VILNIAUS UNIVERSITETAS

MATEMATIKOS IR INFORMATIKOS FAKULTETAS

Requirements modeling

Reikalavimų modeliavimas

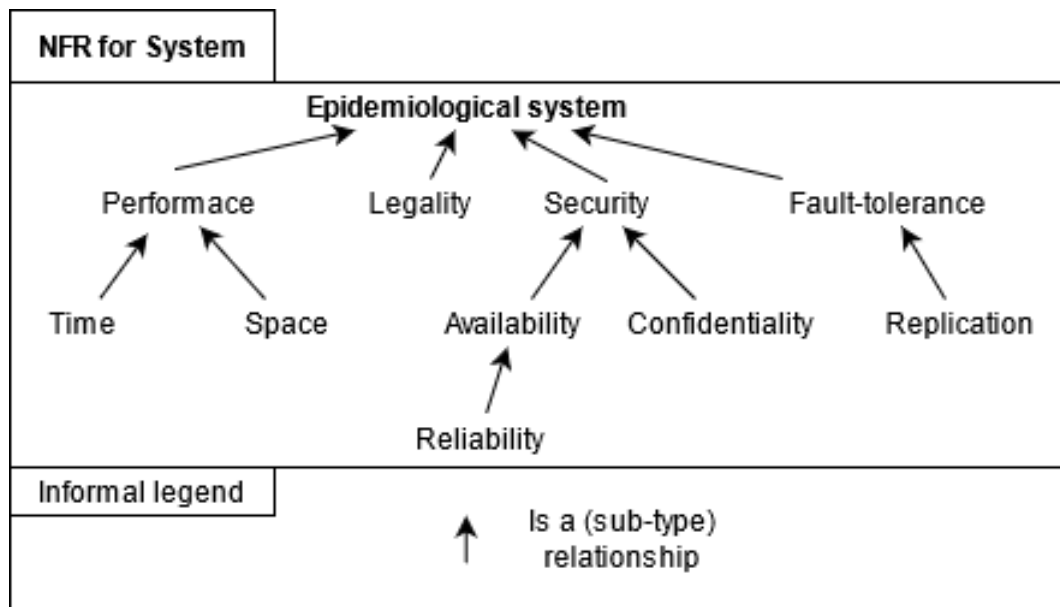Programų sistemų inžinerijos modeliai ir metodai laboratorinis darbas 2

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	Šarūnas Kazimieras Buteikis
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Vilnius – 2021

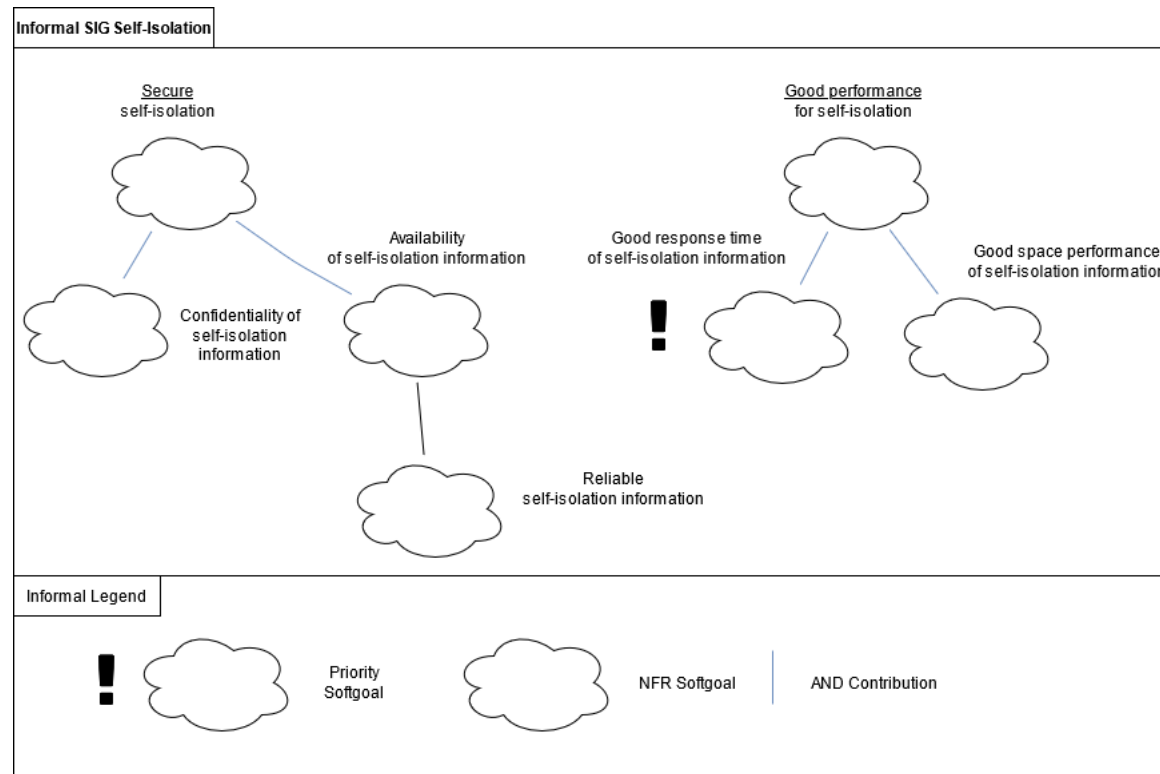## CONTENTS

1. NFR type catalogue

pic 1. NFR diagram

- **Time** - System is monitoring the epidemic therefore it's processes or workflows have to be efficient time-wise.

