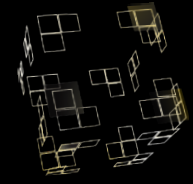
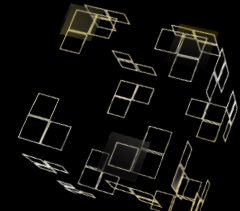
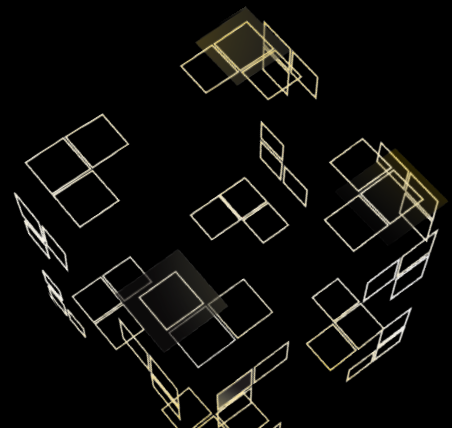


**LISA Research ICT
University of Twente (UT)**

**ICT Account manager / Product manager
Ralph Mettinkhof**

2-10-2023



INTRODUCTION LISA

L

Library

IS

ICT-Services

A

Archive



INTRODUCTION LISA



- ICT Account Manager for faculty ITC
 - Second point of contact besides our Servicedesk for general ICT services
 - First point of contact for research ICT services
- Product Management - Demand and Supply of several ICT-services

