1st Seminar – Requirement Analysis

1 Intelligent Cargo Transportation Network

1.1 Customer Specification

The purpose of the *Smart-Hungarian-Railways* project is to improve the IT infrastructure of the regional and national railway network until the year 2020. The system will be able to control driverless trains to safely transport their cargo to the destination. An important aspect of the development is to provide a more efficient transportation service than what the current system is capable of. As a solution, an intelligent central control system is required that controls the trains with minimal human interaction. From the viewpoint of transportation, the system should plan the cheapest and faster routes to satisfy the needs of the cargo owner companies. Additionally, cargo owners may change the destination during transportations.

The development has to extend the currently existing railway infrastructure. In conjunction with the train manufacturers, the new smart-trains need to support all the sizes required by track elements of the infrastructure. Moreover, the operation of the system need to satisfy and ensure all the related standards and laws. It also has to log all the system events for traceability purposes. Operators are responsible for supervising the system and intervening in breakdowns. In case of failures, railway workers have to repair the defective parts.

The most important functions of the system are as follows:

- **Transportation:** Cargo needs to be safely transported from the origin to the destination. Cargo needs to be transported on the cheapest and fastest routes.
- **Centralized Control:** Operators shall be able to intervene in the operation of track elements and trains.
- **Smart-railways:** the system plans routes automatically and executes the transportation tasks.
- **Increase Effectiveness:** the system needs to be more effective based on the automated parts.
- **Performance:** During the transportation, the delays cannot be longer than it was in the current system.