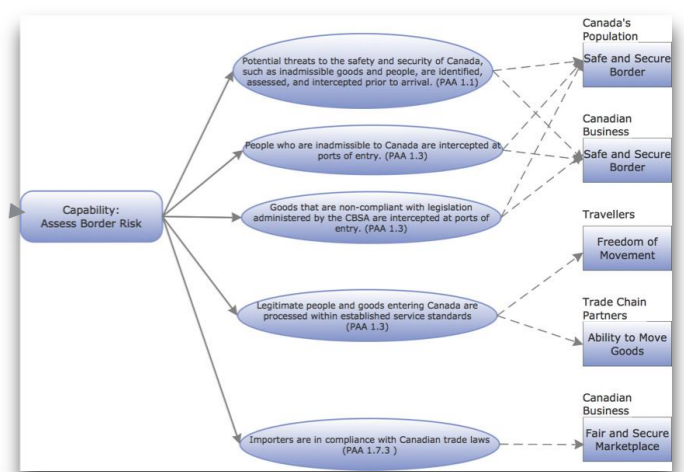
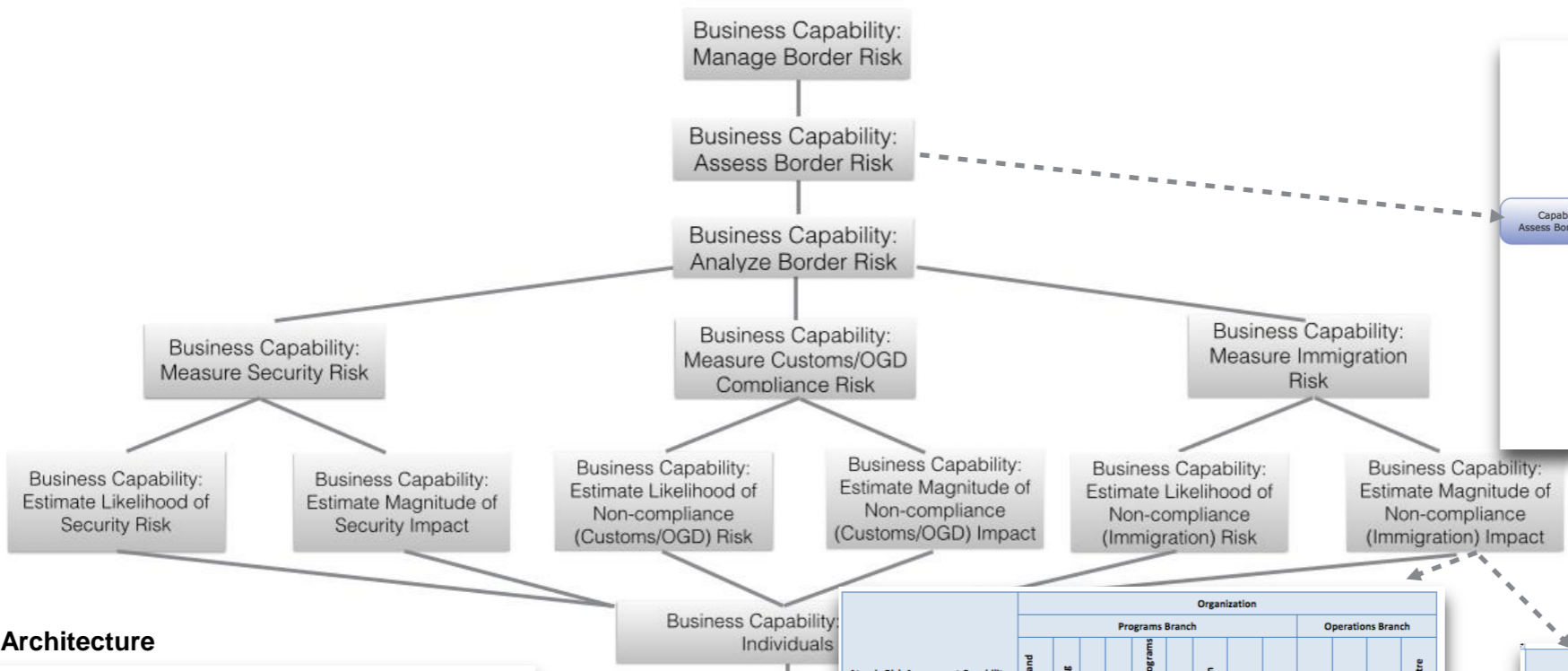
- The traceability framework will help in on-boarding new initiatives ...
 - in planning (client engagement)
 - ... through the identification of high level business requirements and their mapping / alignment with existing foundational business requirements (and subsequently with business capabilities)
 - ... the development of business use case models describing the relationship of the new business processes with other business processes (context of the new business processes)
 - ... the description of new business processes (aka business use cases) and their alignment with existing business processes / foundational business requirements / business capabilities

Why should I care?

