

4.4 Process Metrics

Records about process metrics are stored in TW. A folder named "Metrics" is created under process folder, see /1/.

4.5 Other internally produced documents

These are stored using TeamWork. The document tree structure for TeamWork is defined in the document /1/.

4.6 Document tree structure

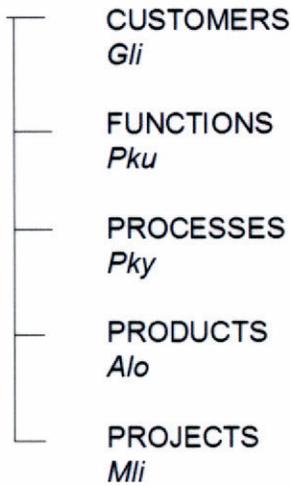
4.6.1 Library owners

On next pages words in capital letters are library names.

Words in *italics* are library owners, who create the lower level libraries according to this instruction and give access rights to other persons for each library. Additional libraries may be created by the owner when needed.

Library owner name abbreviations are in document EKE-Elektroniikka info, 2531.3.5.2.01306.

4.6.2 First Level Structure



Detailed structure of project documentation is described in document: Project File System, 2531.3.5.2.00805

Figure 1, high level folder structure for TeamWork and file servers

4.6.3 Functions

If you cannot find proper place for your files under processes then store your files under Functions. Administration function is used here as an example of the next level structure.

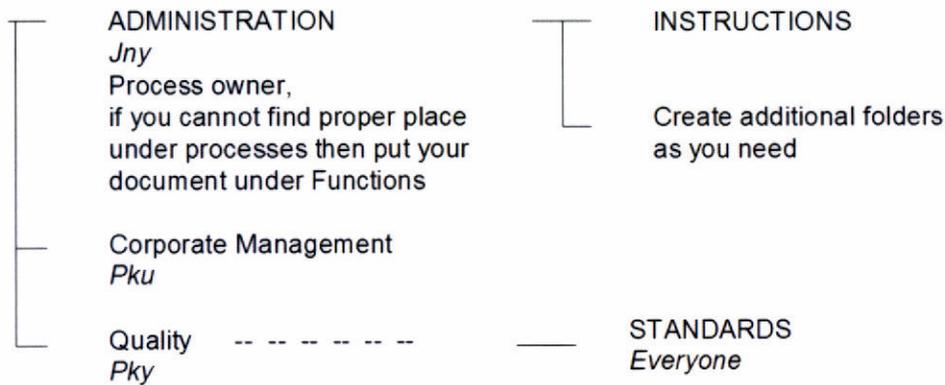


Figure 2, folder structure for Functions

Personal folder exists only on server file system under Functions. Personal folders cannot be accessed by other persons than the owner.

4.6.4 Processes

Continuous Improvement process is used here as an example of the structure.

