



# Technology for Health

InterComponentWare AG

**InterComponentWare AG (ICW) is a leading supplier of software for the healthcare IT market. We develop solutions for IT-based collaboration among healthcare professionals and their patients. ICW is your trusted partner for solutions that involve patients in their treatment plans and that securely exchange data across enterprises. Our clients operate successfully in many international markets and benefit from our expertise in implementing innovative trends and addressing current and future challenges in healthcare.**



Management team: Dr. Ralf Brandner, Matthias Glück, Nils Effertz and Hans Gerwing

## Forward Thinking

Our internationally experienced team of around 60 employees successfully develops eHealth solutions for secure cross-enterprise information exchange in healthcare. Based on almost 20 years of experience, we created ICW eHealth Suite – powerful, connected Modules that form tailor-made solutions for our valued customers and partners. The solutions can easily be extended with additional Modules and value-adding services. This approach enables our customers, partners, and users to experience solutions that perfectly match their needs.

In addition to innovative hospitals, integrated delivery networks, and connected care organizations in various countries, we are a proud, trusted partner of global Fortune 500 companies such as GE, Hewlett Packard Enterprise (DXC Technology), and Roche. From our headquarters in Walldorf, Germany, we support all domestic and international customers and partners. We offer the ICW eHealth Suite through direct sales or prestigious partners operating worldwide.

At all times, our focus and priority is on helping our customers and business partners achieve their goals. We take pride in delivering the highest possible quality of software, services, and support, always aiming at exceeding expectations. We understand that mutual trust is pivotal in our industry, stand by our commitments and deliver on our promises.

# ICW in Brief

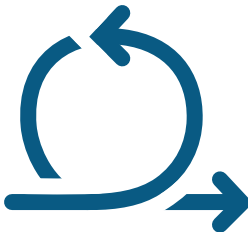
Facts & Figures



60 employees with an average tenure of more than 8 years with the company

Reliable long-term and successful collaboration with global Fortune 500 companies such as GE, Hewlett Packard Enterprise (DXC Technology), and Roche

State-of-the-art technologies and standards for highest performance



**FAST,  
AGILE AND  
RELIABLE**



Attractive price-performance ratio and business terms with flexible licensing models

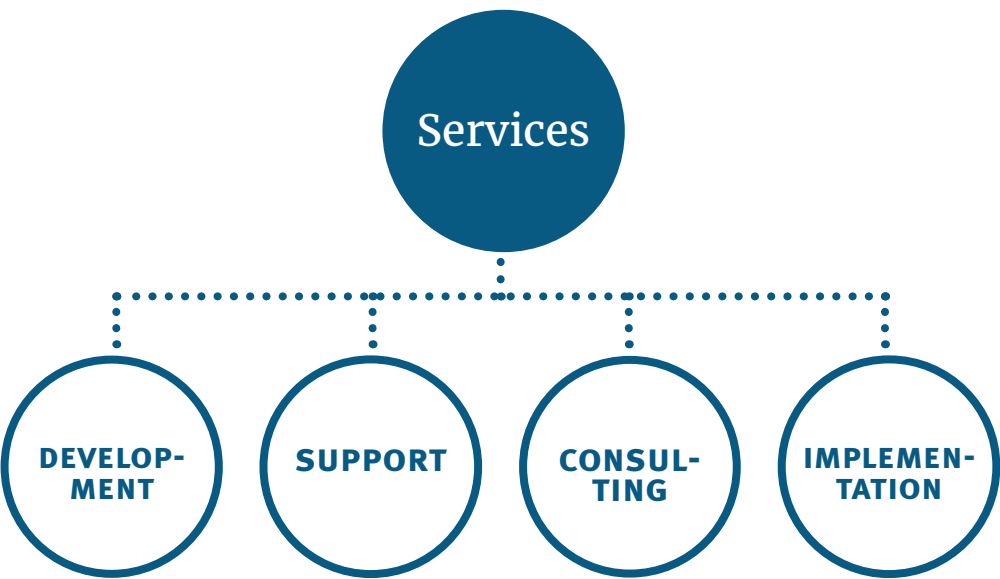
Leading provider of networking solutions for private clinic chains and university hospitals



**Focused on  
software for IT  
in healthcare**

**More  
than  
18 years**

of experience in secure data exchange



# ICW eHealth Suite

Portfolio for eHealth-Solutions



ICW eHealth Suite

ICW eHealth Suite offers powerful, concerted Modules from which tailor-made eHealth solutions are built.

