

Teknisk interoperabilitet

Manne Andersson

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1.0

Interoperabilitet



Interoperabilitet

Oxford Dictionary

1. interoperability (between/with something) the ability of computer systems or programs to exchange information
2. interoperability (between/with somebody/something) the ability of military equipment or groups to work together

Wikipedia

Interoperability is a characteristic of a product or system to work with other products or systems. While the term was initially defined for information technology or systems engineering services to allow for information exchange, a broader definition takes into account social, political, and organizational factors that impact system-to-system performance.

TOGAF

A definition of interoperability is "the ability to share information and services" There are many ways to define interoperability and the aim is to define one that is consistently applied within the enterprise and extended enterprise.

Presentation Integration/Interoperability is where a common look-and-feel approach through a common portal-like solution guides the user to the underlying functionality of the set of systems

European Interoperability Framework (EIF)

interoperability is the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations, through the business processes they support, by means of the exchange of data between their ICT systems.

European Interoperability Framework



- 12 Principer
- 41 Rekommendationer
- Svenskt ramverk för digital samverkan

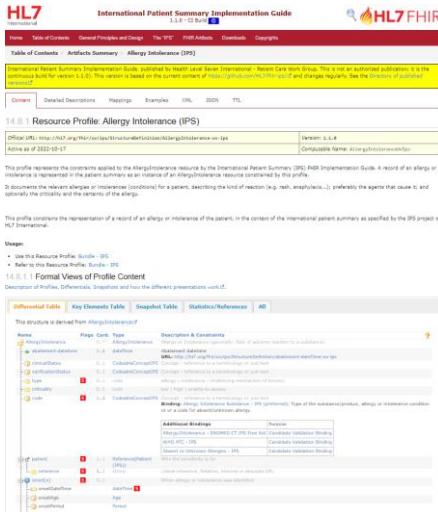
Teknisk interoperabilitet



Teknisk interoperabilitet

This covers the applications and infrastructures linking systems and services. Aspects of technical interoperability include interface specifications, interconnection services, data integration services, data presentation and exchange, and secure communication protocols.

Interface specification



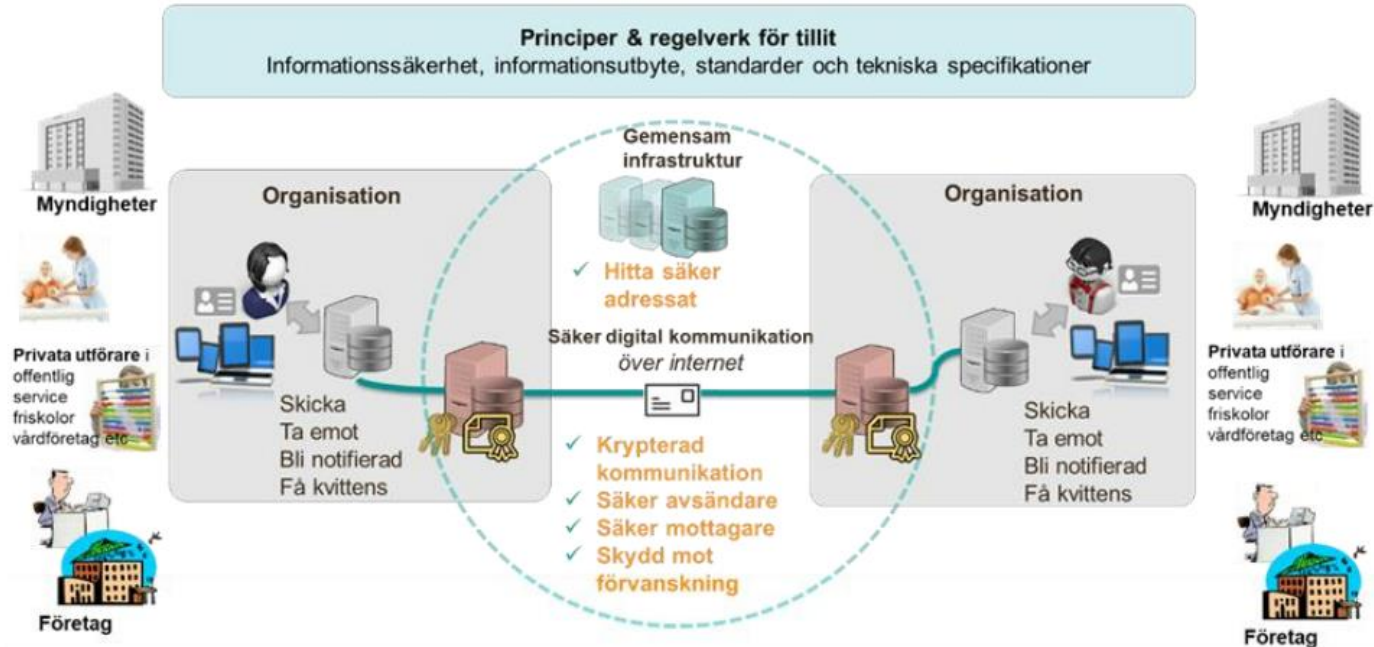
The screenshot shows the HL7 International Patient Summary Implementation Guide for Allergy Intolerance. It includes sections for 'Resource Profile: Allergy Intolerance (IPS)', 'Formal Views of Profile Content', and 'Additional Bindings'. A purple arrow points from the 'Additional Bindings' table in the screenshot to the table on the right.