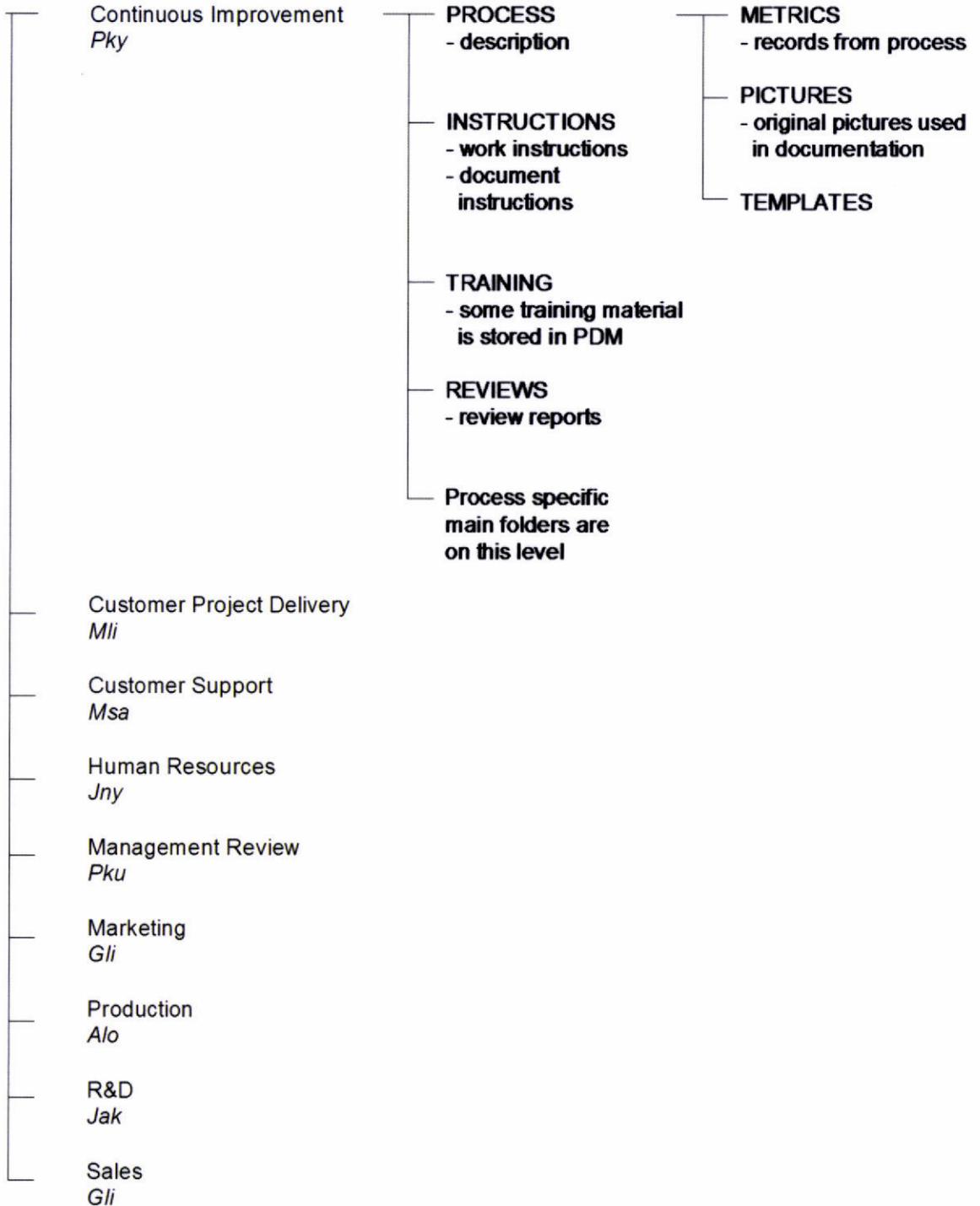


Figure 3, folder structure for Processes

4.6.5 Products

This is model of the product data management data archive structure.