In addition to Modules for the unique identification of patients and healthcare professionals, ICW eHealth Suite provides a complete electronic medical record for the aggregation of documents, image data, and structured medical data. Healthcare professionals and patients have access to medical records through Web portals.

Modules with extensive interfaces based on international standards and advanced security functions enable integration of ICW eHealth Suite with the existing eHealth solutions of our customers. Value-adding Modules facilitate context-based collaboration among all stakeholders involved in a treatment process.

Additionally, ICW eHealth Suite offers various platform services, such as the registration of integrated systems or management of terminologies. The Modules of ICW eHealth Suite are developed with state-of-the-art technologies.

POWERFUL  
MODULES

## Master Data Management

Unique identification of patients and providers across enterprises



- Master Patient Index
- Patient Quality Manager
- Provider Directory
- Provider Quality Manager

## Community Health Record

Secure cross-enterprise medical data exchange



- Document & Image Exchange
- Clinical Data Repository
- Provider Portal

## Patient Engagement

Involve patients in their own treatment



- Patient Onboarding
- Patient Portal

## Connectivity Extensions

Exchange patient data with apps and other healthcare networks



- App Connect
- Cross Community Connect
- NPI Connect
- P2R Assistant

## Security Extensions

Create and enforce electronic patient consent



- Patient Consent Manager
- Message Filtering Agent

## Collaboration Extensions

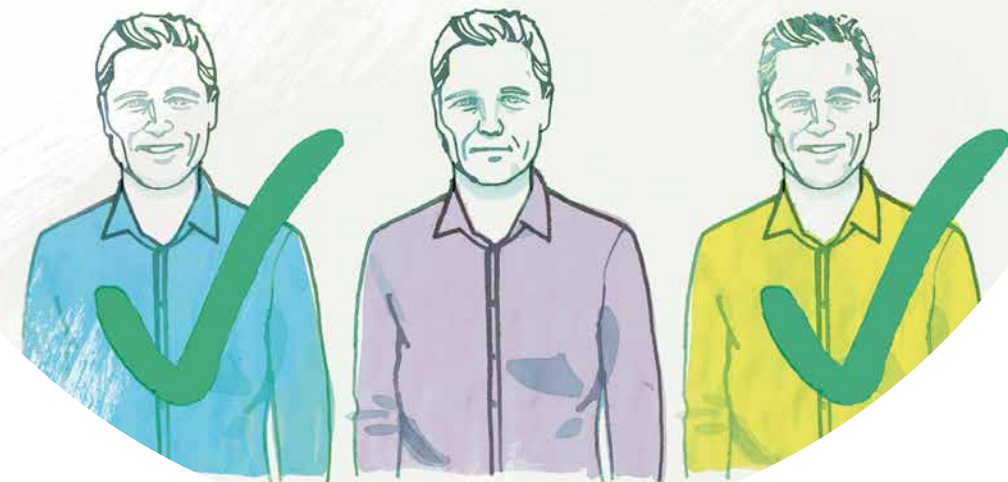
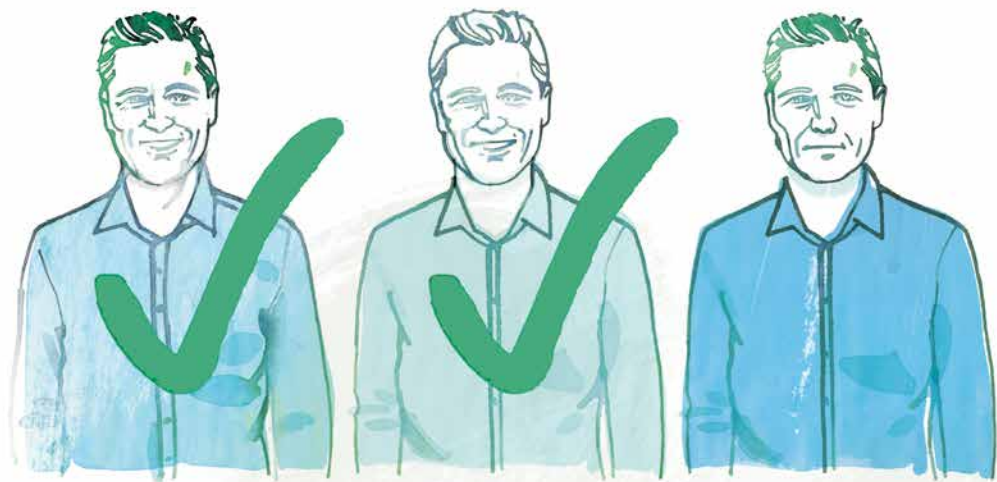
Value-adding services for improved collaboration among service providers and patients



