

Archivierung diskreter Einzeldaten

Einbindung von HL7 FHIR in interoperable
Archiv- und Datenaustauschplattformen

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Vortragender



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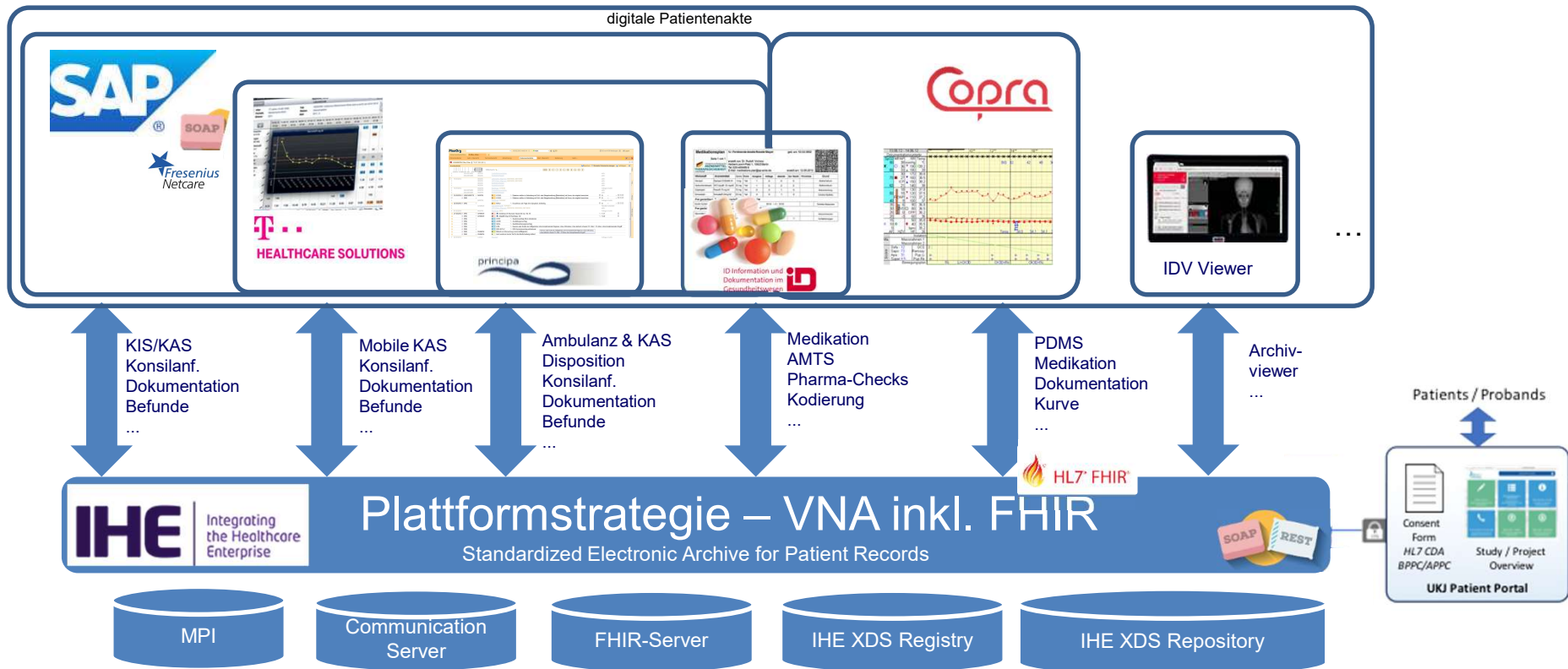
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www.uniklinikum-jena.de/datenintegrationszentrum

