

## Bundesdruckerei innovation project uses the intelligence of the CortexDB

- **With the identity and rights management FIDES, individual data sovereignty is already anchored in the basic technology CortexDB**
- **Authorization chains bring digital self-determination, flexible handling and maximum security to a common denominator**

Isernhagen, 4<sup>th</sup> of July 2018. With Bundesdruckerei GmbH (bdr) from Berlin, Cortex AG, Isernhagen, has gained another important user for its CortexDB. The bdr has evolved from a manufacturer of government documents such as passports and ID cards to a provider of security solutions also in the digital sector. In this context, the multi-model database CortexDB forms the technological basis for a new type of identity and rights management of the bdr, known as FIDES. The digital authorization chains, known as ID chains, enable the respective users to retain complete and consistent control over their digital authorizations, and also to pass on authorizations to others or withdraw them at any time.

FIDES - in Roman mythology the personification of trust - does not require a central administrator who assigns roles and rights, unlike traditional identity and rights management systems. The bdr is currently evaluating proof-of-concept deployments together with companies from several industries and governmental partners. For example, an internal "business chain" within an organization, a "citizens' chain" between citizens and authorities or also a "life chain" for networking all documents in the lifetime of a person.

## **Stay in control of the data**

FIDES gives control over the data exclusively to the responsible users. For each right, for example to access a certain document, exactly one responsible owner with corresponding authorizations is defined. The system is based on digital authorization chains, the so-called ID chains. From the user's point of view, he is always in their center, so that all his authorization chains converge on him and he keeps an overview and control.

The ID chains are based on a modified block chain concept from Bundesdruckerei. Whereas a conventional block chain only concatenates data blocks in one direction (i.e. unidirectionally from the predecessor to the successor), the bdr authorization chain enables bidirectional concatenation in both directions. Because information can be exchanged between the blocks in both directions, manipulation of the last data blocks attached can be prevented, each action can be traced and logged unchangeably.

## **A technological basis with added value**

As a basis for the development of FIDES, the CortexDB is an industry-proven database system that already offers various standard functions for storing and networking data sets. For example, document store, graph functionality, bitemporal data storage (i.e. the period of validity of values and their transaction time) and the automatic 6th normal form for all database contents are supplemented with security functions and blockchain functionality from Bundesdruckerei. The core of the database thus has integrated security functions so that the system can intrinsically protect any information.

The database CortexDB forms the core of the CortexPlatform. This includes applications for flexible data import, the standard application CortexUniplex for interactive use by IT and departments as well as several APIs and other tools for individual development and extension.

"Digital technologies should give people back the sovereignty over their data," explains Dr. Manfred Paeschke, Chief Visionary Officer of the BDR "It is not a question of 'security or self-determination' - the solution of the future brings the two together. In this context, Bundesdruckerei's Innovation Department is examining the possibility of using the Cortex platform for the development of further technologies.

The CortexDB is already successfully used as the database basis in numerous applications in various industries and areas of application, including as a management information system (MIS) in the defence sector, as a group controlling instrument in trade, as a parts list comparison in the automotive sector, as an inventory management system for representing the semantic network for insurance contracts with all networked information (households, persons, companies, etc.) and through the multi-model approach in a large number of other applications.

Further information on CortexDB and the possibility of free download of the (limited) standard version can be found on the website of Cortex AG at <http://www.cortex-ag.com>.

### **Complementary Information about Cortex AG**

Cortex AG from Isernhagen near Hanover is a specialist in innovative IT technologies for processing very large, complex data volumes. With its Cortex platform, Cortex AG offers an integrated tool set for the development of enterprise applications of all kinds; this is based on the multi-model NoSQL database CortexDB, which is superior in many respects. With only little programming effort, applications in the areas of digitization, big data, industry 4.0/IoT (Internet of Things), analytics, master data management, dispositive planning or process-based solutions can be built up. The CortexDB provides an automatically normalized index of all fields and contents and thus represents the 6th normal form (NF6). It thus enables high-performance cognitive database queries on any attributes and data sets in any combinatorics and relationship in a temporal context. Further information is available at [www.cortex-ag.com](http://www.cortex-ag.com).

## Additional images



The person in the middle:  
a user and his or her  
identity chains  
(credit: Bundesdruckerei GmbH)



The person in the middle:  
An identity as part of a chain  
as part of it authorization  
(credit: Bundesdruckerei GmbH)



Logo of Cortex AG  
(credit: Cortex AG)

Images Download:

<https://www.cortex-ag.com/en/press/images/1>

### Additional informationen:

Cortex AG  
Thomas Kalippke  
Tischlerstraße 1a  
D-30916 Isernhagen  
Telefon: +49 5136 890080  
Telefax: +49 5136 890088  
[pressekontakt@cortex-ag.com](mailto:pressekontakt@cortex-ag.com)  
[www.cortex-ag.com](http://www.cortex-ag.com)

### Contact for the press:

ars publicandi GmbH  
Martina Overmann  
Schulstraße 28  
D-66976 Rodalben  
Telefon: +49 6331 5543-13  
Telefax: +49 6331 5543-43  
[MOvermann@ars-pr.de](mailto:MOvermann@ars-pr.de)  
<https://ars-pr.de>

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