

The ServiceNow Common Service Data Model (CSDM)

Managing the full lifecycle of your digital products and services with CMDB and Service Graph modeling guidance



Introduction

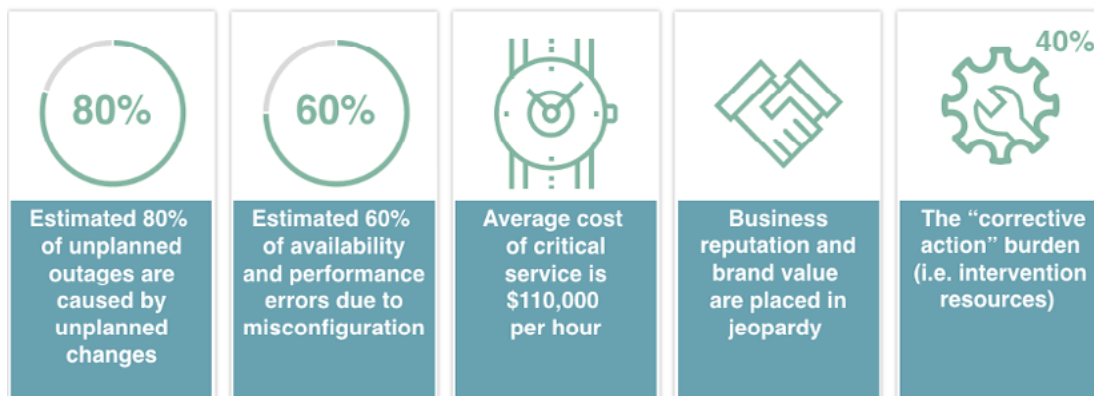
Before we begin, thank you for your willingness to explore new ways of solving old problems. This Executive Brief will be a concise view of how the Common Service Data Model (CSDM) approach – a single lexicon for creating a common service model across all IT management domains – can yield significant advantages for running complex operations across multiple lines of business. There are many nuances to how our new methodology and pragmatic guidance can be applied, we welcome further discovery discussions to explore your unique needs and desired outcomes.

Covering familiar ground: Old pains stirred up by new realities.

Enterprise IT is complicated – no argument there – especially with current market realities demanding rapid operational shifts. But interestingly enough many of the most startling challenges are not a result of the inherent complexity of the technology. Out of sync management approaches can interrupt the best intended optimization efforts and put business health at real risk. Some examples of these “wrenches in the works” include:

- No common data definition department to department
- No master framework for all products
- Configuration management database (CMDB) efforts failing to realize value
- Too much unchecked “organic” growth
- Weak platform sponsorship
- Not knowing where different departments data is going in the CMDB and ending up with data in the wrong place and duplicate data

Whether a single challenge or a pile up of multiple issues, the end results can be extremely detrimental across the entire business.



Sources of statistics

<http://www.forbes.com/2010/02/01/brand-reputation-value-leadership-managing-ethisphere.html>

<http://www.evolve.com/blog/downtime-outages-and-failures-understanding-their-true-costs.html>

http://www.nasi.com/downtime_cost.php

MII-830B White Paper: Institute of Configuration Management (icmhq.com), “Monetary Value of Traditional Configuration Management versus CMII,” Revision B, January 14, 2014, used with permission

Curing “chasing your own tail” disorder.

Without a concerted IT-wide focus on standardizing, integrating, and applying a common approach to digital product and service delivery, a reactive-only operational model will continue to dominate. The myopic focus on just tools and technical solutions must be broadened to address organizational and engineer capabilities and needs.

In other words, organizations must eradicate what could be called the “culture of untrusted data,” where teams keep isolated pockets of information which may or may not be up to date, and disconnected terminology they use to make decisions for strategic planning, developing, trouble-shooting incidents, root cause analysis, planning and executing changes, and the like.

The Institute of Configuration Management recently published an industry statistic showing that organizations without sound configuration management practices suffer a 40% “corrective action” burden (i.e. intervention resources).

The future remains unknown, but it can be a catalyst for innovation.

In a just-released ServiceNow survey of more than 9000 workers and executives worldwide*, the pandemic has actually created the perfect environment for innovation.