Plattformstrategie



Einsatz von Interoperabilitätsstandards

- ▶ Syntax
- ▶ Semantik
- ▶ Organisation/Prozess



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{
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  "id": "f005",
  "code": {
    "system": "http://loinc.org",
    "code": "59826-8",
    "display": "Creatinine [Moles/volume] in Blood"
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  "valueQuantity": {
    "value": 57.2,
    "unit": "µmol/l",
    "system": "http://unitsofmeasure.org",
    "code": "umol/L"
  },
  ...
}
```

This page is part of the FHIR Specification (v4.0.1: R4 - Mixed Normative and STU). This is the current published version. For a full list of available versions, see the [Directory of published versions](#)

1.2 Resource Index

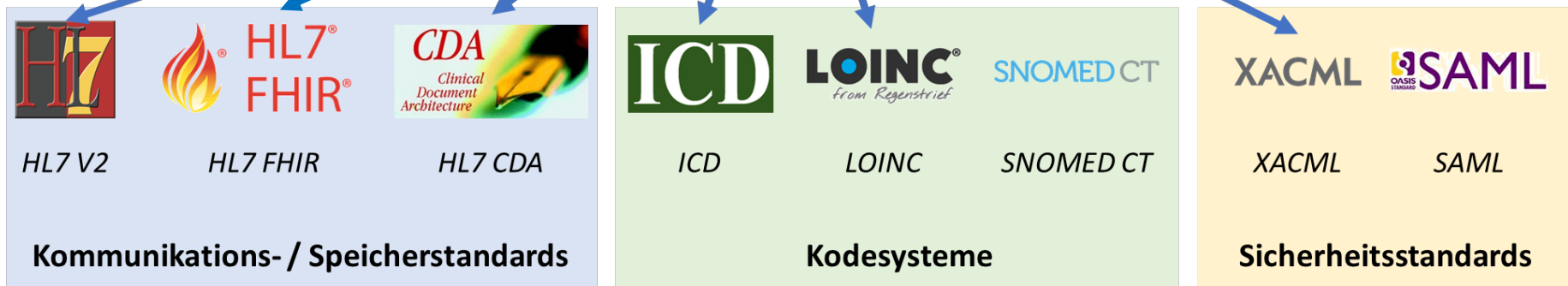
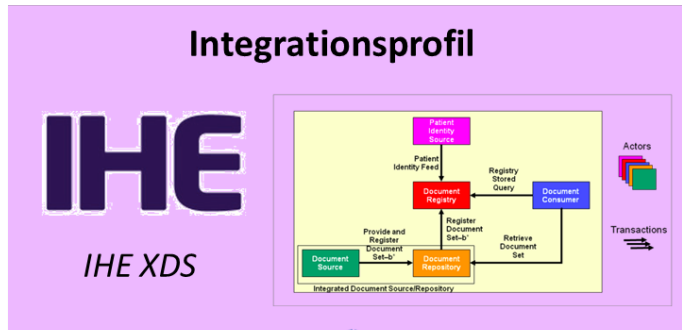
FHIR Infrastructure Work Group	Maturity Level: N/A	Standards Status: Informative
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This page is provided to help find resources quickly. There is also a more detailed classification, ontology, and description. For background to the layout on the layers in this page, see the [Architect's Overview](#). See also the abstract Base Resources [Resource](#) and [DomainResource](#).

	Categorized	Alphabetical	R2 Layout	By Maturity	Security Category	By Standards Status	By Committee
Foundation	Conformance <ul style="list-style-type: none"> CapabilityStatement N StructureDefinition N ImplementationGuide 1 SearchParameter 3 MessageDefinition 1 OperationDefinition N CompartmentDefinition 1 StructureMap 2 GraphDefinition 1 ExampleScenario 0 	Terminology <ul style="list-style-type: none"> CodeSystem N ValueSet N ConceptMap 3 NamingSystem 1 TerminologyCapabilities 0 	Security <ul style="list-style-type: none"> Provenance 3 AuditEvent 3 Consent 2 	Documents <ul style="list-style-type: none"> Composition 2 DocumentManifest 2 DocumentReference 3 CatalogEntry 0 	Other <ul style="list-style-type: none"> Basic 1 Binary N Bundle N Linkage 0 MessageHeader 4 OperationOutcome N Parameters N Subscription 3 		