This structure is derived from [AllergyIntolerance](#)

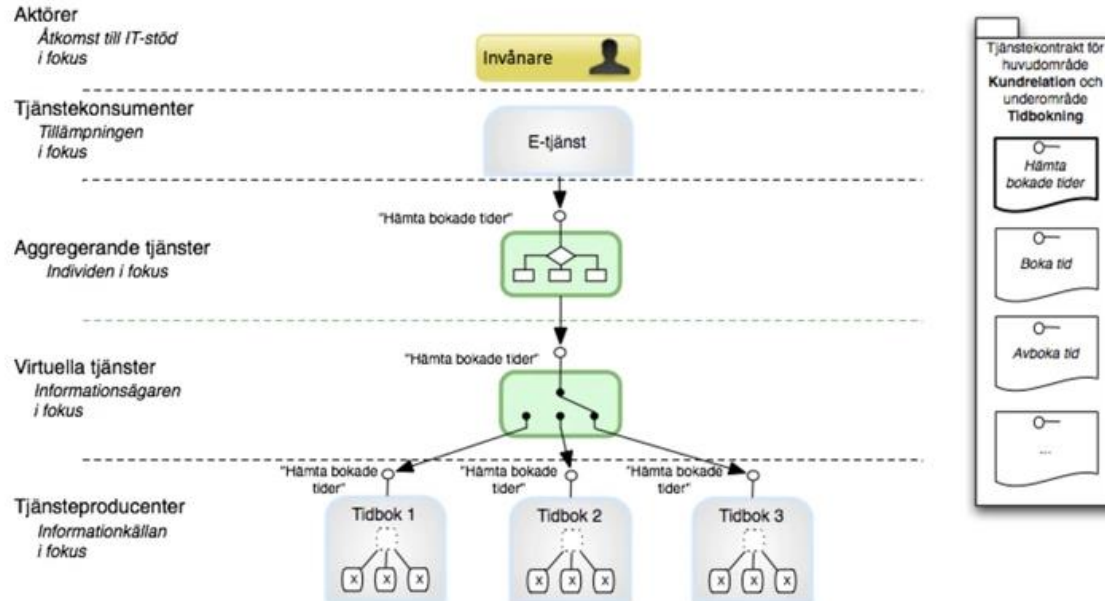
Name	Flags	Card.	Type	Description & Constraints
AllergyIntolerance		0..*	AllergyIntolerance	Allergy or Intolerance (generally: Risk of adverse reaction to a substance)
abatement-datetime		0..1	dateTime	Abatement datetime URL: http://hl7.org/fhir/uv/ips/StructureDefinition/abatement-dateTime-uv-ips
clinicalStatus		0..1	CodeableConceptIPS	Concept - reference to a terminology or just text
verificationStatus		0..1	CodeableConceptIPS	Concept - reference to a terminology or just text
type	S	0..1	code	allergy intolerance - Underlying mechanism (if known)
criticality		0..1	code	low high unable-to-assess
code	S	0..1	CodeableConceptIPS	Concept - reference to a terminology or just text Binding: Allergy Intolerance Substance - IPS (preferred): Type of the substance/product, allergy or intolerance condition or a code for absent/unknown allergy.
patient	S	1..1	Reference(Patient (IPS))	Who the sensitivity is for
reference	S	1..1	string	Literal reference, Relative, internal or absolute URL