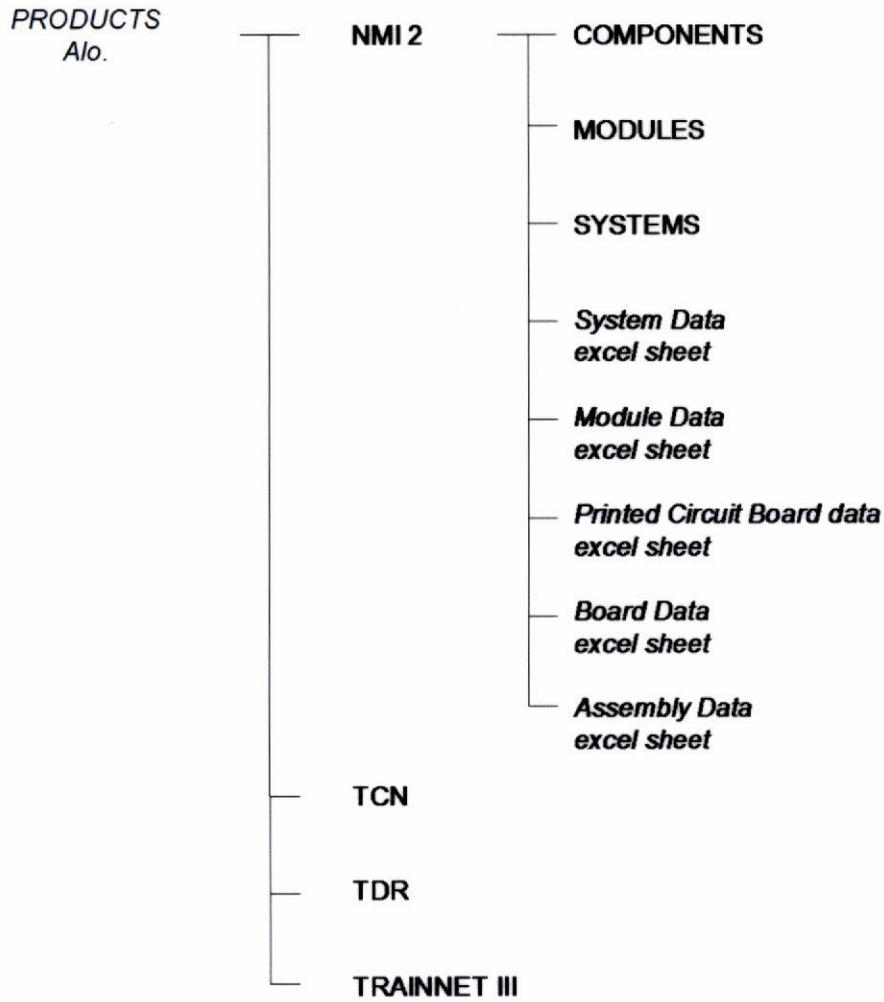
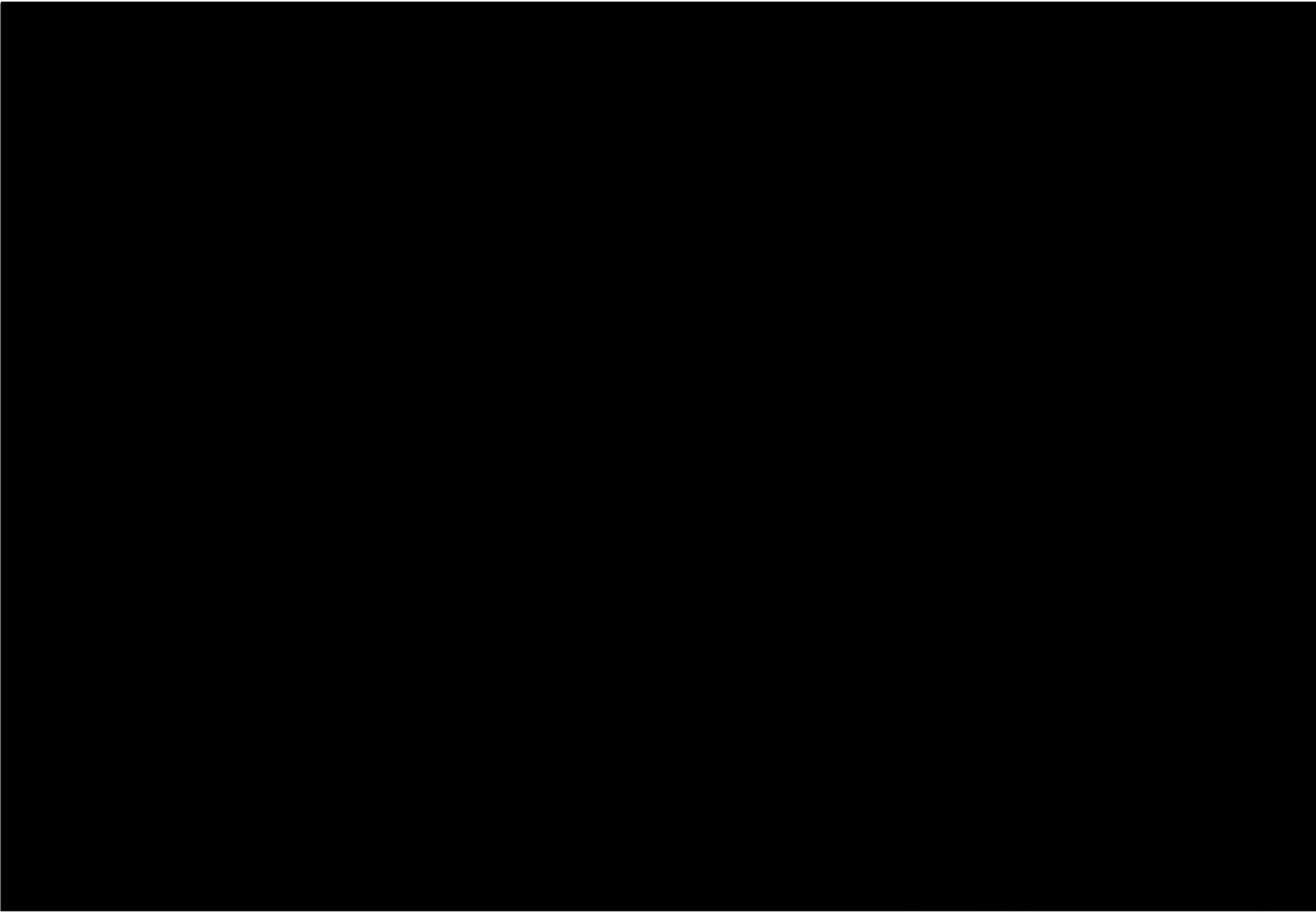