	Base	Individuals <ul style="list-style-type: none"> Patient N Practitioner 3 PractitionerRole 2 RelatedPerson 2 Person 2 Group 1 	Entities #1 <ul style="list-style-type: none"> Organization 3 OrganizationAffiliation 0 HealthcareService 2 Endpoint 2 Location 3 	Entities #2 <ul style="list-style-type: none"> Substance 2 BiologicallyDerivedProduct 0 Device 2 DeviceMetric 1 	Workflow <ul style="list-style-type: none"> Task 2 Appointment 3 AppointmentResponse 3 Schedule 3 Slot 3 VerificationResult 0 	Management <ul style="list-style-type: none"> Encounter 2 EpisodeOfCare 2 Flag 1 List 1 Library 2 	
		Clinical	Summary <ul style="list-style-type: none"> AllergyIntolerance 3 AdverseEvent 0 Condition (Problem) 3 Procedure 3 FamilyMemberHistory 2 ClinicalImpression 0 DetectedIssue 1 	Diagnostics <ul style="list-style-type: none"> Observation N Media 1 DiagnosticReport 3 Specimen 2 BodyStructure 1 ImagingStudy 3 QuestionnaireResponse 3 MolecularSequence 1 	Medications <ul style="list-style-type: none"> MedicationRequest 3 MedicationAdministration 2 MedicationDispense 2 MedicationStatement 3 Medication 3 MedicationKnowledge 0 Immunization 3 ImmunizationEvaluation 0 ImmunizationRecommendation 1 	Care Provision <ul style="list-style-type: none"> CarePlan 2 CareTeam 2 Goal 2 ServiceRequest 2 NutritionOrder 2 VisionPrescription 2 	Request & Response <ul style="list-style-type: none"> Communication 2 CommunicationRequest 2 DeviceRequest 1 DeviceUseStatement 0 GuidanceResponse 2 SupplyRequest 1
<p>www.hl7.org/fhir</p>							

IHE vs. FHIR?

Bezug zwischen IHE-Profilen und Einzelstandards:



Wo kommt FHIR zum Einsatz?

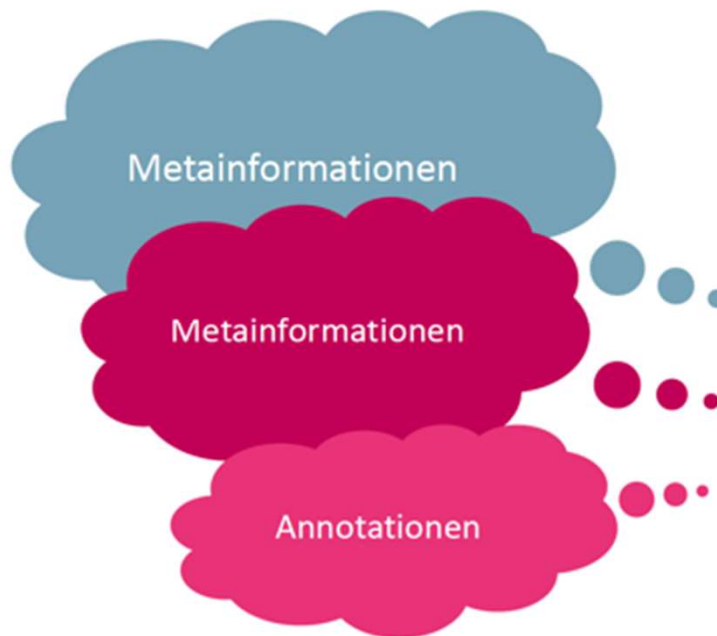