92% of execs acknowledge that COVID-19 forced them to rethink how they worked and not surprisingly more than half believe they will never return to the pre-pandemic way of running the business.*



At the heart of this is how services are managed and delivered, regardless of changes to business approach. CSDM offers a proven and repeatable method to strategize and roll out digital transformation.

*Source:

The Work Survey by ServiceNow: A quantitative assessment on the impact of COVID-19 on innovation, business and the future of work (Sept 2020)

<https://www.servicenow.com/content/dam/servicenow-assets/public/en-us/doc-type/other-document/the-work-survey-by-servicenow-research-summary.pdf>

servicenow.com

Why now is the time for CSDM?

Like our enterprise customers, ServiceNow runs on its vast portfolio of technology. We face the same IT challenges mentioned in the introduction. So it is no wonder that leaders from our own IT departments (ITSM, ITOM, ITAM, ITBM, etc.) huddled to discuss how to improve our own service reporting within the platform and the CMDB. The discovery phase revealed a need for a new way of organizing multiple disciplines and the creation of a single lexicon for service as a base for flexible of application. "The goal was (and is) to gain the most value from the technology in place," says Scott Lemm, CSDM Product Manager at ServiceNow. "If you're trying to implement better incident and change, you need an approach that focuses on CSDM from that perspective; if you are trying to implement better ITOM, the approach needs a focus on health and visibility perspective..."

We'll let Canadian National Railway answer this question, as well.

Prior to their CSDM approach, the international carrier took two years trying to figure out and solve a Technology Business Management (TBM) mapping effort. With the CSDM framework, they solved a similar ask within two and a half weeks. You can find a more detailed summary of their journey later in this paper.

TBM Mapping Effort at CN

2 yrs
Before CSDM

2.5 wks
With CSDM

Now add Service Graph to create key opportunities.

With the additional design guidance and governance, on top of adding new data structures and ingestion sources, Service Graph offers a unique opportunity: a level setting for the cleanest data beyond what CMDBs were designed to provide 10 years ago. With that refined data and guidance, the CSDM can be created with great confidence and potential.

The nuts and bolts of CSDM

The basic definition.

The CSDM represents a standard and shared set of service-related definitions across ServiceNow products and platform that enable and support true service level reporting while providing prescriptive guidance on service modeling within the CMDB. These service-related definitions span the ServiceNow® product portfolio and the Now Platform®. The latest CSDM 3.0 white paper includes best practices related to the proper modeling of data using out-of-box (OOB) tables and relationships. Many ServiceNow products have a dependency on data within this data model. To level set, we'll define the following:

Common Service = A standard and shared set of service-related definitions across ServiceNow products and platform that will enable support.

Data Model = A Configuration Management Database (CMDB) framework across ServiceNow products and platform that will enable and support multiple configuration strategies.

You do NOT need to purchase a module/product to use the CSDM. ServiceNow intends to provide all CSDM related objects and CMDB core tables as part of the shipping out-of-box (OOB) CMDB regardless of licensing. At this time, the CSDM is a CMDB framework focused on identifying where to place data that our products depend upon. In the future more visualization, reporting and analytics will be made available.

The 5 key principals of the CSDM.

The founding principles were established to guide the decisions made in regard to guidance, entity names and definitions, how the model is implemented, and how CSDM is managed as a whole.

- 1. Simplified, yet authoritative, visualization.** To make complexity more understandable. The CSDM is meant to be digestible for reference, while allowing for deeper drill downs where needed.
- 2. Standardization.** Period. A single set of universal definitions, product use documentation, and OOB tables.
- 3. Powerful Reporting and analytics.** A prime objective of CSDM is to support consistent analysis
- 4. Ultimate data respect.** This includes leveraging prescribed technologies when integrating external data source to ensure data integrity, a data model that is to be shared across products in support of simplified concepts and collaboration, and consistent governance.
- 5. CSDM adoption support:** Customer impacts per release will be limited by providing automation and guidance to accelerate CSDM adoption.

CSDM is the framework that helps our customers properly build out their CMDB.

- It applies standard terms and definitions.
- It provides best practices around data modeling and data management.
- It helps creates out of the box CMDB core tables and guidance on service modeling and details recommended mappings.