- **Space** - since the system will contain lots of different data (e.g. person's geographical coordinates), data must be stored efficiently.

- **Reliability** - Tracking the state of the epidemic must be ensured 24/7 to not miss any crucial data or trends.

- **Confidentiality** - epidemiological system must treat sensitive person information (e.g. received medical records) with respect to ensure systems credibility.

- **Legality** - due to the fact the the epidemiological system will deal with sensitive information, data handling must be in compliance with LT and EU data laws as well as GDPR.

- **Replication** - non sensitive data must have duplicate records stored to increase the system's fault-tolerance.

2. Modelling of the non-functional requirements

2.1. Self-isolation

Informal SIG Self-Isolation

Secure self-isolation

Good performance for self-isolation
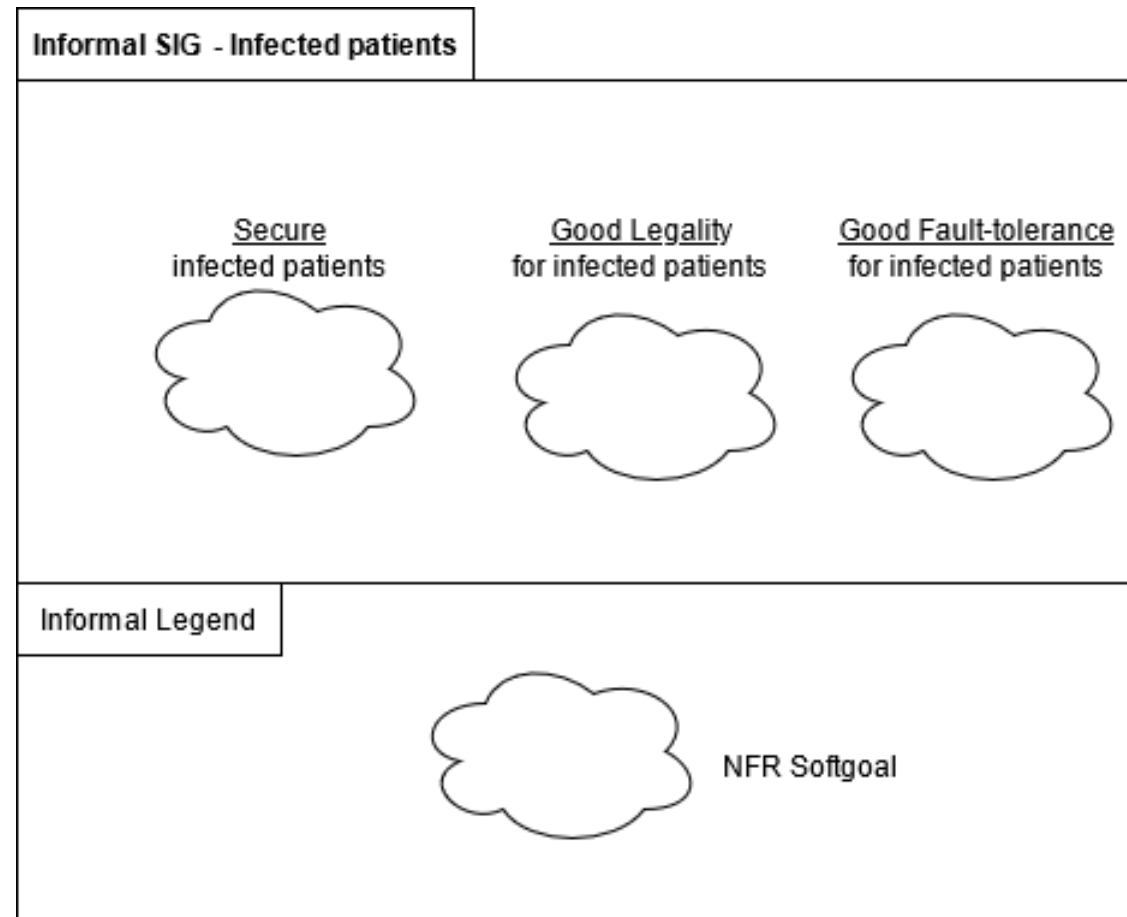
Informal Legend

