

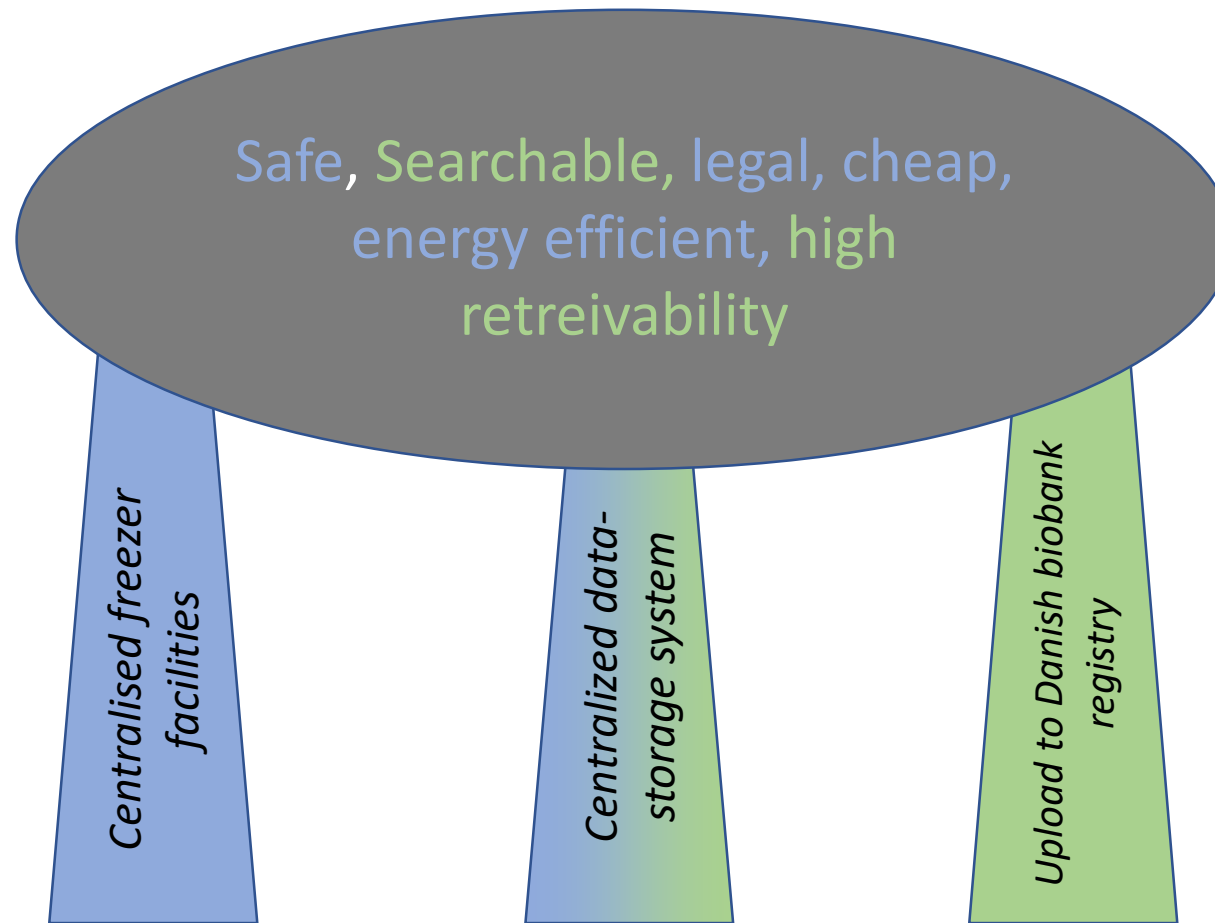
Data management and design in Biobank-merging

