

Three years experience with ARGOS in a private institute of pathology

Humanpathologie Dr. Weiß MVZ GmbH
PD Dr. Frederick Pfister, PhD



Humanpathologie Dr. Weiß MVZ GmbH



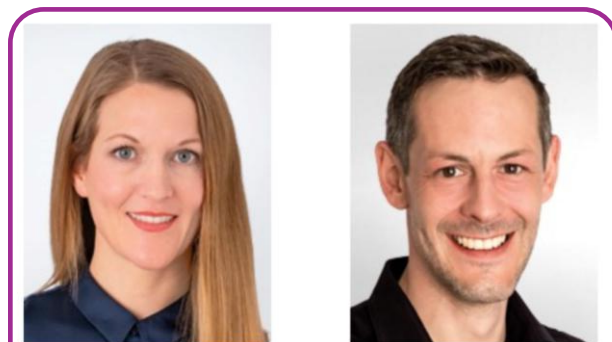
- Private institute of pathology in the south of germany (bavaria, near nuremberg)
- 1991: Foundation of the institute by Dr. Giedl und Dr. Bacman
- 2004-2027: Dr. Manfred Weiß
- 2027: Humanpathologie Dres. Pfister MVZ GmbH



Dr. Bacman



Dr. Weiß



Dres. Eva und Frederick Pfister

Humanpathologie
Dres. Pfister MVZ GmbH

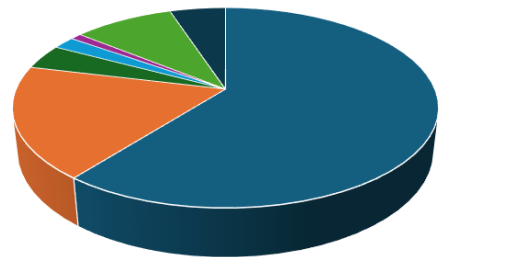
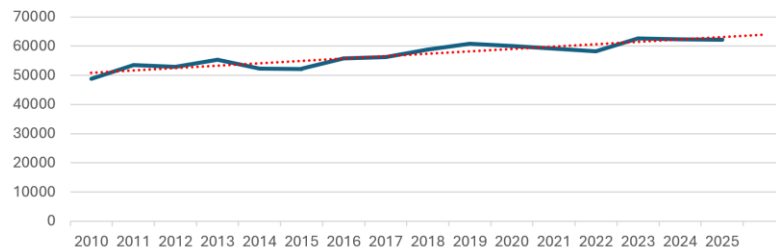
The institute in numbers

- Service provider for approx. 280 referring physicians and institutions (including 3 hospitals) in the Nuremberg–Fürth–Erlangen–Würzburg region

63.000/year	cases	260/day
140.000/year	Paraffin blocks	600/day
290.000/year	Histo-stained slides	1200/day
25.000/year	IHC	100/day

Approx. **320.000 stained slides/year** = **1300 slides/day**

Cases per year



■ GI tract ■ Head/Oral surgery ■ derma ■ gyn ■ uro ■ surgery ■ ortho



Dr. med. Manfred Weiß
Geschäftsführung, Gesellschafter
Pathologie



Sabine Weiß
Geschäftsführung



PD Dr. med. habil. Frederick
Pfister MD-PhD
Geschäftsführung, ärztlicher
Leiter, Pathologie



