



SEMIC 2018

Semantic Interoperability Conference

Linked Digital Public Administrations



Sofia, Bulgaria
14 June 2018



#SEMIC 2018
Conference Highlights Report



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1. Introduction – About the SEMIC Conference

The 8th edition of SEMIC, the annual semantic interoperability conference, was held in Sofia, Bulgaria on 14 June 2018. The event was organised by the ISA² Programme of the European Commission in collaboration with the Bulgarian Presidency of the Council of the EU. It brought together policymakers, IT practitioners and researchers interested in topics related to semantic interoperability for public administrations.

This year's theme was "Linked Digital Public Administrations". Nowadays, public administrations exchange data with each other, citizens and businesses, interconnect their systems and link data. This brings direct benefit to citizens, such as not having to input information more than once.

The interconnection of base registers, such as business registers, land registers, etc. plays an important role. At the same time, these registers hold data of immense value for the public, which can be tapped into by making data produced by public services available and linkable with data from other sources. This provides convenience to put large-scale data analytics, machine learning and artificial intelligence at the service of society. The participants of SEMIC 2018 had an opportunity to discover and share current trends and related recent developments.

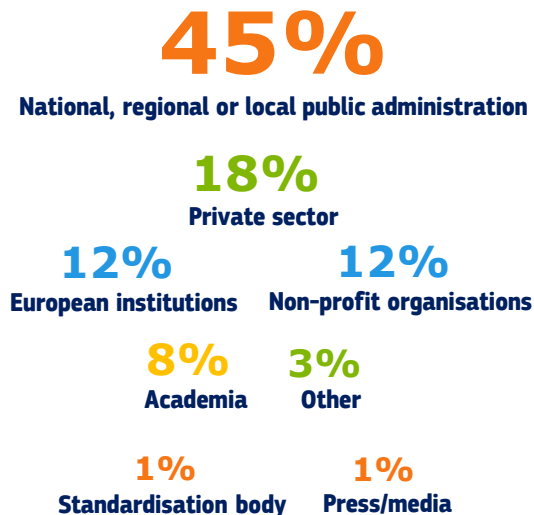


2. Facts & Figures

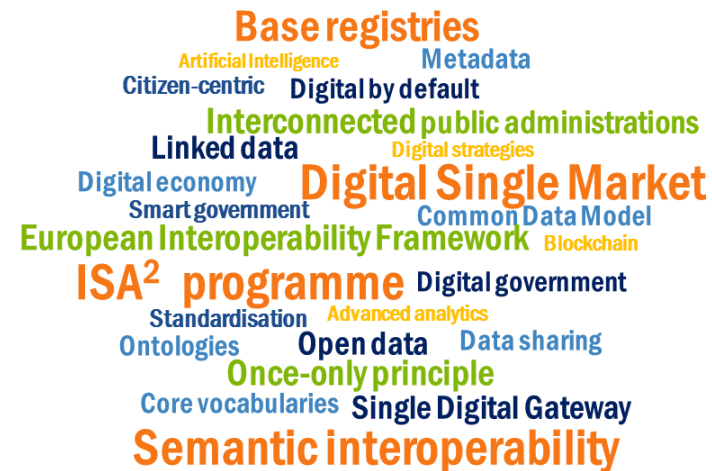
A diversity of participants.



Different sectors.



Various insights.



3. Conference Insights

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Opening





“In order to achieve digital transformation on EU level, we should be seeking digital connectivity between public administrations in Europe.”

Opening – Bulgarian Presidency

Alexander Yolovski

Deputy Chairperson
Bulgarian State e-Government Agency



- Bulgarian's State e-Government Agency was recently set up to accelerate the introduction of e-governance and e-government in Bulgaria. One of the key topics of the Agency's work is to promote semantic interoperability.
- It's our key priority to reduce the administrative burden for citizens and businesses by implementing the 'once-only' and 'digital-by-default' principles.
- Data is the new, most valuable resource. However, data only has value if we make it accessible and reusable through the public services that we provide to citizens and businesses.
- Interoperability between the Member States has great potential - it is time to ensure interoperability on all levels.
- The Bulgarian e-Government Act requires the electronic delivery of all administrative services. Moreover, all software developed for public administrations must be open source; existing solutions must be shared and re-used.