Jock Nielsen

BIOSEK, Danish Capital Region Central Biobank Storage

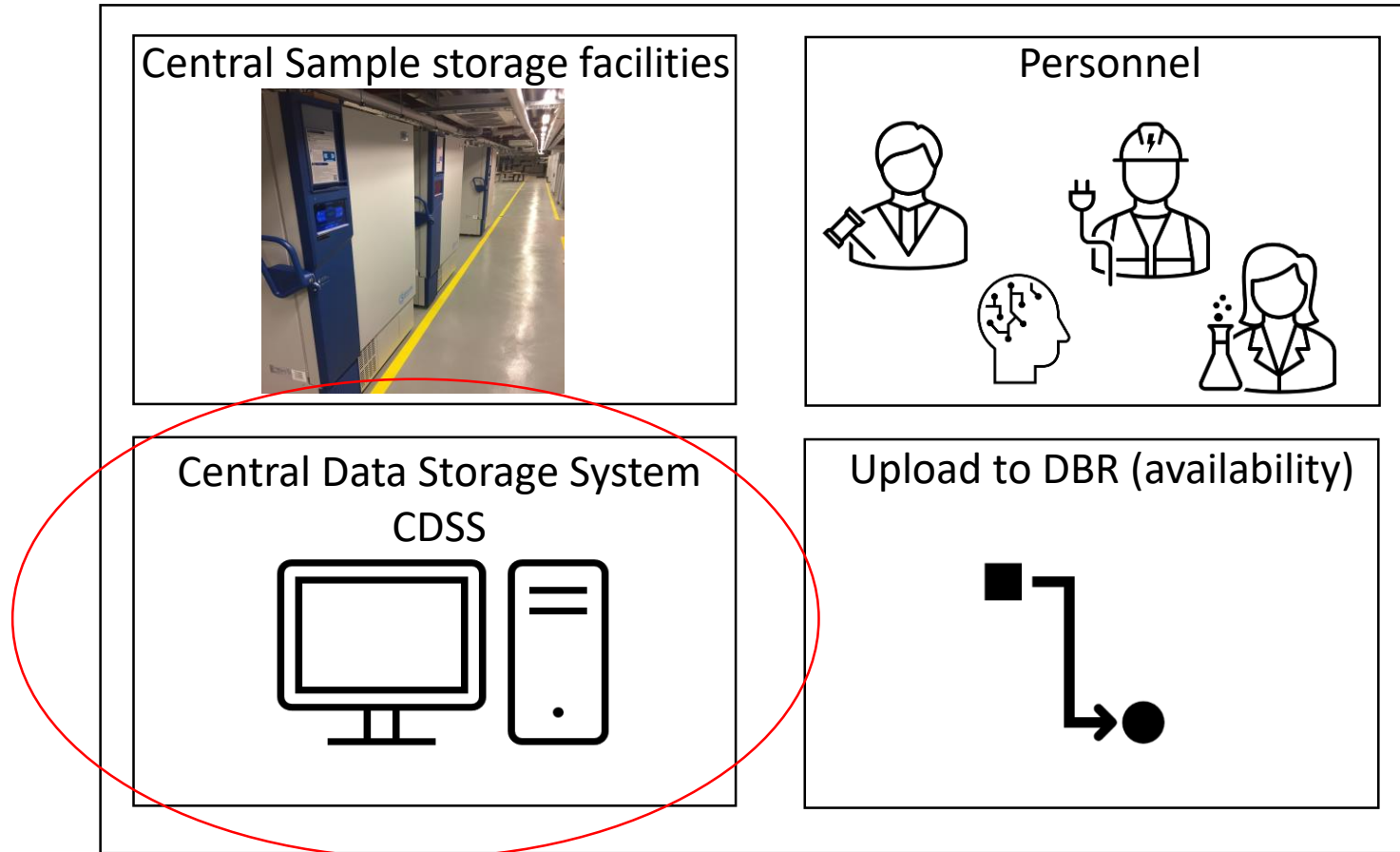
Nordic Biobank Conference 2022

Why centralized storage? (BIOSEK)