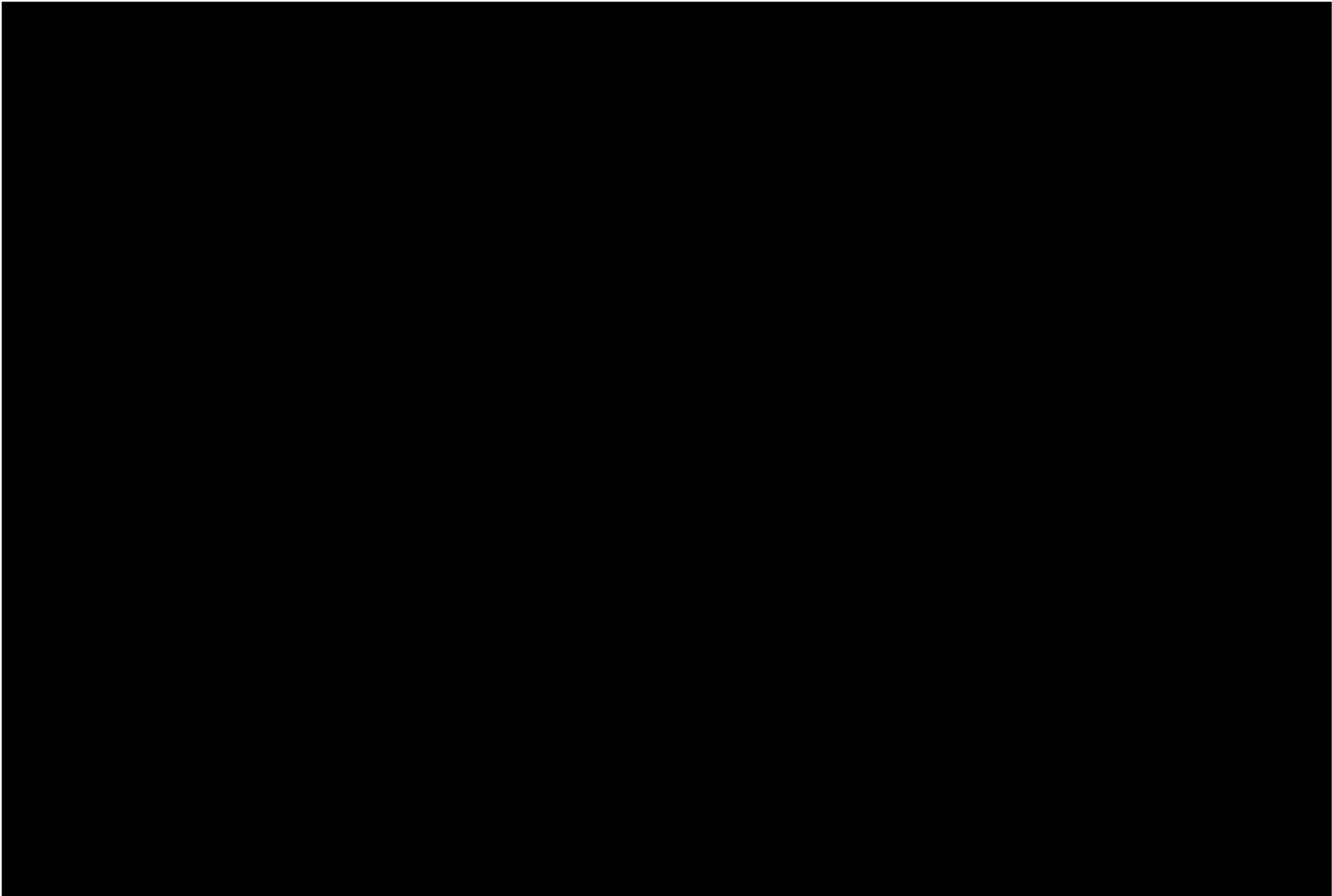