DOMAINS



BUSINESS
OPERATIONS



EDUCATION



RESEARCH

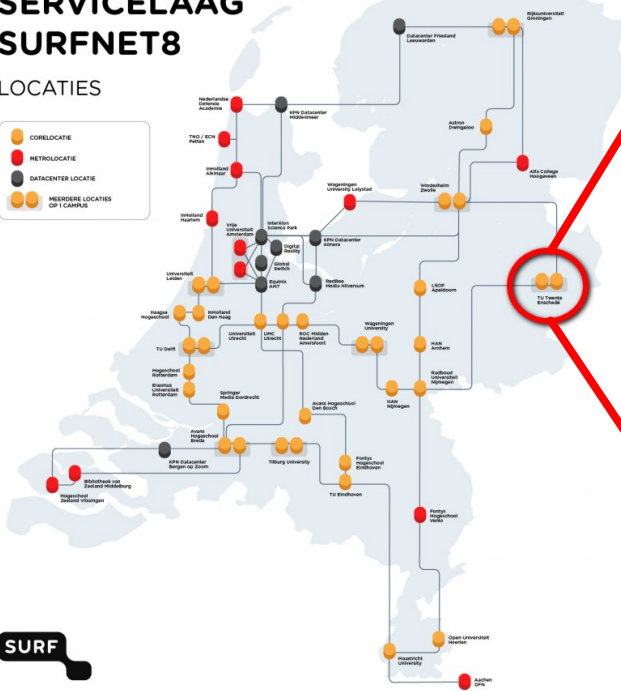


UT NETWORK

IMPLEMENTATIE SERVICELAAG SURFNET8

LOCATIES

- CORELOCATIE
- METROLOCATIE
- DATACENTER LOCATIE
- MESSIERE LOCATIES
OP 1 CAMPUS



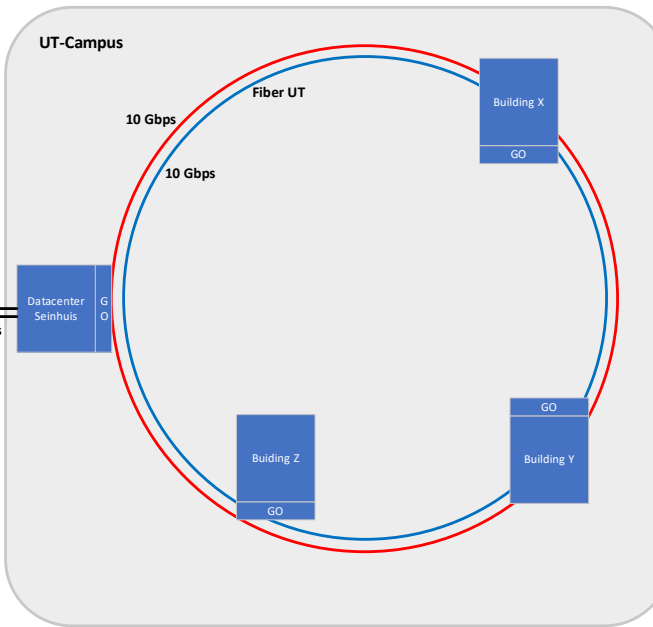
SURF

VERSIE: OKTOBER 2019

SURF
NET

2x40 Gbps

UT-Campus



UT NETWORK - EDUROAM

- University of Twente first local WIFI networks in 2000
- Expanded to a campus wide WIFI with 650 accesspoints in 2003
- First tests of eduroam concept were conducted at University of Twente!
- The results of this concept have been used to build eduroam, which is now used worldwide (106 territories)
- Currently at UT-campus -> 2100 WIFI accesspoints in use with 15000 wireless clients
- WIFI-data is used for research purposes