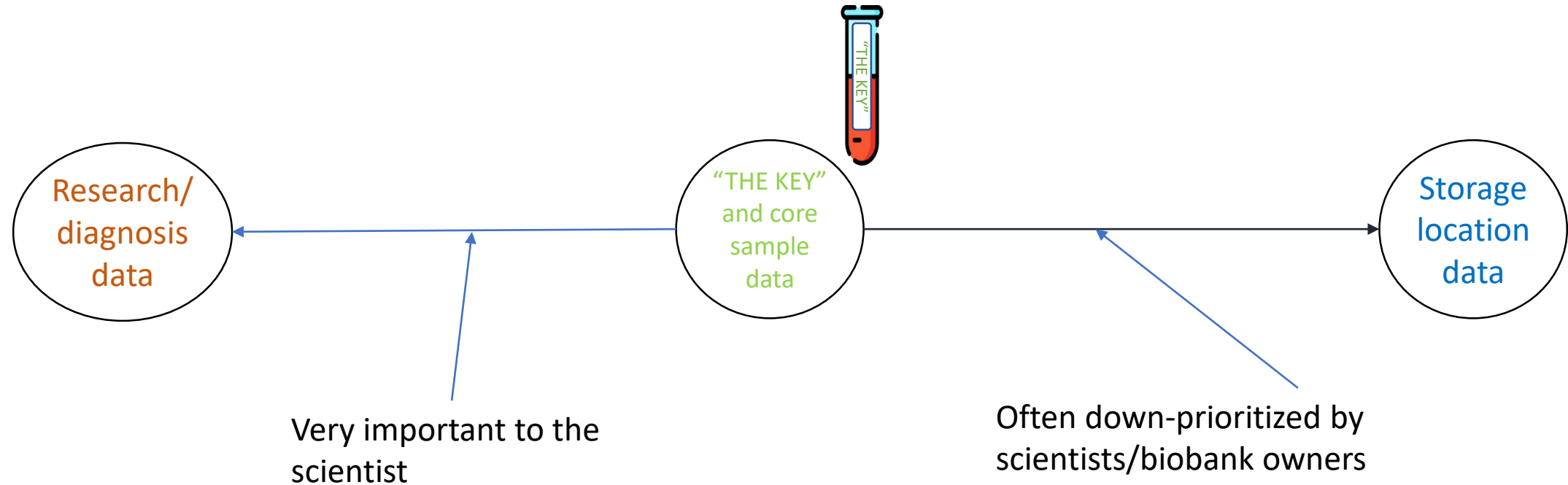


What is BIOSEK?

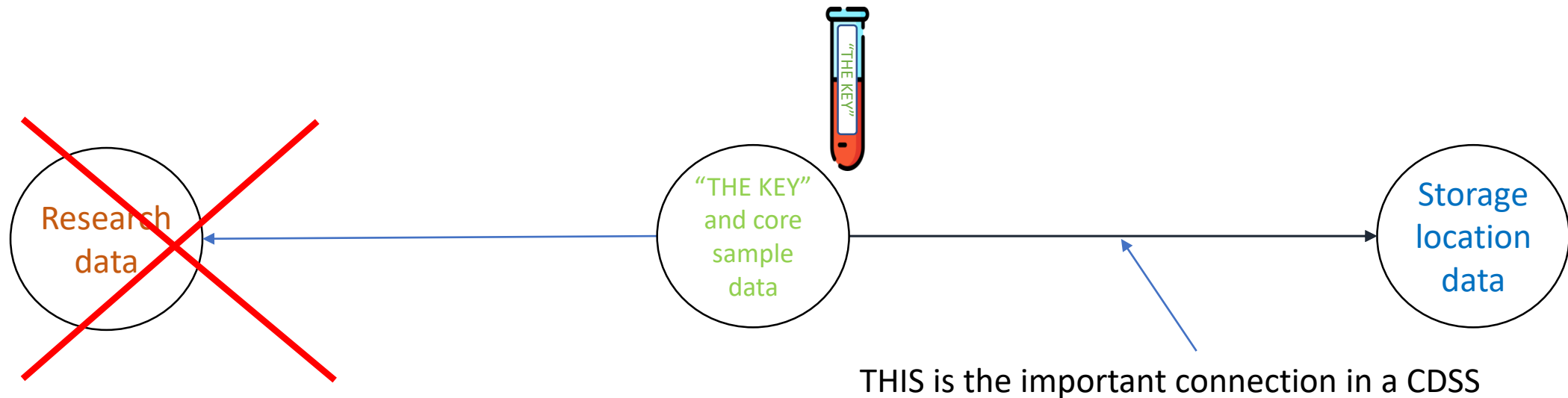
A free service to all biobanks in the Capital Region of Denmark comprising:



