AIQNET

Medical Data Ecosystem

Legally secure. Structured. Interoperable.

AIQNET makes clinical data smarter

Interoperability is the key for data-based healthcare provision

Digitalisation requires an interoperable infrastructure

Many healthcare provision institutions cannot simply exchange their medical and clinical data between different systems. Once entered these data remain stored but unused by other applications. Data is often entered multiple times in everyday work as a result. This wastes staff time and is uneconomical, but is indispensable for data-based patient care.

Clinics' digital maturity

The hospital report of 2019 was the first to measure digital maturity of German hospitals according to the EMRAM Score of "0 to 7". Level 0 means that the hospitals still work with paper. Level 7 means that the hospital is completely digitalised. The result showed that there was still a long way to go on the way to a paperless hospital. The level of digitalisation in Germany is 40% lower than the European average.

	Germany	Austria	Europe	UK	Turkey	Spain	Nether-lands	USA	Denmark
Level 7	–	–	0,3	–	0,1	–	5,6	6,4	
Level 6	1,2	5,6	13,4	2,9	24,2	5,1	5,6	33,8	4,2
Level 5	18,0	11,1	30,0	52,4	19,1	50,0	66,7	32,9	95,8
Level 4	5,4	–	4,9	3,8	6,5	4,5	–	10,2	–
Level 3	9,0	–	5,2	–	5,9	3,2	–	12,0	–
Level 2	26,9	50,0	28,8	14,3	32,3	26,3	19,4	1,8	–
Level 1	1,2	5,6	6,0	9,5	5,0	1,9	2,8	1,5	–
Level 0	38,3	27,8	11,4	17,1	7,0	9,0	–	1,4	–
N	**167**	**18**	**1.455**	**105**	**682**	**156**	**36**	**5.487**	**24**
EMRAM-Average	**2,3**	**2,3**	**3,6**	**3,7**	**3,8**	**3,9**	**4,8**	**5,3**	**5,4**

Source: EMRAN Score Germany 2.4 in comparison with Europe 3.6 (2019)

What are the reasons for this?

GDPR

Strict data protection requirements give rise to uncertainty with regard to the legally compliant use of medical data.

Digital infrastructure

A wide array of interfaces with different syntax and semantics prevents data being transferred between different applications.

Data format

The data are not structured and can therefore not be merged or exchanged.

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AIQNET provides the solution for the interoperable use of medical and clinical data. Data in the AIQNET platform is structured and analysed using AI meaning that they can be exchanged across sectors between different systems. This occurs in a 100% legally compliant manner and automatically to the greatest degree possible.

AIQNET Medical Data Ecosystem

Make intelligent and effective use of medical data

Eases the workload on clinic staff with fully **automated routines** for **data entry and transfer**.

Provides access to data from laboratories, radiology, case histories, diagnosis and treatment via **one system**.

Converts medical and clinical data into a **universally exchangeable format (FHIR)**.

Covers nearly the **entire range of different interfaces** and protocols for data exchange.

Fulfils the **legal and ethical requirements** in full by means of a governance framework.

Interoperability as a basis for the digital transformation of clinics

The AIQNET platform fulfils the prerequisites for data-based, patient-orientated healthcare provision.

The introduction of digital patient records is a significant step towards digitalisation in hospitals. Now the next step is to automate the processes to the greatest degree possible by means of the interoperable exchange of medical and clinical data for different applications. The interoperable use of data via AIQNET forms the basis for a comprehensive digitalisation strategy for hospitals.

Cross-sector data exchange

AIQNET converts medical and clinical data from laboratories, radiology, case histories, diagnoses and treatment records into an interoperable data format. These structured data then form the basis for data-based patient care. Patients retain full control of their data and the purposes for which they are used at all times. The aim is to ensure the availability of data beyond the sector-specific limits of different systems and participants in healthcare provision.

Better patient care through AI, big data and automation

AI applications and big data analyses require an interoperable data structure that is data protection-compliant. For example, X-ray, CT and MRI images can be compiled for AI-supported image data analyses and structured logically for data output. The result of the data analysis is then made available to the doctor. Other applications such as big data analyses, e.g. in the area of diagnosis, are also available via AIQNET. Time-consuming tasks like entering and analysing data from patient surveys, case documentation, diagnoses and administrative processes can be automated in a data-based manner.

Reduction of integration and development work for new clinical applications

Operating AIQNET allows you to make a wide number of applications available on the platform without requiring any additional integration work. The aim is to advance the digitalisation process without integration barriers on the basis of the FHIR standard. AIQNET provides the option of using the platform to implement different applications in a data protection-compliant way. The market place grants access to compatible applications from third-party providers.

Provision of clinical data for research and MDR

AIQNET creates a platform for the wide-ranging use of health data for research and evidence-based medicine in compliance with legal regulations. Pharmaceutical and medical technology companies can also benefit from AIQNET, as legal requirements such as the medical device regulation (MDR) oblige them to continuously monitor their products as part of post-market surveillance (PMS). AIQNET generates from routine treatments, in a data protection-compliant manner, hospital data that the designated offices can use to check safety and performance of medical products.

Technical implementation

Data integration

AIQNET processes unstructured and structured information from different medical systems and applications such as KIS, LIS, RIS, PACS. The connection is made via an integration server that functions with the HL7 v2, v3, CHR, FHIR and DICOM protocols. Unstructured texts, PDF files and radiology images are structured using third-party applications and relevant information – including the medical context – is extracted. This information can be made available to clinics to support and automate internal processes or for internal research applications. The data can be made available to external parties in a data protection-compliant manner via the data governance framework that is controlled by the clinics.

Data protection

AIQNET fulfils the requirements for legally secure use of data. The platform complies with various different regulations and takes account of patient permission, regulations as to possible usage purposes, requirements regarding technical and organisational measures of the data recipient and assures adequate pseudonymisation and anonymisation levels for patient data.

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Medical Data Ecosystem

AIQNET is a digital ecosystem that enables the use, structuring and analyses of medical data between sectors in a data protection-compliant manner. The overall project is coordinated by BioRegio STERN Management GmbH in Stuttgart. The initiator and consortium leader is RAYLYTIC GmbH which has its headquarters in Leipzig.

Many companies from the health sector – a shared vision

The consortium of 16 established companies from the fields of medical technology, pharmaceuticals and healthcare provision won the artificial intelligence competition run under the project acronym “KIKS” by the Federal Government in 2019. The partners have been developing the technical infrastructure and applications based on this as part of a project which has been running with the financial support of the Federal Ministry of Economic Affairs since January 2020. The focus lies on establishing interoperability, structuring data with artificial intelligence and creating the legally secure framework for data-based patient care provision. For example, in future objective proof of the performance and safety of medical products can be provided in a largely automated manner. Administrative tasks in healthcare provision such as documentation can be performed automatically by corresponding applications. A special feature of the project is the close cooperation between industry, research and healthcare provision institutions.

Access to technical and scientific data with great depth and the provision of basic functions via a “platform as a service” mean that the ecosystem is able to offer future partners the possibility of developing their own healthcare applications at low cost while allowing them to benefit from the legally secure, audited AIQNET framework.


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AIQNET
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Become part of our vision

Shared development of a digital medical data ecosystem with 100 applications and installations and 1,000 connected clinics within 5 years

Please contact us if you would like any further information.

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