NFR Softgoal
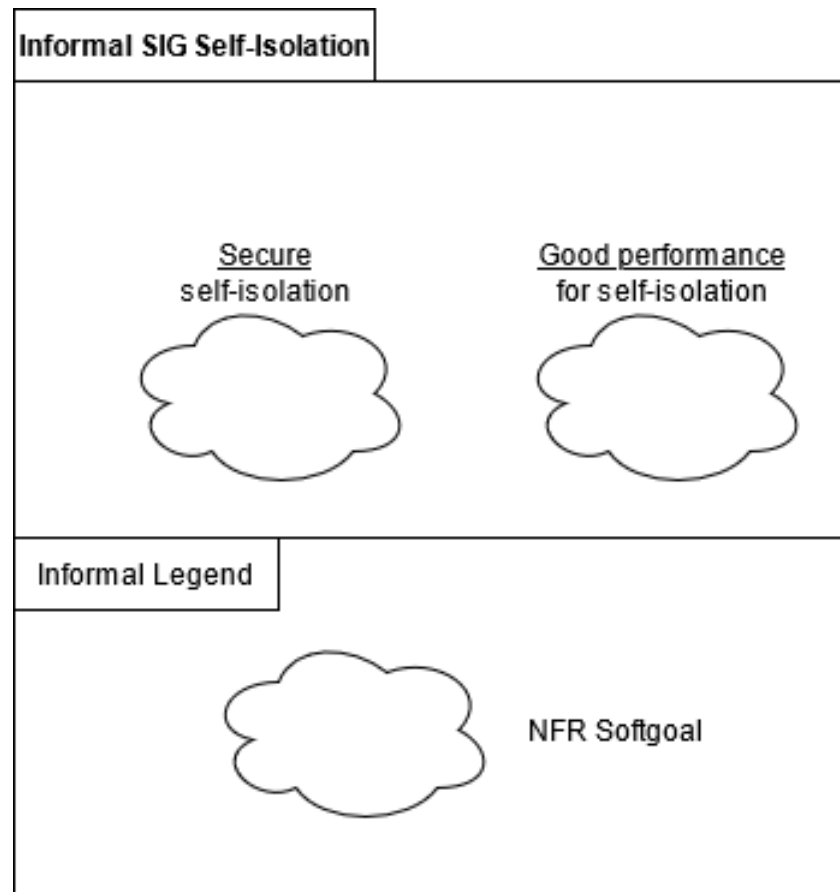
pic 2. Self Isolation - Initial Software Dependency Graph