```
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    "unit": "µmol/l",
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    "code": "umol/L"
  },
  ...
}
```

Patientenakten und Apps



EPA-Spezifikation: interoperable Inhalte



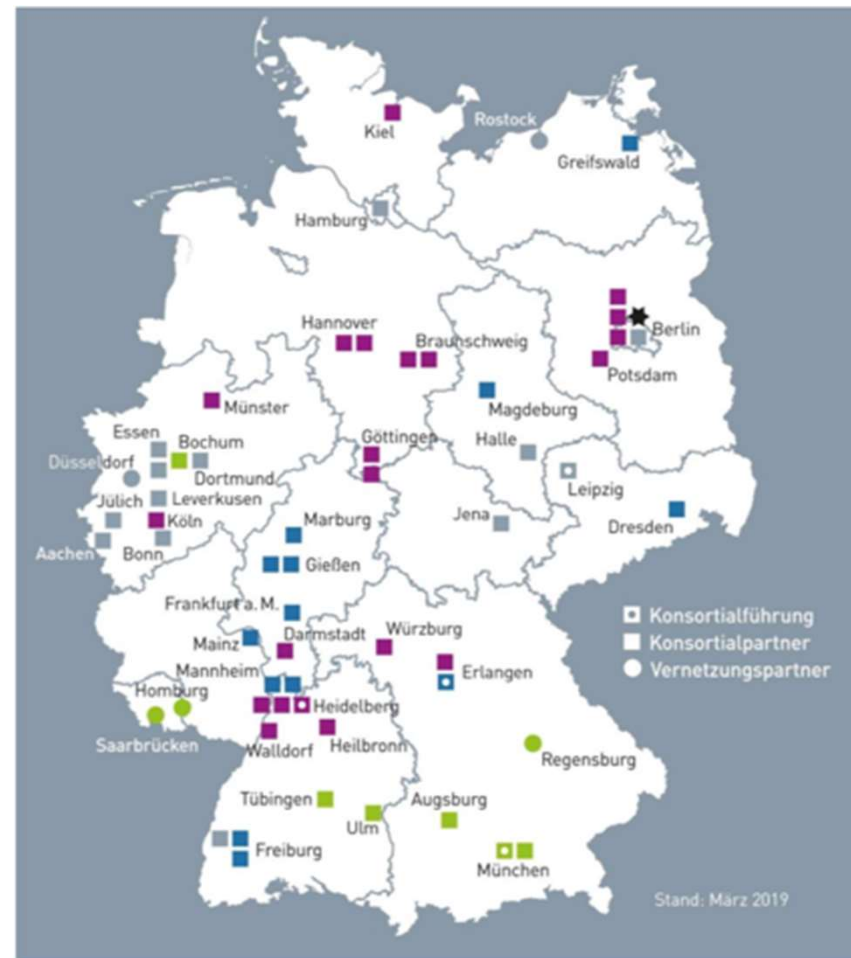
MIO: Medizinische Informationsobjekte

https://www.kbv.de/media/sp/Top1_MIO_Anbieter.pdf

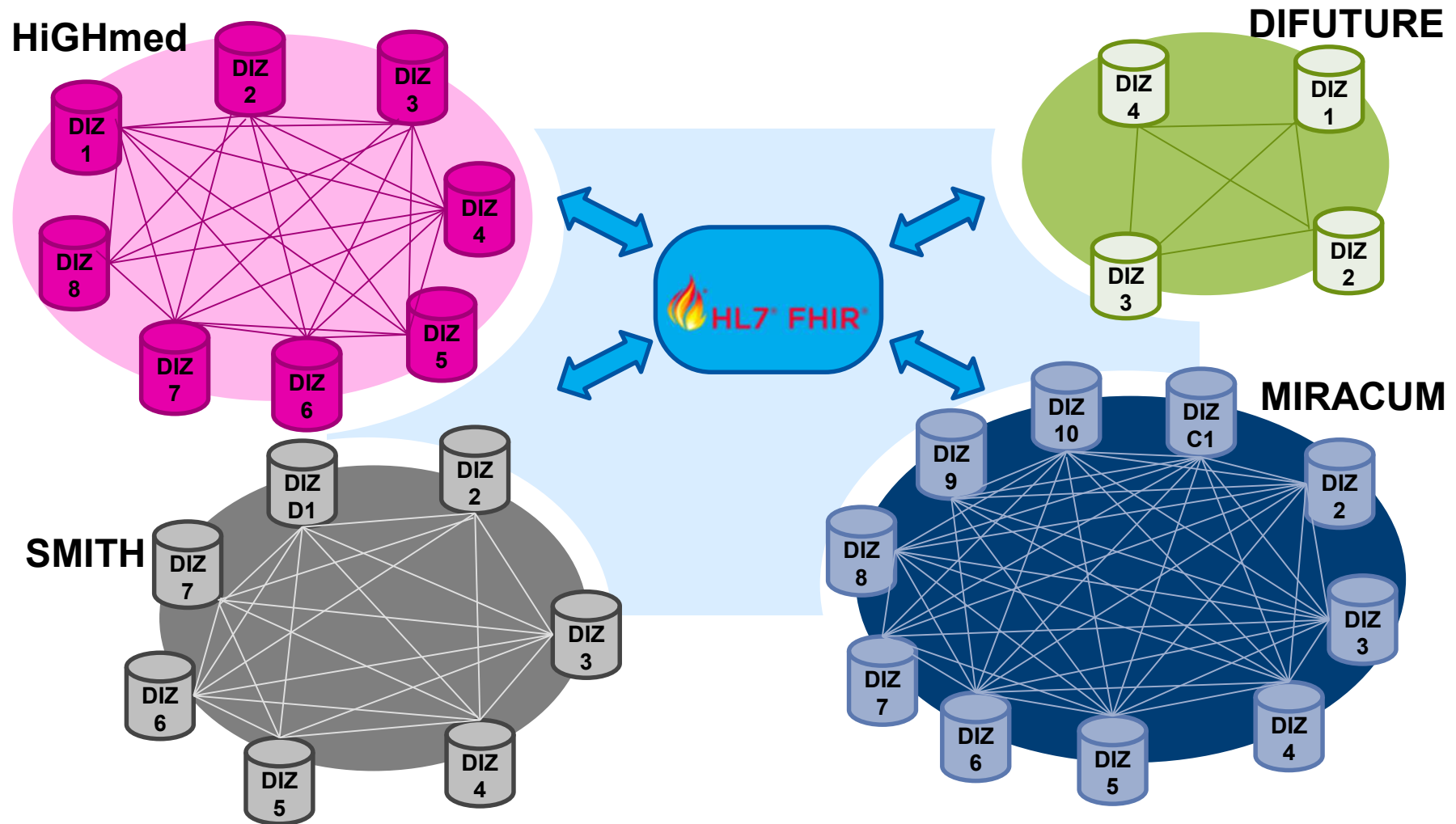
In der MII arbeiten nahezu alle deutschen Universitätsmedizinrichtungen zusammen

- | Konsortien | Standorte | |
|------------|-----------|----------|
| ▶ DIFUTURE | 6 | (4 DIZ) |