“Semantic interoperability is an important ally for digital public administrations.”

Keynote

Mariya Gabriel

Commissioner for Digital Economy and Society
European Commission



- To achieve a truly digital Europe, there is one condition to meet: public administrations must be open and digital by default to ensure higher transparency, efficiency and trust.
- Interoperability makes digital services work together and information flow seamlessly across borders.
- The European Commission helps Member States removing barriers to digital integration through initiatives such as the European Interoperability Framework (EIF), the ISA² programme and the Connecting Europe Facility (CEF).
- Linked data allows European administrations to be interconnected, enabling the ‘only once’ principle in the form of a ‘one click’ administration.
- The technical layer of the EIF is about how information is transmitted. Semantic interoperability is about its meaning and the content of information, as data itself does not create meaning. The Commission develops solutions such as core vocabularies, metadata standards and base registries to enable a common understanding of data across systems.





“The Commission’s new Digital Strategy is about providing digital solutions to support the Commission’s political priorities, building on re-usable platforms, systems that are interoperable.”

Introduction

Gertrud Ingestad

Director-General of DG Informatics
European Commission



- The European Interoperability Framework (EIF) is recognised in the Tallinn Declaration on e-Government as one of the key instruments enabling Member States to become a ‘one click’ administration.
- The Commission is also a public administration, encountering challenges similar to those of the Member States. A new Digital Strategy will guide the Commission through its transformation.
- A trusted, effective and efficient Commission that optimises its role in policy-shaping; a Commission performing as a world-class open administration: collaborative, innovative, agile and in the service of Europe.
- We are facing a new digital data reality, requiring new rules. That’s why the Commission’s strategy is talking about new governance, new ways of working together, the strengths of a distributed IT system.
- Co-operation is the keyword: co-operation, co-creation, co-responsibility is what we are driving very hard inside the Commission.





“If we do not realise the potential that is in a fully digital transformed government our citizens will no longer accept us, they will not re-elect our politicians and trust us.”

Keynote

Jens Krieger Røyen

Head of the Division for IT Architecture and Data
Danish Digitisation Agency



- Denmark is a place where communication with public administrations is digital by default. Every Danish citizen has a digital post box and receives all communications from public institutions electronically.
- As part of our Basic Data Programme, covering the most important base registers, we have worked on the concept of authoritative data: we must be able to trust data and manage cases without asking the citizen again. This requires semantic quality but also much legal work.
- The ‘Digital Coherent Public Sector’ is the Danish Interoperability Framework - the architecture for sharing data and supporting cross-government processes. It is based on the EIF and supports the once-only principle and the Digital Single Market.
- The Danish Parliament has agreed upon principles for digitisation-ready legislation such as the consistency across public authorities, uniform concepts and reuse of data.
- As part of our semantic interoperability framework, we have developed common public-sector modelling rules.





Base Registries & The Single Digital Gateway





ISA² access to base registries

Peter Burian

Programme Manager, DG DIGIT
European Commission

“Base registries are key enablers for delivering high quality, user-centric public services.”



- Base registries are a source of master data. Master data management means actively managing data across the public administration and not keeping it in silos.
- Today, public administrations work in silos: they collect data for different purposes, but very often it is very much the same data leading to duplicate databases. Citizens are asked to provide data more than once in different contexts.
- With base registries, we aim to create one concrete and common meaning.
- You need to create an interconnecting infrastructure through which you can orchestrate your services.
- Data quality and governance are key for ensuring trust in the data of your base registries.



Business Registers Interconnection Systems



"The access to information that is contained in business registers is of cross-border importance."

Vincent Dijkstra
Solution Architect, DG DIGIT
European Commission



- Member States have put in place different data models for their business registers. To exchange data we were looking for a 'super model' that we could use to define commonalities across all models.
- Common Vocabularies were used as enabler for system integration: it is not only about semantics in a base model, it is about the exchange of data when we are connecting services.
- Business registers exchange information amongst each other via a central platform that is hosted by the European Commission.
- We need to work more on the definition of messaging models that allow exchange of information in an interoperable way.

Land Registers Interconnection



"The LRI project aims to provide a single access point within the European e-Justice Portal to the land registers of participating EU countries."