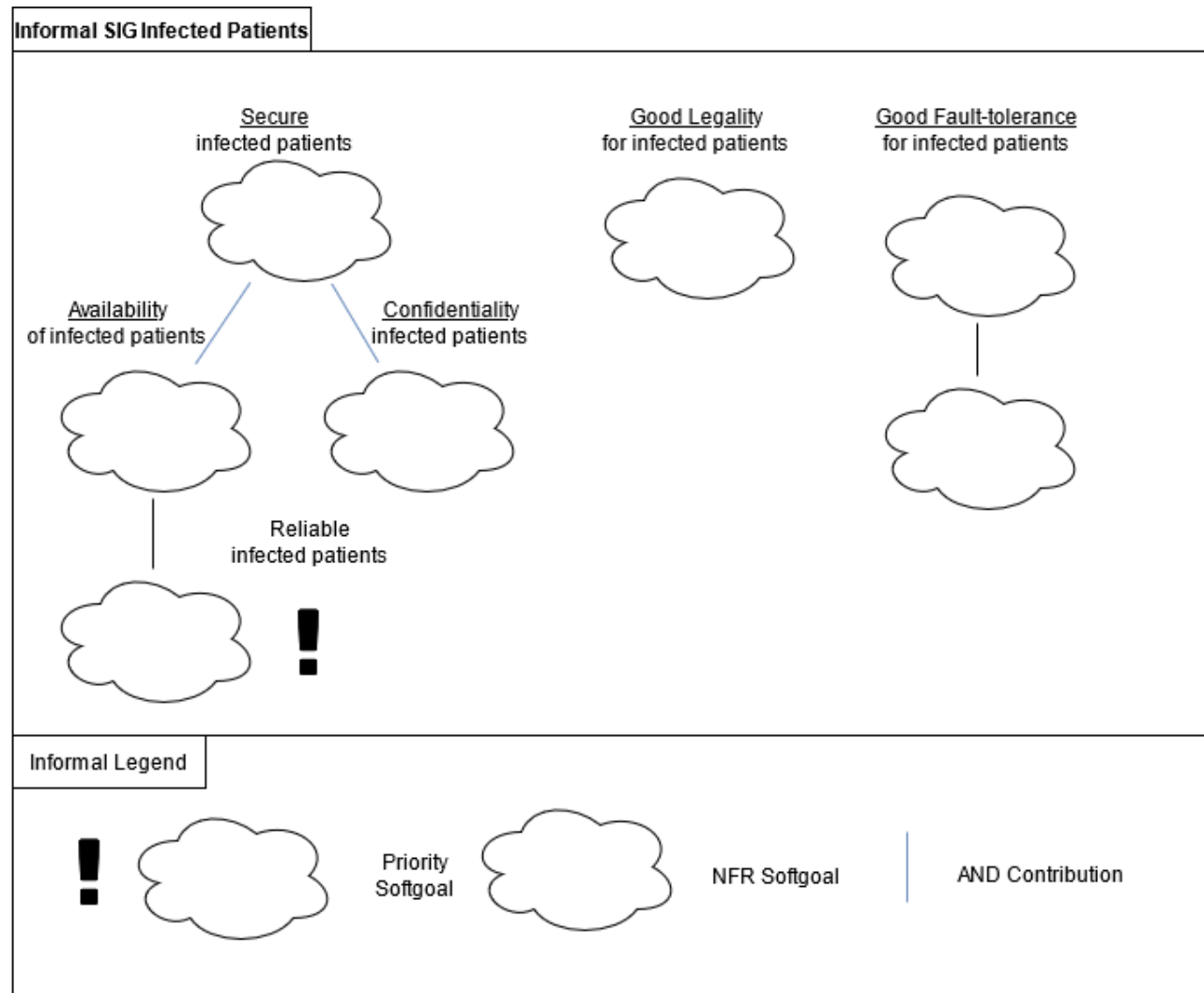
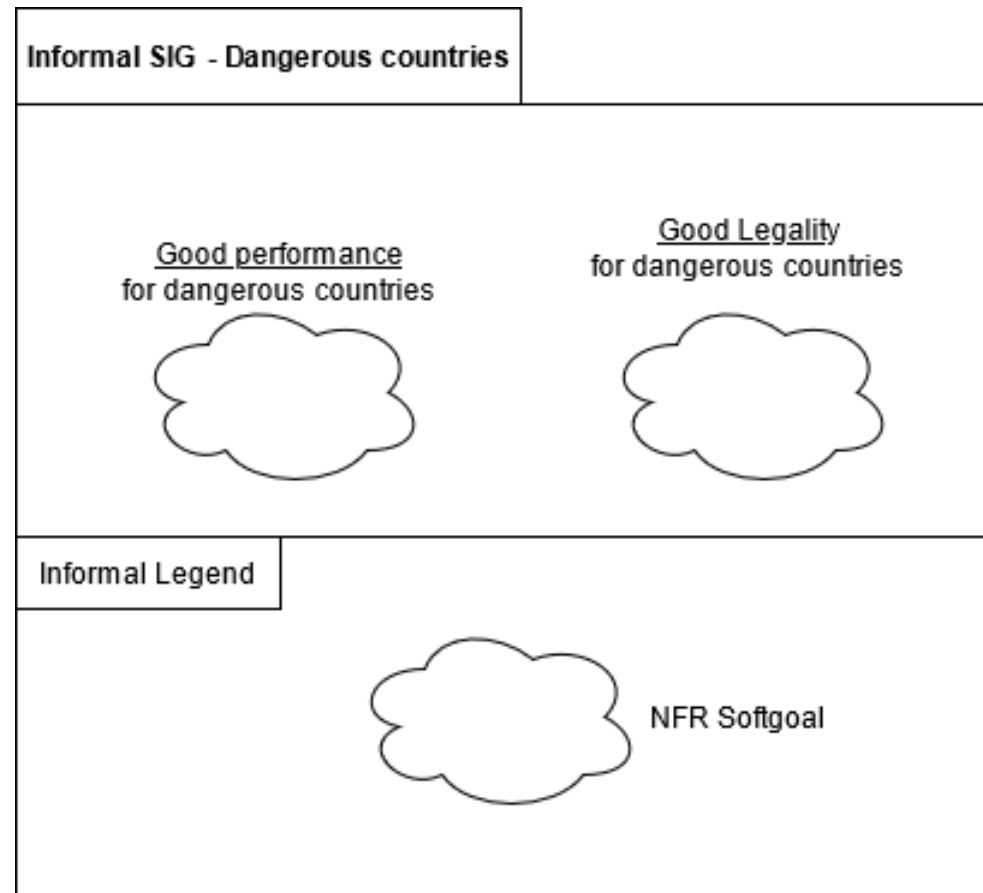pic 3. Self Isolation - Decomposing NFRs