Figure 4, folder structure for product data

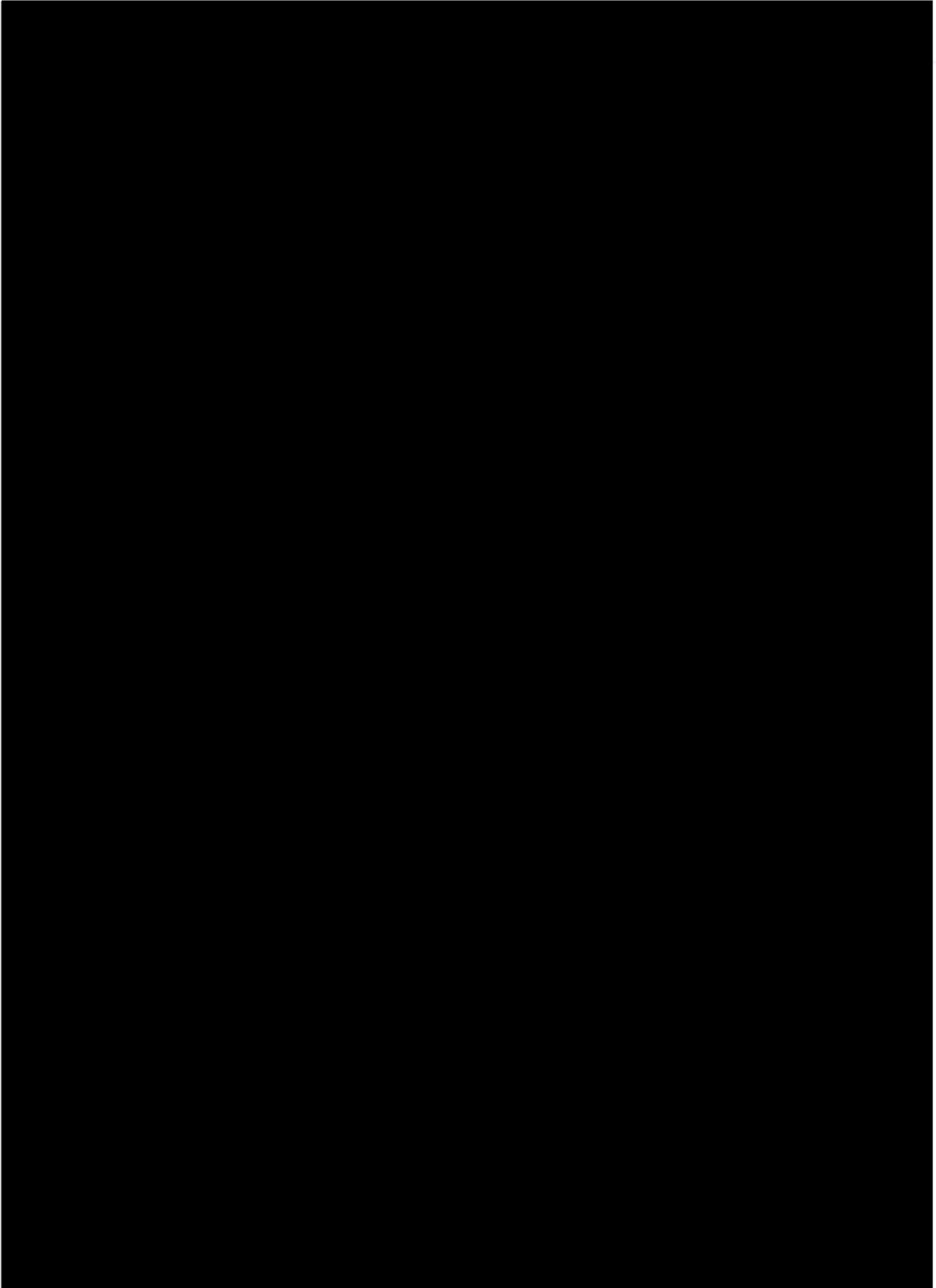
Appendix 9: Floor Plans

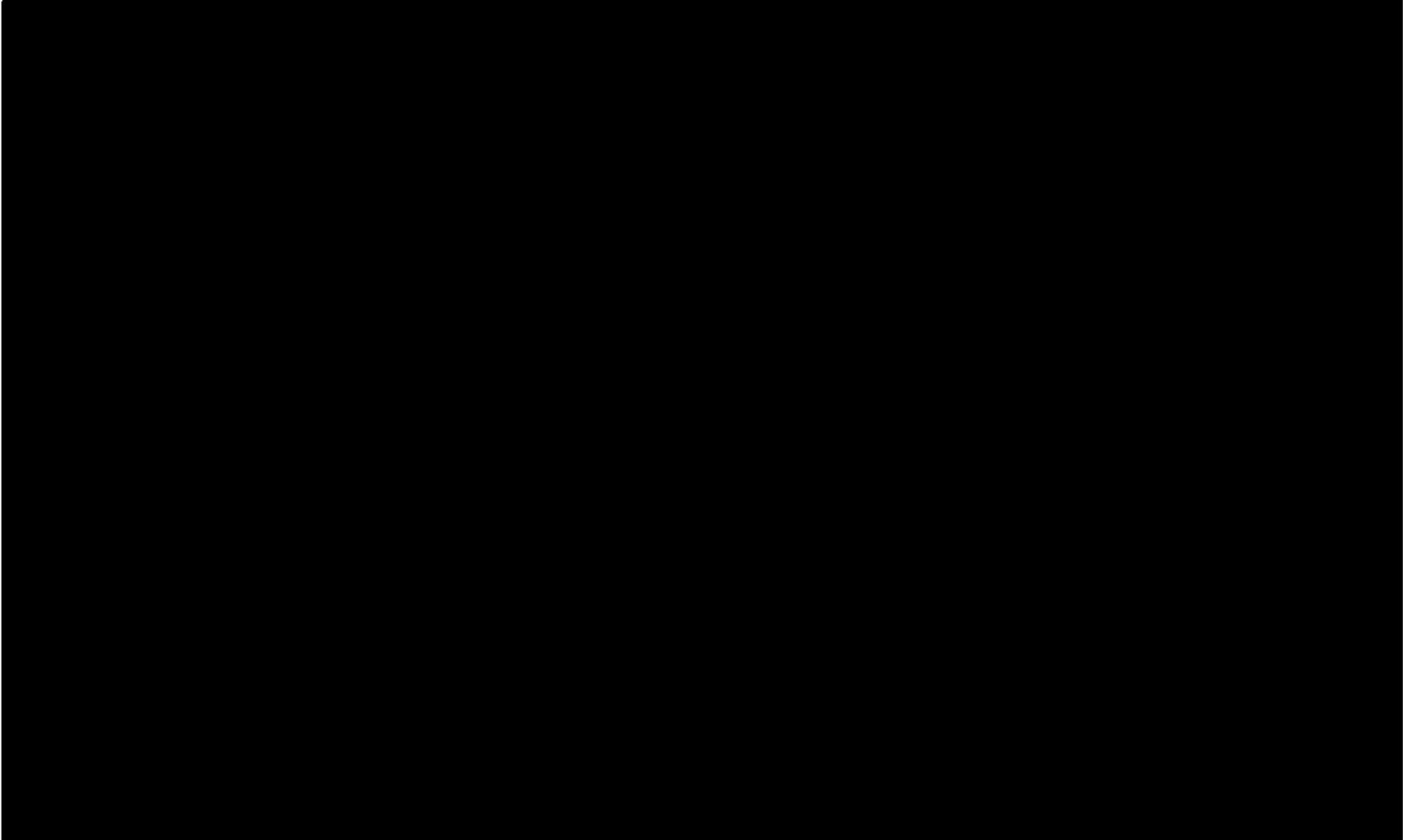


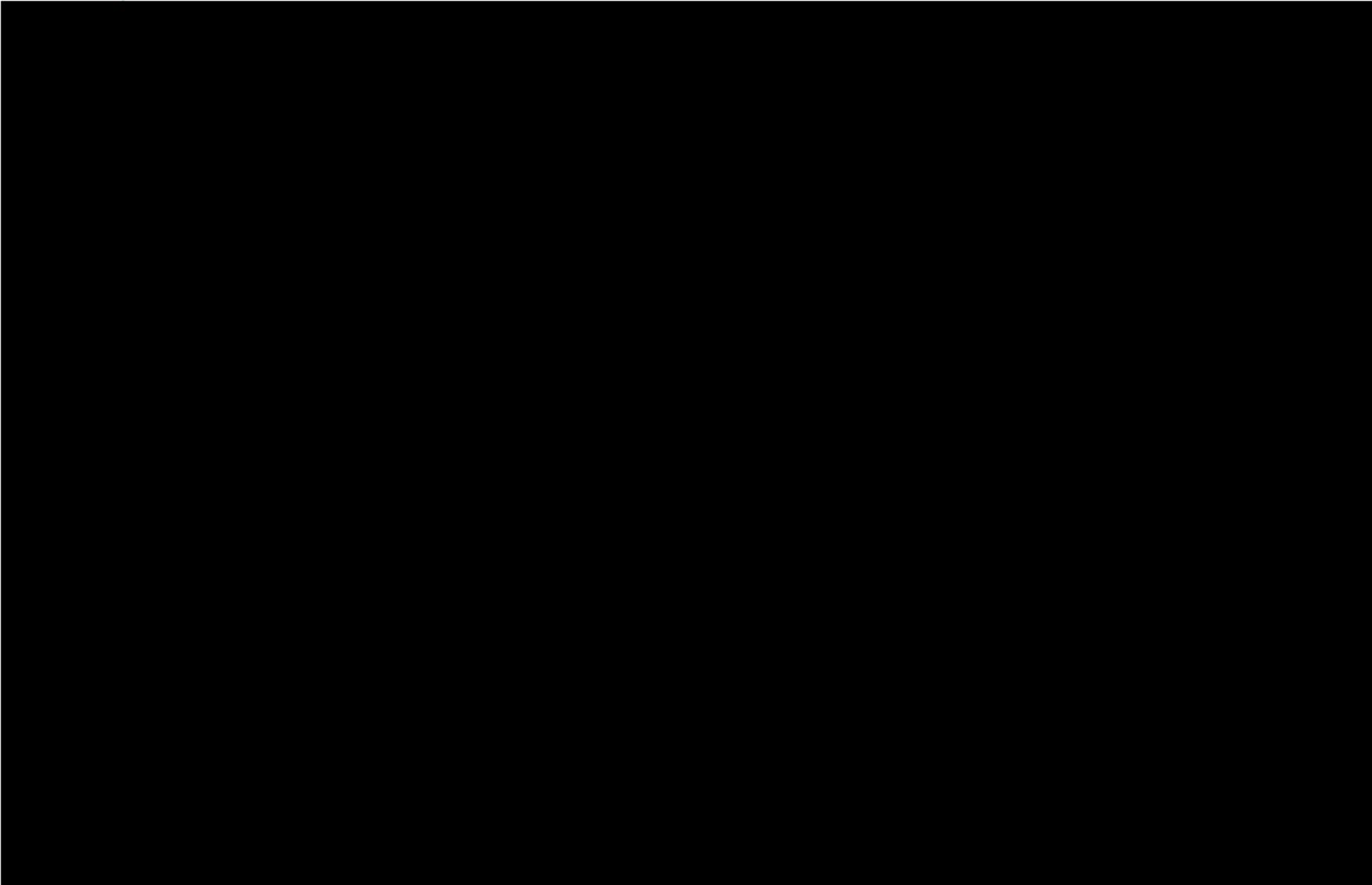




Appendix 9: Floor Plans







PART B: RISK MANAGEMENT

1. GENERAL

- 1.1 The Purchaser's risk management policy recognises that managing risk is critical to the successful delivery of this Agreement, and the Purchaser has implemented a programme wide risk management framework to enable effective and efficient risk management (the "**Risk Management Framework**").
- 1.2 The Manufacturer shall carry out its out risk management activities in accordance with the Risk Management Plan to meet the requirements of Schedule 1B.
- 1.3 The Manufacturer shall provide assurance to the Purchaser that any risks associated with the Design, manufacture, testing, commissioning, delivery and Acceptance for Service of the Replacement Systems and other items of Goods under this Agreement are fully recognised, understood and effectively controlled. The Manufacturer shall involve the Purchaser in:
 - 1.3.1 the review and management of all risks identified under this Agreement; and
 - 1.3.2 the implementation of the Risk Management Plan.
- 1.4 The Purchaser shall hold quarterly joint review meetings with the Manufacturer to review the Manufacturer Risk Register and discuss any risks that the Manufacturer is responsible for managing. The Purchaser shall be entitled from time to time to instruct the Manufacturer to attend additional ad-hoc risk review meetings.
- 1.5 Any general information related to risk that the Manufacturer develops pursuant to its obligations under this Schedule 1B Part B shall be in addition to (and will not replace) the Manufacturer Risk Register. In the case of any conflict between such general information and the Manufacturer Risk Register, the contents of the Manufacturer Risk Register will prevail.

2. RISK MANAGEMENT OBJECTIVES

- 2.1 The Purchaser's Risk Management Framework aims to ensure that:
 - 2.1.1 any risks associated with the Design, manufacture, testing, commissioning, delivery and Acceptance for Service of the Replacement Systems and other items of Goods under this Agreement are identified, assessed and managed by the appropriate people in a consistent and cost-effective manner;