- Integrated Forms
- Secure Messaging
- Referrals & Consultations

FUTURE-PROOF  
PORTFOLIO





## Master Data Management

Unique identification of patients and providers across enterprises

### Master Patient Index

Creation of a unique, cross-enterprise patient identity with automatic assignment of patient records

The Master Patient Index Module is essential for accurate sharing of clinical data across healthcare organizations. It is a central component of any future-oriented eHealth strategy. Using a powerful matching algorithm, it compares patient data from disparate systems, links related records under an enterprise-unique identifier, and creates a golden record. The Master Patient Index can reduce duplicate records, enable a health information exchange (HIE) to establish a community health record, enhance population health management, and improve billing accuracy. Integration with existing system landscapes can be accomplished easily over standardized interfaces based on HL7 or IHE integration profiles.

### Patient Quality Manager

Review and improvement of the results of patient identity matching

The Patient Quality Manager Module provides a graphical user interface to manage and link patient identity data manually – data that did not have a sufficiently high correlation with suitable patient identity data during automatic matching. Task lists give you a quick overview of potential matches and allow efficient comparison of related patient master data. Statistics on automatic matching results enable you to check and improve the data and matching quality continuously. The Module also offers extensive configuration tools to customize the matching algorithm to your individual needs.

### Provider Directory

Central directory service for consolidated healthcare professional and organizational information from different source systems

The Provider Directory Module is a central directory of all healthcare professionals and organizations as well as their relationships. Using powerful algorithms, multiple entries for the same provider data can be identified and linked. Especially when integrating local systems from different organizations, automatic generation of a unique healthcare professional identity delivers an important added value for cross-enterprise use of healthcare professional data. Standard interfaces relying on HL7 and IHE integration profiles allow you to store, query, and export healthcare professional and organization information. The creation of digital identity certificates (tokens) and their enrichment with relevant healthcare professional data creates a central, cross-enterprise authentication service.

### Provider Quality Manager

Management of merging identity data on healthcare professionals from different data sources

The Provider Quality Manager Module provides a graphical user interface that allows you to manage and match newly received provider identity data manually – data that did not have sufficiently high correlation with existing provider identity data during automatic matching. The Provider Quality Manager Module provides an overview of already existing and merged healthcare professional identities and suggests suitable candidates for manual matching. The result is a central directory with the highest possible data quality.



## Community Health Record

Secure cross-enterprise medical data exchange



### Document & Image Exchange

Secure storage and reliable interoperable exchange of medical documents and images

The Document & Image Exchange Module contains an IHE XDS-compliant directory of registered documents and images (Document Registry) and central storage of saved documents (Document Repository). Moreover, existing, decentralized document and imaging archives can be integrated. An embedded subscription and notification function informs connected systems actively about new or changed data. The Module provides elaborate authorization functionality and can also check access rights based on electronic patient consent information.

### Provider Portal

Access to cross-enterprise electronic medical records and value-adding services for healthcare professionals

The Provider Portal Module provides user-friendly, Web-based access to cross-enterprise electronic medical records. You can quickly see a summary of the entire patient record; select or sort documents, images, and structured medical data with various filter, grouping, and history functions; and view the data in detail. You can also use various communication services integrated in the Provider Portal, including secure exchange of messages in the context of a medical record, notifications of newly added documents based on self-managed subscriptions, uploading of documents, and electronic forms management.

### Clinical Data Repository

Storage and exchange of structured medical data

The Clinical Data Repository Module stores structured medical data such as laboratory values, diagnoses, procedures, medications, immunizations, vital signs, and allergies. It provides various HL7 interfaces and ensures secure receipt of the data. Through the integration with the Document & Image Exchange Module, data can be extracted from structured medical documents and made available via On-Demand Document. Integrated functions for deduplication and aggregation of multiple copies of existing data help you to keep an eye on the relevant medical information.



## Patient Engagement

Involve patients in their own treatment



### Patient Onboarding

Creation of a user account and linking it to the corresponding cross-enterprise electronic medical record

With the Patient Onboarding Module, patients can create their user accounts so that they can use different services. For example, patients can access a Web-based portal and enable apps to access the account. The two-step self-registration process with e-mail address verification guarantees the required security. After completion of the registration process, patients can link their user accounts with their individual cross-enterprise electronic medical record. Moreover, in the Patient Onboarding Module patients can manage their consent to data transfer. The required authorization and authentication of the apps is performed over OAuth2.