General types of data in a classic biobank



BIOSEK is NOT classic biobank, but a sample storage facility

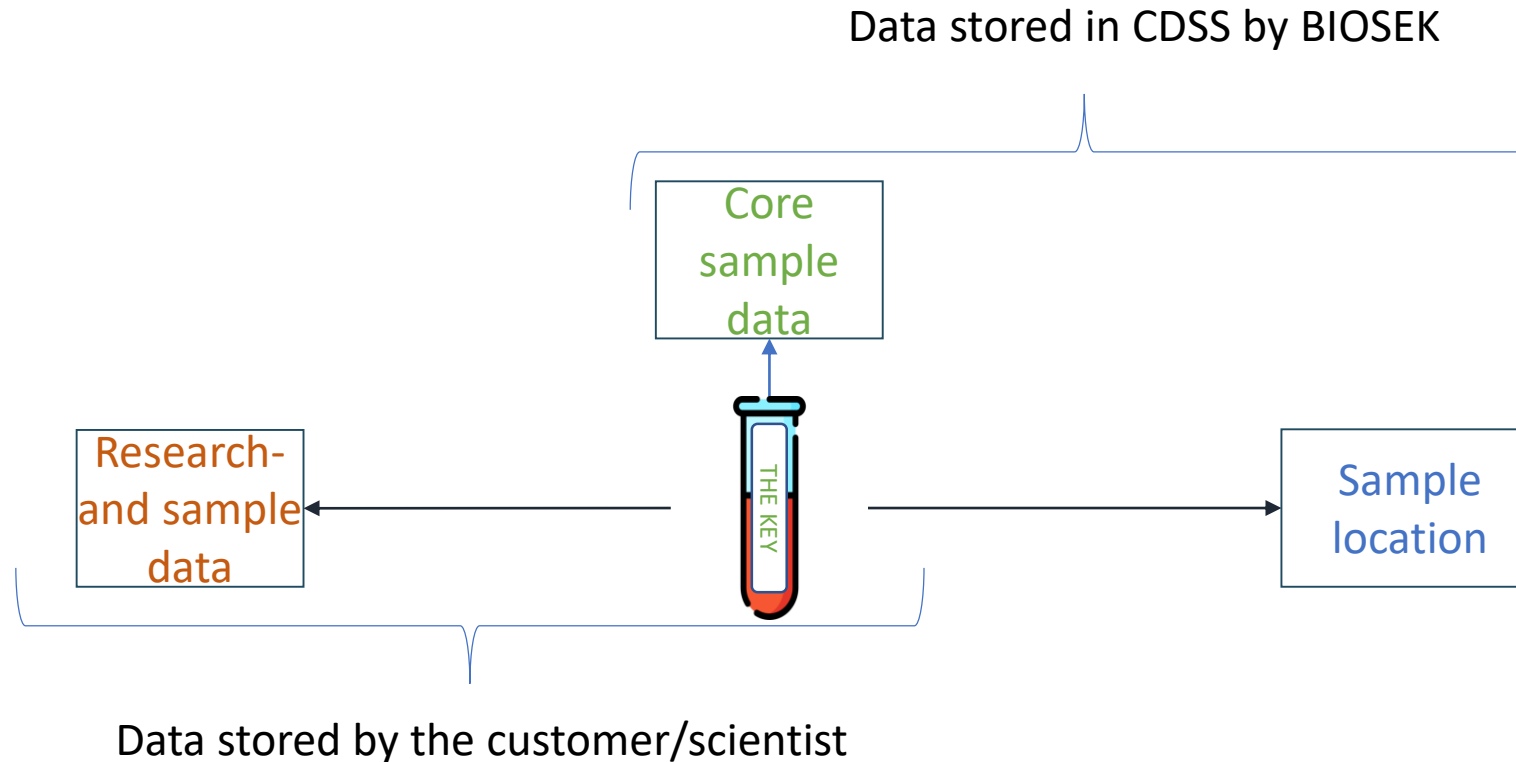


We don't store research data

We don't do data analysis