Additional Bindings	Purpose
Allergy/Intolerance - SNOMED CT IPS Free Set	Candidate Validation Binding
WHO ATC - IPS	Candidate Validation Binding
Absent or Unknown Allergies - IPS	Candidate Validation Binding

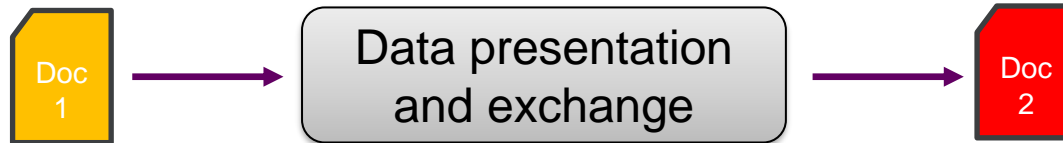
Interconnection Service



Data integration Service



Data presentation and exchange



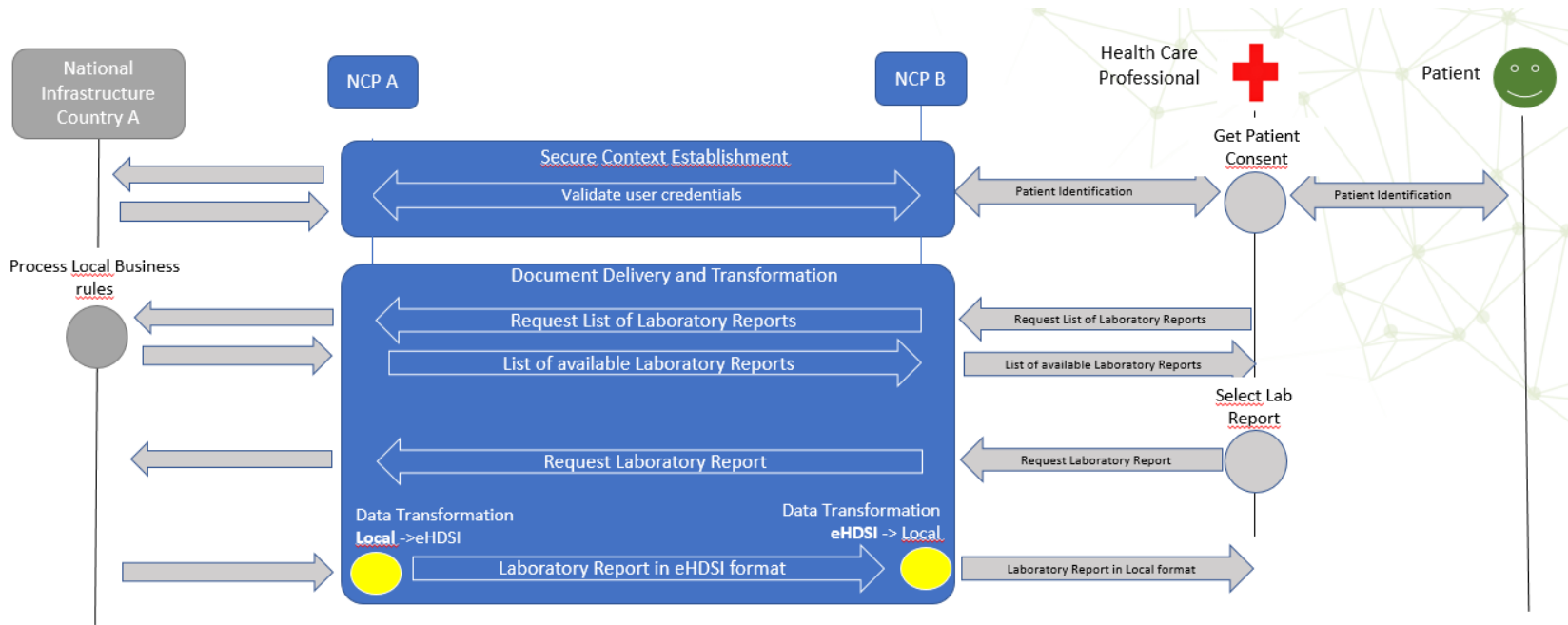
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<value xsi:type="CE"
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  codeSystem="2.16.840.1.113883.6.96"
  codeSystemName="SNOMED CT"
  displayName="juvenilná Parkinsonova
  choroba">
</value>
  
```