 - 2.1.2 the Manufacturer, the Purchaser and any other relevant stakeholders (including industry partners and insurers) are provided with appropriate and reliable risk information in order to provide assurance that any risks are being effectively dealt with; and
 - 2.1.3 the Manufacturer's practices are fully aligned with and demonstrably meet the Purchaser's requirements in relation to risk management.

3. RISK MANAGEMENT PLAN

- 3.1 Within four (4) weeks of the Commencement Date, the Manufacturer shall produce a draft risk management plan and submit the draft risk management plan (in accordance with the requirements set out in paragraph 3.3 below) to the Purchaser for the Purchaser's approval. The Purchaser shall notify the Manufacturer in writing within four (4) weeks of the date of submission whether it:
 - 3.1.1 approves the draft risk management plan; or
 - 3.1.2 requires the Manufacturer to make further revisions to the draft risk management plan (and the Purchaser shall provide details of such revisions in writing to the Manufacturer).

- 3.2 If the Purchaser requires the Manufacturer to make further revisions to the draft risk management plan in accordance with paragraph 3.1.2, the Manufacturer shall submit a revised draft to the Purchaser for approval no later than the date falling four (4) weeks after the Manufacturer's receipt of the Purchaser's required revisions.
- 3.3 The draft risk management plan shall describe how the Manufacturer will meet its obligations under this Schedule 1B Part B. The draft risk management plan may include details of existing corporate procedures, plans or other documents that the Manufacturer shall use to deal with risk, provided that such procedures, plans or documents:
- 3.3.1 comply with all Applicable Laws and all applicable LU Standards; and
- 3.3.2 comply with the terms and conditions of this Agreement.
- 3.4 Upon the Purchaser's approval of the draft risk management plan, the draft risk management plan shall become the "**Risk Management Plan**" for the purposes of this Agreement.