| ▶ HiGHmed | 8 | (8 DIZ) |
| ▶ MIRACUM | 10 | (10 DIZ) |
| ▶ SMITH | 9 | (7 DIZ) |
- +
▶ **Koordinationsstelle**
- ▶ 33 universitätsmedizinische Standorte sind der MII in der Aufbau- und Vernetzungsphase angeschlossen

DIZ: Datenintegrationszentrum/-zentren



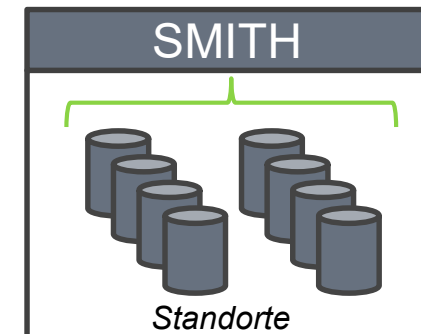
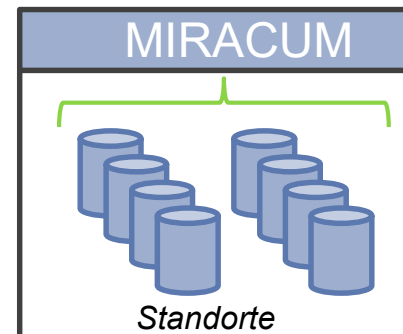
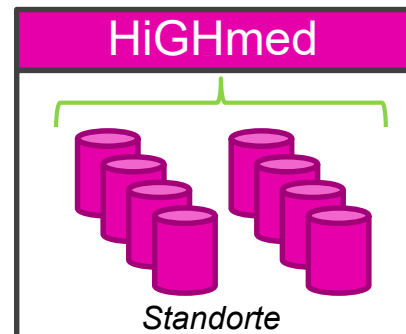
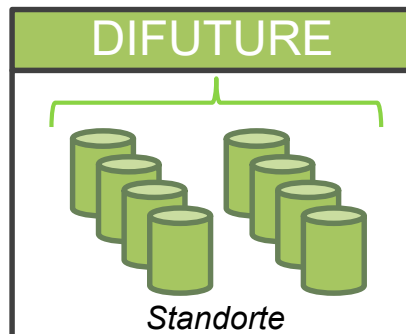
Interkonsortiale Interoperabilität



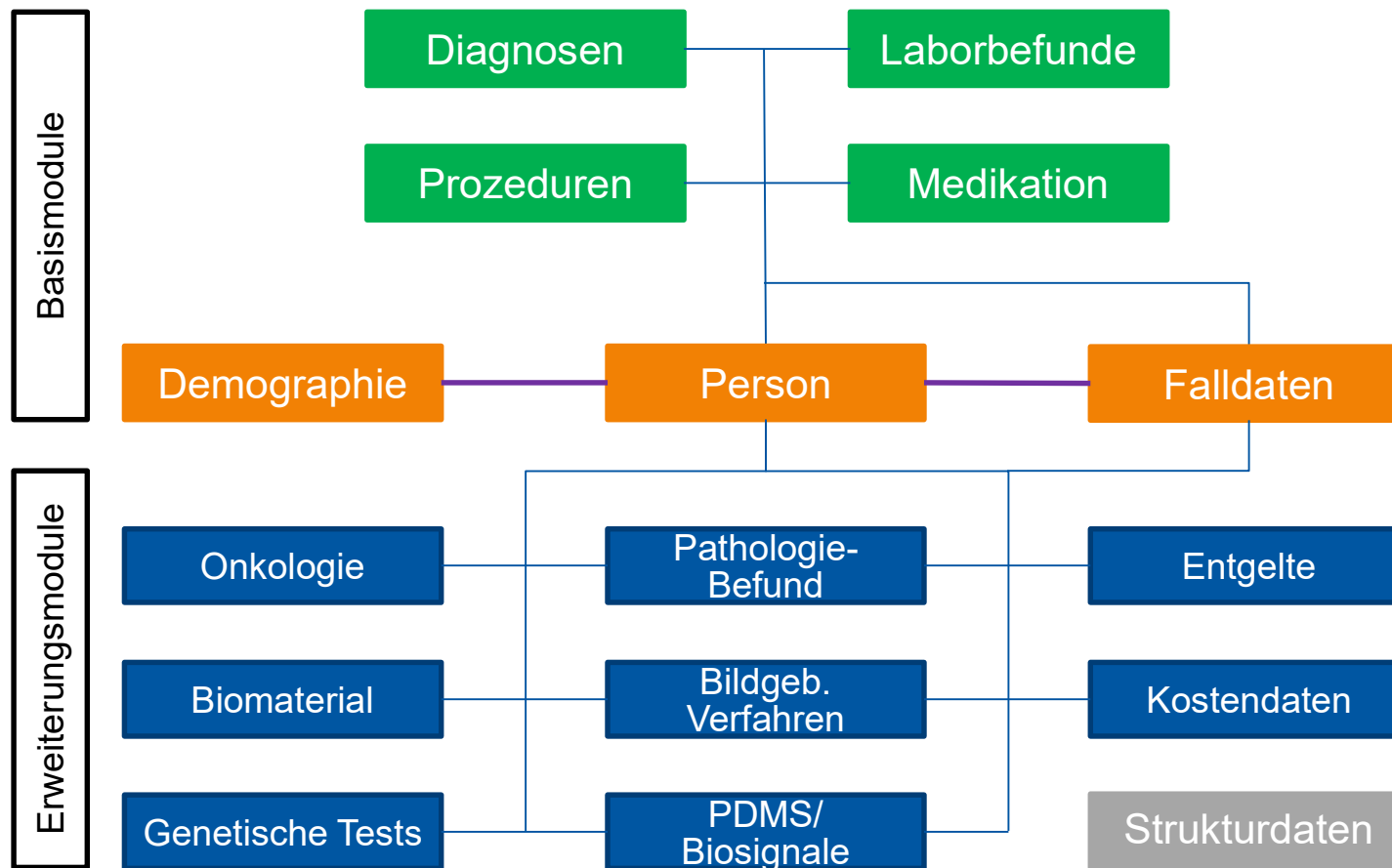
**Ziel: Durch die MII soll ein Wissenschaftler
eine Anfrage an alle DIZ gleichzeitig stellen können**