Dr. Eva Pfister MD-PhD
Geschäftsführung, Pathologin



Dr. Iris Polifka
Pathologin



Nerantzoula Petrakopoulou
Pathologin



Dr. Philipp Eichhorn
Pathologin



Melissa Sever
MFA, Laborleitung



Karolin Altmann
MTA Labor, stellv. Laborleitung



Nadine Mendel
MTA Labor



Kerstin Stein
MTA Labor



Denise Städtler
MFA, Leitung Verwaltung



Magdalene Reichelt
MFA Verwaltung



Isabella Geier
MFA Verwaltung



Katrin Schürlein
MTA



Guido Wollborn
MTA Labor und B.Sc. Biologie



Christoph Tremml
BTA Labor



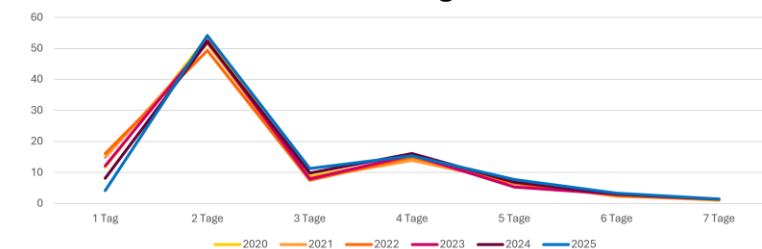
Victoria Schwab
Labor

Employees

3 pathologists
3 administration
8 laboratory

14
in
total

Time for diagnosis



Technical development/equipment

1. RECEPTION
AND ACCESSIONING

→ 2. GROSSING

→ 3. TISSUE PROCESSING
AND EMBEDDING
(SAKURA Smart Connect:
Xpress x120 + AutoTEC a120)

→ 4. MICROTOMY
AND SLIDE PREPARATION

→ 5. STAINING AND COVERSLIPPING
(SAKURA PrismaPlus & Film)
+ Immunohistochemistry (SAKURA GENIE))

→ 6. SCANNING AND ARCHIVING
(ARGOS 6X)

→ 7. DIGITAL DIAGNOSIS
AND REPORTING



2007: **NEXUS** as LIS

2010-2023: integration **SAKURA-devices** +IHC by SAKURA

2020: **DRAGON**-speech recognition

2024: **ARGOS**-scanner + viewer



Sample Receipt
and Barcode
Generation



Grossing with use
of Tissue-Tek
Paraform
cassettes

Automated tissue processing and embedding



still by hand



Automated
staining

Automated
Scanning and
archiving
24/7

-Digital slide viewer
(LIS-integrated)

-Diagnosis and
reporting

-Export
(LIS/LDT/KIM/Fax/
post)

nexus/lab



ARGOS
SLIDE SCANNER SYSTEMS

Technical development/equipment

Continuous workflow with Tissue-Tek SmartConnect

Overnight processing (~ 40%)



VIP6AI

~ 240 cassettes overnight
(~ 40%)

Continuous processing and embedding during the day (~ 60%) (SAKURA Tissue-Tek SmartConnect)



Tissue-Tek Xpress x120
(rapid tissue processor)

Tissue-Tek SmartConnect
(automated transfer)

Tissue-Tek AutoTEC a120
(paraffin embedding)

Key advantages of the continuous workflow



Rapid processing of small specimens

The Xpress x120 enables fast turnaround of small biopsies.



Automated embedding

The AutoTEC a120 produces paraffin blocks with >95% automation. Manual embedding is rarely required.



Lower personnel demand

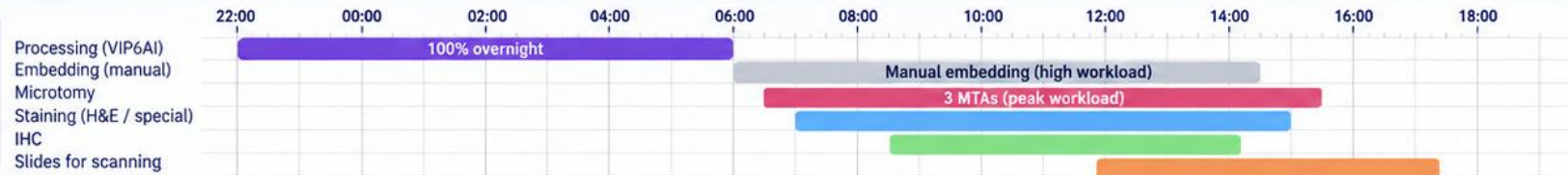
One MTA for manual embedding can be saved. Only 2 (instead of 3) MTAs are required for microtomy due to a more even distribution of blocks throughout the day.