The CSDM is NOT

- a product/SKU from ServiceNow
- a process or implementation guide for ServiceNow products
- a set of reports
- Code to install

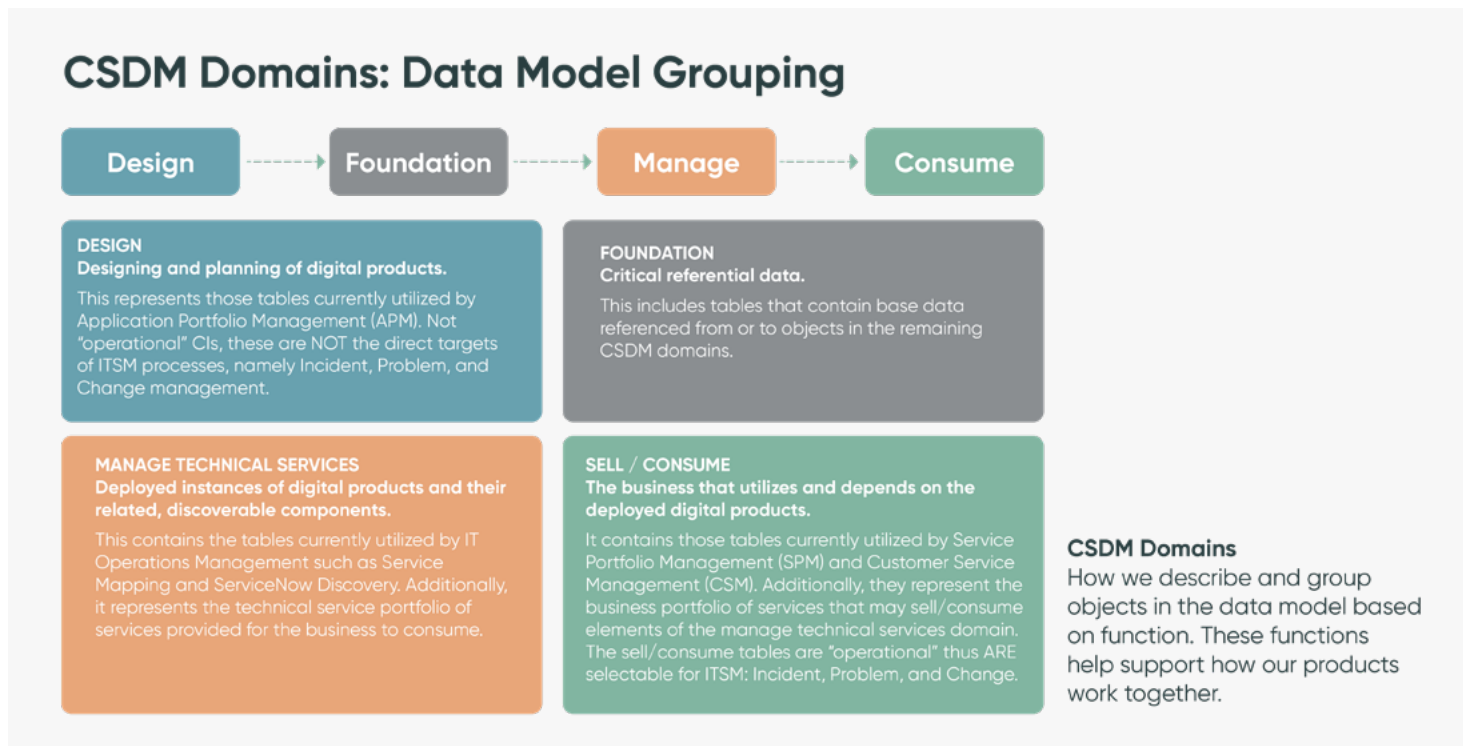
Before we go on, here’s more on how we define “Service.”

A service is a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks. This is consistent with the base definition of “service” in ITIL v3 and IT4IT. Services typically have three aspects: the interaction, the offering, and the service system. While ServiceNow ships with three OOB service types, you can extend these service types of classifications to align with the service types in your organization. The three OOB service types:

- **Business service** is a service type that is published to business users, and it typically underpins one or more business capabilities.
- **Technical service** is a service type that is published to service owners and typically underpins one or more business or application services.
- **Application service** is a service type that is a logical representation of a deployed application stack.

Now back to CSDM – the four domains.