Zentrale Antrags- und Registerstelle

Konsortien



Kerndatensatz der Medizininformatik-Initiative



International Patient Summary



Phase	Dokumentationsinhalte
Erfassung der Datenbasis	<i>subjektive Befunde:</i> Anamnese, Beschwerden
	<i>objektive Befunde:</i> körperliche Untersuchung, Laborwerte etc.
Formulierung aller Probleme	<i>Assessment:</i> zusammenfassende Beurteilung von Anamnese, Befunden und Beschwerden, Diagnosestellung
Maßnahmen für jedes Problem	<i>Plan:</i> Auffassung über die einzelnen Probleme
	<i>Durchführung:</i> Aufklärung des Patienten, Therapie, Verlegung, Entlassung etc.
Verarbeitung der einzelnen Probleme	<i>Überwachung:</i> Verlaufsdokumentation, gegebenenfalls Interventionen
Zusammenfassung der Behandlung	<i>Abschluss:</i> problemorientierter Abschlussbericht, Zwischenepikrise



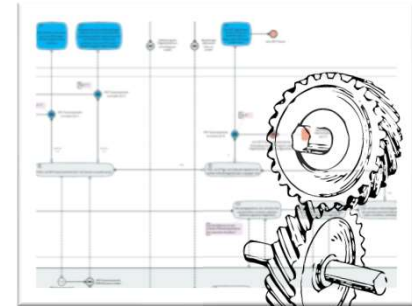
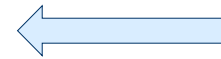
Quelle: Gross, Rudolf, Löffler, Markus: Prinzipien der Medizin, Springer Verlag 1997



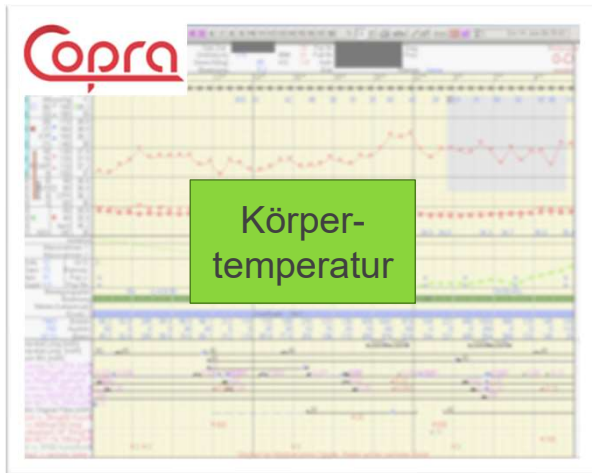
• Arzt



• GUI

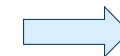


• CDSS
• Workflow-Engine