Faster turnaround time

In the best case, blocks and slides can be available within approximately 3.5 hours (TAT ~ 3.5 h) for small biopsies.

Conventional workflow (overnight processing)



Workload in large blocks

- High peak in the morning
- Manual embedding required
- 3 MTAs needed for microtomy
- Higher operational stress
- TAT typically 14 – 26 hours

Continuous workflow (overnight + daytime)

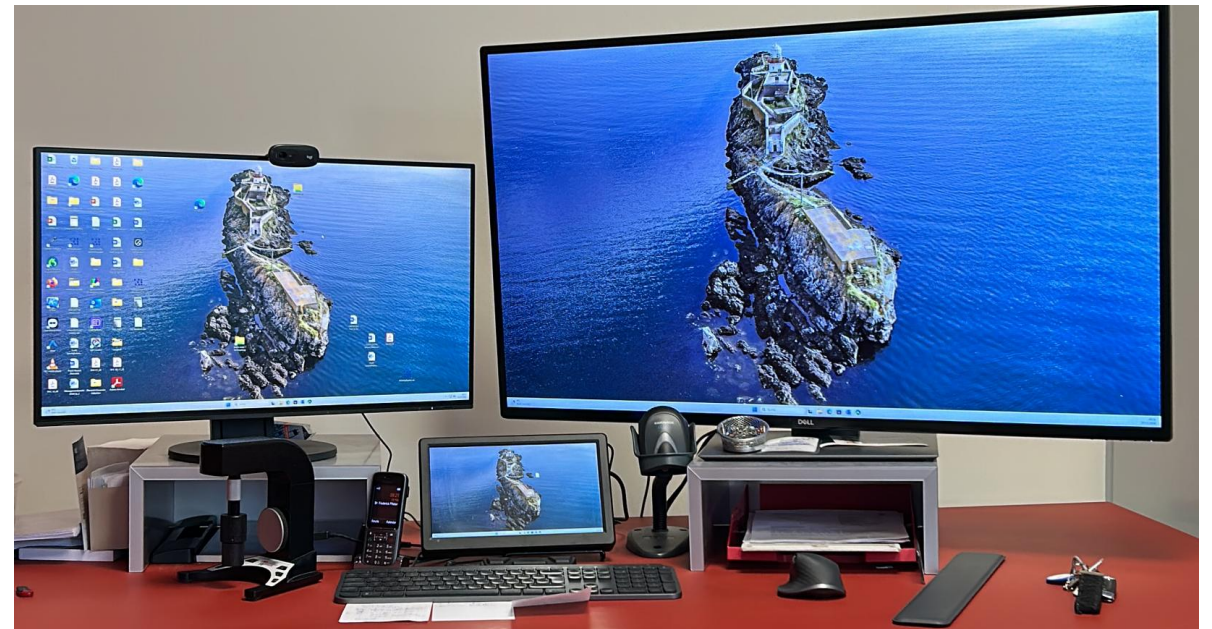


Continuous and balanced workload

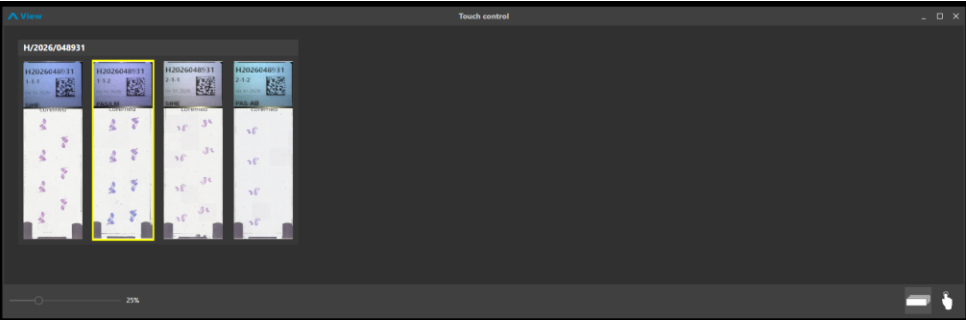
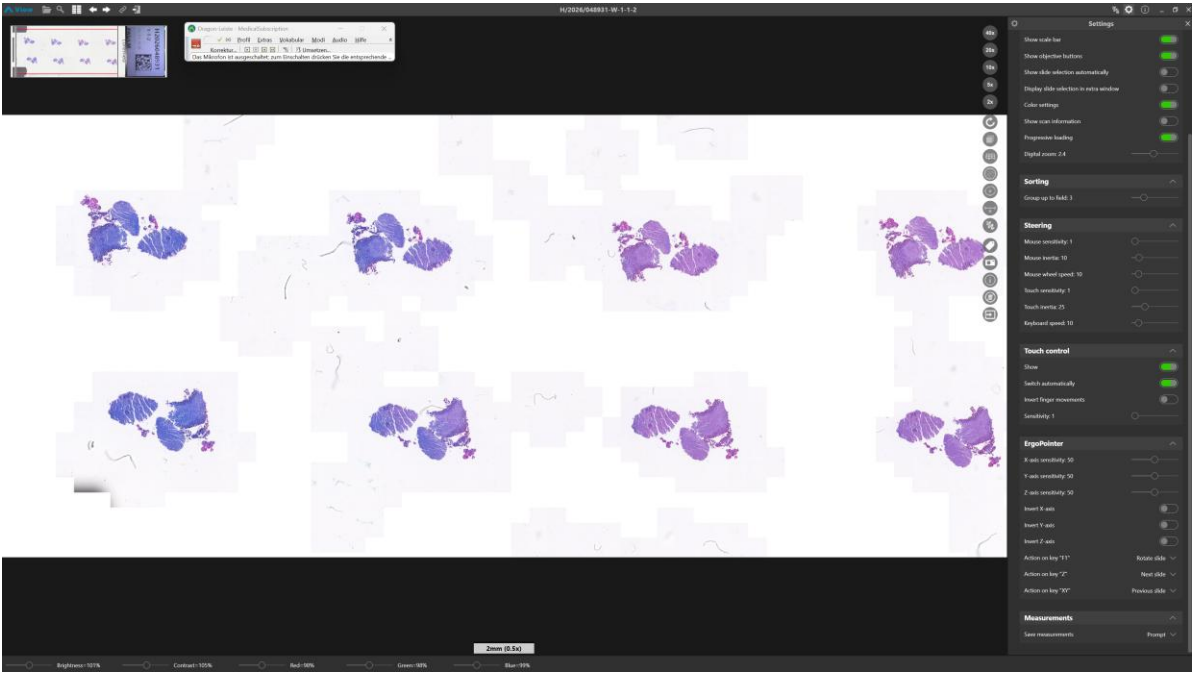
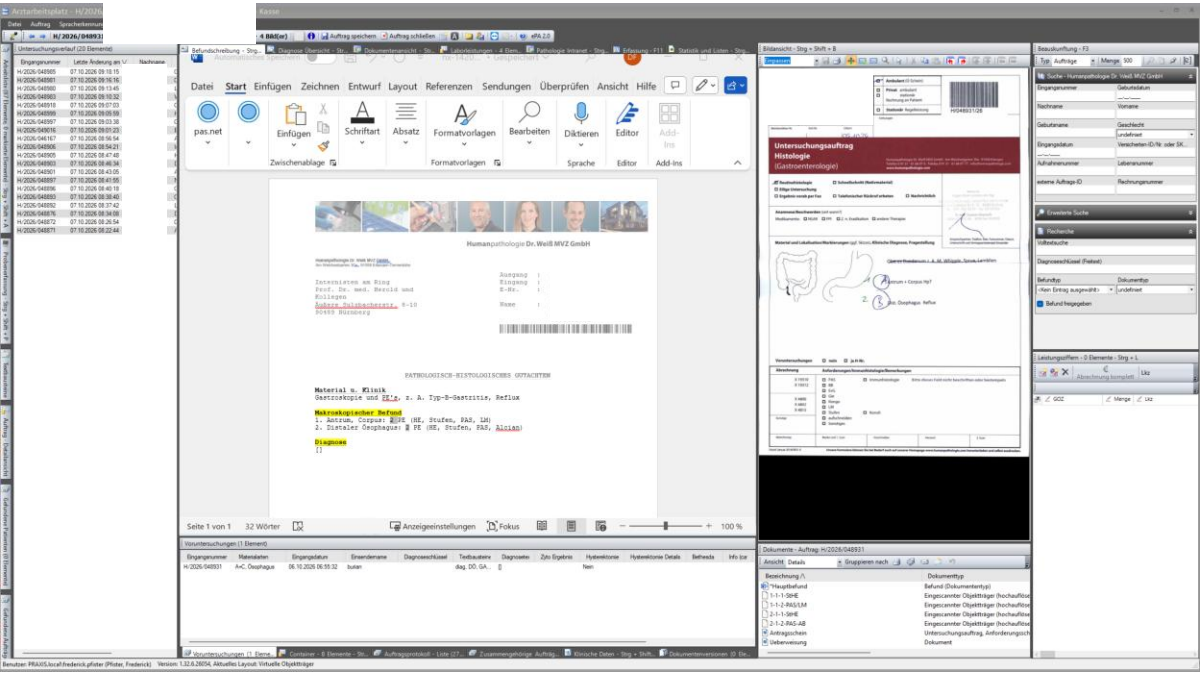
- Overnight + continuous processing
- Automated embedding (>95%)
- Only 2 MTAs needed for microtomy
- More even distribution of workload
- Continuous production of slides for the scanner
- Best-case TAT ~ 3.5 hours

