

The Road Ahead: Zooming in on Digital Pathology

CHAPTER EIGHT
“Pathology Is the Fundamental
Branch of Medicine”

“Pathology is the fundamental branch of medicine.”
—Sir William Osler, M.D., LL.D., F.R.C.P.
Formerly Professor of Clinical Pathology at the University of
Toronto and Physician-in-Chief of the Royal Victoria Hospital.

THEODORE H. KALIKOW, M.D.



The Road Ahead: Zooming in on Digital Pathology

BY

John C. Hwang
President, PathAI



We're at the start of a



C. 11/17/18 11:23 AM

"*Pathology is the fundamental
branch of Medicine*"

When I first started working with PathAI, I was a bit skeptical. We had just started our company, and we had no revenue, no product, and no team. We were just a group of people who had a passion for pathology and a desire to make a difference. But as we began to work on our project, I realized that we had something special.

PathAI has come a long way since then.

CHAPTER EIGHT

*"Pathology Is the Fundamental
Branch of Medicine,"*

When one of the Scientific Directors in 1933 suggested a physiologist as successor to William H. Welch on the Board, Flexner replied, "Pathology is far more important for us than physiology and pharmacology, and the background of medicine than general science. Our pathologists are all moving on; pathology is the fundamental branch of medicine." Time was to challenge this judgment—

Flexner to Francis G. Blake, Nov. 15, 1933

waarom digitale pathologie?

qualität



ostenbesparung

- Implementation of TMA and digital routine diagnostics of breast pathology
- Prof. Dr. Volker Lier in tumors
- Universitätszentrums Augsburg Demokratie
- Doctor's consult
- Archiving

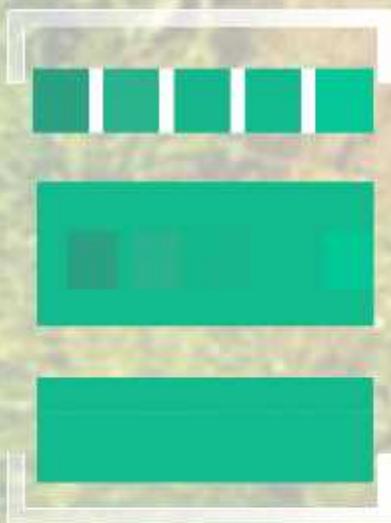
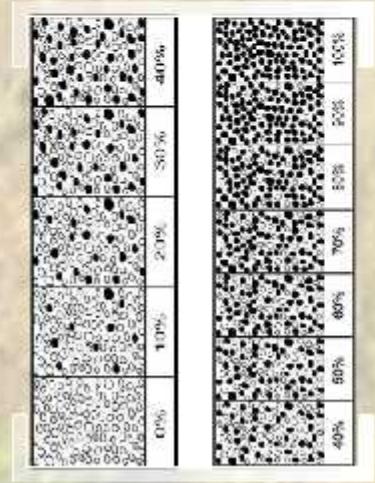
schnell

- Digital communication
- 24/7 availability
- Quick and efficient
- Direct download
- Simple, fast