### Patient Portal

Access to cross-enterprise electronic medical records and to integrated value-adding services for patients

The Patient Portal Module includes patients and their relatives into the treatment team. It provides patients with a view of their medical data (like a medical report, laboratory values, or diagnoses) in their cross-enterprise electronic medical record. Supported by a healthcare professional search, patients quickly find doctors and organizations in their vicinity.





## Connectivity Extensions

Exchange patient data with apps and other healthcare networks



### App Connect

Integrating Web and mobile applications using FHIR interfaces

The App Connect Module provides everything necessary to connect web and mobile applications via HL7 FHIR® interfaces. Modern resource-oriented interfaces (“REST”) allow read and write access to an individual cross-enterprise electronic medical record. Any access to medical and administrative data is subject to authorization checks.

### Cross Community Connect

Exchange of patient data with other healthcare networks

The Cross Community Connect Module provides IHE-compliant interfaces for the exchange of patient data with other healthcare networks. Documents can be exchanged with other networks and can be viewed in a separate cross community view in the Provider Portal Module.

### NPI Connect

Synchronization of data with national healthcare professional directories

The NPI Connect (National Provider Index) Module is an extension to the Provider Directory Module, that allows bidirectional synchronization between one’s own directory of healthcare professionals and organizations and a national healthcare professional directory. This ability enriches the quality of your directory data and can help improve matching results in the Provider Directory Module. In addition, changes in your own directory service can be synchronized and transferred to the corresponding national instance.

### P2R Assistant

Connecting medical record systems in outpatient primary care

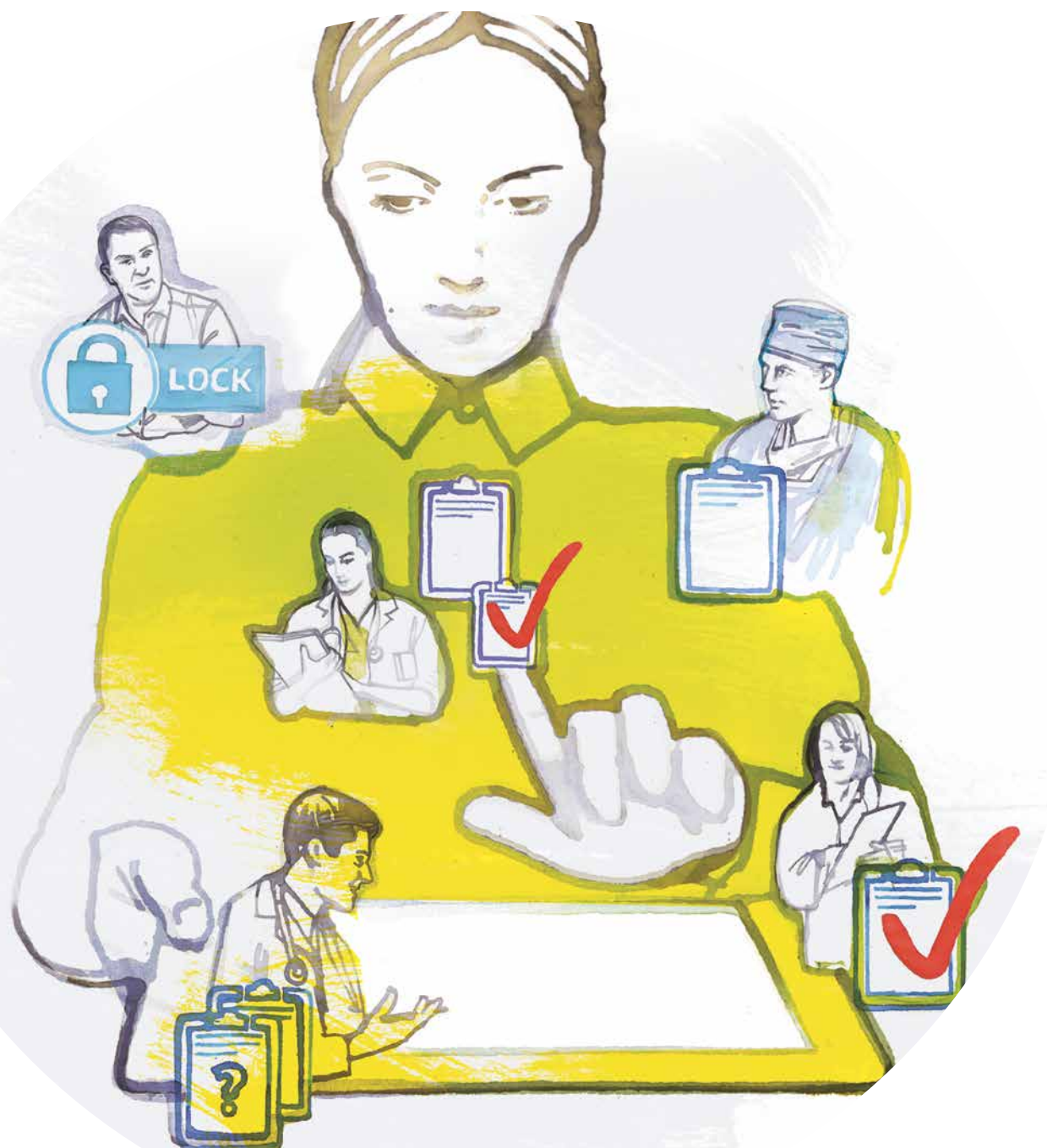
Smooth connection of registered doctors is a decisive success factor for many connected care projects. The P2R Assistant (Print to Record) Module closes the gap between the outpatient and the inpatient sectors. Doctors can feed patient data directly from their medical information system into a cross-enterprise electronic medical record. Direct integration with the Provider Portal Module gives the doctor lightweight, Web-based access to a patient’s medical record