```

<value xsi:type="CE"
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  codeSystem="2.16.840.1.113883.6.90"
  codeSystemName="ICD10"
  displayName="Parkinson's disease">
  <translation code="230291001"
    codeSystem="2.16.840.1.113883.6.96"
    codeSystemName="SNOMEDCT"
    displayName=
    "juvenilná Parkinsonovachoroba"/>
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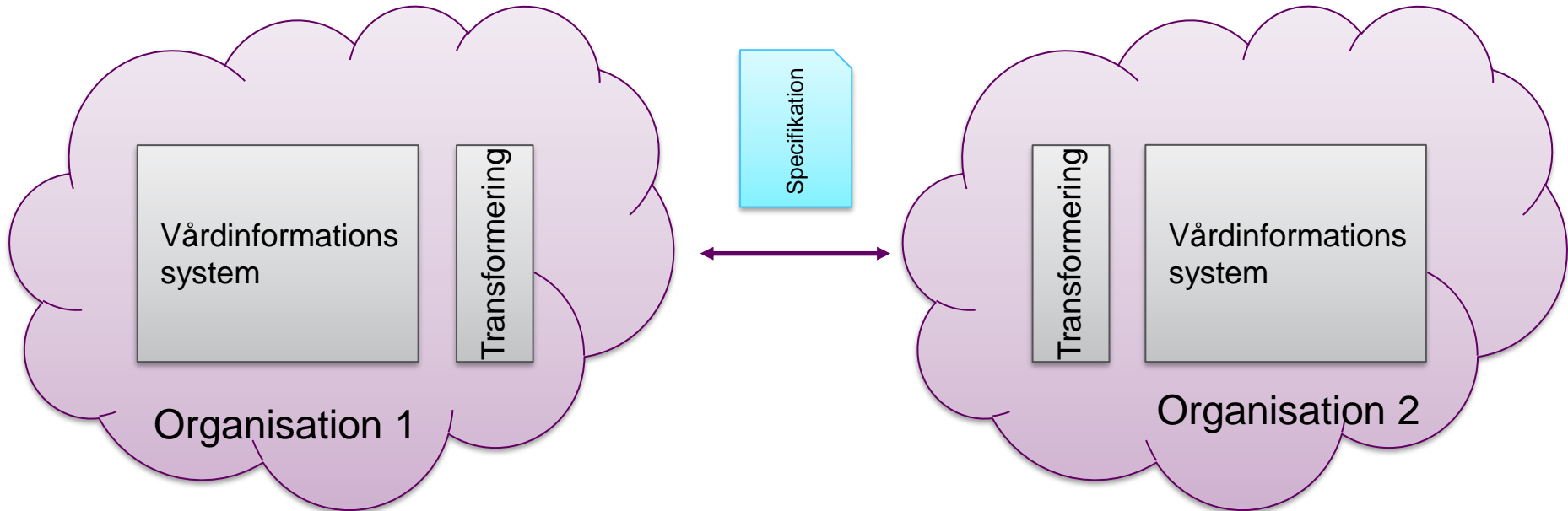
Secure communication protocol