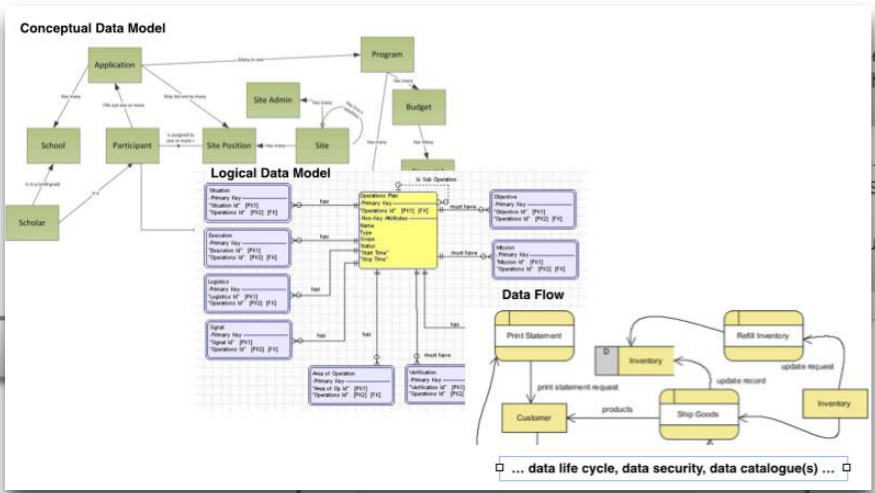
- The traceability framework will help in on-boarding new initiatives ...
 - in the Technical Qualification and Assessment process
 - ... through the identification of existing IT services and assets that can be reused / extended to meet the business requirements
 - in the Integration Endorsement and Testing process
 - ... through the scenarios used to validate the capabilities and business processes

IN CONCLUSION ...

**THE FRAMEWORK:
LINKING IT SERVICES AND ASSETS TO THE
AGENCY'S BUSINESS**



Data (Information) Architecture



Requirement: Identify and access information within a specified time frame (e.g., need a frame will vary by mode of access)

Business Process: Identify individual and access information

IT Service: Manage Master Record

IT Service: Find a risk record by person name

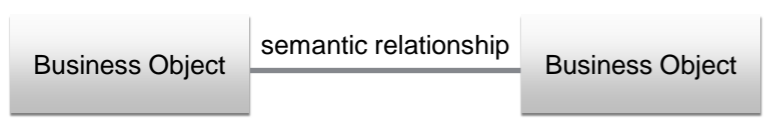
IT Service: Find a risk record by person number

IT Service: Find a risk record by address

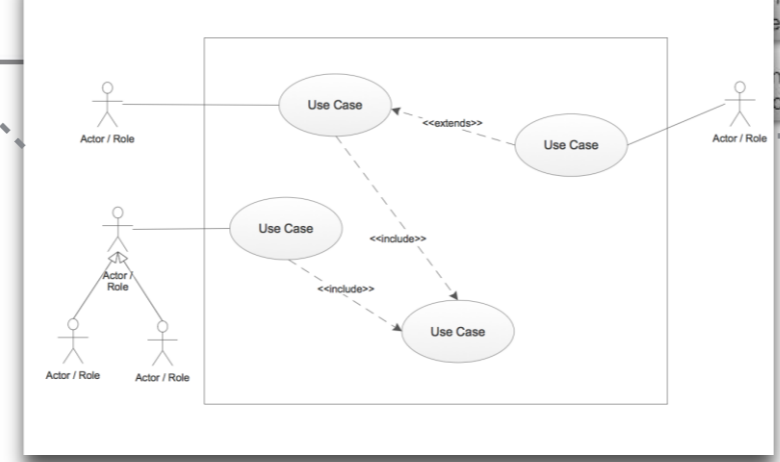
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Estimate Magnitude of Non-Compliance (Immigration) Impact																	