2.2. Infected patients

pic 4. Infected Patients - Initial Software Dependency Graph

Informal SIG Infected Patients

Secure
infected patients

Good Legality
for infected patients

Good Fault-tolerance
for infected patients

Availability
of infected patients

Confidentiality
infected patients

Reliable
infected patients

Informal Legend

Priority
Softgoal

NFR Softgoal

AND Contribution

pic 5. Infected Patients - Decomposing NFRs

2.3. Dangerouse countries

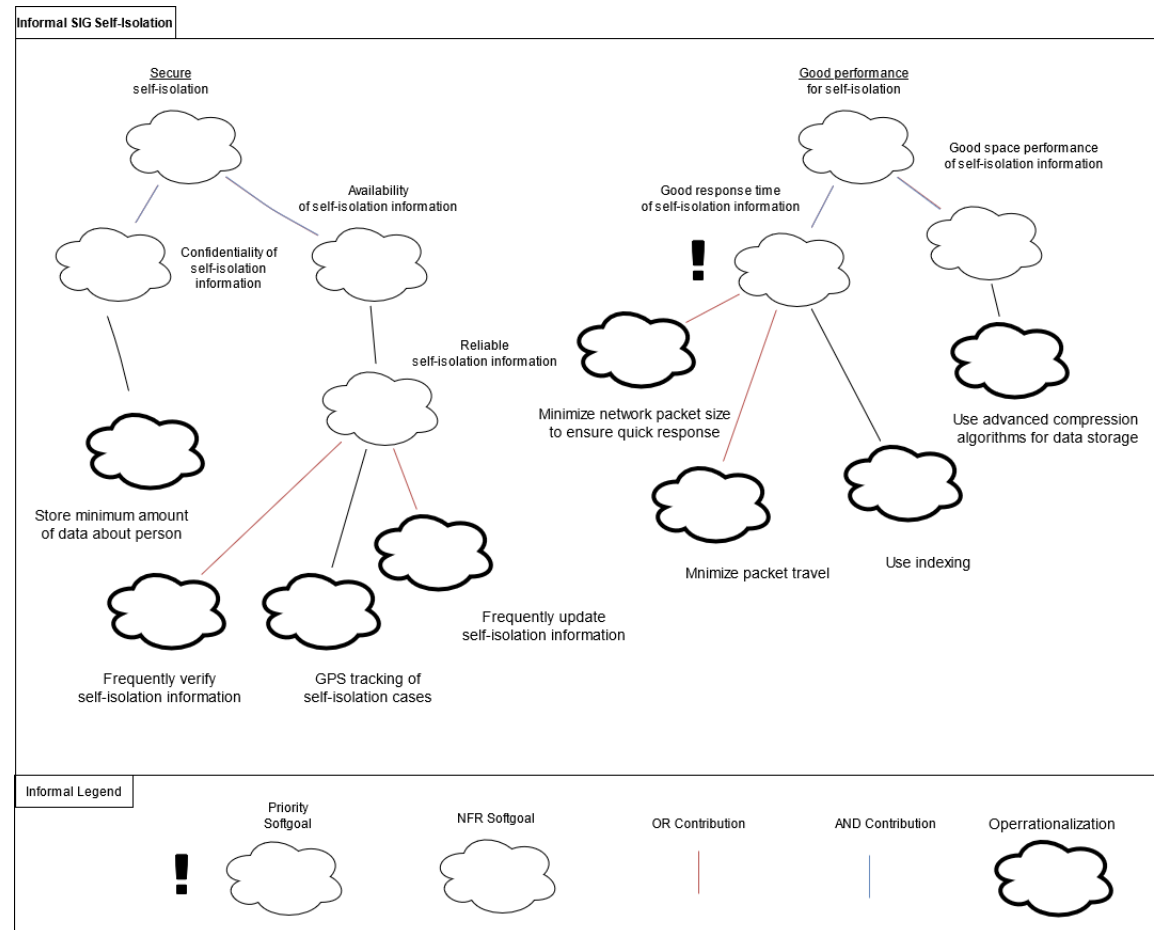pic 6. Dangerous Countries - Initial Software Dependency Graph
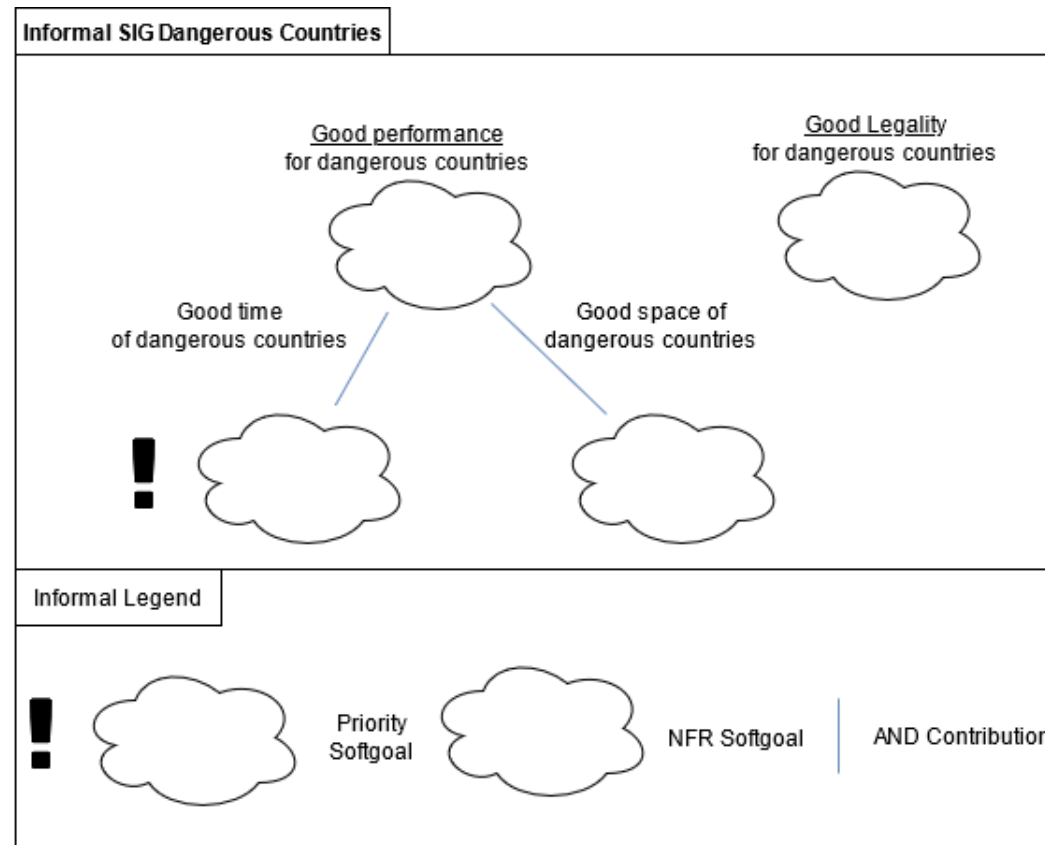
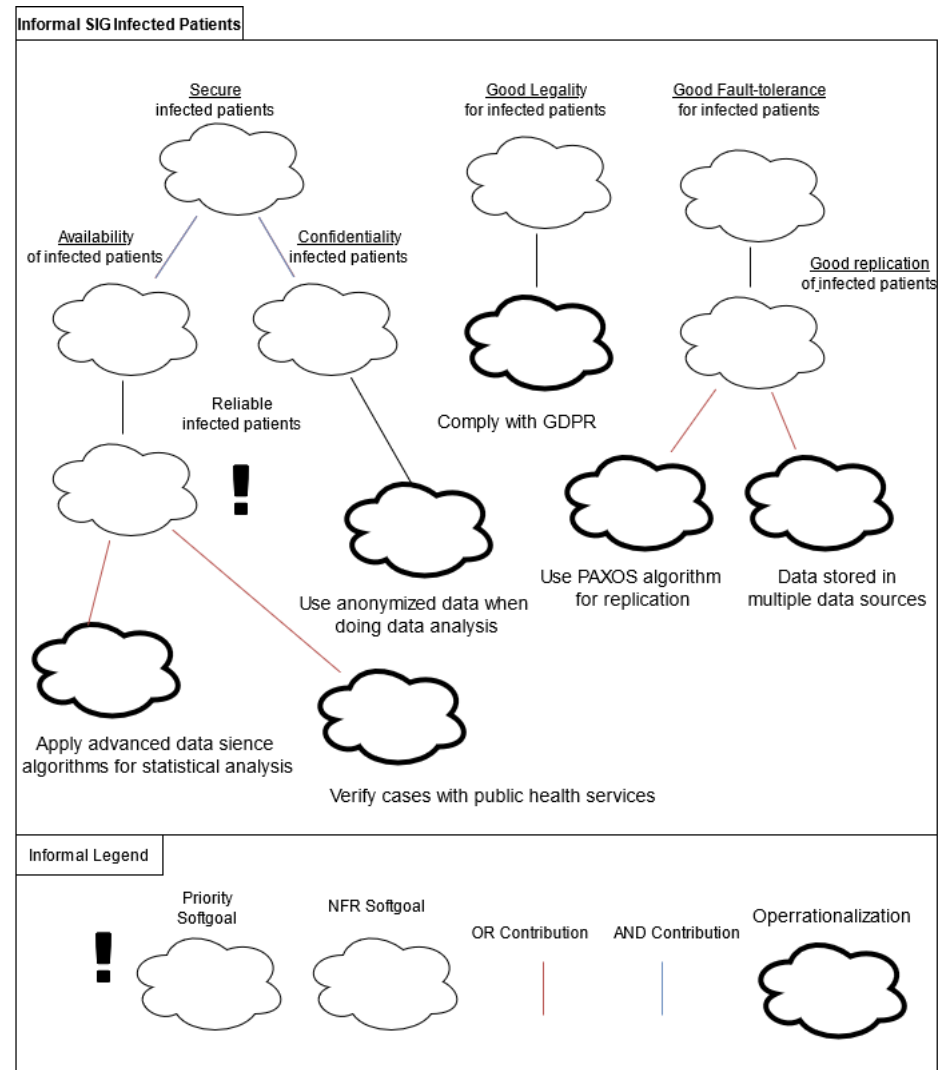pic 7. Dangerous Countries - Decomposing NFRs