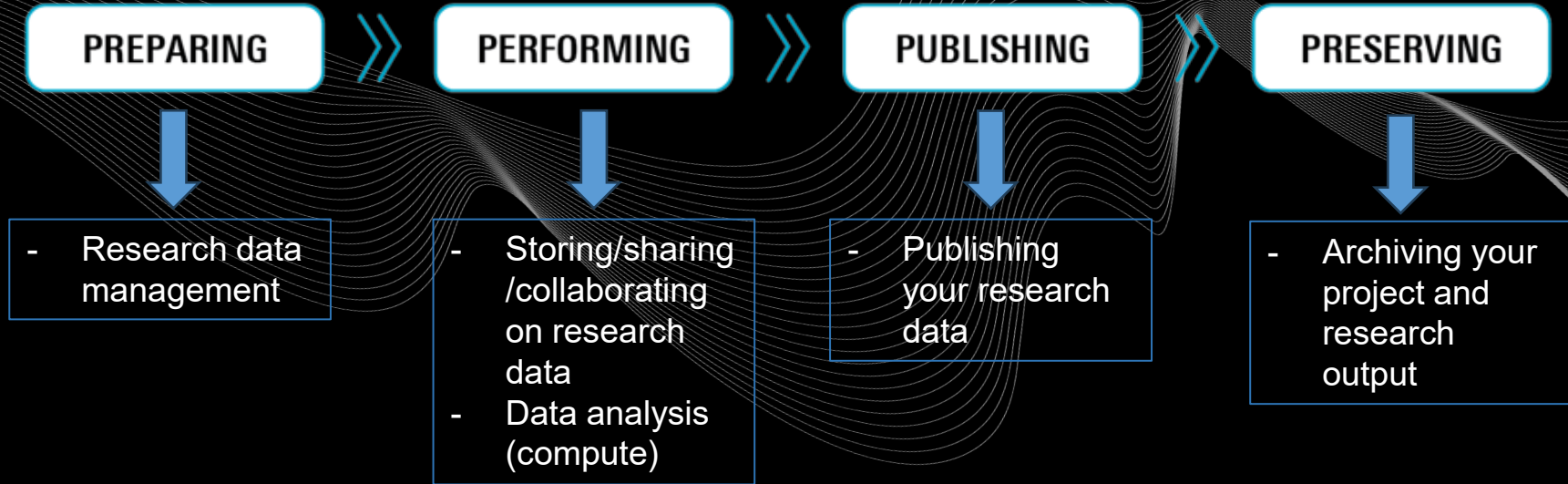


UT DATA CENTERS



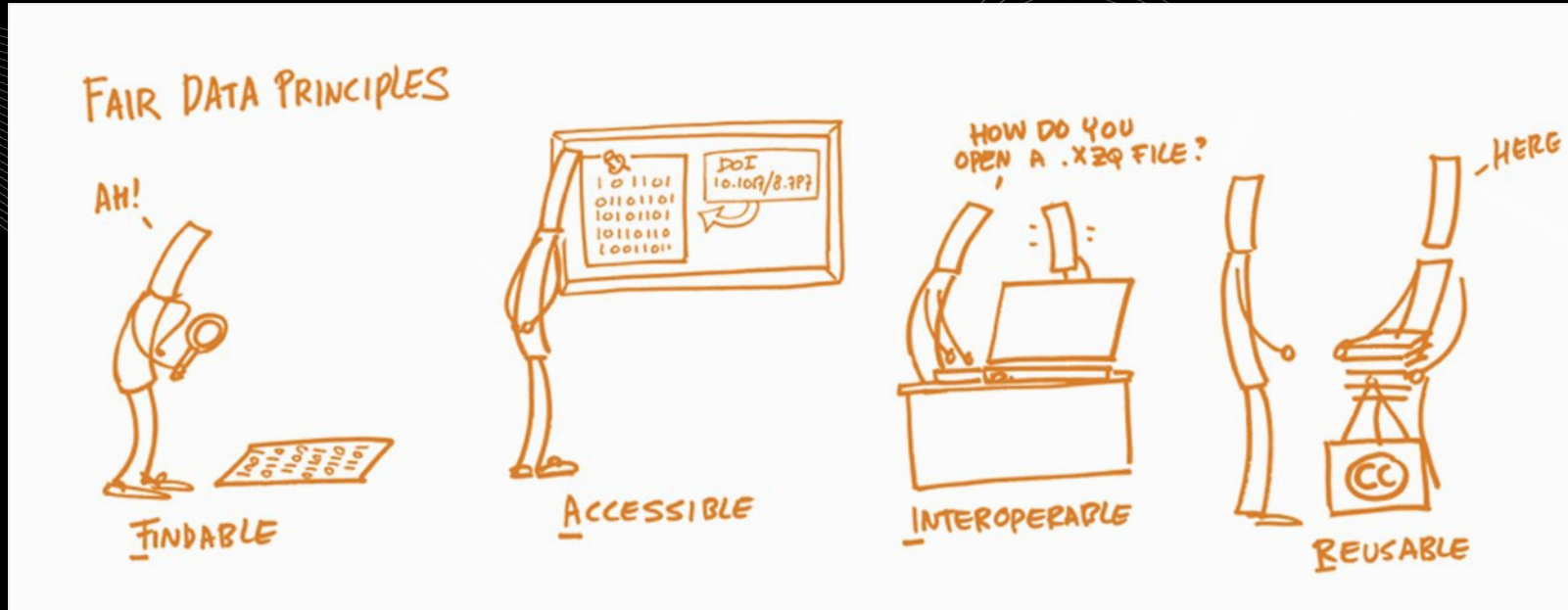
ICT SUPPORT FOR RESEARCH

RESEARCH LIFE CYCLE



ICT SUPPORT FOR RESEARCH - PREPARING

RDM



ICT SUPPORT FOR RESEARCH - PREPARING

RDM

- LISA Data Stewards
 - RDM bootcamp - RDM guidance for PhDs on setting up a DMP-plan
- RDM tools
 - The **UT DMP tool** helps to create a Data Management Plan (DMP).
 - The **UT DMP tool** helps to do the GDPR registration at the UT.
 - The **Ethics Review tool** helps to do the Ethical review at the UT.
 - The **Storage Decision tree** helps to select the appropriate storage & sharing solution.
 - The **Computing Decision tree** helps to select the appropriate computing solution.
- Data Stewards
 - RDM bootcamp – Review the DMP-plan



ICT SUPPORT FOR RESEARCH - PERFORMING STORING/SHARING/COLLABORATING ON RESEARCH DATA

UT policy on storing research data during a research project:

“All collected research data, including related materials (e.g. protocols, models or questionnaires), must be stored in the ISO 27001- and NEN 7510-certified facilities. Certified data facilities are offered by the UT-ICT services (LISA). If applicable, terms of use of data suppliers are leading.”

ICT SUPPORT FOR RESEARCH – PERFORMING STORING/SHARING/COLLABORATING ON RESEARCH DATA

Depending on the requirements for your research data, multiple solutions are possible for storing/sharing data and collaborating with your research partners.

The **Storage Decision tree** is created to help decided which data service is the best solution for a specific question.