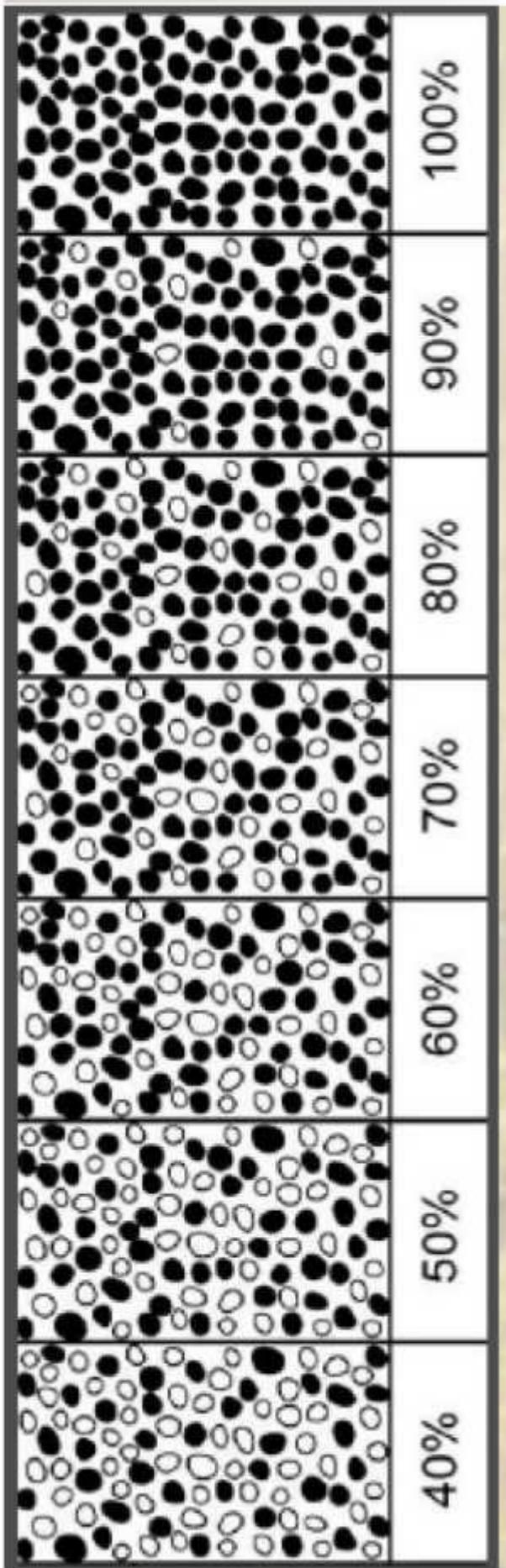
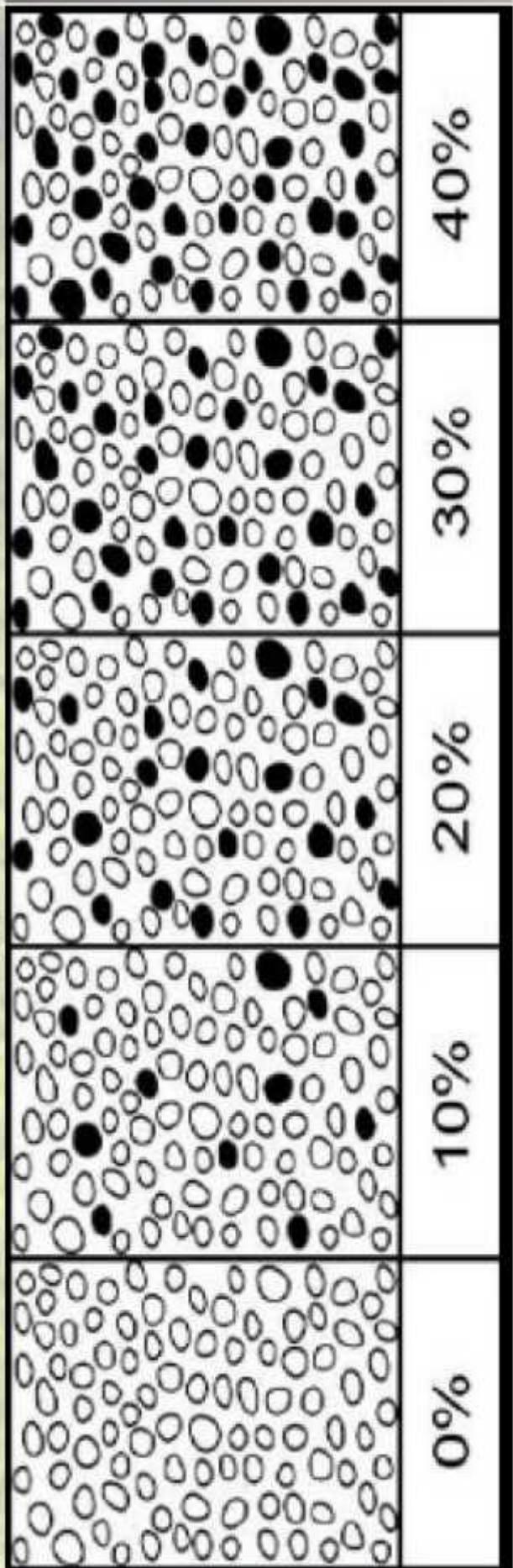
teleconsultation



K
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snelheid

- digitaal gaat minstens even snel
- groeiend tekort aan personeel
- steeds meer en diepgaander onderzoek
- steeds meer standaardisatie en objectiviteit

op te vangen met automated image analyse?