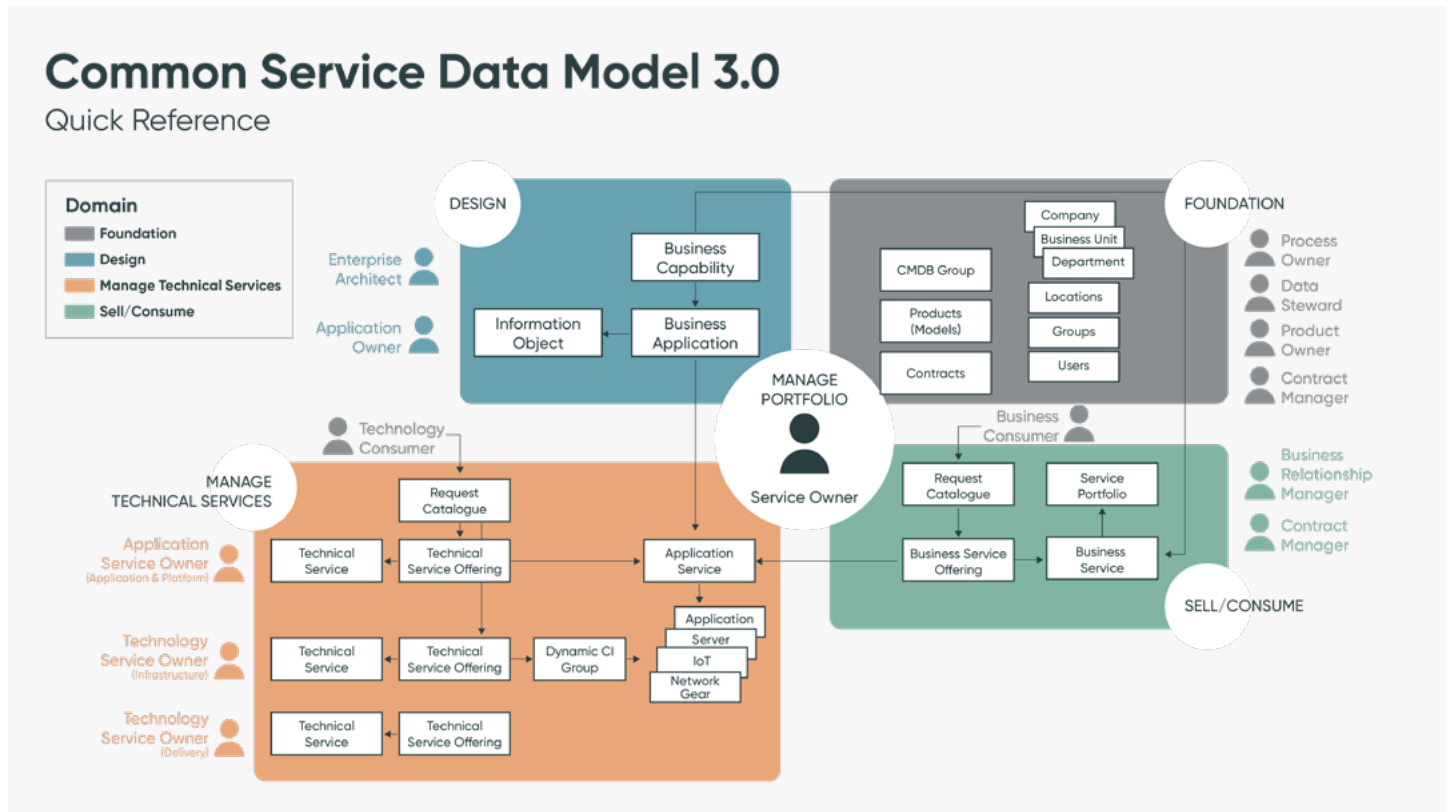
The 3.0 version includes a new fourth domain. These are meant to offer an a la cart application of specific actions depending on the specific project or goal.



While the intent is to provide prescriptive guidance, the model is specifically designed with extensibility in mind so that you can extend if needed (For example add “clinical” as a service classification type of a Service).

The various domains Foundation, Design, Manage Technical Services, and Sell/ Consume are how we describe and group objects in the data model based on function. These functions help support how our products work together. Additionally, we introduce the concept of Manage Portfolio that encompasses portions of all 4 domains.