The screenshot shows a web browser window titled "UNIVERSITY OF TWENTE - Selecting the best UT facility to manage (research) data". The page content includes:

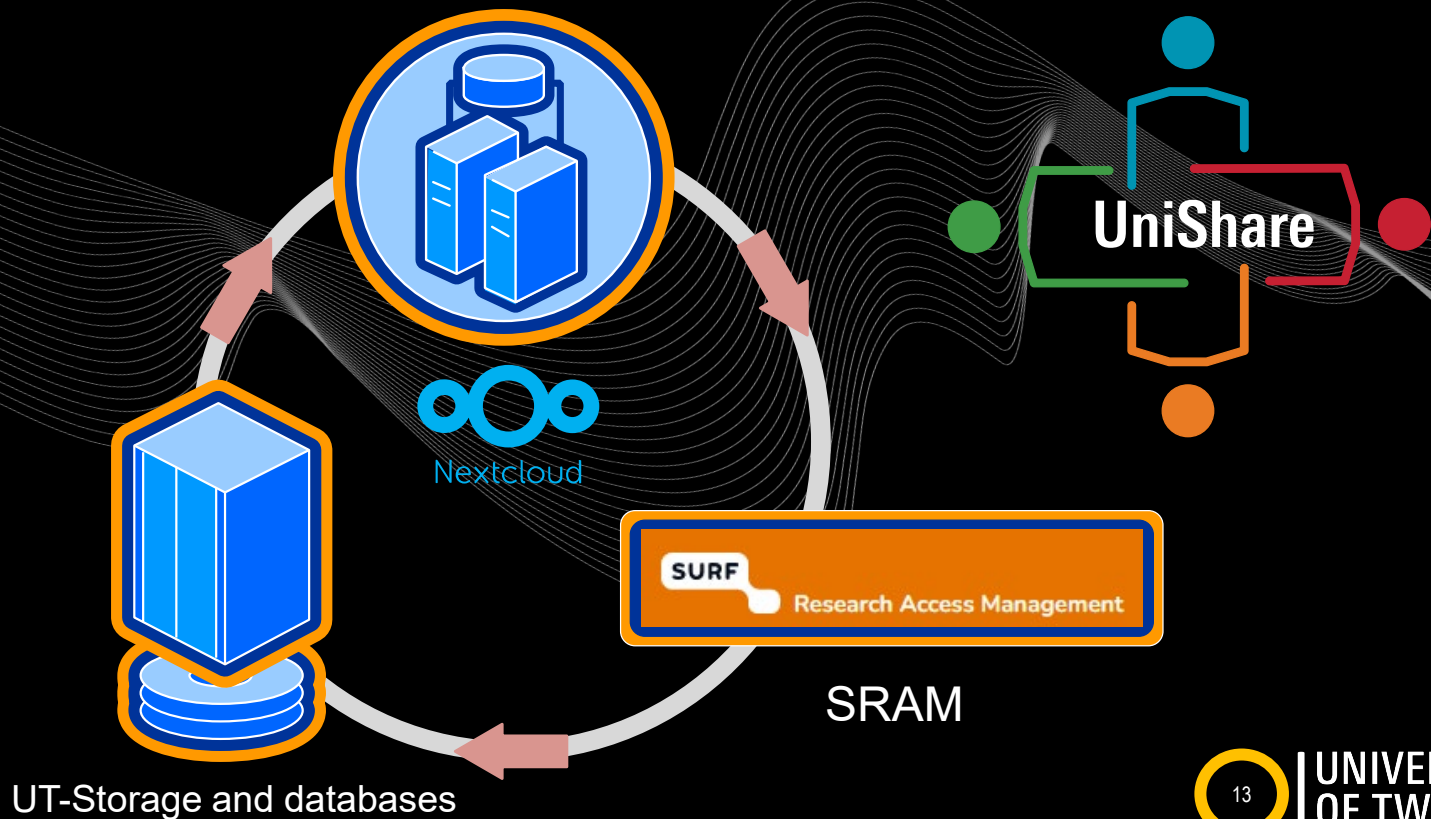
- Section: "Selecting the best UT facility to manage (research) data"
- Text: "The University of Twente offers a range of facilities for handling data, such as storing and/or sharing data. By answering the questions below you will be guided to the best available UT services' facilities."
- Text: "In case the combination of answers does not result in one of the cheapest facilities, please contact the [ICT service desk or data steward \(t.van\)@utwente.nl](#) they can help you to find a specific solution."
- Text: "In case of handling personal data, please consult the [Cyber security website](#)."
- A table with 10 columns: "Data volume", "Data type", "Data format", "Data location", "Data retention", "Data access", "Data sharing", "Data security", "Data compliance", and "Data cost".
- Text: "You can see downloaded logs"
- Form questions:
 1. Is your data related to research?
 - No
 - Yes
 - Other
 2. Which handling of your data is required?
 - Transfer
 - Store only
 - Store and Share
 - Other
 3. Preferred location of storage:
 - Data Center University of Twente
 - Data Center in The Netherlands
 - Data Center in EU
 - Data Center anywhere
 - Other
 4. Amount of (research) data to store, transfer or share:
 - < 1 GB
 - 1 TB - 10 TB
 - 10 TB - 100 TB
 - 100 TB - 1 PB
 - > 1 PB (multi-year)
 - Other
 5. What type of service is required?
 - Personal backup or sync
 - Group Network share
 - Personal Cloud
 - Project Cloud
 - Transfer Data Safety
 - Other
 6. Is a free of charge service required?
 - Yes
 - No
 - Other
 7. Is mobile device support or a client for synchronization of local data required?
 - No
 - Yes
 - Other