Omtolkningsproblem



Transformering



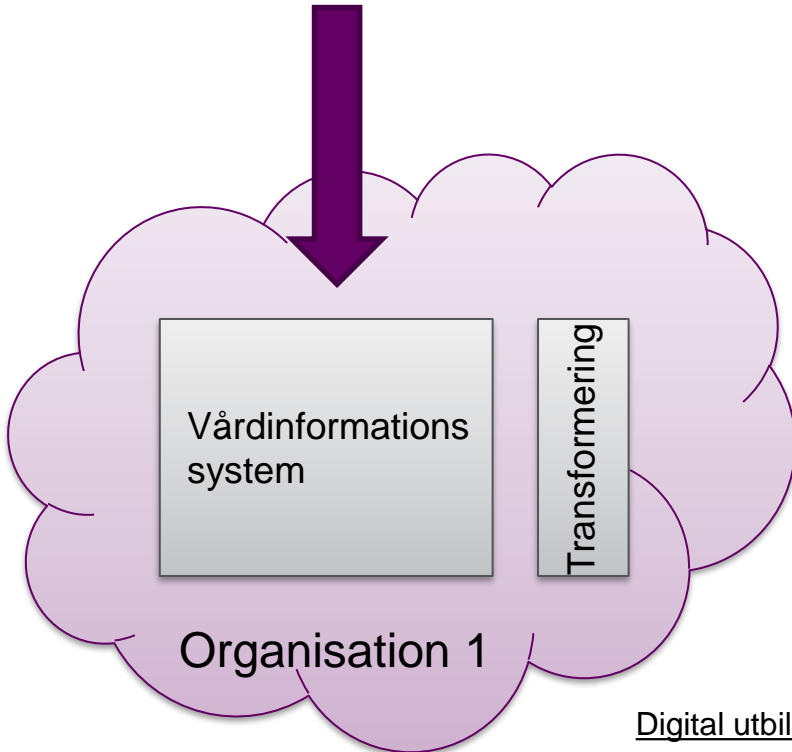
Exempel	System A	System B
<p>Typ I</p> <p>A <-> B Lösbart med algoritm</p>	<p>Födelsevikt: 3300g Datum: 1954-03-13</p>	<p>Kroppsvikt: 3,3 kg Tidpunkt: 13 Mar 1954</p>

Exempel	System A	System B
<p>Typ II</p> <p>A-->B Semantiska förluster och förvrängningar i omtolkningen. Algoritmiskt svårlösbart och riskfyllt</p> <p>B-->A Saknad information kan ibland efterfrågas, kompletteras och omtolkas manuellt av medicinskt kunnig person. Algoritmiskt olösbart...</p> <p>...men görs ganska ofta manuellt</p>	<p> Opereras senast: 2018-01-30 Preliminär operationstid: 2018-01-20 15:30 Huvuddiagnos*: 323291000119108 osteoartrit i vänster höftled Övriga diagnoser*: 25343008 sekundär lokaliserad osteoartros i bäckenregion 299308007 smärta i höftled vid rörelse Åtgärd*: 33788003 insättning av total protes eller protetisk utrustning i höft med metylmetakrylat Operationstyp**: Lubinus SP II med klack Önskad anestesi*: 18946005 epiduralanestesi NEWS2-score vid inskrivning: 1 Anestesibedömning: - Kondition: klarar lättare fysisk träning - Hjärta/kärl: u.a. (u.a. = utan anmärkning) - Lungor: u.a. - Svalg: u.a. - Mag/tarm*: 162030005 halsbränna med sur eller vattinig uppstötning </p>	<p> Operationsdatum: 2018-01-20 Diagnoskod: M167; Annan sekundär koxartros Operationskod: NFB49; Primär total höftledsplastik med cement Anestesikod: ZXH50; Epiduralanestesi ASA-klass: 1 – Frisk patient </p> <p> *) Koder från Snomed CT **) en särskild typ av höftledsplastik med cement </p>
	<p><u>Digital utbildningsserie om openEHR</u></p>	<p>Från Erik Sundvall</p>

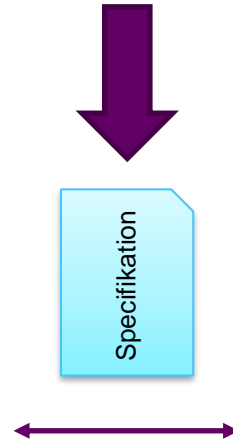
Exempel	System A	System B
<p>Typ III</p> <p>Omöjligt att veta rätt omtolkning om data t.ex. aggregerats (förvanskats) på <u>olika</u> sätt.</p>	<p>Antal rökta cigaretter per vecka: 6-10</p> <p>...angivna i ett system med alternativen: 0, 1-5, 6-10, 11-15, 16-30, 31-50, 51-100, 101+</p>	<p>Antal rökta cigaretter per vecka: ?</p> <p>...angivna i ett system med alternativen: 0, 1-3, 4-7, 8-14, 15-28, 29-69, 70+</p>

Vilka omtolkningsproblem kan lösas vart?