This representation accounts for how different persona archetypes may consume, view, and populate the model.



Foundation

CMDB Group: A collection of CIs based on the results of saved Query Builder queries, or manual entries..

Product Models: Specific versions or configurations of products used for managing and tracking through various ServiceNow platform applications.

Contracts: In the Now Platform, contracts contain detailed information such as contract number, start and end dates, active status, terms and conditions statements, documents, renewal information, and financial terms.

Common Data: Shared data that is prevalent throughout the Now Platform.

Design

Business Capability: A high level capability required by the organization to execute its business model.

Business Application: A purchased or internally developed application used to support a business capability.

Information Object: Describes the type of data that is being interchanged between the business application and the database serving it.

Manage Technical Services

Technical Service: Published to service owners and typically underpins one or more business services. A Technical Service may have an operational view made up of one or more Technical Service Offerings.

Technical Service Offering: Stratification of the Technical Service into options, including localization/geography, environment, pricing, availability, capability, support group (INCIDENT), technical approval group (CHANGE) and packaging options.

Dynamic CI Group: a dynamic grouping of configuration items (Cis), based on results of CMDB Groups queries.

Application Service: Logical representation of a deployed application stack.

Configuration Item (CI): Physical and logical components of an infrastructure that are currently, or soon will be, under configuration management.

Sell/Consume

Service Portfolio: Hierarchical classification of business services (Products & Services) that define strategic business value and facilitate the management of their life cycle.

Business Service: Published to business users and it typically underpins one or more business capabilities. Business services are often orderable by business users. Business users are able to select the desired offering and service commitment levels via a Service Catalog.

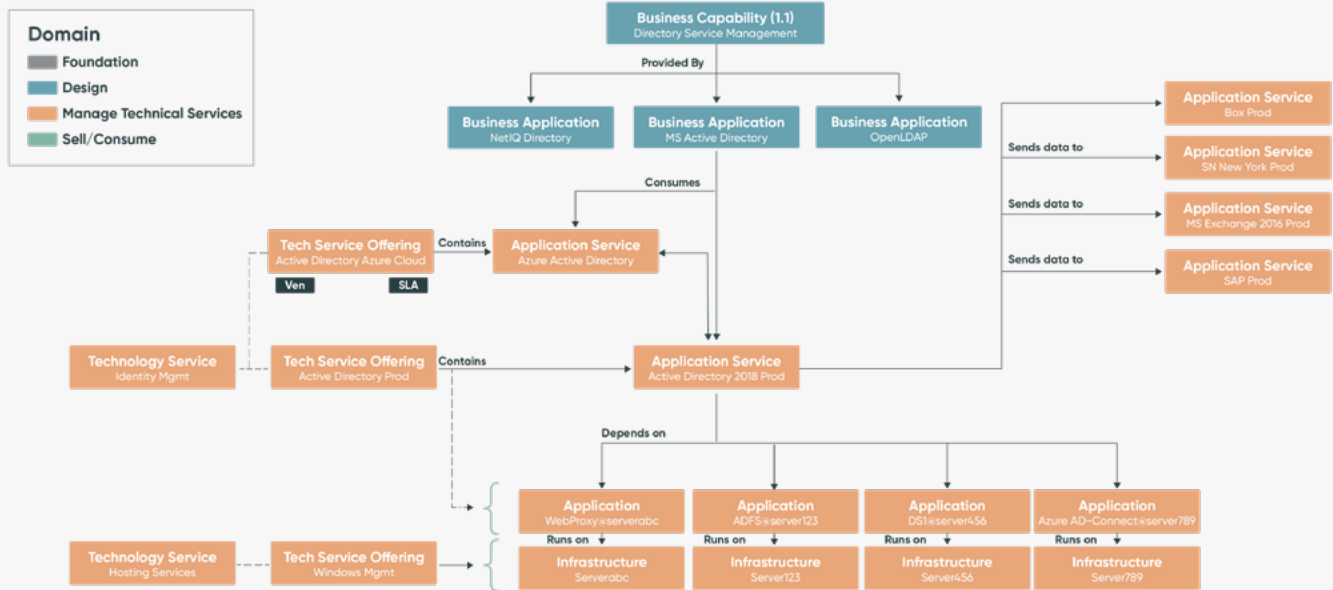
Business Service Offering: Stratification of the Business Service into options, including localization/geography, pricing, availability, capability, criticality, business approval group (CHANGE), and packaging options.

