

Service Measurement Index Framework Version 2.1

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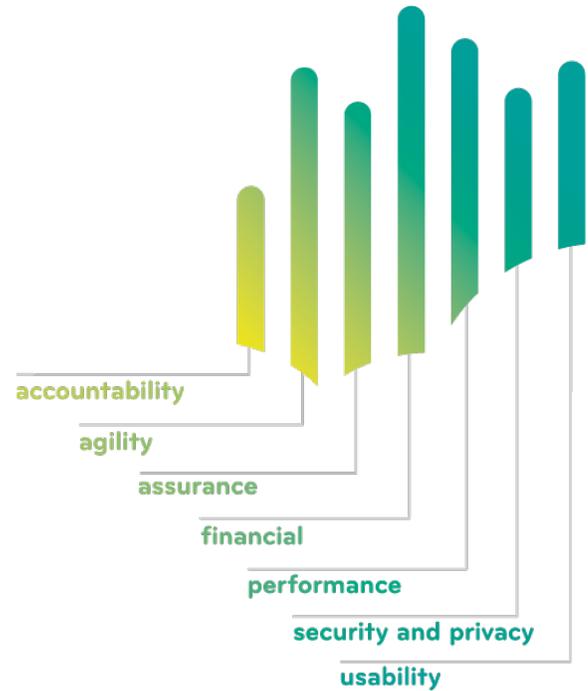
SMI

Introducing the Service Measurement Index (SMI)

The Service Measurement Index (SMI) is a set of business-relevant Key Performance Indicators (KPI's) that provide a standardized method for measuring and comparing a business service regardless of whether that service is internally provided or sourced from an outside company. It is designed to become a standard method to help organizations measure cloud-based business services based on their specific business and technology requirements. The Service Measurement Index is currently being developed by the Cloud Services Measurement Initiative Consortium (CSMIC).

The SMI is a hierarchical framework. The top level divides the measurement space into 7 Categories. Each Category is further refined by 4 or more Attributes. Then within each Attribute a set of KPI's are defined that describe the data to be collected for each measure/metric. Some of these KPI's will be service specific while others will apply to all services (BPaaS, IaaS, PaaS, and SaaS).

Version 2.1 of the CSMIC SMI contains the first 2 levels of this hierarchy, the Categories and Attributes. Work is currently ongoing on the definition of the KPI's and measures related to several attributes. See Figure 1: High-Level Overview to the right for a high-level overview of the SMI. A more detailed view (Figure 2: Detailed View) is provided on the last page of this document. For more information see: csmic.org



The Attribute definitions provided here are all written using these basic terms.

Client

An organization that acquires one or more cloud-based services for its users

Cloud Service Provider (CSP)

An organization that delivers one or more cloud-based services to one or more clients.

Service

A set of functions or capabilities made available to a group of users by a cloud service provider, in order to achieve client objectives.

SLA (Service Level Agreement)

An agreement between a cloud service provider and a client documenting quantitative service level commitments.

User

The people that interact directly with a service.

Definitions

Accountability

This category contains attributes used to measure the properties related to the cloud service provider organization. These properties may be independent of the service being provided.

Attribute	SMI Attribute Definition
Auditability	The ability of a client to verify that the cloud service provider is adhering to the standards, processes, and policies that they follow.
Compliance	Standards, processes, and policies committed to by the cloud service provider are followed.
Contracting experience	Indicators of client effort and satisfaction with the process of entering into the agreements required to use a service.
Ease of doing business	Client satisfaction with the ability to do business with a cloud service provider.
Governance	The processes used by the cloud service provider to manage client expectations, issues and service performance.
Ownership	The level of rights a client has over client data, software licenses, and intellectual property associated with a service.
Provider business stability	The likelihood that the cloud service provider will continue to exist throughout the contracted term.
Provider Certifications	The cloud service provider maintains current certifications for standards relevant to their clients' requirements.
Provider Contract/SLA Verification	The cloud service provider makes available to clients SLAs adequate to manage the service and mitigate risks of service failure.
Provider Ethicality	Ethicality refers to the manner in which the cloud service provider conducts business; it includes business practices and ethics outside the scope of regulatory compliance. Ethicality includes fair practices with suppliers, clients, and employees.
Provider Personnel Requirements	The extent to which cloud service provider personnel have the skills, experience, education, and certifications required to effectively deliver a service.
Provider Supply Chain	The cloud service provider ensures that any SLAs that must be supported by its suppliers are supported.
Provider Support	The extent to which the cloud service provider includes or makes available assistance to the client in their efforts to use the service, including answering questions about the service and working around or correcting any problems that may arise.
Sustainability	The impact on the economy, society and the environment of the cloud service provider.