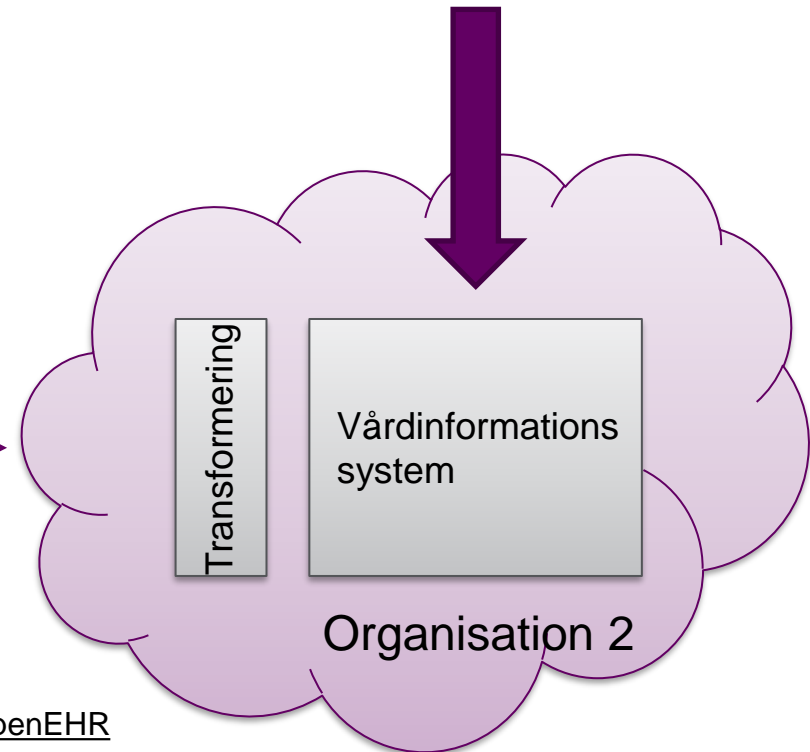
Typ II och Typ III



Typ I



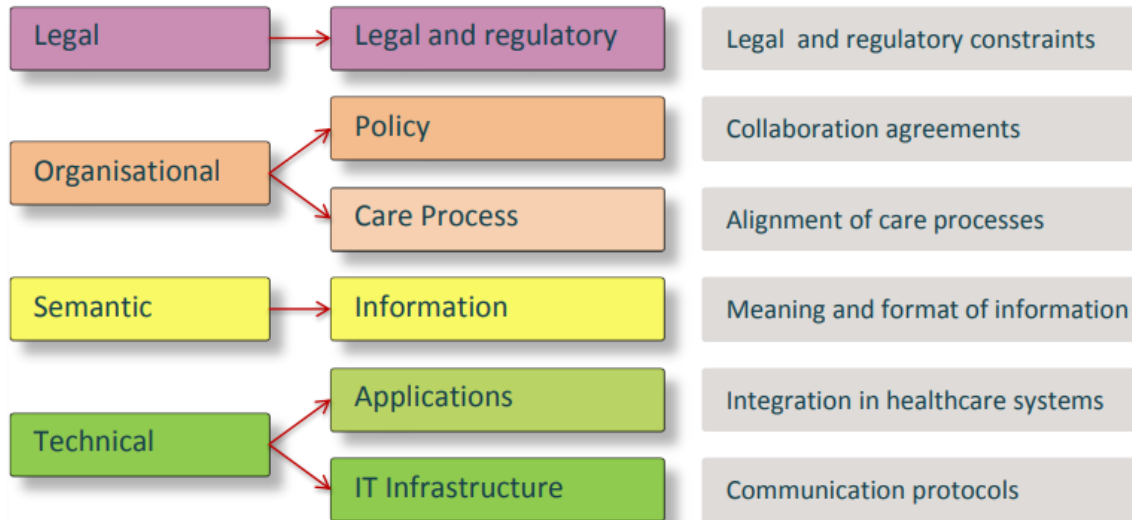
Typ II och Typ III



Refined eHealth European Interoperability Framework (ReEIF)