kostenbesparing

- implementation of TMA and digitalization in routine diagnostics of breast pathology.
Prof. dr. Vera Timmermans,
universitair ziekenhuis
Copenhagen, Denemarken
- extern consult
- archivering

teleconsultatie

Pathologie van op afstand

Rechts dijbeen
zweefvleugel

extremitat

Pathologie vanop afstand

Indirect

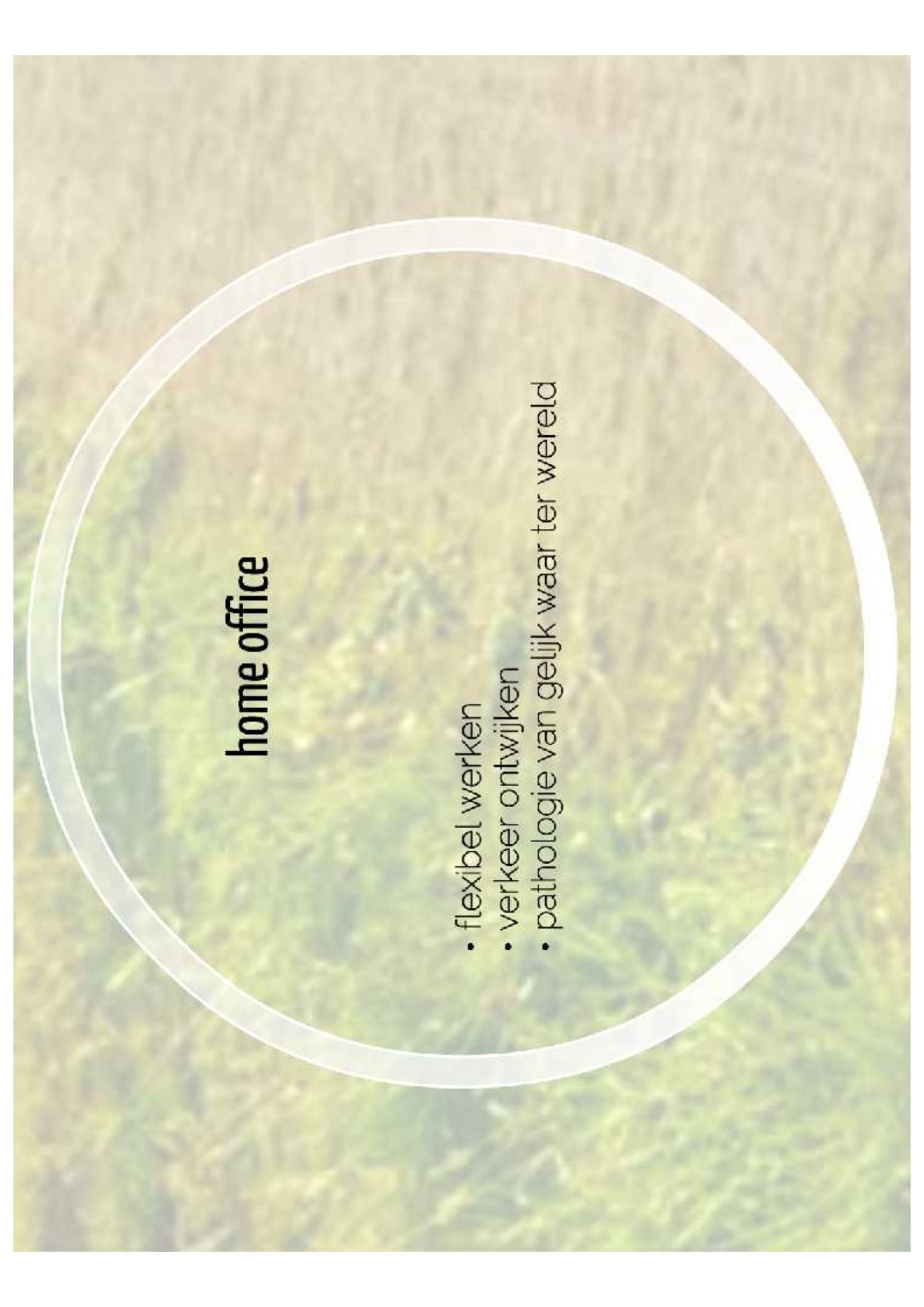
Indirecte
pathologie

load