4. RISK MANAGEMENT REQUIREMENTS

4.1 General

The Manufacturer shall provide the Purchaser with a procedure or other appropriate document that describes the activities that the Manufacturer will undertake in order to manage all of the risks associated with performing the Manufacturer's obligations under this Agreement. The Purchaser may, at its sole discretion, allow the Manufacturer to submit the Risk Management Plan in fulfilment of this requirement.

4.2 Accountabilities and responsibilities

4.2.1 The Manufacturer shall:

- (A) define clear accountability for the management of risk within the Manufacturer's organisation and for the maintenance of the risk management process;
- (B) ensure that its teams carry out risk management in full and that key staff have an appropriate level of competency and training in risk management; and
- (C) make available adequate competent specialist resources to ensure that risk management obligations are met.

4.3 Deliverables

4.3.1 In addition to any plans or documents detailed elsewhere in this Schedule 1B Part B, the Manufacturer shall produce the following deliverables:

- (A) a register of significant risks (the "**Manufacturer Risk Register**"), in the form set out in Appendix 1, to be used for discussion with the Purchaser. The Manufacturer Risk Register will reflect those risks inherent in this Agreement that the Manufacturer considers are material to the Agreement's objectives and that are necessary to provide assurance to the Purchaser that key risks are being appropriately managed. The Manufacturer Risk Register will:
 - (i) form the basis of any meetings between the Manufacturer and the Purchaser to jointly review risks; and
 - (ii) allow the Manufacturer to monitor risks to ensure that, if appropriate, the Manufacturer is able to issue early warning notices to the Purchaser regarding particular risks in accordance with paragraph 8.7 of Schedule 1B Part A.

- (B) a report of the key risks (including any new emerging risks) and risk management actions based on the Manufacturer Risk Register, to be presented at the Project Progress Meetings in a format approved by the Purchaser;
- (C) comprehensive records to demonstrate the application of continuous risk management practices (records of meetings and approvals, for example); and
- (D) other reports, KPIs and measures as required to ensure the effective management of all risks under this Agreement.

4.4 **Governance**

The Manufacturer shall, on a quarterly basis, jointly review with the Purchaser all key risks and the Manufacturer's performance in regards to risk management. At each quarterly meeting, the Parties shall:

- 4.4.1 review the Manufacturer Risk Register;
- 4.4.2 review all risks that are the responsibility of the Manufacturer to manage; and
- 4.4.3 communicate to each other any emerging risks, and determine the Party who is best placed to manage that risk.

4.5 **Quantified Risk Assessment**

The Manufacturer shall provide assistance to the Purchaser in undertaking cost and schedule risk assessments by contributing to workshops and advising on quantitative assessment of risks as and when required.

4.6 **Communication**

The Manufacturer shall make the Purchaser aware of any significant changes to existing risk information including scoring, details of new emerging risks and the status of any existing risks.

4.7 **Systems**

- 4.7.1 The Purchaser shall implement Active Risk Manager ("**ARM**") as its programme-wide risk management system.
- 4.7.2 The Purchaser acknowledges that ARM is a costly system to implement. The Purchaser therefore does not expect the Manufacturer to implement ARM under this Agreement. The Manufacturer shall provide to the Purchaser for the Purchaser's approval details of an alternative system for maintenance and management of risks no later than four (4) weeks after the Commencement Date.

Appendix 1: Manufacturer Risk Register

Please refer to the document titled "MSA Joint Project Risk Register Template v1. 0-1".