Request Catalogue: Consumable catalogue view of available business & technical products, services, service commitment options, and offerings.

CSDM applied to example use cases.

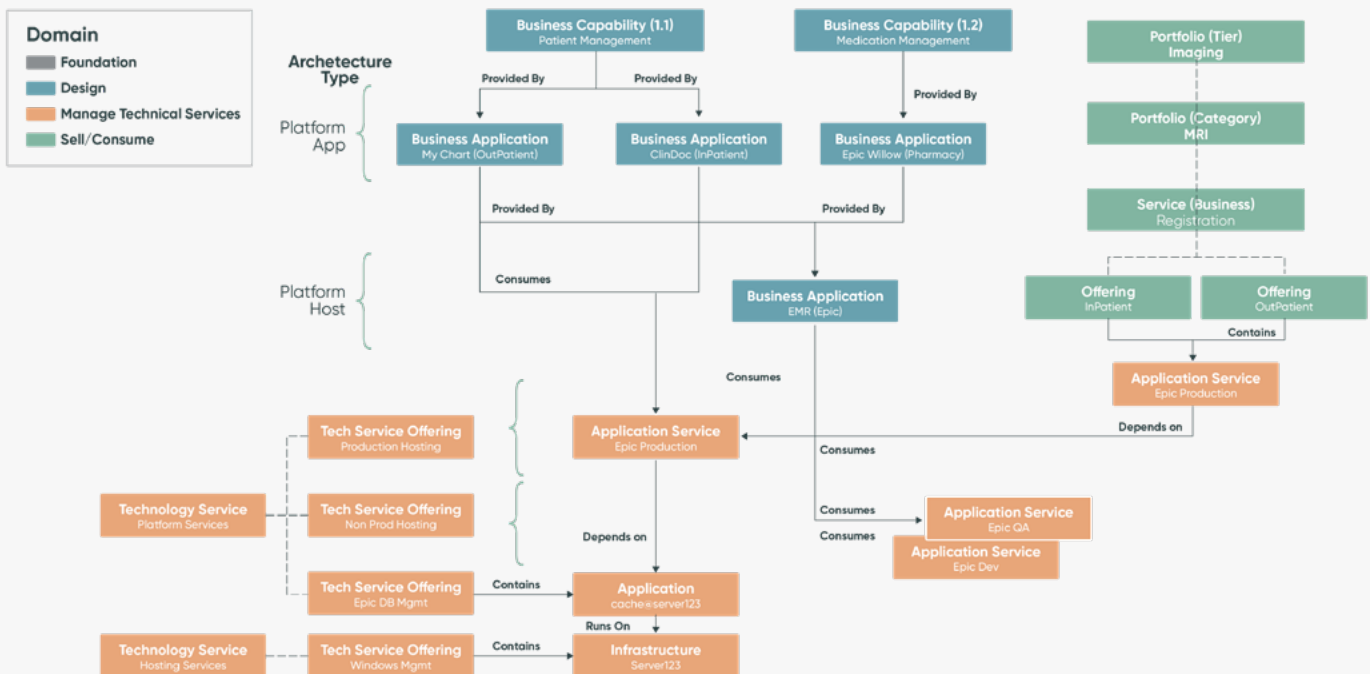
In order to illustrate the flexibility of the CSDM approach, here are several real world examples applied to the Foundation, Design, Manage, and Sell/Consume matrix.

Working model: shared technical service example



Example of a CSDM approach for shared technical services optimizing the production and flow of data.

Working model: healthcare platform example



Example of a CSDM approach for healthcare bridging the gap between complex technical services and end-product offerings.

