



WHITE PAPER

Resolving Governance, Risk and Compliance – once and for all

Introduction

Chances are, granularity and bitemporality are not your everyday concern. Be that as it may, by the time you are done reading this article, you will know that both principles, especially if they are combined, have the potential to save your organization millions or even billions in punitive damages, consequent reputation damage and yes, even personal indictments of board members. In short, when it comes to Governance, Risk and Compliance (GRC), granularity and bitemporality are your best friends.

To be fair, the goal of compliance is not just to be compliant. It's about reducing risk and preventing fraud. It's about sustainability rather than legislation, about not being spied upon, or bereft of intellectual property, or plain and simply being cheated. And just as much about not giving in to sometimes very compelling reasons to make any of those missteps. Compliance is about keeping things honest, and not getting into trouble.

Having said that, a certain degree of opportunism in doing business is inevitable, and frankly, quite all right, just as long as the fine line is sufficiently being guarded. That line is the delicate balance between the intricacies of entrepreneurship on one hand, and laws and regulation on the other. Both are tied together at the centre of GRC.

Making compliance work to your advantage

Along with the digitalization of virtually everything, the importance of governance rises. All of a sudden you need context around data that drives your decision-making.

- What information should you gather, and how do you ensure that it is accurate and current?
- What are you allowed to do with the information you gather?
- How do you store it, and for how long?
- Who can see it?
- How is it updated?

All of this is called metadata, and all these tiny bits of information about one object of information, contribute to the granularity of data.

But more on that later.

“ MarkLogic proved very capable of managing our data flexibly and efficiently. By searching and analyzing all our trade data in new ways, we can envisage both threats and opportunities in the risk space.”

– Jaap Boersma, Principal Architect Capital Markets Solutions, ABN AMRO Bank



To meet compliance requirements to such a degree that they will work to your advantage, there's a lot to be considered, and many questions to be answered. And you're never really done, as regulations change constantly – in every jurisdiction your company is present. In fact, that is the biggest hurdle for most companies today, because their information technology simply is not up to the task. No matter how skilled you are jumping through all the legislative hoops, the prospect of having to do it all over again tomorrow, and the day after, is rather grim for you as a chief executive, and close to nerve-wracking for your IT department.

So you'll probably be pleased to hear that MarkLogic has an airtight solution, so we've got your back.

Inadequacies in anti-corruption legislation

Lack of governance can result in catastrophic liability to your organization. In April 2020, the Dutch Minister of Justice and Security had to account politically for alleged shortcomings in Dutch anti-corruption legislation. Commotion began when Aldo Verbruggen, lawyer and renowned expert in the field of financial and economic criminal law, claimed in an interview that Dutch companies are often not too reluctant when it comes to paying bribes.

Verbruggen's statements were in response to a bribery scandal that came to light in January this year, in The Netherlands. A collective of investigative journalists revealed that dredging company Van Oord had neglected to take necessary steps to prevent nearly 200 million euros from disappearing into the pockets of Isabel dos Santos, Angola's former president's wealthy daughter.



Companies are poorly equipped for self-examination

The dredger formed a consortium with a partner who could invoice nearly one-third of the \$615 million contract price for barely defined work. That partner was Urbinveste, owned by Isabel dos Santos, who has been under scrutiny since 2013 for the dubious origin of her billion-dollar fortune.

Verbruggen went on criticizing anti-corruption legislation, which would offer the business sector too little certainty, with – amongst other things – bribery of foreign civil servants inadequately being regulated.

Furthermore, he suggested companies are poorly equipped to investigate matters themselves and therefore unreliable in producing relevant documentation – either pro or con – in a corruption case. In his defense, the minister claimed that prosecution for bribery is inadequate due only to extraterritorial legislation.

Accountable for corruption through neglect

Following the political involvement of the Dutch minister, Van Oord will most likely not be done with the affair for quite some time. According to experts, the company could be held accountable for corruption if it turns out proper research into the project was not conducted. And of course, someone may very well have overlooked some important “red flags”.



Should that be the case, it all comes down to the evidence the company can procure in its defense.