Scanning and digital diagnostic

- 01/24 delivery and set up of ARGOS
- 04/24 first routine cases by digital pathology
- 10/24 approx. 98% digital diagnostic



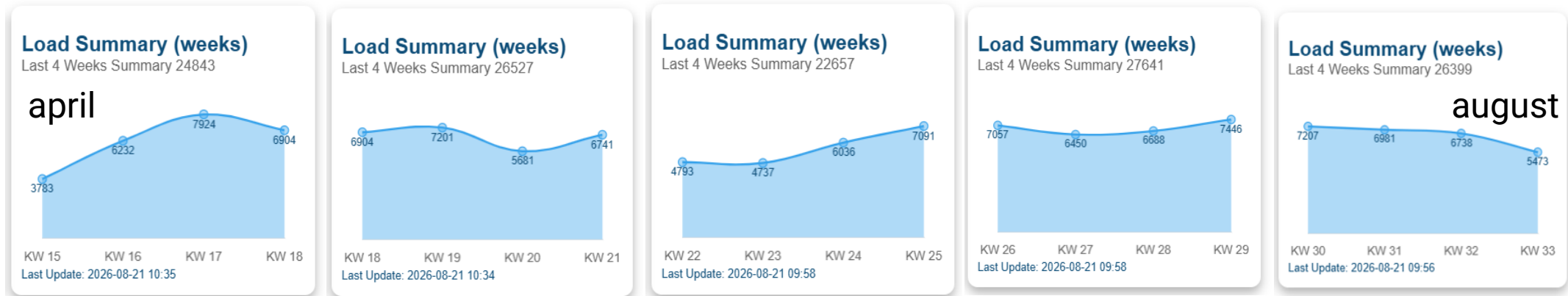
Scanning and digital diagnostic



Scanning and digital diagnostic

63.000/year	cases	260/day
140.000/year	Paraffin blocks	600/day
290.000/year	Histo-stained slides	1200/day
25.000/year	IHC	100/day

➔ Lab output:
320.000 stained slides/year
= 1300 slides/day
= 6500/week



- average 6,500 scans per week
- peak in calendar week 17 with almost 8,000 slides in 1 week