ICT SUPPORT FOR RESEARCH – PERFORMING STORING/SHARING/COLLABORATING ON RESEARCH DATA

- Intuitive interface (just like SURFdrive & Dropbox)
- **On-Premise storage** (UT-datacenters)
- Selfservice (groups management)
- Share with research groups (also **outside UT** organization)
- Multiplatform support (Windows/Linux/macOS/iOS/Android)
- Synchronization with Clients



ICT SUPPORT FOR RESEARCH – PERFORMING STORING/SHARING/COLLABORATING ON RESEARCH DATA



ICT SUPPORT FOR RESEARCH – PERFORMING COMPUTE

UNIVERSITY OF TWENTE. Selecting the best UT facility for compute on research data

Selecting the best UT facility to manage research data

The University of Twente offers a range of compute facilities for data analysis **during your research**. By answering the questions below you will be guided to the best suitable UT standard facility/ies.

In case the combination of answers does not result in one of the standard facilities, please contact the [ICT account manager or data steward in your faculty](#). They can help you to find a specific solution.

In case of handling personal data, please consult the [Cyber security website](#).

CHARACTERISTICS	JupyterLab	Docker	Virtual Research Environment (VRE)	Own Compute Hardware already present	Own Compute Hardware new	SURF NWO Grant	SURF RCCS Contract	Custom Cloud Solution (Azure/AWS)
Simplicity	++	0	+	+	+	--	--	-
Delivery Time	++	+	++	++	--	--	0	0
Performance	0	-	++	++	++	+++	+++	++
Scalability	--	0	++	-	+	+	+	++
Flexibility	-	0	++	-	-	0	0	++
Purchase Costs	No	Yes	No	No	Yes	No	Yes	No
Operating Costs	No	No	Yes	No	No	No	No	Yes
Manage Costs	No	Yes	No	Yes	Yes	No	No	Yes

Questions about requirements:

1. Is simplicity an important requirement?
 - Not important at all
 - Not really important
 - Yes/No
 - Important
 - Really important
 - Clear

Simplicity means how much time does it cost to learn to use it: the learning curve to use this compute facility
2. Is delivery time an important requirement?
 - Not important at all
 - Not really important
 - Yes/No
 - Important
 - Really important
 - Clear

Delivery time means the time it takes before the compute facility can start. For example: it takes a long time before a computer is bought, is installed and ready for use. A Cloud service is nearly ready for use.
3. Is performance an important requirement?
 - Not important at all
 - Not really important
 - Yes/No
 - Important
 - Really important
 - Most important (super power)
 - Clear
4. Is scalability an important requirement?
 - Not important at all
 - Not really important
 - Yes/No
 - Important
 - Really important
 - Clear

Scalability means that the usage of hardware can be changed if for example more performance or more storage is needed.
5. Is flexibility an important requirement?
 - Not important at all
 - Not really important
 - Yes/No
 - Important
 - Really important
 - Clear

Flexibility means that possibility to change software, pieces of hardware or tools you are using.