Gabriel Sima
IT Project Manager, DG JUST,
European Commission



- The e-Justice Portal access point allows citizens and professionals to query information via a single, adaptive, multi-lingual interface.
- Organisation models of land registers differ across the Member States and different national authorities are responsible for the registers, adding complexity to retrieve relevant data from the registries.
- The European Land Register Document will present data in a way that is more easily understandable by a citizen of a Member State when accessing data from another Member State.
- We are currently considering to extend the ISA² Core Vocabularies or even creating one tailor-made for expressing the needs.



TOOP: A Common Semantic Model for the Once-Only Principle



"TOOP is building a federated architecture supporting the once-only principle across borders."



Jack Verhoosel
Senior Data Scientist, TNO, Netherlands

- We have set up a TOOP platform for cross-border data exchange using a message gateway as an e-delivery component as defined by CEF.
- TOOP establishes standards and terms that messages and systems should apply. We reused ISA² Core Vocabularies, especially for registered organisations.
- Member States continue to use their concepts and terminologies. Therefore, a Semantic Mapping Service (SMS) for mapping the Member States' data models was developed. It is a central service which contains the Common Semantic Model (CSM).

Central Ontological Model for Base Registries Data in Slovakia



"All public data should be linked data and look like a government library which allows to read all about your topic of interest."



Miroslav Líška
Co-author of the Slovakian Semantic Interoperability Framework

- We created four levels of semantic interoperability: 1) valid URIs for public resources, 2) Base Registries Ontological Model with mappings to Core Vocabularies, 3) application profiles and reference data definition, 4) explicit examples.
- LODSlovakia.EU is an open data community project that periodically publishes new version of 1) the Slovakian Semantic Interoperability Framework for establishing public data standards, 2) LODSlovakia - Slovakian government data represented as linked data, 3) provides open and free consultations to various Slovakian public authorities for starting to use linked data.
- Slovpedia.com is a web portal that loads LODSlovakia data and provides text and graph based search over those data.





“The first pillar of our initiative is to make sure that citizens and businesses have access online to all the information they need in one place.”

The Single Digital Gateway

Fleur Breuillin

Team Leader – Single Digital Gateway
DG GROW, European Commission



- The Single Digital Gateway is a new EU regulation that is expected to be formally adopted this autumn.
- The overall objective of the Single Digital Gateway is to make it easier for businesses and citizens who want to go to another Member State to live, to work or to do business to access all the information they need on the rights they have and the rules that apply to them.
- The Single Digital Gateway will facilitate the handling of the paperwork related to it and will make it easier for citizens and businesses to access assistance services.
- We have identified 21 administrative procedures that the Member States have to make available online. Moreover, they have to ensure that for any evidence required in the context of these procedures, users have the choice between submitting it electronically or asking authorities to directly get them from other authorities through the once-only system.
- A number of IT tools needs to be developed such as user interfaces through which citizens can access information, procedures and assistance services as well as back-office solutions.
- Interoperability questions arise, especially for gathering in a common back-office dashboard information and data from Member States.





**Vocbench
Demo**

Denis Dechandon
EU Publications Office



**SCOOP4C
Stakeholder
Community
Once-Only
Principle**

Michaela Führer
Jinit



**ELRC
European
Language
Resource
Coordination**

Lili Smal
German Research Center for Artificial Intelligence
Aivars Berziņš
Tilde



IMOLA II

Jesús Camy
European Land Registry
Association



**ISA² SEMIC
ChatBot**

Cécile Guasch
European Commission
DG DIGIT



Projects Corners



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Българско председателство на
Совета на Европейския съюз

Bulgarian Presidency of
of the European



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Parallel Sessions

Open Standards for Linked Organisations – Tools and Methodology



“The Open Standards for Linked Organisations programme (OSLO) builds upon the ISA core vocabularies to provide interoperable hypermedia driven APIs.”

Raf Buyle

Information Architect, Flanders Information Agency



- We make the data as well as the APIs exposing the data self-descriptive by applying the ISA core vocabularies and Linked Data principles.
- To smoothen the transition towards the Linked Data paradigm we provide our partners with Open Source tools and guidance for schema mapping and data validation.
- All administrations and private partners have access to JSON-LD code snippets that allow them to retrofit their existing services with semantics.
- The spillover effect is the adoption of the URIs and vocabularies in traditional services including geographical WFS Services.