MSA Joint Project Risk Register Template

Risk Description & Status											
ID	Threat / Opp	Risk Category	Risk Owner (Individual)	Owning Organisation	Risk Title	Date Risk Raised	Cause	Event	Effect	Risk Proximity	Risk Expiry
		Select from dropdown	Can be defined by a role or an individual or both	A risk may be owned by an organisation or shared	A short statement of the risk		The circumstance/s that may lead the risk event to occur	A detailed description of the uncertain event "There is a risk of", "There is a risk that"	The direct impacts as a result of the risk event occurring	The nearness in time at which a risk is expected or predicted to occur	The time at which the exposure to a risk is expected or predicted to expire
001	Threat	Design	Senior Project Manager	LU and Supplier	Problems in design caused by vague requirements	12-Apr-2016	Customer requirements set by LUL not clear or missing	There is a risk that during Concept design phase some features requires more detailed definition.	1. Delays in design 2. Problems in resource allocation 3. Missing feature -> late changes	Concept design phase	Detailed design phase
002	Threat	Governance	Senior Project Manager	LU and Supplier	Delayed specifications and design decisions	12-Apr-2016	Requirements not delivered and approved in schedule	There is a risk that requirements are not approved on time	1. Delays in design 2. Problems in resource allocation	Concept design phase	Detailed design phase
003	Threat	Project Management	Senior Project Manager	Supplier	Unrealistic schedule, insufficient times reserved for tasks, delays in progress	12-Apr-2016	1. Problems in resource allocation 2. possible new employees -> learning curve 3. Flu pandemic	training and recruitment of new resources takes longer than expected	1. Delays in design 2. Problems in resource allocation	Concept design phase	Test phase
004	Threat	Project Management	Project Manger HW	Supplier	EKE has problems or delays in achieving type-test approval	12-Apr-2016	1. Type test lab schedules do not fit to the Project schedule 2. Type test not passed	1. Type test laboratories are busier than expected 2. regulatory requirements not defined well enough	1. Delays in design 2. Delays in testing	Test phase	Test phase
005	Threat	Project Management	Project Manger SW	LU and Supplier	Software integration	12-Apr-2016	1. Problems to arrange sub system test sessions	1. Schedules of different sub system providers not aligned	1. Delays in testing 2. Delays interface development	Concept design phase	Test phase
006	Threat	Project Management	Project Manager SW	LU and Supplier	Unrealistic schedule for Software integration. Ad hoc changes and unrealistic requests to tighten current schedule cause remarkable risk of failing to meet the planned dates.	12-Apr-2016	1. Problems to arrange sub system test sessions	1. Schedules of different sub system providers not aligned	1. Delays in testing 2. Delays interface development	Concept design phase	Test phase
008	Threat	Project Management	Senior Project Manager	Supplier	HW and SW verification and testing is late.	12-Apr-2016	1. HW design delayed 2. SW design delayed 3. Testing arrangement delayed	1. Tight project schedule 2. Procurement of testing or simulator equipment takes more time than expected	1. Delays in design 2. Delays in testing	Concept design phase	Test phase
009	Threat	Commercial	Senior Commercial Manger	LU and Supplier	Manufacturing and delivery delayed	12-Apr-2016	Pending agreement with suppliers	Schedule or commercial challenges	1. Delays in manufacturing since the manufacturing "slot" lost because of a delay	Concept design phase	Bulk phase
Hardware											
010	Threat	Design	Project Manger HW	Supplier	System design not approved in time	12-Apr-2016	Unexpected problems in system design	Multiple design rounds / versions	1. Delays in design 2. Delays in testing	Concept design phase	Test phase
011	Threat	Design	Project Manger HW	Supplier	Type testing not approved in time	12-Apr-2016	Unexpected problems in type testing	Multiple design rounds / versions	1. Delays in design 2. Delays in testing	Concept design phase	Test phase
Software											
015	Threat	Governance	Project Manager SW	LU and Supplier	Delays on interface development	12-Apr-2016	1. Missing sub system interface specification 2. missing sub system protocol specification	Technical support of current sub system providers may not be available	1. Delays in design 2. Delays in testing	Concept design phase	Bulk phase
016	Threat	Governance	Project Manager SW	LU and Supplier	Delays on SW application development	12-Apr-2016	1. Unrecognized SIL-level requirement 2. HMI layout approval	1. higher SIL level needed 2. HMI layout not approved	1. Delays in design 2. Delays in testing	Concept design phase	Bulk phase
TCN											
019	Threat	Funding, Estimating and Modelling	Senior Project Manager	LU and Supplier	Installed old cabling worse than expected	12-Apr-2016	During tender phase cable condition investigations not done	Cabling condition worse than expected	Delivery schedule delayed	Concept design phase	Bulk phase
020	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of an arcing in the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Incorrect connection or wiring error	Wiring failure in a g power supply or a wrong connector plumbed in.	System or unit fails locally	Test phase	Train acceptance
021	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a collision between trains caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	N/A	N/A	N/A	N/A	N/A
022	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a derailment caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	N/A	N/A	N/A	N/A	N/A
023	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of an explosion caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	N/A	N/A	N/A	N/A	N/A
024	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a passenger train interface caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in sending the station identity message to all 'saloon CCTV system' interfaces. Data received from the ATO	HW fails or there is a SW bug	Wrong Door chimes are shown	Concept design phase	Test phase
025	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a passenger train interface caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in Passenger alarm acknowledge or Talkback panel selected	HW fails or there is a SW bug	passenger or the driver is not informed as planned of the passenger alarm	Concept design phase	Test phase
026	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a passenger train interface caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in saloon lighting functions	HW fails or there is a SW bug	Lightning is switched OFF incorrectly	Concept design phase	Test phase
027	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a passenger train interface caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in volume control of the PA system	HW fails or there is a SW bug	PA volume is too high or low	Concept design phase	Test phase
028	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a passenger train interface caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in the heater monitor and control function	HW fails or there is a SW bug	Temperature too low or high in saloons	Concept design phase	Test phase
029	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a power failure caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	Failure in DTS power supply units	Power supply fails	local equipment is lost	operation phase	operation phase
030	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a fire caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	HW failure	Equipment or unit in the scope of supply burns	local equipment or unit is lost	Design phase	Test phase
031	Threat	Other: TR_0882 Top Event Risks	Senior Project Manager	LU and Supplier	Risk of a loss of the ventilation caused by the DTS replacement system or unit in the scope of EKE	11-Sep-2016	N/A	N/A	N/A	N/A	N/A

MSA Joint Project Risk Register Template

Mitigation						
ID	Mitigation Strategy	Action Responses	Response Owner	Status	Due Date	Planned cost (£k)
	The overall strategy towards mitigating the risk	A short statement describing the Mitigation Action	The person responsible for completing the Action	The status of the Action	The date by which the action must be completed	If a specific Action has a direct cost that is not accounted for in the base cost of the project it must be added here.
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