3. Identifying and modelling of possible operationalizations for NFR
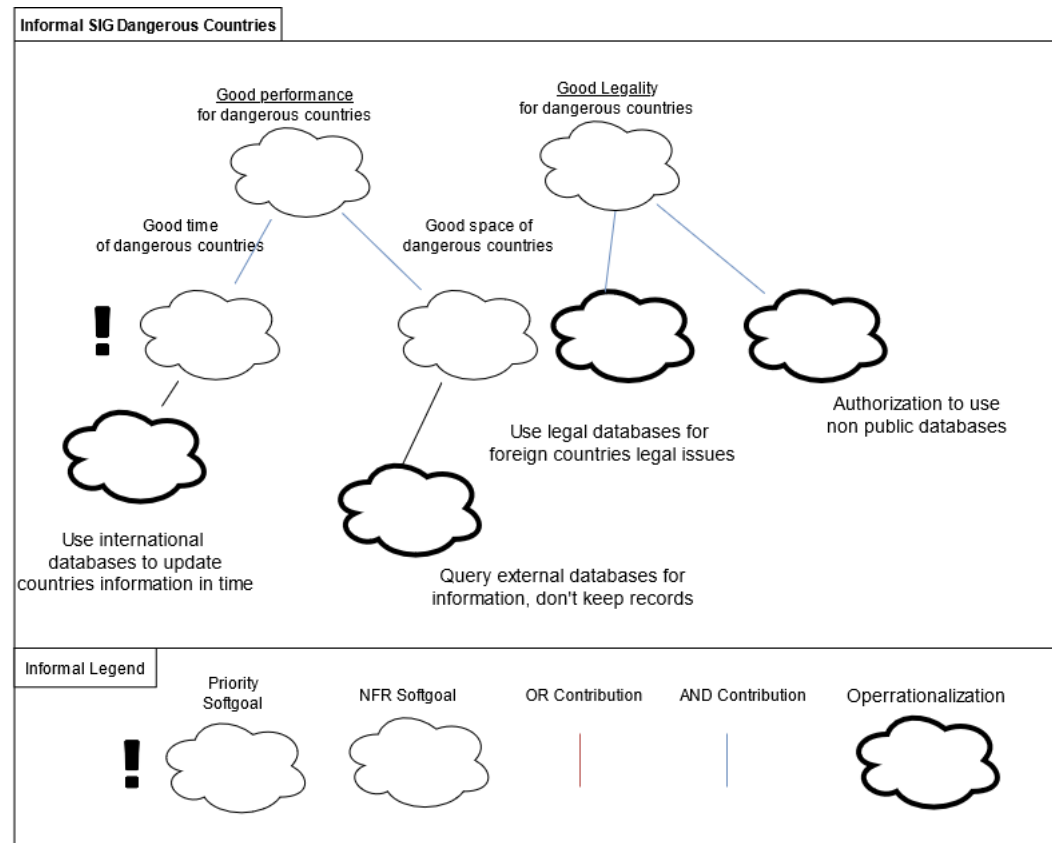
3.1. Self-isolation