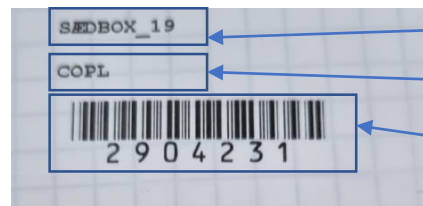
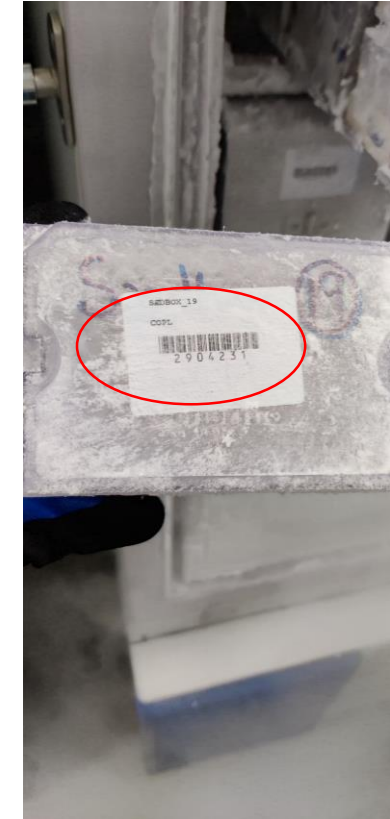
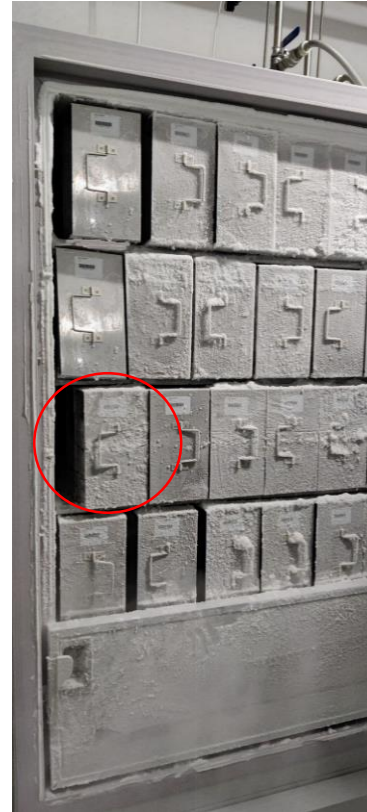
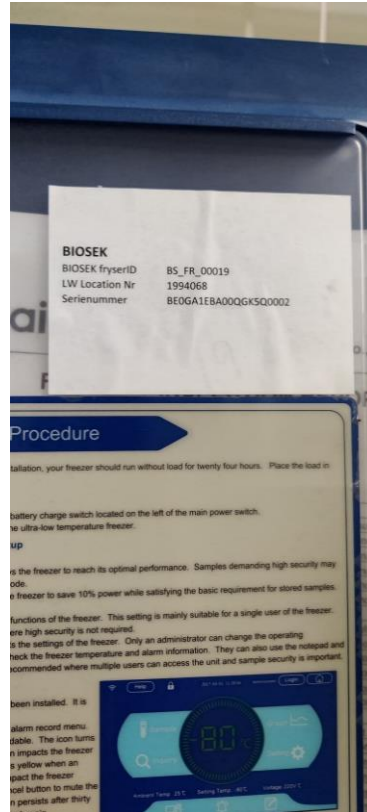
We don't publish

Who stores what data?