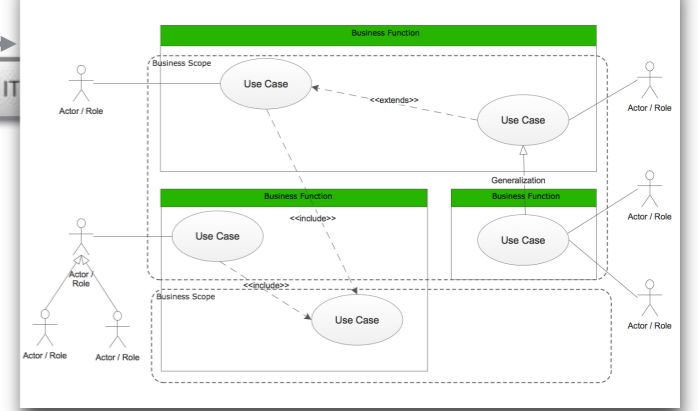
Business Object Model (BOM)



Business Use Case (BUC)

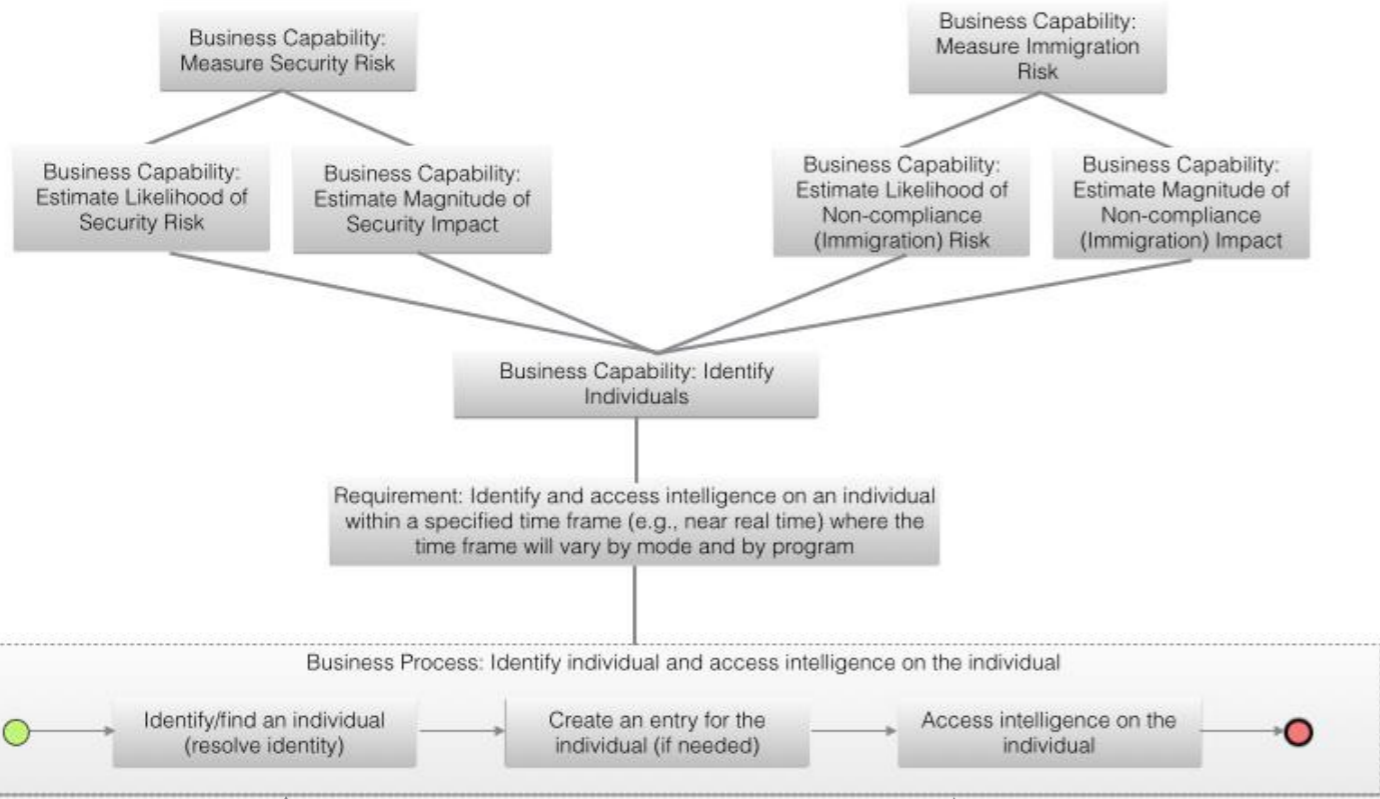