## Security Extensions

Create and enforce electronic patient consent



### Patient Consent Manager

Create and manage electronic patient consent

The Patient Consent Manager Module simplifies the creation and management of electronic patient consent. It ensures cross-enterprise data exchange that always complies with data privacy regulations. Through the graphical user interface, general or organization-specific consents can be created for a patient and saved as a document. The Document & Image Exchange Module evaluates each consent and automatically adjusts the access rights to the cross-enterprise medical record. The existing consent documents can be displayed and deactivated selectively if patients wish to withdraw consent.

### Message Filtering Agent

Enforce patient consent when transferring HL7 messages across the enterprise

The Message Filtering Agent Module filters messages containing data without patient consent for cross-enterprise data exchange. Until a patient explicitly consents or rejects, messages relating to this patient can be buffered. This feature ensures that data leaves a medical facility only when the patient has consented to the data exchange. Patient consent can be generated and managed over a Web interface, through the Patient Consent Manager Module, and through the Patient Onboarding Module.



## Collaboration Extensions

Value-adding services for improved collaboration among service providers and patients



### Integrated Forms

Creation of customer-specific forms in a structured manner through healthcare professionals and patients

The Integrated Forms Module enables high-quality capture of structured data by healthcare professionals and patients. It enables entry of electronic questionnaires and capture of administrative or clinical information, such as information during anamnesis or after care. After approval of the forms by the user, the forms are available in the cross-enterprise electronic medical record.

### Referrals & Consultations

Task-based representation of electronic referrals, consultations and second opinions

The Referrals & Consultations Module enables healthcare professionals to request and exchange information in the context of patient treatment, or to refer a patient for further treatment. A doctor in charge can simply create a referral, a consultation, or second opinion request over the graphical user interface of the Module and assign it to a cooperating healthcare professional. Request lists help you manage and process and created or received queries.

### Secure Messaging

Secure communication between healthcare professionals and patients

The Secure Messaging Module provides a message-based infrastructure for secure and directed communication between patients and healthcare professionals. Efficient and structured exchange of messages can be enriched with shortcuts to information from the cross-enterprise electronic medical record. In the Provider Portal Module, healthcare professionals can easily link to documents or to complete medical records. In the Patient Portal Module, patients can see this information in a secure environment and communicate with the healthcare provider.



# Platform Services

Core services for united comprehensive capabilities

OID 2.16.840.1.113883.3.37

USER ADMINISTRATION

ICD-10 J06.0



## Service Registry

Central registration of all available services and systems

The Service Registry dynamically manages services of ICW eHealth Suite and connected systems. The Service Registry gives you an overview of all centralized functions which are available in the solution infrastructure. In addition, the Service Registry makes any changes to the technical infrastructure transparent for the systems in use, since their technical connection data is represented by logical service names. The presence of services can be queried over the logical service names through Web interfaces. With this approach, users can, for example, recognize that a central Master Patient Index is available to query patient IDs without having to know its technical address.

