

Development of a myocardial perfusion phantom

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Revision 0.1

System requirements

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5 **Preface**

- 6 The system requirements specify all the requirements for the myocardial perfusion phantom.
7 These requirements are based on research and interviews with stakeholders.

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1 Introduction

Myocardial Perfusion Imaging (MPI), or, simply put, the imaging of the blood flow in the heart muscle, plays an important role in diagnosing heart failure or detecting Coronary Artery Disease (CAD). Imaging systems like Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Single-Photon Emission Computed Tomography (SPECT), or Positron Emission Tomography (PET) can visualise a (radioactive) contrast bolus in the supplying arteries and in underlying myocardial tissue, whose flow can give an indication of narrowed or blocked blood vessels.

Many variations in the visualisation process of myocardial perfusion, including variations in hard- and software, can (significantly) influence the outcome and in turn have consequences for patient treatment. These variations need to be validated against a well-known baseline.

Document overview

[todo] This section

Abbreviations

CAD Coronary Artery Disease

CT Computed Tomography

MPI Myocardial Perfusion Imaging

MRI Magnetic Resonance Imaging

PET Positron Emission Tomography

SPECT Single-Photon Emission Computed
Tomography

2 Functional

based on <https://www.inflectra.com/ideas/topic/requirements-definition.aspx>

2.1 Drivers

This section describes the reasons why the customer is looking to build the system.

2.2 Business model

This section describes the underlying business model of the customer.

2.3 Functional and system requirements

This section consists of a hierarchical organizations of requirements with the business/functional requirements at the highest level and the detailed system requirements as their child items. Generally as "system needs the ability to do x".

2.4 Business and system use cases

Use case diagram.

55 **3 Technical**

56 **3.1 Requirements**

57 technical details, operating environments, constraints et cetera.

58 **3.2 System qualities**

59 Define the quality of the system: such as reliability, availability, serviceability, security, scalability, maintainability.

61 **3.3 Constraints and Assumptions**

62 Design constraints that have been imposed and assumptions that have been made by the requirements engineering team when gathering and analyzing the requirements.

A Appendix: Work weeks