Questions about costs:

6. Are purchase costs allowed to be made?
 - Yes
 - No
 - Clear
7. Are consumption costs allowed to be made?
 - Yes
 - No
 - Clear
8. Are maintenance costs allowed to be made?
 - Yes
 - No
 - Clear

A solution is Jupyterlab ([direct link to jupyterlab](#)) [\[more information\]](#)

- Available for: UT students and employees
- Place: UT data center. Located at UT. ISO 27001/NEN 7510 certified.
- Plus: Simplicity, Delivery Time
- Minus: Scalability
- Costs: no purchase, consumption or maintenance costs

A solution is Docker [\[more information\]](#)

- Available for: Only employees have access to UT Group/Project drive
- Place: UT data center. Located at UT. ISO 27001/NEN 7510 certified.
- Plus: Delivery Time
- Minus: Performance
- Costs: Purchase and Maintenance

Virtual Research Environment

A solution is VRE ([direct link to vre](#)) [\[more information\]](#)

- Available for: employees and students
- Place: Microsoft Datacenter located in EU. ISO 27001/NEN 7510 certified.
- Plus: Delivery, Performance, Scalability, Flexibility
- Costs: Consumption

A solution is present Own computer Hardware

the hardware has been bought for a specific task/job

- Available for: employees and students
- Place: own place
- Plus: Delivery Time, Performance
- Minus: Scalability, Flexibility
- Costs: Maintenance

A solution is new Own computer Hardware

the hardware will be bought for a specific task/job. Contact the ICT Accountmanager or place an order in the SelfServiceportal.

- Available for: employees and students
- Place: own place
- Plus: Performance
- Minus: Scalability, Flexibility, Delivery Time
- Costs: Purchase, Maintenance

A solution is HPC (SURF NWO Grant)

A project proposal has to be made and must be granted by NWO.

[High computing capacity at SURFPara.nl](#). For large computer calculations you can [submit an application](#) (funding/grant) for SURFPara HPC-capacity to NWO.

- Available for: employees with Project proposal accepted by NWO
- Place: SURF datacenter Amsterdam, ISO 27001 certified.
- Plus: Best Performance (HPC) possible
- Minus: Flexibility, Delivery Time, Simplicity
- Knowledge about HPC (parallel computing, High Performance) is highly preferred.
- Costs: None (costs are paid by NWO grant)

() SURFPara is the Dutch national supercomputing organization that facilitates [high performance computing infrastructure](#).

aws

A solution is Custom Cloud Solution (Azure/AWS)

- Available for: employees with Project proposal accepted by NWO
- Place: Microsoft or Amazon Datacenter located in EU
- Plus: Performance, Scalability, Flexibility
- Minus: Delivery Time, Simplicity
- Costs: Consumption, Maintenance

Contact the ICT Account manager of your faculty for more information.

ICT SUPPORT FOR RESEARCH – PERFORMING COMPUTE

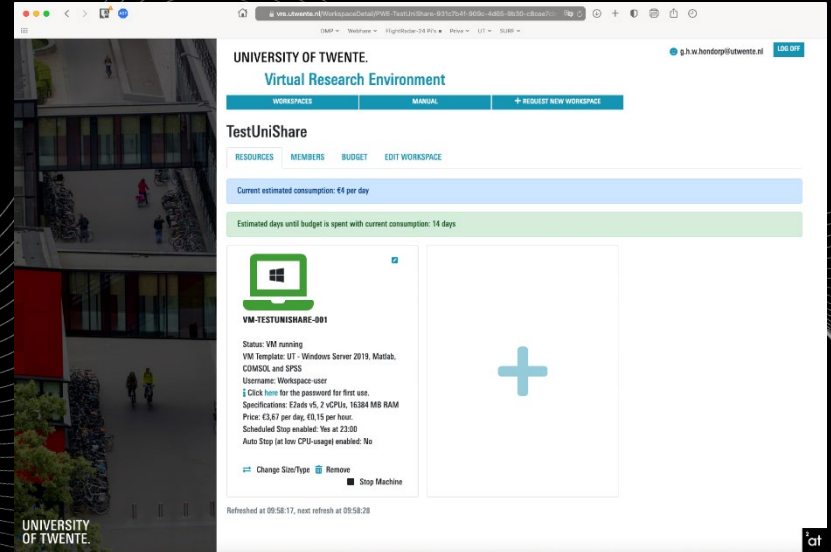
JupyterLab

The screenshot displays the JupyterLab environment with several open notebooks and data visualizations. The main notebook, titled "In Depth: Linear Regression", contains text and code. The code includes a function to load data from a CSV file and a plot of "Maximum Daily Temperature (C)" versus "Date" for Seattle Weather from 2013 to 2015. The plot shows a scatter of data points with a fitted curve. Below the plot is a bar chart showing the "Number of Records" for each month. Other notebooks visible include "Simple", "Julia", "python notebook", and "R". The "python notebook" shows code for solving the Lorenz system of differential equations. The "R" notebook shows code for plotting the Iris dataset. The interface includes a file browser on the left, a launcher in the center, and a console at the bottom.