Methodology and Tools – Support for Semantic Interoperability



“There is a need for a common EU meta model. This would contribute to enhancing semantic interoperability.”

Per de Place Bjørn

Lead Information Architect, Danish Digitisation Agency



- We aim to build a data model that covers public data entirely. Today, they are still enclosed in their domains.
- This is enabled with a set of common modelling rules for the public sector. They are a set of shared requirements for models.
- Our modelling rules follow three principles: model domain-oriented, share and reuse model elements and apply the common meta-model.
- Another dimension of the model is the coherence of the semantics - from legislation to the IT systems and actual data definitions.
- We have created a common public sector model catalogue which can be used by modellers, containing ISA² and W3C vocabularies and Danish data models.



Financial Data Standardisation – DG FISMA RegTech project



"If you believe in the once-only principle, we believe in the Define once."



Peter van den Hul
Project Manager, DG FISMA, European Commission

- The objective of the FDS project is to make financial data more interoperable by the use of standards, reduce costs for financial reporting by referring to the once-only principle, explore ways and solutions to do things better and improve monitoring of risk.
- We created a Reporting Framework to organise legal acts in a logical structure, categorising and documenting different legal acts into fiches.
- From an interoperability perspective, there is a need to agree on common standards and identifiers. We need a common RegTech Core Vocabulary. In our RegTech Data Dictionary, a common language, ontologies and identifiers form the core linking legislation to vocabulary attributes.

Interoperability of Chemical Data



"The EU owns the largest public database on chemicals in the world."



François Mestre
Head of the Business Information Systems Unit,
European Chemicals Agency (ECHA)

- As a regulator, ECHA has to collect data provided by industry, perform screening to guide the Member States in their regulatory work and disseminate this information on our website.
- We provide an open standard for the submission of this data and tools free of charge for the industry, i.e. IUCLID.
- The OECD harmonised templates are a key enabler for standardisation and interoperability of data in the chemical sector.

DORIS - Data Services for Policy Making



“Data-driven participatory policies need to be provided with the right tools and the right methods.”

Franco Accordino

Head of Knowledge Management and Innovative Systems Unit, DG CNECT, European Commission



- Whatever engagement or platform you have, the challenge is to gather and to cross-link all the inputs and make sense of it and to do it rapidly.
- The data-oriented services tool (DORIS) is a back-end to a number of stakeholder engagement channels, the most important being the EU survey. DORIS offers a collection of algorithms, a front-end user interface and a translation service.
- DORIS is part of a bigger initiative led by DG DIGIT together with other DGs which is called ‘Data4Policy’.
- 24 DGs and more than 50 Units have used the tool. It was applied for more than 120 consultations and the equivalent of more than 300 000 citizen replies was processed by Doris.

National Metadata Architecture & Interoperability Workbench



“Through this work I have the dream – some say a plan – that we can reach interoperability from the legal to the technical level.”

Suvi Remes

Senior Adviser/Project Manager
Ministry of Finance, Finland



- Finland invests significantly in digital services and data. We are currently drafting an ‘Ethical information policy in the age of Artificial Intelligence’.
- A key project is ‘Joined Meta Data and Information Management’. One of the tasks is to develop a management solution for core and metadata.
- In Finland, we have good quality data base registries and data can be safely transferred via the national data exchange layer. Today, we need to combine data efficiently and to understand the structure of the data.
- We have built a semantic interoperability platform which is a set of tools based on linked data principles to support and enable collaboration on metadata management. It is based on a metadata architecture and offers data descriptions for open linked data.





Emerging Technologies

Adrian
DUŞA

Marco
BANI

Artificial Intelligence at the service of the citizen: The Italian Task Force

Marco Bani

Head of Technical Secretariat and Public Relations Office, Agency for Digital Italy



"If digital revolution is at the core of the challenge, AI is at the core of the digital revolution."



Enzo Maria Le Fevre

Senior Expert on International and European affairs, Agency for Digital Italy

- Some public and private organisations is trying to better understand about the use of AI in the public sector. However, there is a risk to do it the wrong way.
- We created an AI Task Force to understand how new possibilities offered by AI can affect the construction of relationships between state and citizen.
- We published a White Paper on Artificial Intelligence identifying 9 challenges linked to the use of AI for services to the citizens.
- The Agency launches Open Innovation calls to promote innovative procurement to integrate AI solutions in public services. Moreover, pilot projects are created to accelerate its use.