Because doing business with a company owned by someone whose reputation is highly questionable is not wrong per se. All kinds of guarantees may have been stipulated before going into an agreement, all in accordance with western standards for corporate social responsibility (CSR).

“ ABN AMRO must be able to respond immediately to changing regulations. We chose MarkLogic because transaction data can’t be managed sufficiently using any other technology. The bitemporal capabilities of MarkLogic’s Data Hub enable us to manage risks through ‘tech-time travel’.”

- Jaap Boersma, Principal Architect Capital Markets Solutions, ABN AMRO Bank

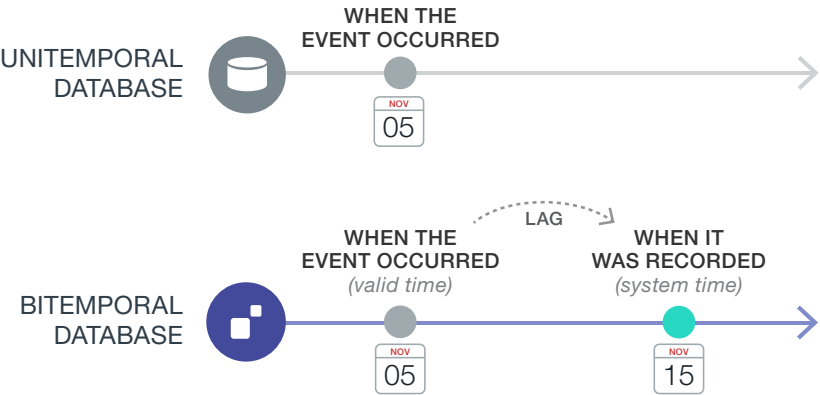


Keeping track of context as it changes throughout time

In cases like these, it all too often comes down to what was known to be true at a certain point in time. At the base of a decision may have been a guarantee, a clause or even an article that in hindsight, weeks later, turned out to be fake news. Besides that, legislation may have changed in any of the involved countries over the course of the project. It's therefore imperative that we know not only the truth as it is today, but also as it was at the time. This is where bitemporality comes into view, and it is as fundamental and indispensable for your compliance as healthy nutrition is for your family.

Businesses and projects develop, and along with them the data load develops. Information is added, discarded, changed and amended all the time. Bitemporality lets you keep track of when an event occurred (the valid time), as well as when the information was added (the system time). Let's say you return home on the 15th from holiday, to find a letter from the Treasury on your doormat. The letter was sent 10 days earlier, on the 5th of the month. The valid time for the letter now would be the 5th, while the system time is the 15th.

This poses us with two versions of the truth, in this case being ten days apart from each other.

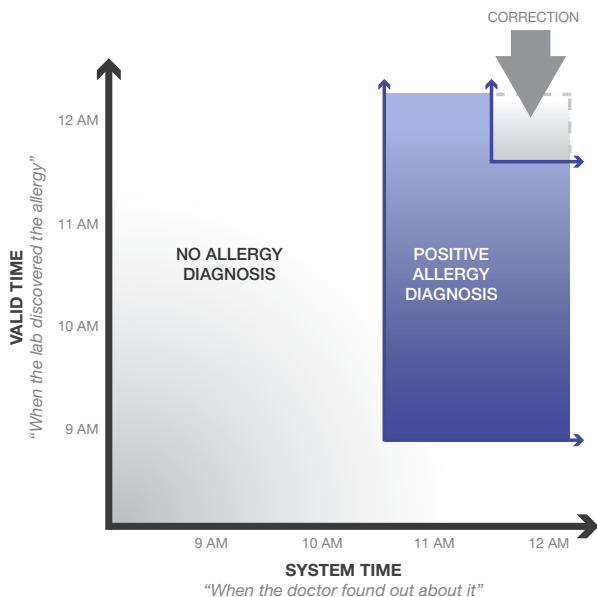


Reproducing historical truth of any given timeframe

In industries such as financial services, insurance, healthcare, intelligence and law enforcement, keeping track of these different times is decisively important.

Understanding when information was known, and being able to recreate that historical record – and thus its true meaning at that time – is critical to any analysis.