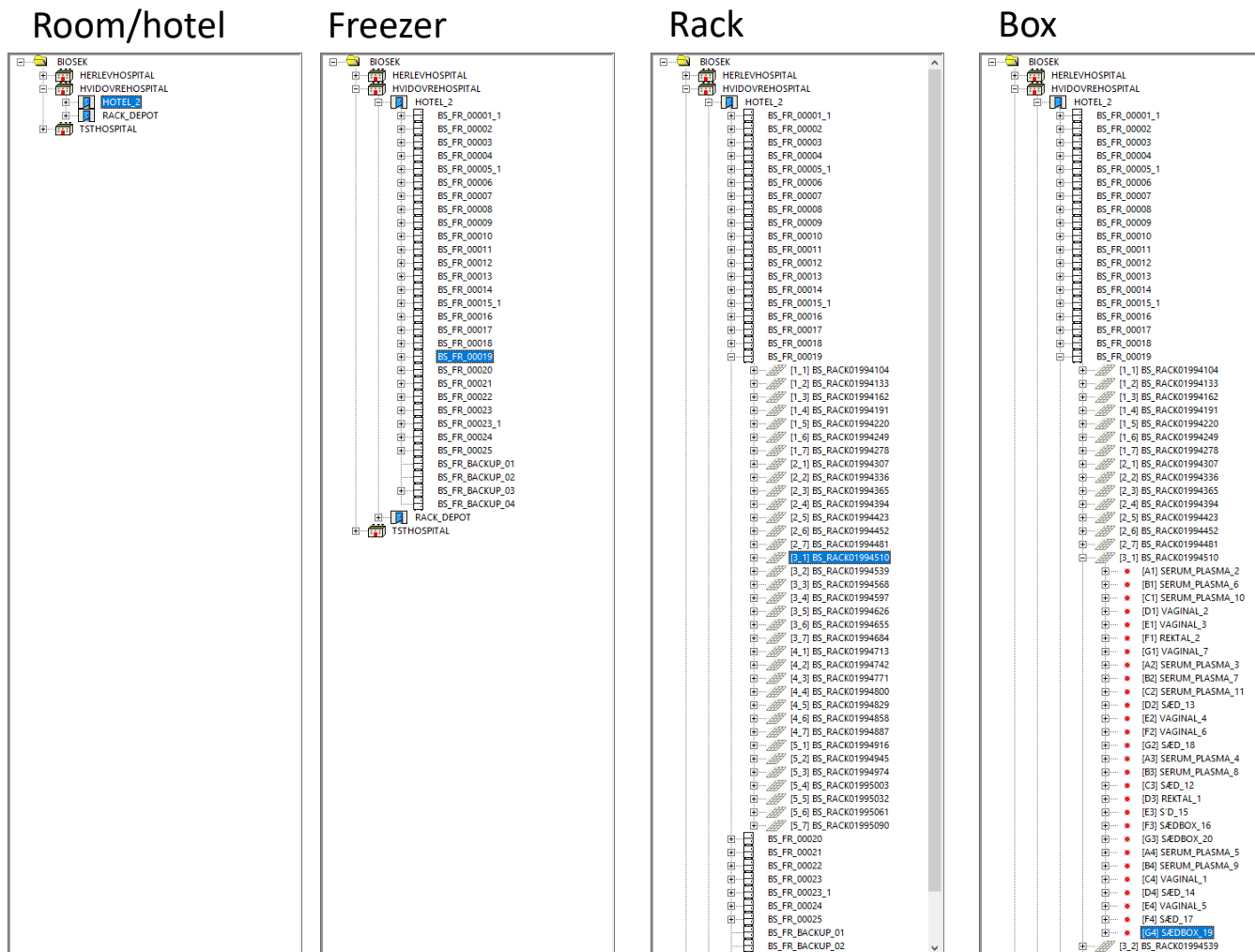
Everyone stores “THE KEY”!

A tour through a real BIOSEK freezer



- Customer box id
- Customer biobank/collection
- Unique CDSS box id

Nested structure of storage locations in CDSS



Example of a storage locations in a CDSS

1. Create **freezer**. In our CDSS This *automatically* creates all the underlying storage locations:
2. **Rack positions**. Non-movable "cells". Localized by position
3. **Racks**. A moveable storage location for **boxes**
4. **Box positions**. Non-moveable "cells" in a **rack**. Localized by position
5. **Boxes** are **not** created when **freezer** is built, but when BIOSEK receive data from customer
6. Later, when **boxes** are physically received, they are placed in the **rack** (scanning BOTH **box** and **rack** barcode)

Freezer (front view)

Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack
Rack	Rack	Rack	Rack	Rack

Rack (side view)

box position	box position				

Sequence of events in BIOSEK storage



Receiving material in BIOSEK

Data validation and registration occur **before** physical samples are received

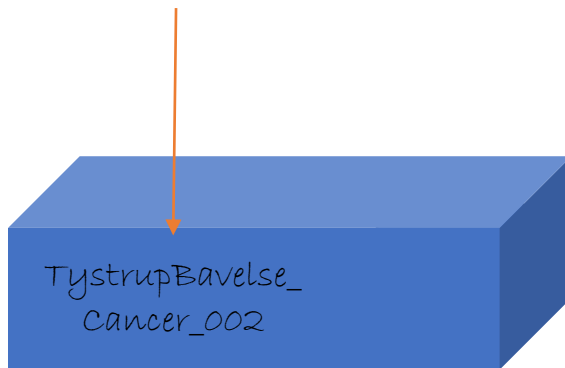
- Receive shipment file
 - Labelling and sample data (core data)
 - box information
 - Customer and biobank information
- Manual error checks
- Import into CDSS (includes electronical error checks)
- Virtual Samples and boxes in the shipment file are created in the CDSS
- Boxes are NOT assigned to a storage locations (placed in racks) at this point. They exist only in "The Void"