Blockchain Cadastre



"Sometimes block chain is seen as the holy grail that will cut back red tape by replacing land registries, lawyers and other trusted parties."



Jacques Vos

Legal practitioner, Kadaster, Netherlands

- Blockchain is a continuously growing list of interactions and records, linked and secured using cryptography. It is very suitable for recording events and records management, such as identity management.
- It may be part of the solution to cut red tape and to eliminate friction in some processes and it starts with how one organises things: with strong governance, standardisation and alignment on semantics.
- Implementing blockchain requires public organisations to cooperate with their partners and ecosystem. In the case of land registration, it involves cooperation with notaries, surveyors or other EU registries.

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pean Union



Kenji
HIRAMOTO



Luis Felipe
SALIN MONTEIRO



Laura
RODRÍGUEZ



Anna
PANAGOPOULOU

Panel on Digital Strategies

Panel on Digital Strategies



**Vassilios
Peristeras**

Assistant Professor at the
International Hellenic University,
Greece



**Anna
Panagopoulou**

Director of 'Common
Support Centre', DG RTD,
European Commission



**Kenji
Hiramoto**

Chief Strategist, National Strategy
Office of IT, Cabinet Secretariat,
Government of Japan



**Laura
Rodríguez**

Deputy Chief Technology Officer and
Chief Architecture,
AGESIC, Uruguay



**Luis Felipe
Salin Monteiro**

Secretary of Information Technology
and Communication, Government of
Brazil



- What is the digital strategy about that you are leading and coordinating?
- Which was the most difficult challenge that you face in your digital strategy?
- Base registries in your country: in which of the 4 European Interoperability layers are there more problems?
- How do you see the use of advanced analytics and Artificial Intelligence in the public sector?





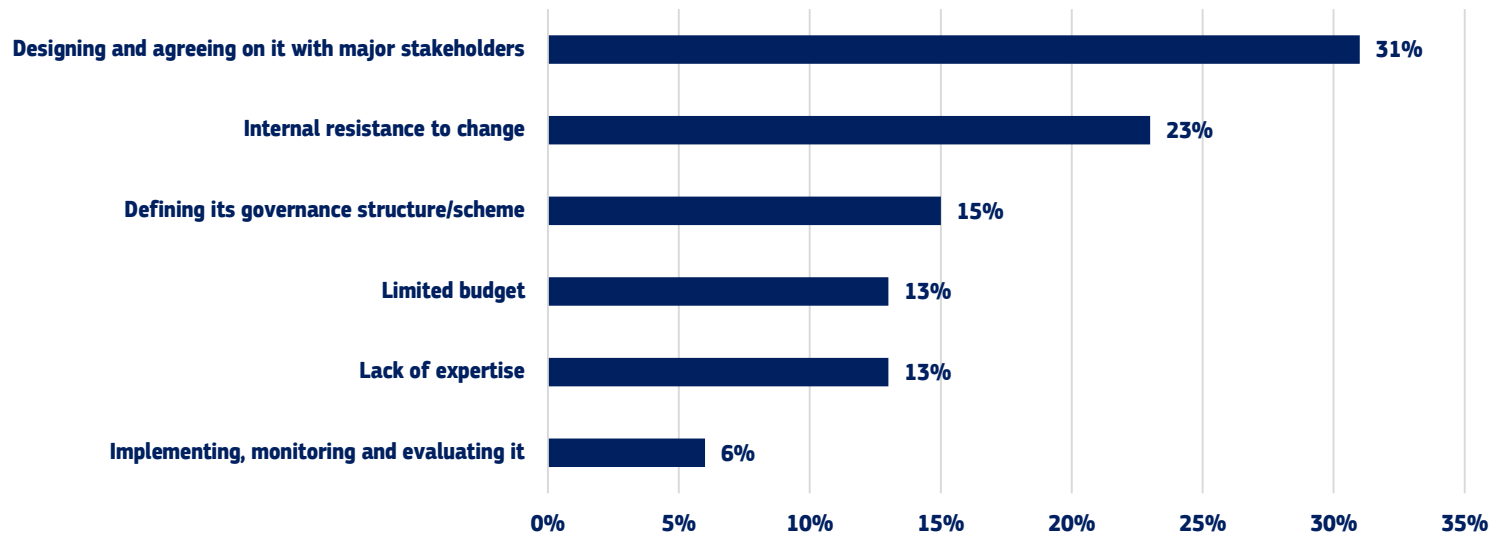
Poll: How do you manage your Digital Strategies?