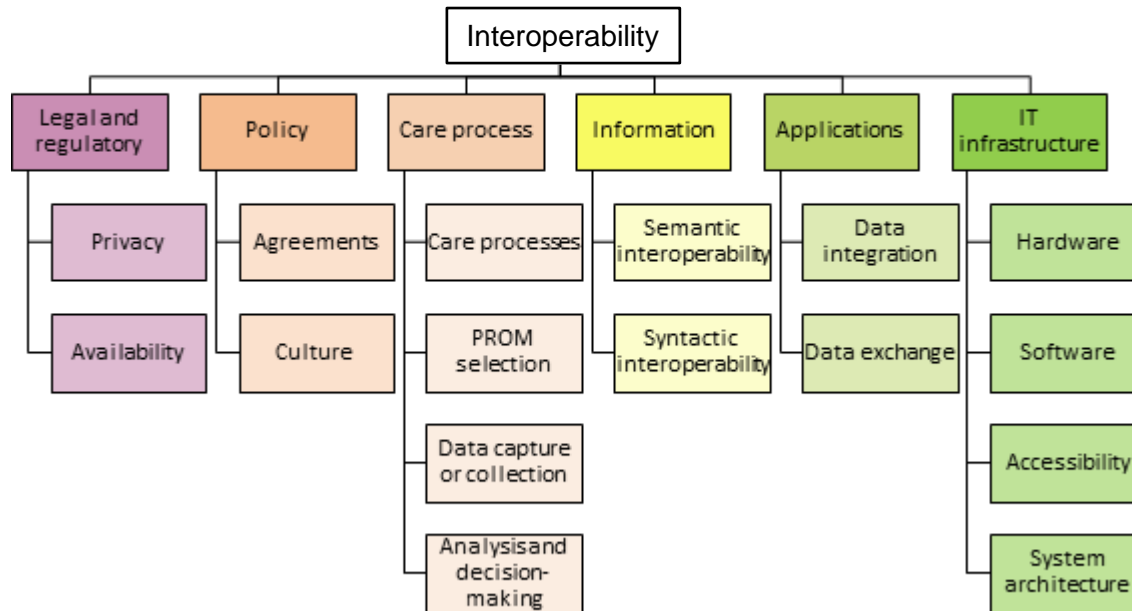


Refinement of the eHealth European Interoperability Framework (ReEIF)



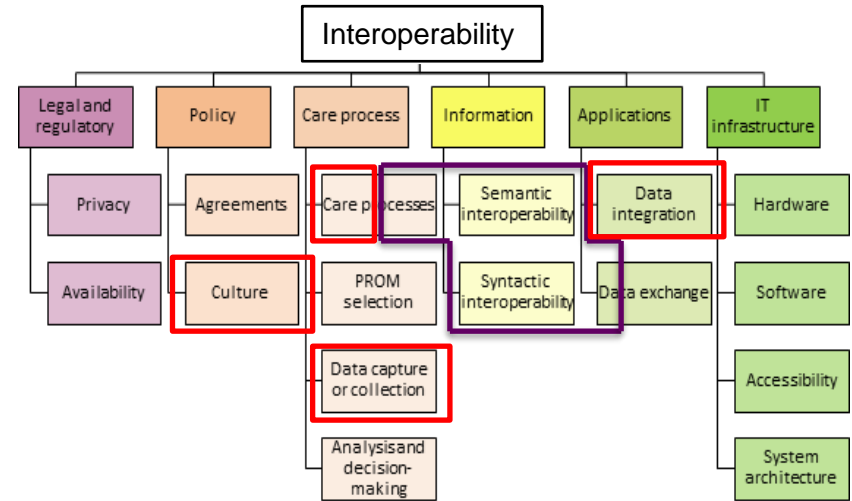
Refinement of the eHealth European Interoperability Framework (ReEIF)

ReEIF detaljering



Exempel Nationella Läkemedelslistan (NLL)

Nästa steg är att införa det SKR kallar skrivfunktionalitet. Den kommer att göra att förskrivarna också kan skicka recept direkt via NLL. Att få detta på plats i alla regioner kommer enligt SKR att ta betydligt längre tid eftersom det “innebär **stora tekniska och logiska utmaningar** både för systemleverantörerna och för regionernas systemförvaltningar”. Dessutom kommer detta steg att påverka **vårdens arbetssätt** mer. Bland annat behöver **tusentals ordinationsmallar** göras om och **tidigare ordinationer** överförs till ett nytt format.



Rekommendationer



Rekommendationer

1. Ha ett systemtänk
2. Involvera alla parter
3. Öppenhet och transparens - Tillgängliggör alla dokument och specifikationer
4. Återanvänd – Skapa byggblock
5. Fuska inte med informatiken
6. Använd standarder

Interoperability is the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations

Kontaktuppgifter

manne.andersson@ehalsomyndigheten.se

+46 (0) 76 -140 26 24

www.ehalsomyndigheten.se

Tack