Business Use Case (BUC) Model

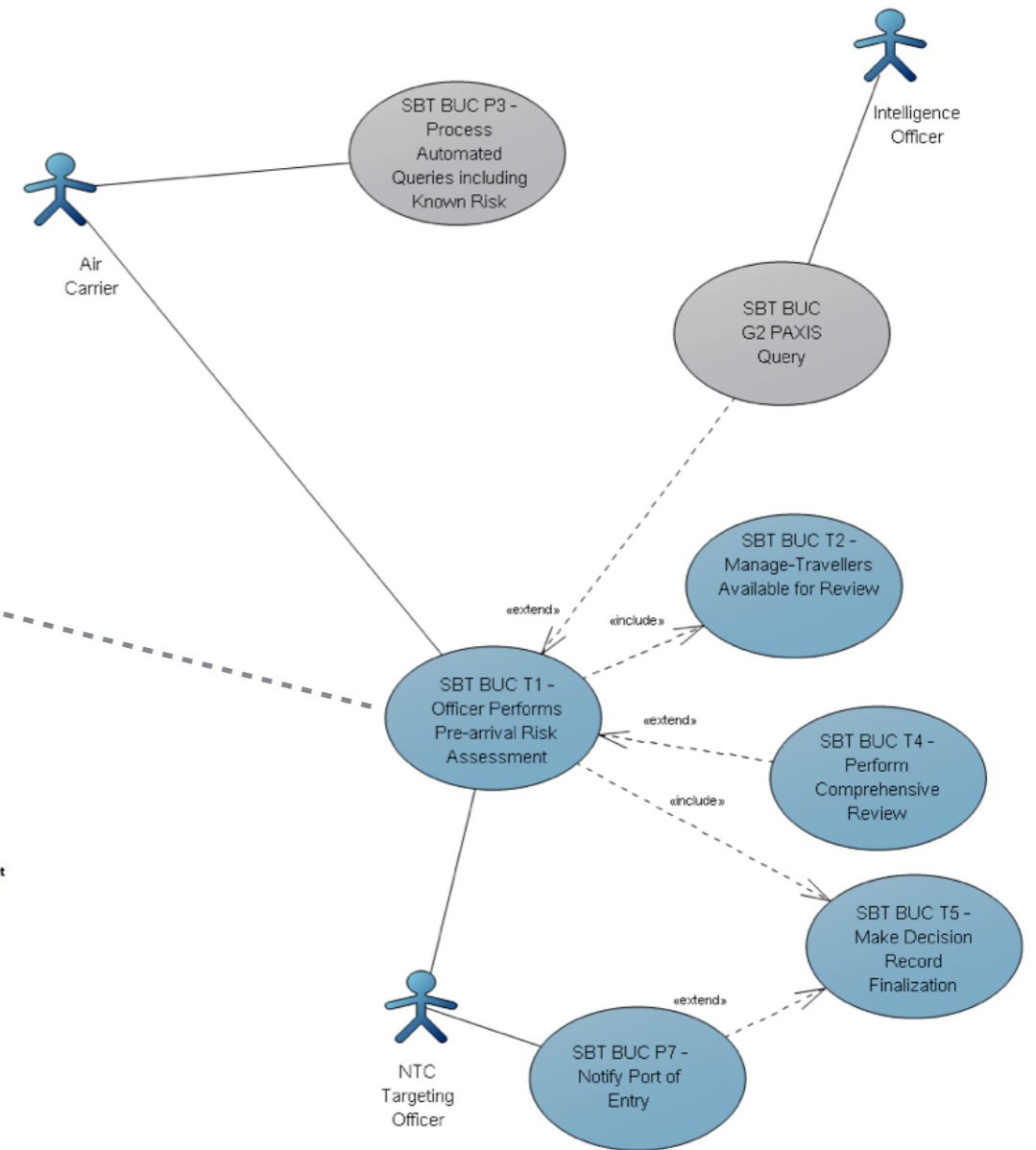




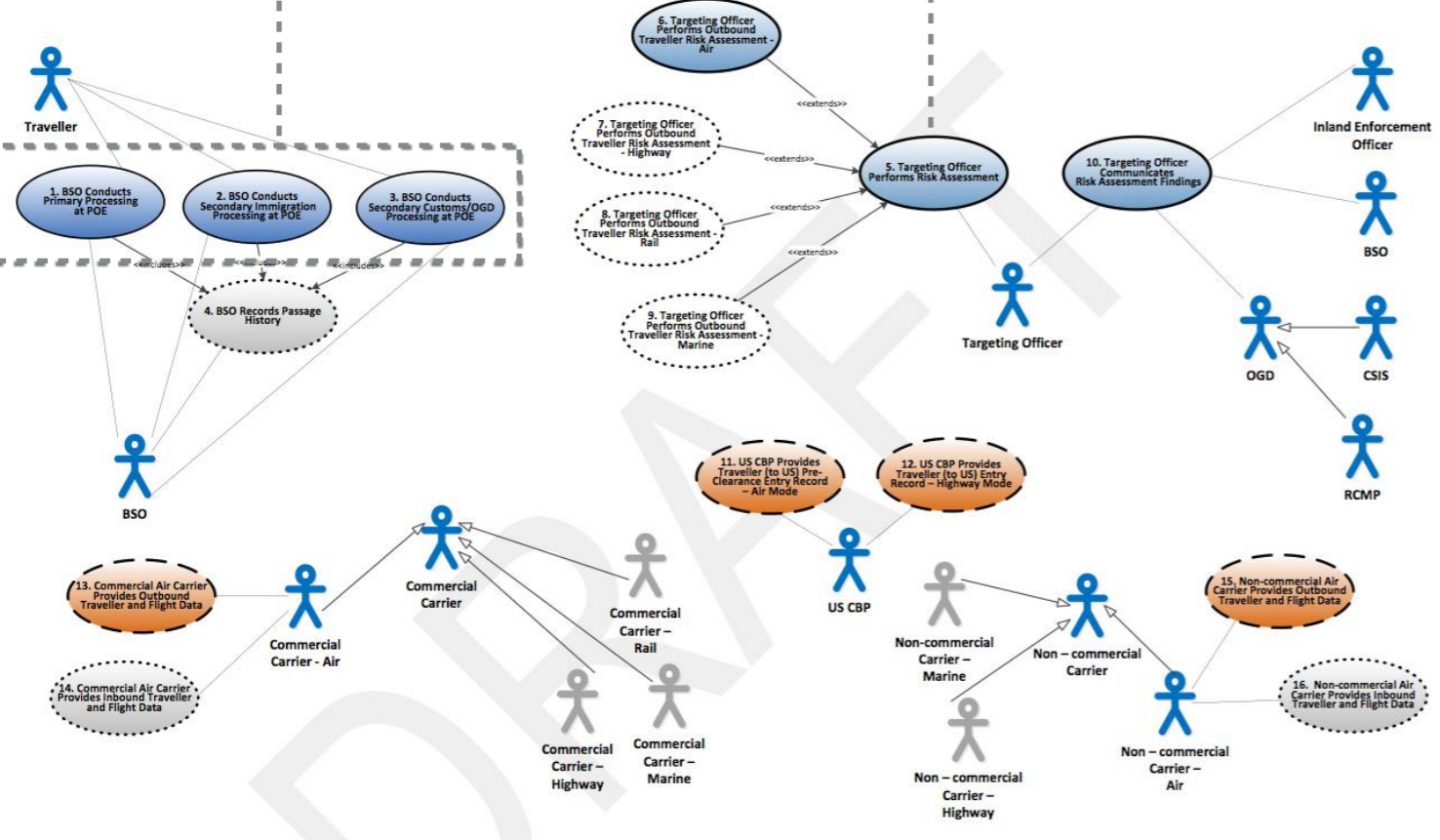
**THE PORTFOLIO MANAGEMENT PERSPECTIVE
- AN EXAMPLE:
WITHIN A PORTFOLIO - IAPI AND ENTRY/EXIT**