Ipad





home office

- flexibel werken
- verkeer ontwijken
- pathologie van gelijk waar ter wereld

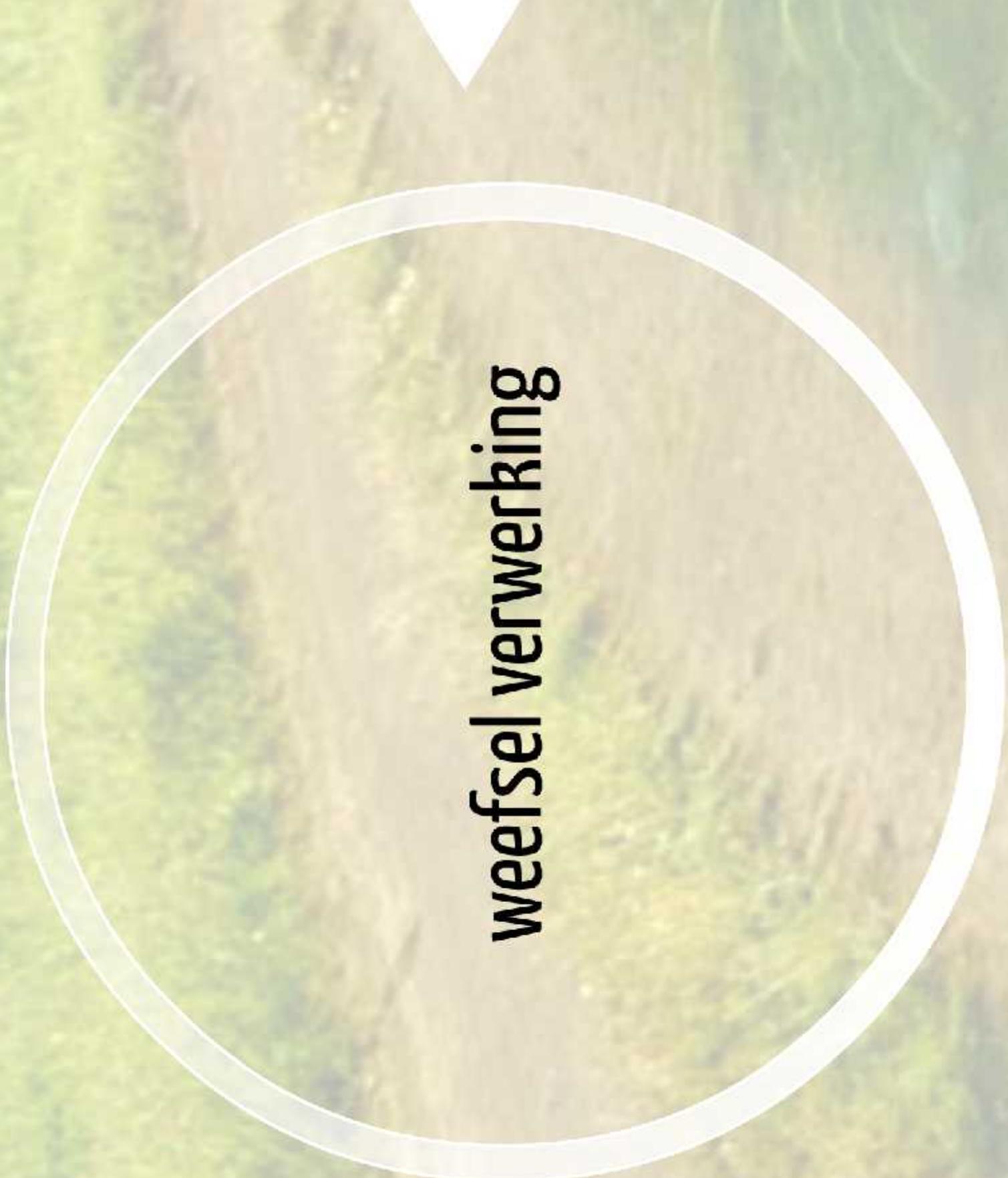
extern consult

- Personalized medicine
- patholoog-specialist

hoe?







weefselverwerking



Scanning

image database
LMS/LIS/LIMS
PALGA
...

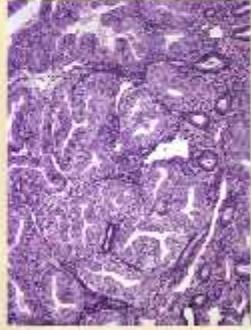
- patholoog
- laborant
- extern consult
- home office
- MOC

hoe?