pic 8. Self Isolation - Possible Operationalizations

3.2. Infected patients

pic 9. Infected patients - Possible Operationalizations

3.3. Dangerouse countries

Informal SIG Dangerous Countries

Good performance
for dangerous countries

Good Legality
for dangerous countries

Good time
of dangerous countries

Good space of
dangerous countries

Authorization to use
non public databases

Use legal databases for
foreign countries legal issues

Use international
databases to update
countries information in time

Query external databases for
information, don't keep records

Informal Legend

Priority
Softgoal

NFR Softgoal

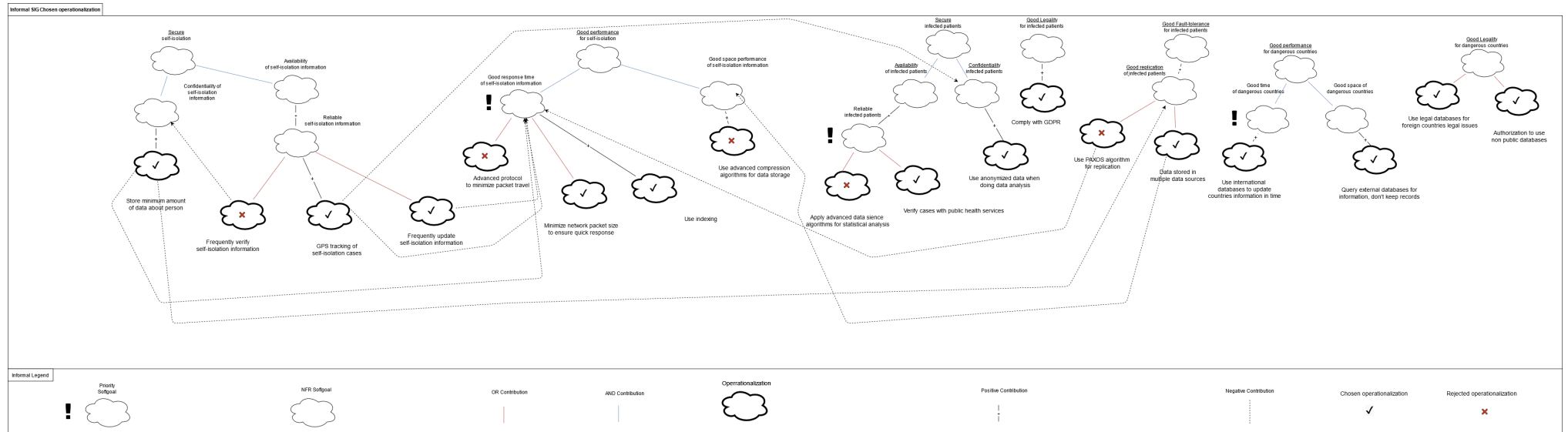OR Contribution

AND Contribution

Operrationalization

pic 10. Dangerous Countries - Possible Operationalizations

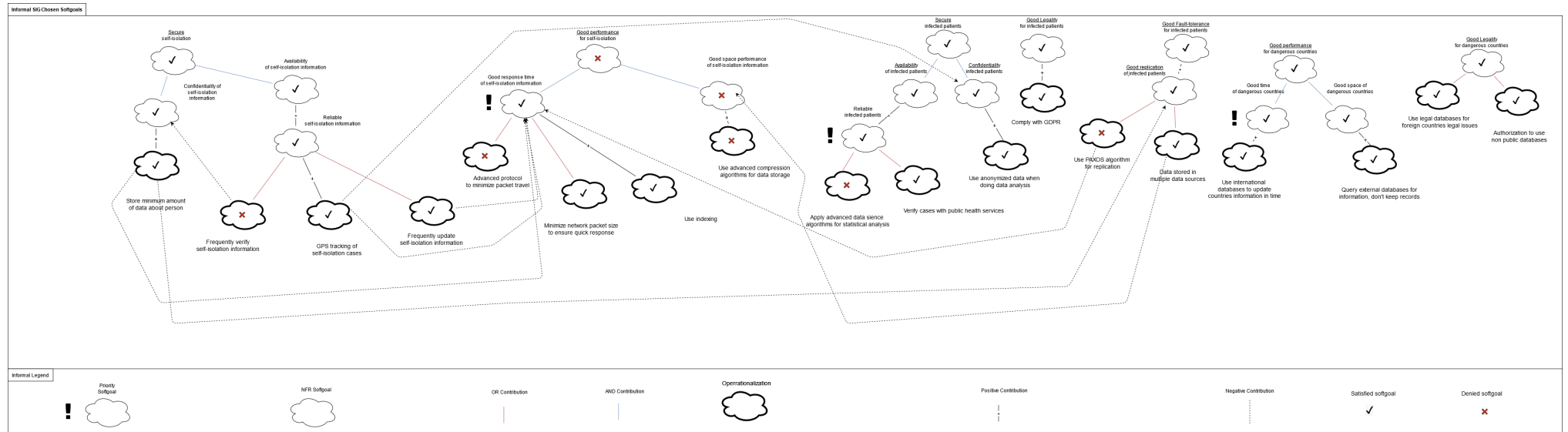# 4. Detecting and modelling of implicit interdependencies among NFR
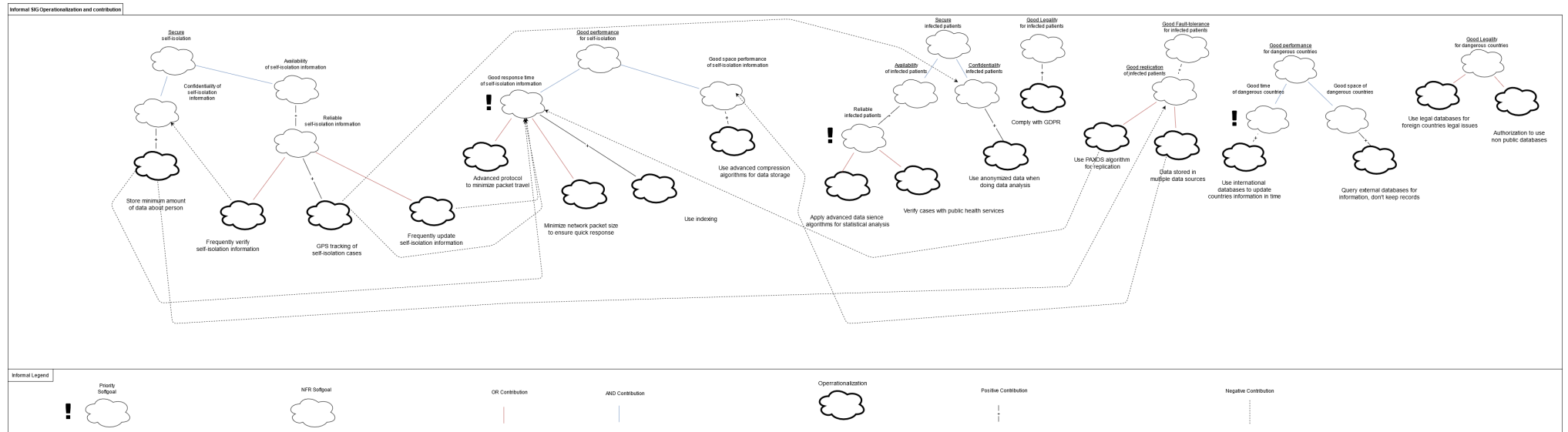
pic 11. Implicit interdependencies among NFRs

5. Chosen operationalizations

pic 12. Chosen Operationalizations among NFRs

6. Strategic rationale model

pic 13. Satisfied and Denied Softgoals

7. Conclusions about an actor dependency

Conclusions