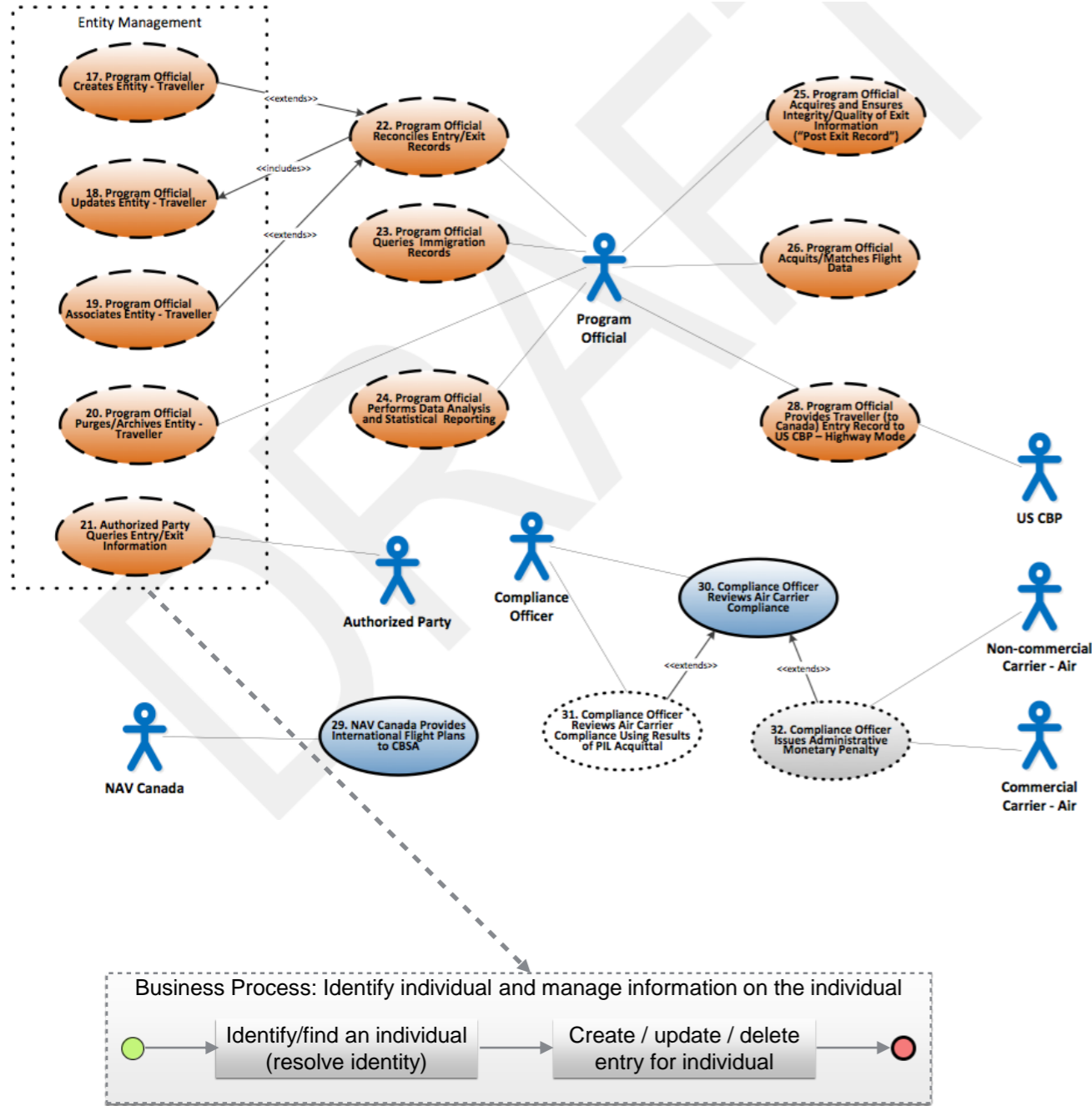
IAPI BUC Model: Pre-Arrival: Scenario Based Targeting (SBT)