Wat is digitale pathologie

digital slides



beeldverwerking

- tellen
- scoren
- opeindertellen van data
- meten te weten



tele consult

- teleconsult (X) (zie ziekenhuis)

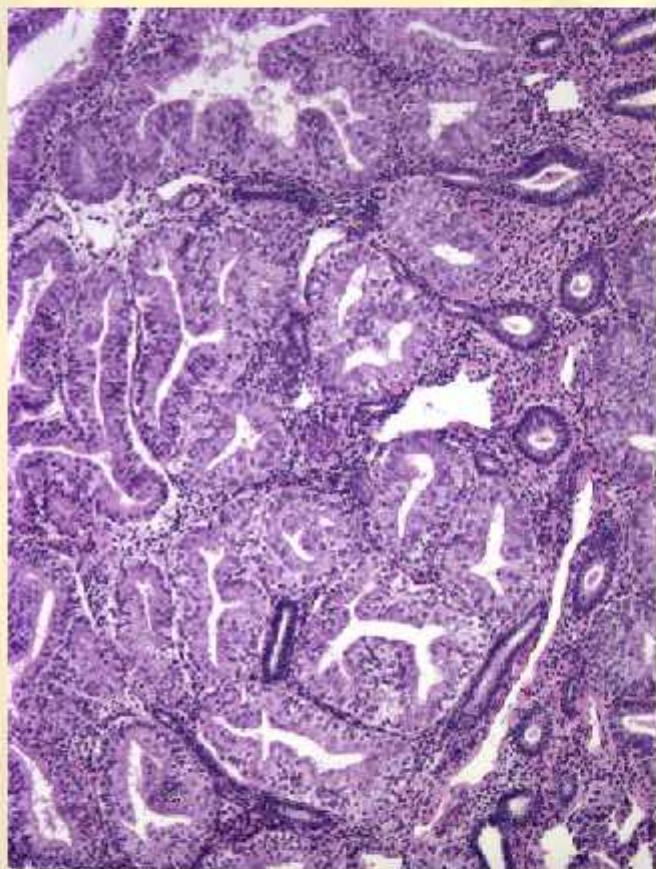
Scanning



No



digital slides

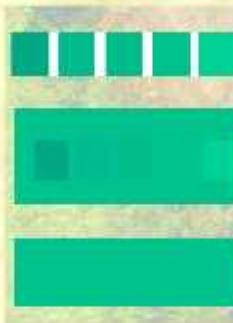
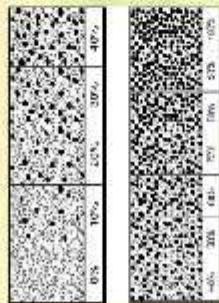