ICT SUPPORT FOR RESEARCH – PERFORMING COMPUTE

Virtual Research Environment (VRE):

- Fast Access
- Easy to use
- Flexible and scalable
 - from light to very heavy computing
- Efficient
- Collaborate
- Different templates (Windows and Linux) VM's
- Researchers can customize the machines by installing their own software



The screenshot shows the University of Twente Virtual Research Environment (VRE) dashboard. The page title is "UNIVERSITY OF TWENTE. Virtual Research Environment". Below the title, there are tabs for "WORKSPACES" and "MANUAL", and a button for "REQUEST NEW WORKSPACE". The main content area is for a workspace named "TestUniShare". It has sub-tabs for "RESOURCES", "MEMBERS", "BUDGET", and "EDIT WORKSPACE". The "BUDGET" tab is active, showing "Current estimated consumption: €4 per day" and "Estimated days until budget is spent with current consumption: 14 days". Below this, there is a section for a virtual machine named "VM-TESTUNISHARE-001". The VM is currently running. Its specifications are: VM Template: UT - Windows Server 2019, Matlab, COMSOL, and SPSS; Username: Workspace user; Specifications: E2ads v5, 2 vCPUs, 16384 MB RAM; Price: €3.87 per day, €9.15 per hour; Scheduled Stop enabled: Yes at 23:00; Auto Stop (at low CPU-usage) enabled: No. There are buttons for "Change Size/Type", "Remove", and "Stop Machine". The page is refreshed at 09:58:17, next refresh at 09:58:28.

ICT SUPPORT FOR RESEARCH – PERFORMING COMPUTE

Virtual Research Environment

Introduction

UNIVERSITY
OF TWENTE.



UNIVERSITY
OF TWENTE.

ICT SUPPORT FOR RESEARCH – PERFORMING COMPUTE

- Buy your own compute server/cluster
 - Housing and maintenance in UT datacenter
 - Advice for setup/configuration
- High Performance Computing (HPC) at SURF-Sara



ICT SUPPORT FOR RESEARCH – PUBLISHING

PUBLISHING YOUR RESEARCH DATA

Making essential research data FAIR and publicly available (as open as possible) when a research project is finished at a public data repository:



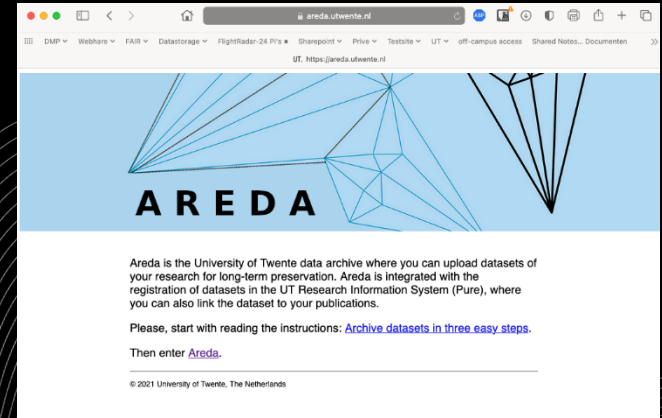
Register articles / publications / data sets in ris.utwente.nl (Pure)
Research Data Stewards offers guidance for researchers

ICT SUPPORT FOR RESEARCH – PRESERVING ARCHIVING YOUR PROJECT AND RESEARCH OUTPUT

Preserve essential research data when a research project is finished at AREDA (Archive REsearch DAta).

AREDA is a long-term UT archive (closed) for preserving FAIR research data.

Pure is used to add metadata & data documentation to the preserved research data.



RESEARCH SUPPORT WEBSITE:

For more information regarding research support visit:

<https://www.utwente.nl/en/lisa/researchsupport/>



A series of thin, white, wavy lines that flow across the page from left to right, creating a sense of movement and depth. The lines are closely spaced and follow a similar wave-like pattern, with some peaks and troughs.

END