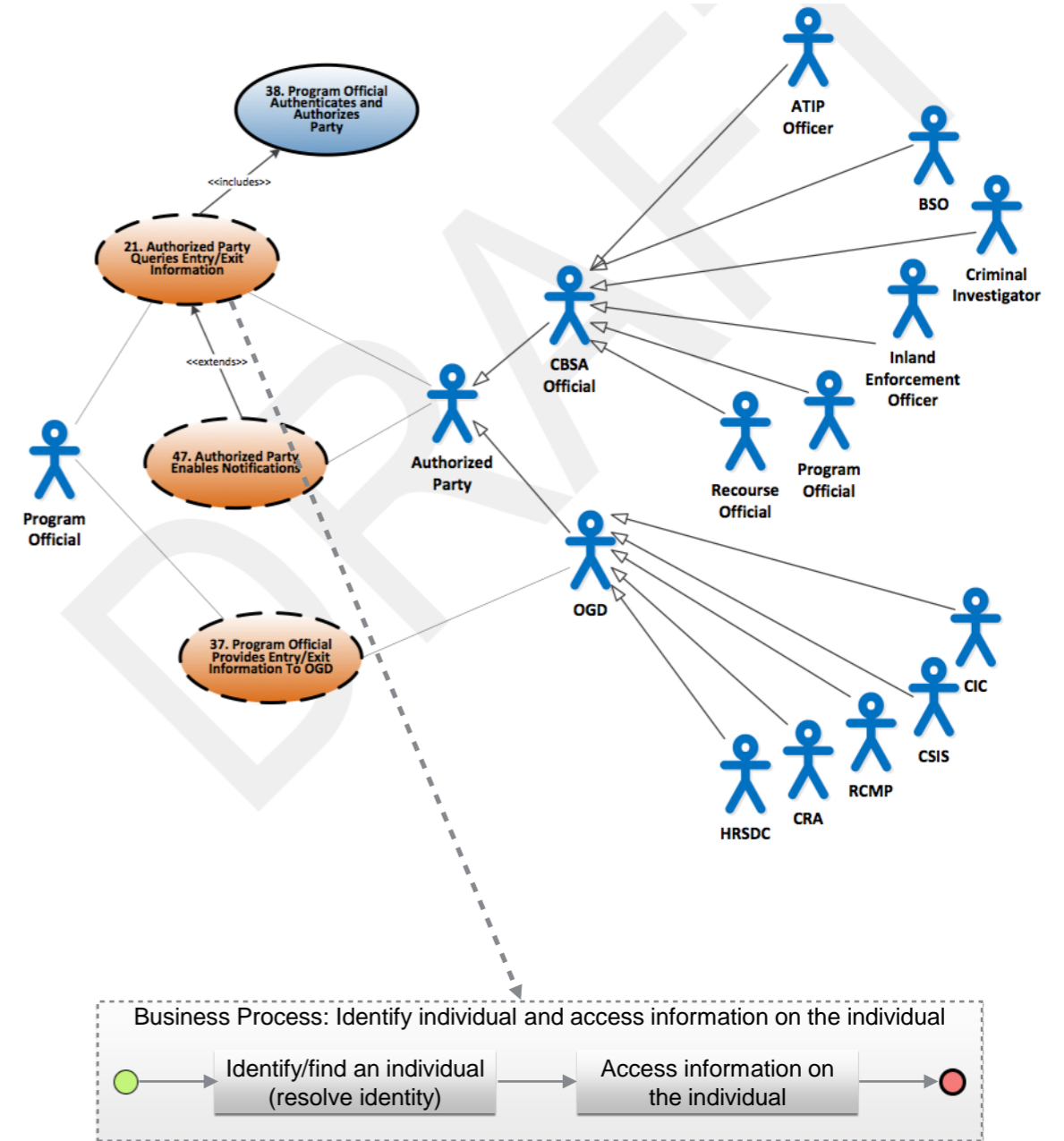
Entry/Exit BUC Model: Entry / Exit of Traveller (Passage)