Scanning and digital diagnostic

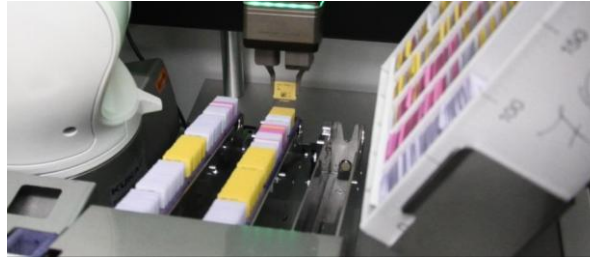
1300 slides/day

→ Scanner:

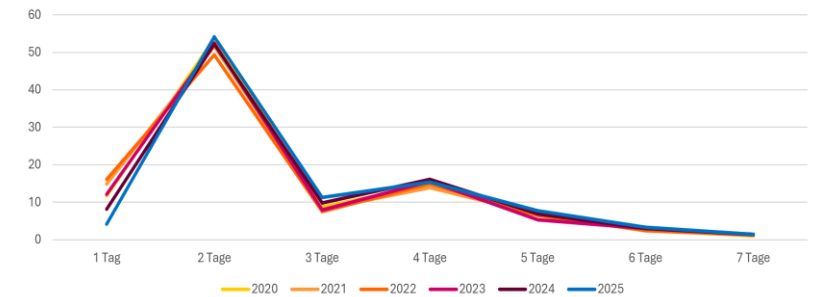
- 420 slides/run
- appr. 3,5 h/run)
- 1300 slides
- = 3,1 runs/day = **10,5h**

→ Archive:

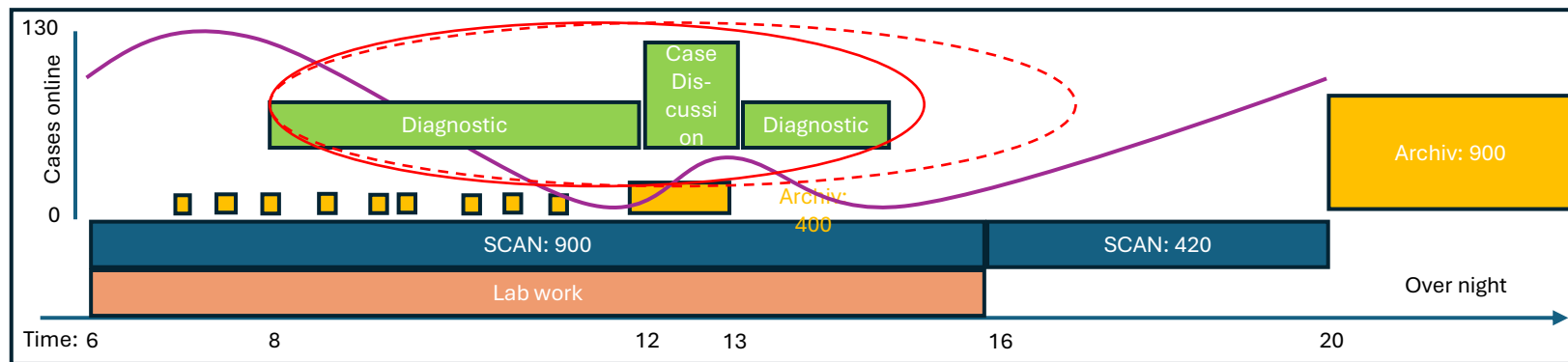
- 900 slides/box
- 4h/box
- 1300 slides
- = 1,5 boxes/day = **6h**



