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## Plan Overview

*A Data Management Plan created using DeiC DMP*

**Title:** 77400 Advanced Process Models for Analysis and Process Control of Continuous Casting of Iron

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**Template:** DTU data management plan

### Project abstract:

It is the project's aim to create a fast, reliable closed-loop control system for Tasso's continuous casting unit that will increase the company's product quality and production rate. Such systems do not exist today and will have to be developed from a thorough experimental analysis combined with application of numerical modelling of the casting process. The project should lead to a first version of a closed-loop control system.

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# 77400 Advanced Process Models for Analysis and Process Control of Continuous Casting of Iron

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## Data Collection

**Describe the data that will be collected.**

**What type of data will be collected?**

The data collected will be all the operational, process, and quality-related parameters related to Tasso's continuous Casting Process. This will be done through Tasso's Scada system, production reports, and/or, through conducting experiments.

Furthermore, data required for the project that is NOT available from the company/measurements/calculations will be taken from the scientific community and/or the upstream supply chain of Tasso A/S.

Data from modelling activities are generated from Ansys, JMP or Magmasoft.

**Which file formats are the data in?/ What are the estimated amounts of data?**

The data from the SCADA system would be available in CSV/xlsx formats. One batch of production is around 30 MB. The entire project is expected to analyze anywhere between 50-100 productions.

Modelling data are stored in file formats native to the modelling software.

However data that is compared with experiments will be extracted in CSV/xlsx format.

**How will the data be collected?**

Most data is collected as part of Tasso's daily work routine and stored in their SCADA system.

Mostly data is collected automatically during production. Others are entered manually.

Process modelling and statistical analysis data are generated from dedicated software: Ansys, Magmasoft and JMP

Total amount of data may be up to 250 GB

**How will the data be structured?**

Data will be structured in one folder for each experiment. Each folder will contain a readme file describing the content of the folder.

**How will the data be versioned?**

Data will be versioned by using date and time as part of the folder / file names.

**Describe any restrictions to the data.**

**Are there any limitations on the use of existing data?**

No.

**Are there any ethical or legal issues to be considered?**

The legal issues are specified in the collaboration agreement between the partners in the project.

**Are there other external requirements.**

There are no other external requirements on the data.

## Data Storage

**Describe the IT infrastructure to be used.**

**Where are the raw data and results stored?**

All data from the project will be stored in the project folder O:\Public\MEK-P77400. (Insert your project no. in 77400)

**How are the data backed up?**

Data are backed up by AIT using DTUs standard procedure for backup of the O: drive/M: drive.

**How is access control managed?**

Access to the data on O:\Public\MEK-PXXXXX are controlled by access lists managed by the PI in DTUBasen.

**How are data shared within the project?**

Data are shared with external partners using files.dtu.dk

**How is security for sensitive data guaranteed?**

This project has no sensitive data.

## Documentation

**Describe the metadata to be associated with the data.**

**Are there metadata standards?**

No.

**What metadata will be included?**

Versions and time.

**How will the metadata be generated?**

Software.

**Describe the types of documentation that will accompany the data.**

**How will data be documented?**

E.g. In logbooks with specific details of each experiment/simulation associated with the data.

**How will the data be understandable for secondary users?**

E.g. logbooks on experiments will provide all necessary information for secondary users.

Readme files explaining the name codes for files and folders as well as the types of data, may be used for modelling results

**How will reproducibility of results be ensured?**

E.g. by documenting all specific details of experimental conditions.

## Data Sharing

**Describe which data will be shared.**

**Which data will be shared?**

We will share graphs and videos from simulations, results from statistical analyses in the form of tables, graphs and models.

Results from production data will be shared in the form of graphs and tables.

**Which tools/software are needed to view/visualize/analyze the data?**

Most data acquired from production is analysed in XL.

Modelling results are analysed in the respective modelling softwares.

Statistical analysis will be done in JMP statistical software

**Which data cannot be shared?**

Specific production data from Tasso.

Details about design of dies and production equipment and general process parameters.

**Who will have access to the data?**

All supervisors from the university and the company.

Publications will be available to the general public.

**Describe how the data will be shared for possible reuse.**

**When will data be shared?**

Data will be shared when papers are published.

At periodic meetings with the partners.

**Where will data be shared?**

Data will be shared at data.dtu.dk.

**How will the data be made discoverable?**

Data will be shared at data.dtu.dk using the DOI in publication.

## Long-term Preservation

**Describe how data will be archived beyond the scope of the research project.**

**Which criteria will be used to select the data that should be archived for preservation and long-term access?**

All data supporting papers published during the project will be archived.

Only data strictly necessary to reproduce the results.

**Where will data be archived?**

Background data for publications will be archived at DTU Data (<https://data.dtu.dk/>)

Specific data for optimisation of Tasso's production will be stored at Tasso

**How will readability of the data be guaranteed?**

Readability of data will be guaranteed by using most common formats like .txt, .csv and .xlsx

**Which data has to be destroyed?**

No data has to be destroyed after the project termination

**Who will be responsible for long-term preservation**

PI who will give info to The DTU IT service.

**How long should the data be preserved?**

The data will be kept in the project folder for five years after the project termination. After this period the data will be archived to tape and kept for at least 10 more years.

**How will long-term preservation be financed?**

The use of tape storage is without any cost for the project.