Your point of view...



Which is the most difficult challenge that you face in your digital strategy?



Your point of view...



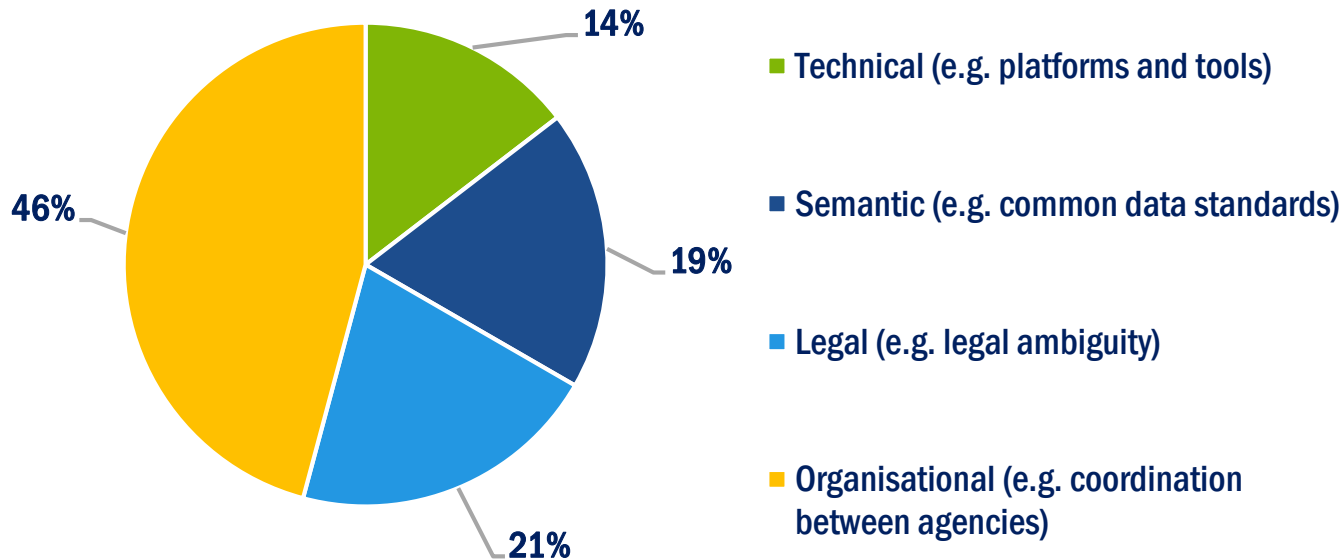
How do you see the use of advanced analytics and Artificial Intelligence in the public sector?



Your point of view...



Base registries in your country: in which of the 4 European Interoperability layers there are more problems:





Closing





“Data is not what we are looking for: the value is not in the data, but in the data integration that could generate information which is meaningful for designing public services.”

Closing
Emanuele Baldacci
Director of Digital Services, DG DIGIT
European Commission



- We are moving from the notion of data exchange between and across government departments towards the model of a data sharing environment. Data sharing has to do with linking data; good semantic interoperability allows us to create data clouds.
- With emerging technologies such as artificial intelligence and blockchain we are moving into a new notion of government - 'smart government'. It's a government that is digital but uses intelligence to make the best out of data assets which are typically produced and processed by the government. These emerging technologies are not the future but the present.
- Our strategic choice is to decide whether we start incorporating these technologies as building blocks in our portfolio and catalogue of key enablers of public services.
- We need to make sure that the building blocks and standards that we are developing are not left hanging in the air but are taken up and used by public administrations.
- We need strong governance - organisations need to clarify the relationships between traditional IT governance and data governance.





See you all next year!
#SEMIC 2019



4. Stay tuned



Relive the conference

Watch the conference [video](#)



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