## Namespace Manager

Administration of message-related namespaces

The Namespace Manager supports message-related identification of namespaces, organizations, and code systems based on object identifiers (OIDs), uniform resource names (URNs), or aliases. As a central service, it is used to query transformation or enrichment information and is of crucial importance in cross-enterprise exchange of messages. Through its use, message streams are adapted or normalized by the those involved to provide standard interoperability.

## Terminology Manager

Administration of domain-specific concepts

The Terminology Manager enables cross-enterprise administration of code systems and value sets. Its features include administration of relevant codes for the identification and structuring of medical information (like diagnostic codes in ICD-10) and administration of relevant metadata in the context of documents (like mapping value sets for IHE XDS-conformant document types or PracticeSettingCodes). To manage the terminologies, a graphical user interface and standard-compliant interfaces (such as IHE SVS) are available.

The Terminology Manager also enables connecting organization-specific catalogs (facility catalogs) to central reference value sets. The mapping information can be consumed through dedicated interfaces and supports connected systems in the exchange of data across enterprise boundaries based on a common reference terminology.

## Identity Manager

Central service for storing and authenticating user identities

The ICW eHealth Suite Modules and other connected systems can easily use the central directory service of the Identity Manager over common LDAP interfaces to query or authenticate user identities. For authentication, existing directory services and services existing in the enterprise can be integrated (also called forwarding). In addition, the Identity Manager allows you to use the standardized WebSSO mechanism (Web Single Sign-On) to jump into connected systems with an external user context.



## Selected Customer References

“From our point of view, we have found the ideal partner with ICW to implement our strategic orientation of network medicine. ICW, with its integrated portfolio, great experience and fast, reliable implementation performance, provides important prerequisites for successful implementation of our strategy.”

Prof. Dr. Kurt Marquardt, Head of Group IT Rhön-Klinikum AG



“With ICW, we have found the ideal partner for the implementation of our PEPA (Persönliche Einrichtungsübergreifende Patientenakte: Personal cross-enterprise medical record) to exchange relevant information with cooperating institutions of the Heidelberg University Hospital with the participation of our patients.”

Oliver Reinhard, Head of the Center for Information and Medical Technology (ZIM) Heidelberg University Hospital



“We chose ICW because their MPI not only improves the quality of our master data and supports our framework architecture, but also provides solutions for the medical information exchange that can support the national eHealth strategy.”

Claude Meyer, Head of ICT & Processes of the Hirslanden Private Clinic Group



“The accurate identification of a member’s information across multiple systems is essential to providing effective health care and most recently, in supporting healthcare reform regulations. The ICW solution has enabled Blue Cross and Blue Shield of Kansas City (Blue KC) to create a holistic picture of our members throughout their lifetime that spans the new health information landscape.”

Karen L. Lajaunie, Blue Cross and Blue Shield of Kansas City, Director, Data Management



“OneHealthPort needed a technology partner to help us set up a Clinical Data Repository for a major client. We selected ICW, and based on the service we have received to date, we are very pleased with our choice. We picked ICW because they were compliant and current with key standards, they were flexible and responsive in structuring the partnership to meet our unique needs and their software scaled efficiently to match the growth of our service offering. We look forward to working together with ICW in the years ahead to meet our customers’ needs and improve the health of the communities we serve.”

Rick Rubin, CEO OneHealthPort



## Selected Partner References

“ICW eHealth Solutions represent a critical component in our global strategy around next-generation Vendor Neutral Archives and growing HIT solutions such as Master Data Management and Health Information Exchange. ICW is a highly competent partner that understands how to work with a Fortune 500 company, both tactically and strategically. ICW has done a great job aligning with our priorities and understands that our joint customers always come first.”

Dave White, General Manager Centricity Clinical Archive / Analytics GE Healthcare Digital



“The experience of ICW in the field of modern application design, information security and agile development has played a key role in providing an innovative and intuitive solution.

Scott Baxter, Head of Diabetes Management & Platform Solutions Roche Diabetes Care



“Swisscom has been using the powerful ICW components for many years in networking projects and the development of IHE solutions for the Electronic Patient Dossier (EPD) in Switzerland. We value ICW as a highly experienced and reliable eHealth specialist with an innovative service offering.”

Thomas Bachofner, CEO Swisscom Health AG





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