```

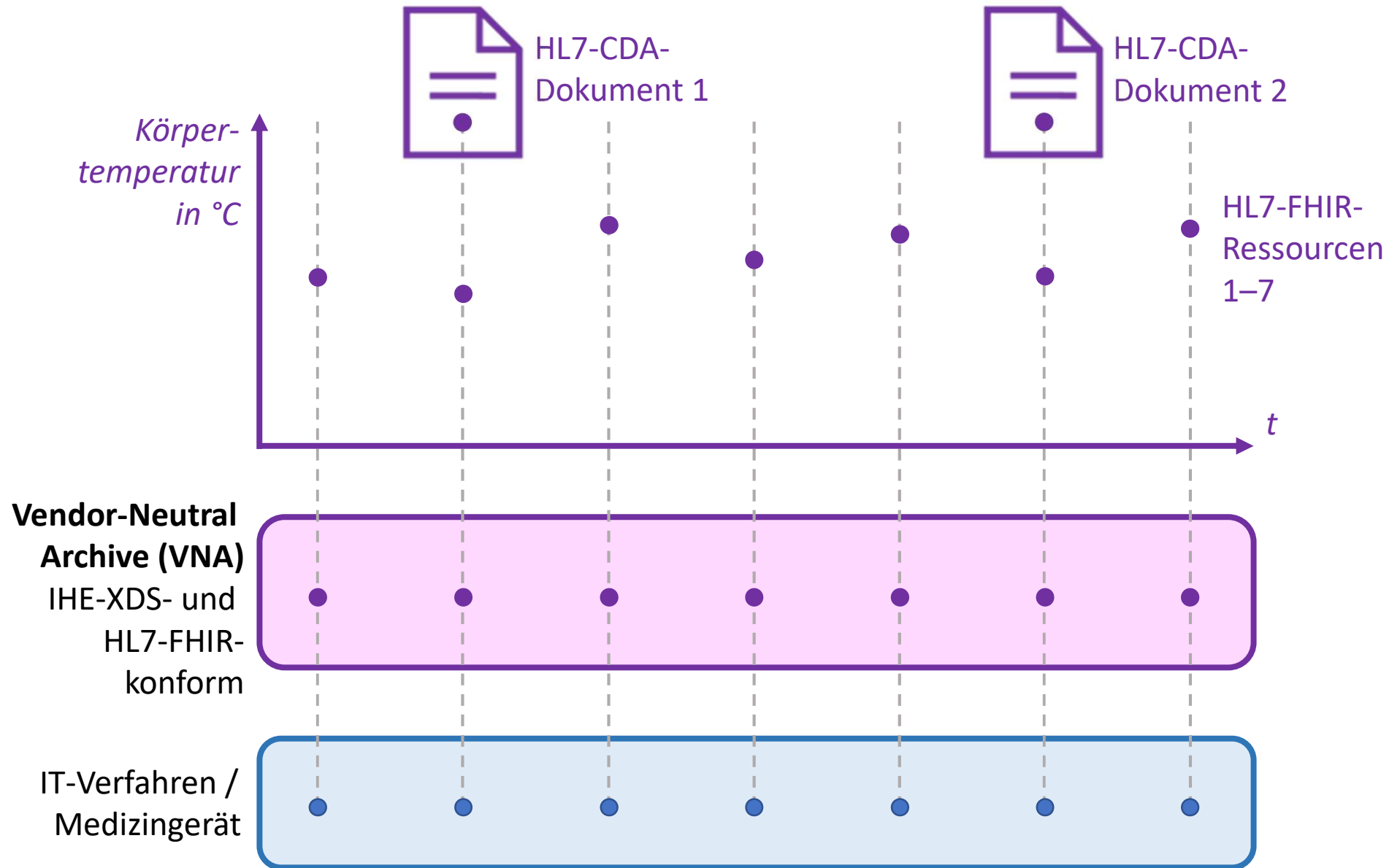
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```



• Arzt vidiert Körpertemperatur in der Primärdokumentation

• Integration von Terminologien, Codesystemen, Value Sets etc.

• Datenablage



Offene Punkte

- Wie werden diskrete Einzeldaten beweissicher kommuniziert und archiviert?
- Wie wird der Zusammenhang zwischen Einzeldaten und Dokumenten umgesetzt?
- Wie bleiben wir up-to-date (STU3, R4, R5, ...)?
- Wer profiliert FHIR wofür?
- Wer stellt (semantische) Interoperabilität sicher?



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  "resourceType": "Observation",
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    "unit": "µmol/l",
    "system": "http://unitsofmeasure.org",
    "code": "umol/L"
  },
  ...
}
```

Vielen Dank für Ihre Aufmerksamkeit!

