[Overleaf](https://www.overleaf.com/read/hxpcncgpzggm)

* Workflow optimization
* Blockchain for Workflow automation
  + - * Adding a new organization to the blockchain
      * Adding new users to the organization
      * Giving access / putting data up for utilization
      * Giving access / putting resources up for utilization
      * Spawning environments for users to consume data / resources
    - Automation
      * First 4 steps can be automated by setting up rules and smart contracts
      * Last step will include smart contracts to verify users access to data and then spawning up an environment
* How to model the workflow?
  + - Study the use cases
      * First 2 steps can be use case independent if we design contracts to enforce certain legal requirements set forward by genesis organizations
      * Other steps are use case oriented and depends on number of variables
        + What type of identity management is going to be used?
        + What type of data is it to be distributed?

Databases (Relational / Document based)

File system data

Images are going to be hard to distribute over network for code to consume

Textual data can be easier to consume over the network

Depending on the type of data resources need to allocated accordingly on the system hosting the data or anywhere and there in comes the limitation of JupyterHub / JupyterFlow because we have no control over where the resources will be allocated

* + - * Fix variables / limit scope to use case
      * Study fixed steps involved in the use case workflow and rules for smart contracts
    - Workflow can be modelled using
      * DCR
      * Case Management Model and Notation
      * Workflow Nets
* Blockchain roles?

Thesis Writing Notes:

* Introduction
  + <https://oneocean.norceresearch.no/#/view/OneOcean%20dashboard>
  + <https://www.npd.no/en/diskos/>
* Related Works
  + Refer to the attached documents
  + <https://www.fim-rc.de/Paperbibliothek/Veroeffentlicht/696/wi-696.pdf>
  + <https://www.fim-rc.de/Paperbibliothek/Veroeffentlicht/694/wi-694.pdf>
* Technologies
  + <https://jupyterhub.readthedocs.io/en/stable/index.html#:~:text=JupyterHub%20is%20the%20best%20way%20to%20serve%20Jupyter,multiple%20instances%20of%20the%20single-user%20Jupyter%20notebook%20server>.
  + JupyterHub Jupyter Workflow
  + <https://jupyterflow.com/>
  + Hyperledger
  + Kubernetes
  + Substrate? (Open and in Development)