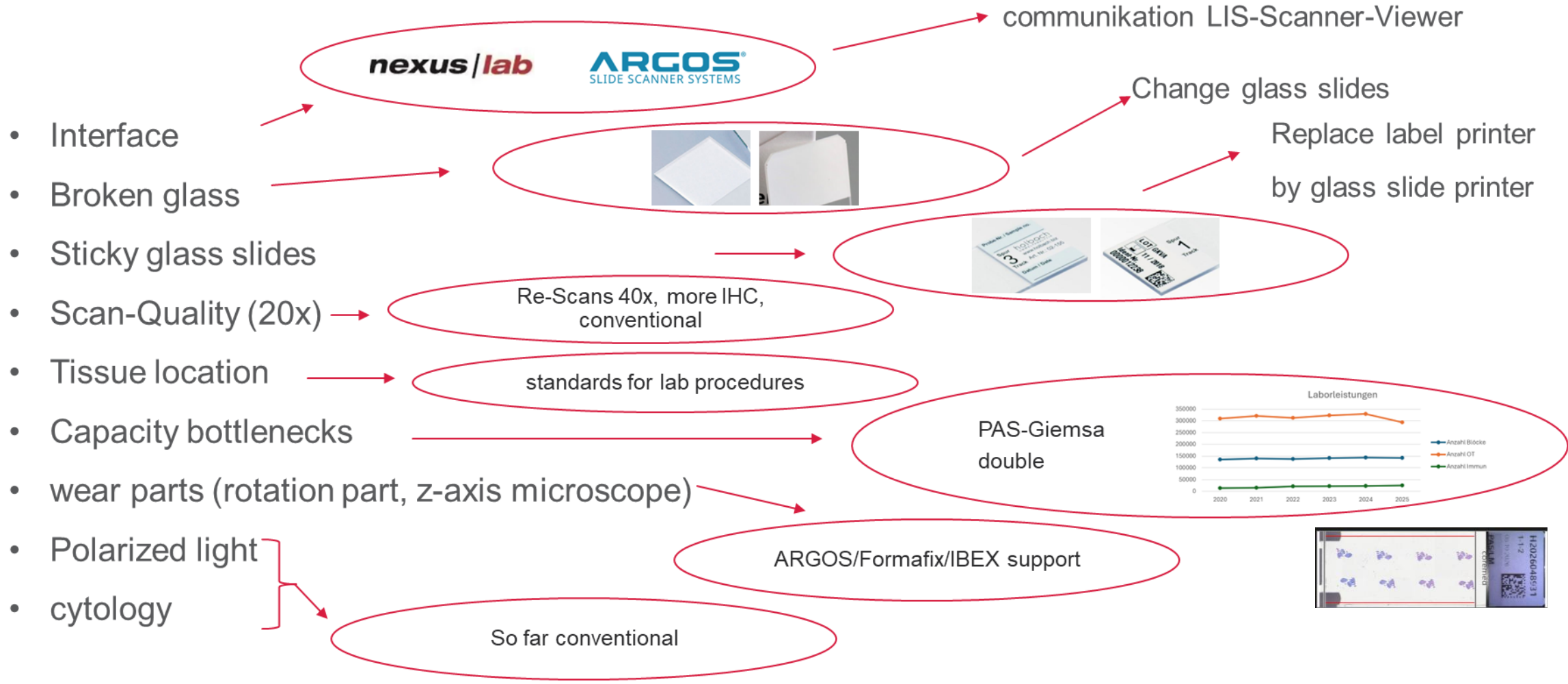
Case-reporting time



!Scanner-time has to be added to lab turn-around-time

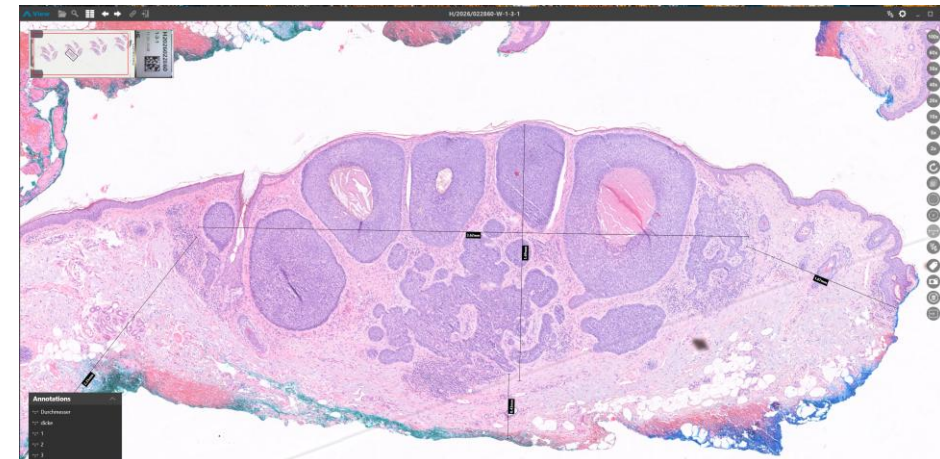


Problems we had...



Advantages we see...

- -0,5-1 MTA (sorting, distribution and archiving of cases, rescans)
- Pleasant workplace (including viewer, ergodriver, chair,...)
- Flexible working time and location independency
- More efficient work for pathologists
(daily working time ~ -1-1.5 hrs)
- Higher diagnostic confidence (better overview)
- Faster and more accurate measurements
- Option to use AI tools
- Quick review/comparison with cases/previous findings possible
- Easy file sharing with colleagues



The Future of Pathology – Integrated, Automated, AI-Enabled

From specimen to diagnosis – seamless workflow, connected data, intelligent support.



Reception & Accessioning (LIS)



Tissue Processing (SAKURA SmartConnect)



Automated Sectioning (Dainippon Seiki AS-410M)



Staining (H&E, IHC, Special)



Scanning & Archiving (ARGOS 6X)

Digital data as the foundation for AI in pathology



- Whole slide images (WSI)
- Stains & multiplex IHC
- Metadata (clinical data, case history)
- Structured reports
- All data in the LIS – ready for AI



AI-assisted LIS (e.g. Elea, Aiforia, custom)

- Case triage and prioritization
- Auto-suggested ICD/LOINC codes
- Smart search (similar cases)
- Structured report templates
- Quality checks



Digital Slide Viewer (connected to LIS and AI)

- All slides, stains and prior cases
- Integrated AI results
- Side-by-side comparison
- Multidisciplinary sharing



AI for Quantification (e.g. Ibex, Aiforia, Paige, others)

- Ki-67, HER2, PD-L1, ER/PR
- Tissue biomarkers and spatial analysis