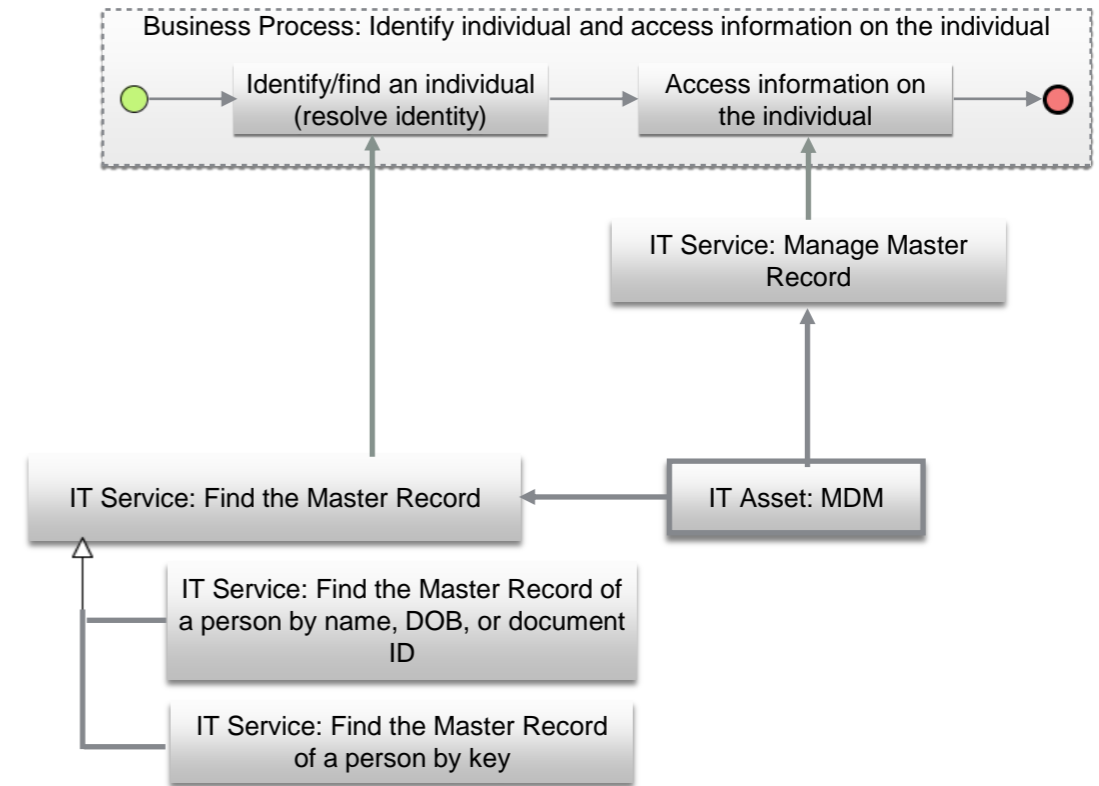
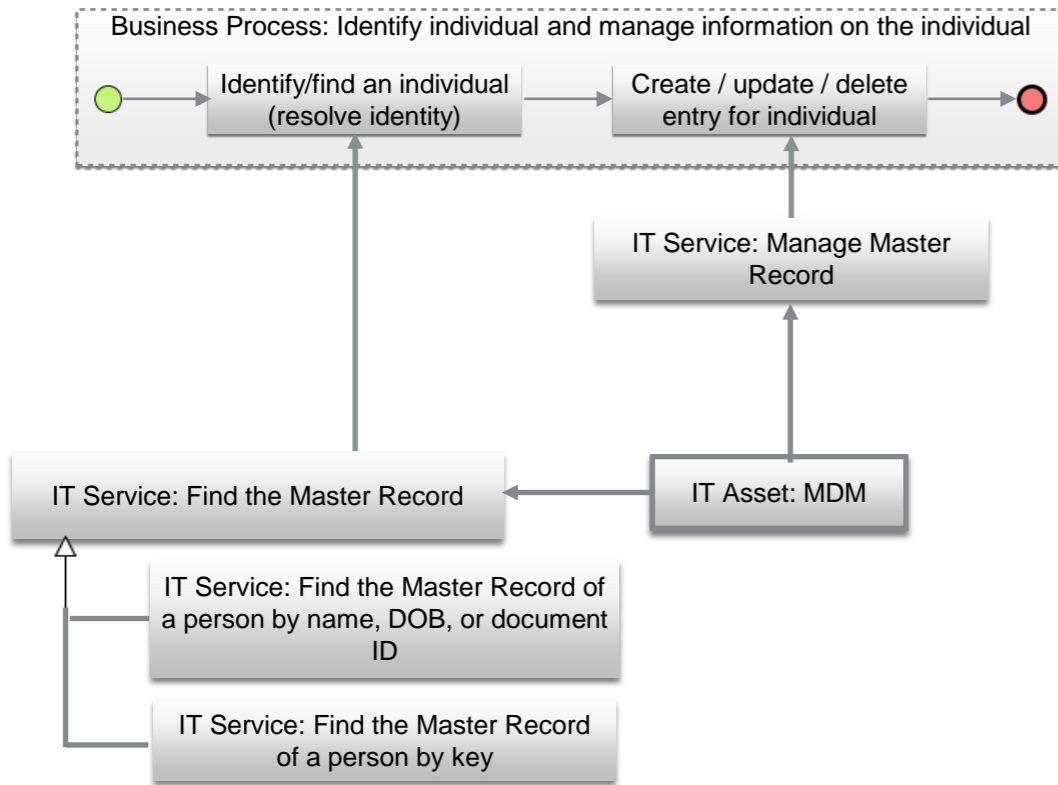


Entry/Exit BUC Model: Management of Entry / Exit Information



Entry/Exit BUC Model: Management of Entry / Exit Information





Three different business processes ... but ...