Canadian National Railway evolves from basic CMDB to a CSDM model

Key lessons: CSDM technical and business services



- Based on TBM Taxonomy v3.0 reference model
- To be governed jointly between Business Architecture and IT SMO Service Process Owner
- Key CN resources will be TBM taxonomy certified

4 Platform Services				5 Infrastructure Services			
4.1 Data	4.2 Application	5.1 Data Center	5.2 Network	5.3 Compute	5.4 Storage	5.5 Connected Field Devices	
Database	Application Hosting	Enterprise Data Centre	Data Network	Physical Compute	Networked Storage	Human Interface Safety devices	
Distributed Cache	ERP Foundation Platform	Other Data Centre	Voice Network	Virtual Compute & Containers	File & Object Storage	Train control devices	
Data Mgmt.	Message Bus & Integration		Internet Connectivity	Compute on Demand	Backup & Archiving	Edge processing devices	
Data Warehousing	Content Mgmt.		Virtual Private Network	Mainframe	Distributed Storage (CDN)	Telemetry devices	
Data Analytics & Visualization	Decision Intelligence & Automation		Domain Services			Access Control	
			Load Balancing			Field Communication	

6 Delivery Services				
6.1 Strategy & Planning	6.2 Development	6.3 Support	6.4 Operations	6.5 Security & Compliance
Enterprise Architecture	Innovation & Ideation	Design & Development	Service Desk	Identity & Access Mgmt.
Business Solution Consulting	Program, Product & Project Mgmt.	System Integration	Application Support	Cybersecurity & Incident Response
Technology Business Mgmt.	IT Vendor Mgmt.	Testing	IT User Training	Threat & Vulnerability Mgmt.
			Capacity Mgmt.	Data Privacy & Security
			Deployment & Administration	Governance Risk & Compliance
				Disaster Recovery
				Security Awareness

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1 Core Business Services						2 End User Services			
1.1 Strategic Planning	1.2 Marketing	1.3 Sales	1.4 Supply Chain	1.5 Operational Units		1.6 Operational Resources	2.1 Client Computing	2.2 Communication, Collaboration & Analytics	2.3 Connectivity
Strategic Planning	Customer Analytics	Catalog	Itinerary	Yard Ops	Port Ops	Rail Infrastr. Locomotives	Computer	Collaboration	Network Access
Integrated Planning	Marketing	Order	Pick-up/ Drop-off	Train Ops	Transfer/ Warehouse	Cars	Mobile	Communication	Remote Access
Profit & Loss	Leads	Track	Shipment	Terminal Ops	Freight Forwarding	Container Handlers	Bring Your own Device	Productivity	
	Pricing	Pay	Extras	Truck Ops	Automotive Ops	Chassis Trucks	Virtual Client	Print	
		Support		Dock Ops	Customs	Vessels		Reporting Analytics & Mapping	
				Vessel Ops	Dimensional Loads	Vehicle Fleet			

3 Shared Services							
3.1 Finance	3.2 Workforce	3.3 Vendor & Procurement	3.4 Health, Safety, Security & Env.	3.5 Risk, Audit & Compliance	3.6 Legal	3.7 Property & Facility	3.8 Corporate Communication
Planning & Mgmt. Accounting	Recruitment	Sourcing & Procurement	Policy & Governance	Risk Mgmt. Oversight & Remediation	Legal Counsel	Development & Space Planning	Stakeholder & Investor Relations
Revenue Accounting	Employee Transition & Separation	Supplier Mgmt.	Overnight & Enforcement	Business Continuity Planning & Mgmt.	Case Mgmt.	Workspace Services	Government Relations
Accounts Receivable	Workforce Mgmt.	Contract Mgmt.	Healthcare Services	Auditing	Contract Review	Physical Security	External Communications
General Accounting & Reporting	Performance, Retention & Rewards Mgmt.		Occupational Safety	Investigations		Operations, Maintenance, Repair & Improvements	Community Outreach
Project Accounting	Benefits Mgmt.			Records Mgmt.		Food & Beverage	
Payroll & Time Reporting	Policy Mgmt.						
Accounts Payable & Expense Reimbursement	Employee Development						
Treasury	Employee Communications & Relations						
Tax							