- Fast, reproducible, standardized
- Report-ready results



AI for Diagnostic Support (e.g. Aiforia, Paige, Proscia, PathAI)

- Differential diagnosis suggestions
- Highlighting of relevant regions
- Findings and literature references
- Draft report text (editable)

AI Applications in Pathology



Oncology

- Prostate (Ibex Prostate)
- Breast (Ibex Breast, Paige)
- Gastric (Ibex Gastric)
- Other tumor entities



Biomarker Quantification

- Ki-67, HER2, PD-L1, ER/PR
- TMB, MSI (H&E-based)
- Spatial phenotyping



Diagnostic Support

- Differential diagnosis
- Relevant regions (heatmaps)
- Similar cases from database
- Evidence-based references



Report Generation

- Structured, editable draft reports
- Auto-text modules
- ICD/OPS/LOINC suggestions
- Consistency and completeness check



Knowledge & Research

- Search across your own cases
- Literature integration
- Continuous learning from new data



Patient data (from HIS / Practice software)



LIS (case management)



AI Analysis (cloud or on-premise)



Structured Report (PDF + data)



Electronic Delivery (to referring physician)



Would we recommend the Argos scanner to another laboratory—and the reasons behind his recommendation

Yes!

For our institute the ARGOS scanner is an optimal solution:

- integrates perfectly into our continuous workflow and it works overnight
- combines scanning and archiving
- makes sorting, distribution and manual handling of glass slides unnecessary
- scan quality and capacity is sufficient
- ARGOS viewer is easy to use, trouble-free and well equipped with features
- ARGOS archiving system is simple and feasible for our demands
- Great support by ARGOS/Formafix