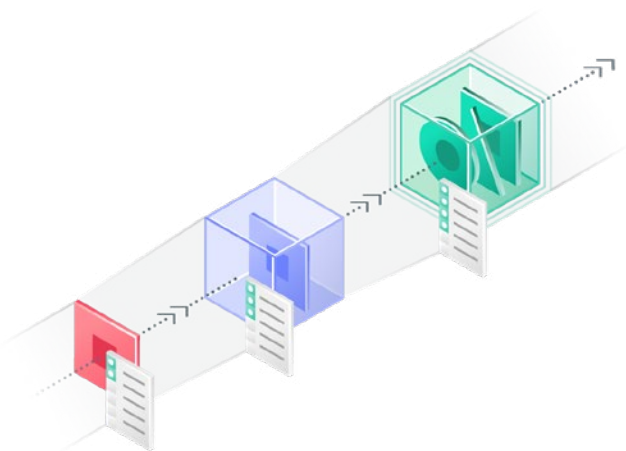
However, keeping bitemporal data consistent and searchable as documents are added to a database is a complicated process. Analyzing bitemporal documents involves going back in time, with two measures of time changing in different ways. Our brains aren't used to thinking this way. To solve and automate this, in 2015 MarkLogic developed a powerful new way of tracking data, involving amongst others four timestamps for every bit of data: two for valid time start and end, and two for actual time start and end. As prosaic as that may seem, it is the heart of a system that can fully recreate any truth, no matter how long gone, as it was in any given moment.



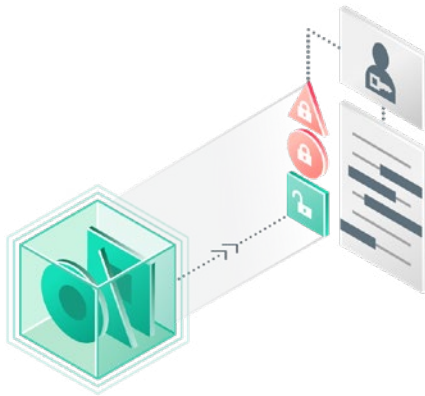
Granularity ties and secures data to the core

Now let's have a closer look at granularity. For compliance to work in your advantage, it must entail literally every snippet of information available in your organization. That includes everything from the date and time the garbage collector swipes his keycard to enter the building, to every breadcrumb a customer leaves in your organization on their customer journey. Phone calls, notes, address and billing information, order history and even every text message you may have ever exchanged with them. Everything that happens, changes or has stopped happening.

Making this abundance of information granular is the next step. Basically, it comes down to adding a meta layer to each bit of information making it distinguishable on multiple levels. Metadata enhances the meaning and value of otherwise isolated chunks of information. The advantage



of granular data is that it can be molded in any way that the data scientist or analyst requires. Besides that, granularity also allows for meticulous data security, as every bit of data can be governed by its own set of executive privileges. We call that granular access control, a somewhat nerdy name for a security layer that will infallibly keep out everyone without proper access permissions.



Airtight GRC, at last

Well, there you have it. It's all quite hi-tech and nerdy, but by combining bitemporality and granularity – and granular access control – we have created a data hub that is in fact the only available system that will end not only your quest for airtight GRC, but will in the process advance your entire organization on its way to becoming a [data-driven enterprise](#). We realize topics such as these are not the easiest to digest. Should you feel the need for further information as to what our data hub can do for you, please don't hesitate to call, text or email us.

Contact our local hero. It will be enlightening.

By all means, do get in touch with Jurriaan Krielaart, our Director Emerging Technologies & Territory Director for Northern Europe. Despite being a data wiz, Jurriaan also speaks your language, so don't hesitate to give him a call.



EMAIL

jurriaan.krielaart@marklogic.com

PHONE

+31 6 11 900 542

About MarkLogic

By simplifying data integration, MarkLogic helps organizations gain agility, lower IT costs, and safely share their data. Headquartered in Silicon Valley, MarkLogic has offices throughout the U.S., Europe, Asia, and Australia.

999 Skyway Road, Suite 200
San Carlos, CA 94070

+1 650 655 2300
+1 877 992 8885
www.marklogic.com
sales@marklogic.com

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