Unique box labelling			Unique sample labelling "THE KEY"				If structured box	Sample core data		
Customer	Biobank	Temp	OwnerBoxId	BoxType	OwnerSampleId	TubeType	LocationInBox	SamplingTime	Material	Patient
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_CPR_161	BS_BX_H100_9X9_S	12935	BS_RT_04	1	29-09-2021 16:00	PLASMA	YYMMDD-0001
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_CPR_161	BS_BX_H100_9X9_S	12936	BS_RT_04	2	29-09-2021 16:00	PLASMA	YYMMDD-3445
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_CPR_161	BS_BX_H100_9X9_S	12937	BS_RT_04	3	29-09-2021 19:00	PLASMA	YYMMDD-3545
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_CPR_161	BS_BX_H100_9X9_S	12938	BS_RT_04	4	29-09-2021 19:30	PLASMA	YYMMDD-9495
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_ID_161_A	BS_BX_H50_9X9_S	12935_A	BS_RT_02	1	29-09-2021 16:00	PLASMA	YYMMDD-5334
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_ID_161_A	BS_BX_H50_9X9_S	12936_A	BS_RT_02	2	29-09-2021 16:00	PLASMA	YYMMDD-7235
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_ID_161_A	BS_BX_H50_9X9_S	12937_A	BS_RT_02	3	29-09-2021 19:00	PLASMA	YYMMDD-8245
Ove Andersen, forskningschef og afdelingsledelse	SUPAR_COVID19	-80	suPAR_COVID19_ID_161_A	BS_BX_H50_9X9_S	12938_A	BS_RT_02	4	29-09-2021 19:30	PLASMA	YYMMDD-6223
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****


Receiving the physical boxes/samples in BIOSEK

- Print labels with BOTH the customer box-id's AND unique box ID
- Stick the labels on the boxes.
 - **Customer box id** on the labels = **customer box id** on the box
- Scan the boxes (the CDSS unique code) into box positions in racks in freezers

Customer box ID on box



Rack (side view)

					
box position	box position				

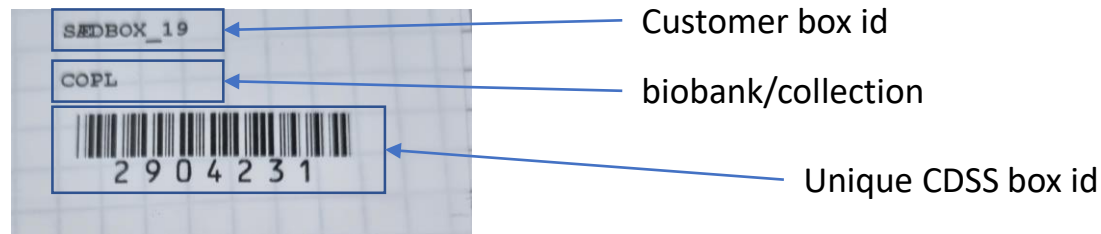
- scanning serves as a receipt: if the box is placed in a rack it has been received



Customer box ID on BIOSEK label

Labelling rules for developers/administrators

- Box, freezer and rack labels must include systemwide unique ID (CDSS)
- Box labels must include customer ID and collection/biobank name
- All labels must be human readable
- Box and rack labels must also be in barcode format



Labelling rules for customers

- Labels for boxes and samples must contain unique ID*
- Never include location information in box- or sample label
- Several tubes should NOT be regarded as one sample, even if they are from the same material

*) Unique in the scope of the customers biobank/collection

Thank you for your attention

BIOSEK, Biobank merging

Steffen.jock.nielsen@regionh.dk