Agility

Indicates the impact of a service upon a client's ability to change direction, strategy, or tactics quickly and with minimal disruption.

Attribute	SMI Attribute Definition
Adaptability	The ability of the cloud service provider to adjust to changes in client requirements.
Elasticity	The ability of a cloud service provider to adjust its resource consumption for a service at a rapid enough rate to meet client demand.
Extensibility	The ability to add new features or services to existing services.
Flexibility	The ability to add or remove predefined features from a service.
Portability	The ability of a client to easily move a service from one cloud service provider to another with minimal disruption.
Scalability	The ability of a cloud service provider to increase or decrease the amount of service available to meet client requirements and agreed SLAs.

Assurance

This category includes key attributes that indicate how likely it is that the service will be available as specified.

Attribute	SMI Attribute Definition
Availability	The appropriateness of the service availability window, as well as the likelihood that the availability window will actually be provided to clients.
Maintainability	Maintainability refers to the ability for the cloud service provider to make modifications to the service to keep the service in a condition of good repair.
Recoverability	Recoverability is the degree to which a service is able to quickly resume a normal state of operation after an unplanned disruption.
Reliability	Reliability reflects measures of how a service operates without failure under given conditions during a given time period.
Resiliency/Fault Tolerance	The ability of a service to continue to operate properly in the event of a failure in one or more of its components.
Service stability	The degree to which the service is resistant to change, deterioration, or displacement.
Serviceability	The ease and efficiency of performing maintenance and correcting problems with the service.

Financial

The amount of money spent on the service by the client.

Attribute	SMI Attribute Definition
Billing Process	The level of integration that is available between the client and cloud service provider's billing systems and the predictability of periodic bills.
Cost	The client's cost to consume a service over time. This includes cost of transition of the service along with recurring costs (e.g., monthly access fees) and usage-based costs.
Financial Agility	The flexibility and elasticity of the financial aspects of the CSP's services
Financial Structure	How responsive to the client's needs are the cloud service provider's pricing and billing components.

Performance

This category covers the features and functions of the provided services.

Attribute	SMI Attribute Definition
Accuracy	The extent to which a service adheres to its requirements.
Functionality	The specific features provided by a service.
Suitability	How closely the capabilities of the proposed service match the features needed by the client.
Interoperability	The ability of a service to easily interact with other services (from the same cloud service provider and from other cloud service providers).
Service Response Time	An indicator of the time between when a service is requested and when the response is available.

Security and Privacy

This category includes attributes that indicate the effectiveness of a cloud service provider's controls on access to services, service data, and the physical facilities from which services are provided.

Attribute	SMI Attribute Definition
Access Control & Privilege Management	Policies and processes in use by the cloud service provider to ensure that only the personnel granted appropriate privileges can make use of or modify data/work products.
Data Geographic/Political	The client's constraints on service location based on geographic or political risk.
Data Integrity	Keeping the data that is created, used, and stored in its correct form so that clients may be confident that it is accurate and valid.
Data Privacy & Data Loss	Client restrictions on use and sharing of client data are enforced by the cloud service provider. Any failures of these protections are promptly detected and reported to the client.
Physical & Environmental Security	Policies and processes in use by the cloud service provider to protect the provider facilities from unauthorized physical access, damage or interference.
Proactive Threat & Vulnerability Management	Mechanisms in place to ensure that the service is protected against known recurring threats as well as new evolving vulnerabilities.
Retention/Disposition	The cloud service provider's data retention and disposition processes meet the clients' requirements.
Security Management	The capabilities of cloud service providers to ensure application, data, and infrastructure security based on the security requirements of the client.

Usability

The ease with which a service can be used.

Attribute	SMI Attribute Definition
Accessibility	The degree to which a service is operable by users with disabilities.
Client Personnel Requirements	The minimum number of personnel satisfying roles, skills, experience, education, and certification required of the client to effectively utilize a service.
Installability	Installability characterizes the time and effort required to get a service ready for delivery (where applicable).
Learnability	The effort required of users to learn to use the service.
Operability	The ability of a service to be easily operated by users.
Transparency	The extent to which users are able to determine when changes in a feature or component of the service occur and whether these changes impact usability.
Understandability	The ease with which users can understand the capabilities and operation of the service.

References

In addition to earlier versions of the SMI, the following references were consulted in the creation of the Category and Attribute definitions. Due to the specific focus of the SMI on services that are or could be cloud-based, the referenced definitions have been modified to reflect this focus.

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