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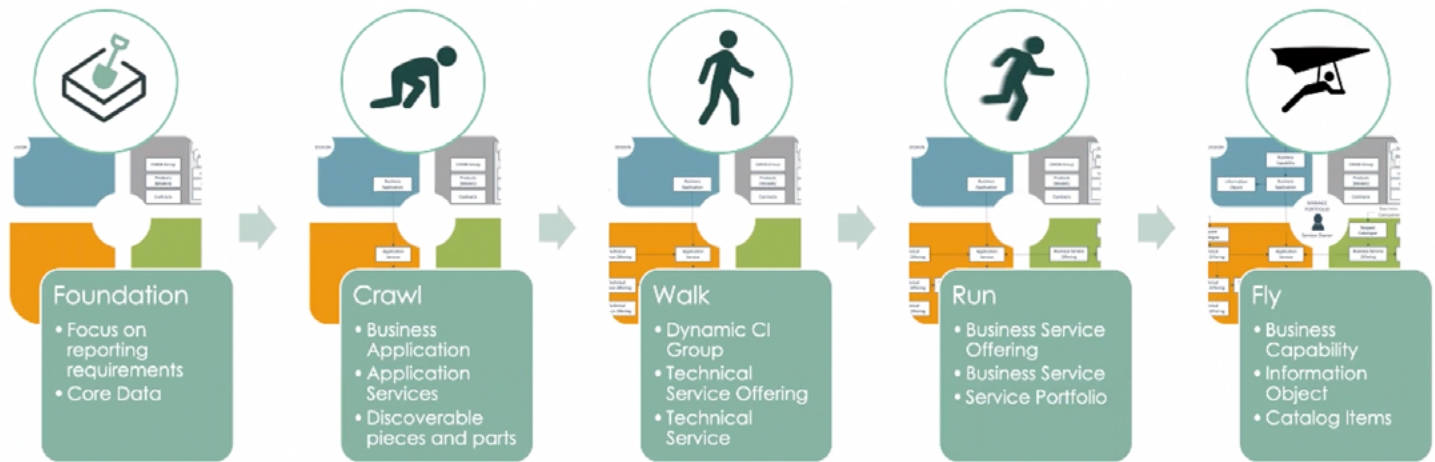
As Canadian National Railway has embarked on its journey to modernize IT service management with ServiceNow, they identified the implementation of a common data foundation as a critical success factor. Going beyond the implementation of just a standard CMDB, they wanted to also include data required for business, portfolio, and financial management needs. The new Common Service Data Model (CSDM) was chosen as it was a comprehensive approach. The journey so far has included the defining, evolving, and implementation of the CSDM, as well as the adoption and alignment to the Technology Business Management (TBM) framework to define services. Saskia Roukema, Senior Business Architect at Canadian National Railway, says "I really don't know how you would do it any other way; [now] we're much more comfortable with our results that we're getting. It's very stable. And it's not just data in the background or a data model, it really is now the way people think and operate, and it has it been critical for change management."

“ It’s not just data in the background or a data model, it really is now the way people think and operate, and it has it been critical for change management. ”

Saskia Roukema, Senior Business Architect at Canadian National Railway

How your peers are approaching their CSDM journeys.

While we have found that most organizations are focused on their applications, we have provided a version of the Crawl, Walk, Run, Fly progression for services, as well.



No matter where you fall in the CSDM journey, there are smart, value-driving next steps to take.

This has only been a peek at what CSDM is and can deliver.

We highly encourage you to read the full [CSDM 3.0 White Paper](#) for greater details on methodologies. In it you'll find:

- Drill-downs into each Domain with definitions, tables, and dependencies
- Technical use cases for Domain components
- CSDM conceptual to CMDB tables mapping
- Value statements for Foundation, Crawl, Walk, Run, and Fly
- How to follow the CSDM standard for each
- Steps for migrating to CSDM
- FAQs and links to other resources

Conclusion: CSDM could be your foundation for digital transformation

The Common Services Data Model 3.0 (CSDM) should be used as a reference for mapping your digital products and services into ServiceNow. Additionally, we will be using CSDM to drive standardization and further strengthen the value proposition of using ServiceNow products and services.

ServiceNow brings enormous value for enterprise customers that want to run IT as a business. CSDM, combined with the Now Platform, creates a standard blueprint for automated and integrated IT services. With streamlined supporting activities and value streams fully integrated on the Now Platform, you can realize full-value chain alignment, improved quality, transparency, better insights, automation, and lower costs.

We encourage you explore this more with your account representative. Workshops are also available for hands-on learning. Ultimately, the combination of CSDM and ServiceNow serves as the foundation for digital transformation.