scanners



beeldverwerking

- tellen
- scoren
- objectiveren van data
- meten is weten



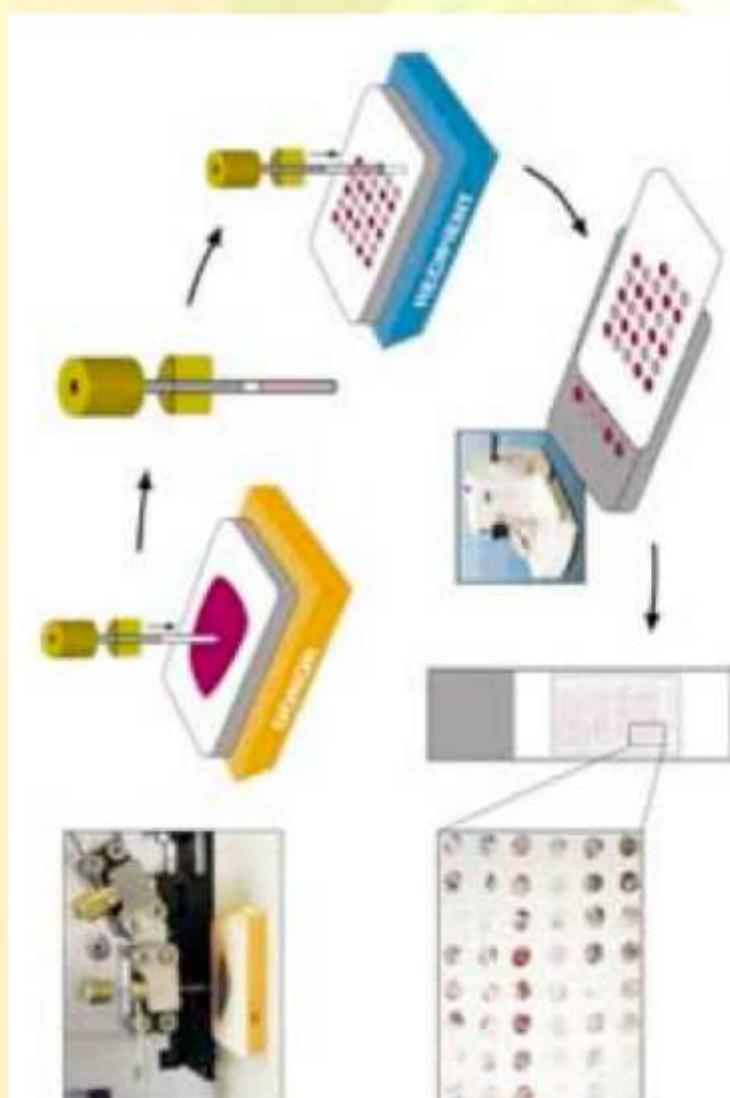
TMA



Primer sobre TMA



Wat is TMA

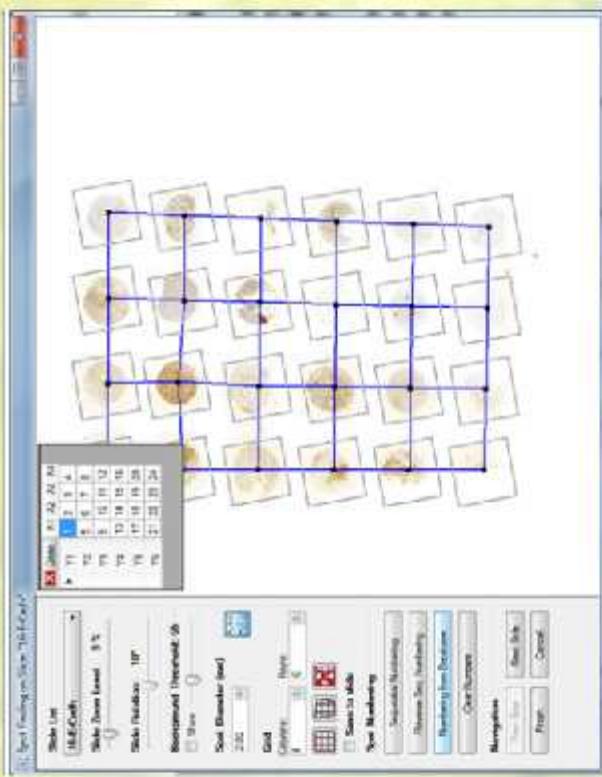


automated TMA



digitale TMA

- op basis van uw digitale slides
- digitale verwerking van de TMA



tele consult

- collega expert om raad vragen

valkuilen

iedereen is belangrijk

- palio-coog
- kwaliteits manager
- laborant
- secretariaat en logistiek
- ICT-departement

objectief

- 20x of 40x?
- camera-adaptor-
- display
- resolutie:
- micrometer/pixel

zoommoeite



IT

- cloud storage
- e-mail exchange
- document management
- video conferencing

dqrs

- Zentraal Microscop
- 100x, 200x, 400x
- 4K video camera
- search for specific samples
- R&D



iedereen is belangrijk

- patholoog
- kwaliteits manager
- laborant
- secretariaat en logistiek
- ICT departement

ICT

- data beheer
- opslag capaciteit
- server beheer
- internet snelheid

objectief

- 20X or 40X?
- camera-adapter-
display
- resolutie:
micrometer/pixel

display

Shenma Microscoop

- scanner->data
- data->beelden
- hoog resolutie scherm
- overall ter wereld hetzelfde beeld

ergonomie



wat doet sysmex?

3D Histech scanners

- snelste
- beste kwaliteit
- 1 coupe -> 250 courses
- volcomatu
- BF & FL look no mail
- Z-tracking
- slide driver



histo

Service

- 2 geïndiceerde techniekers
- enroulaagte sales eng near
- leerpers, d. team
- regelmatige trainingen en opvolging
- demo's open off site
- Europees user cult

digitale slides

- image analyse
- automatische organisatie in cascs
- tele consultatie software

ICT

- Netwerk samenvoeging
- IT, ITS, IC
- gespecialiseerd in data opslag, werk in cloud en setting
- serverbeheer, back-up
- on and off site
- cloud opslag

3D Histech scanners

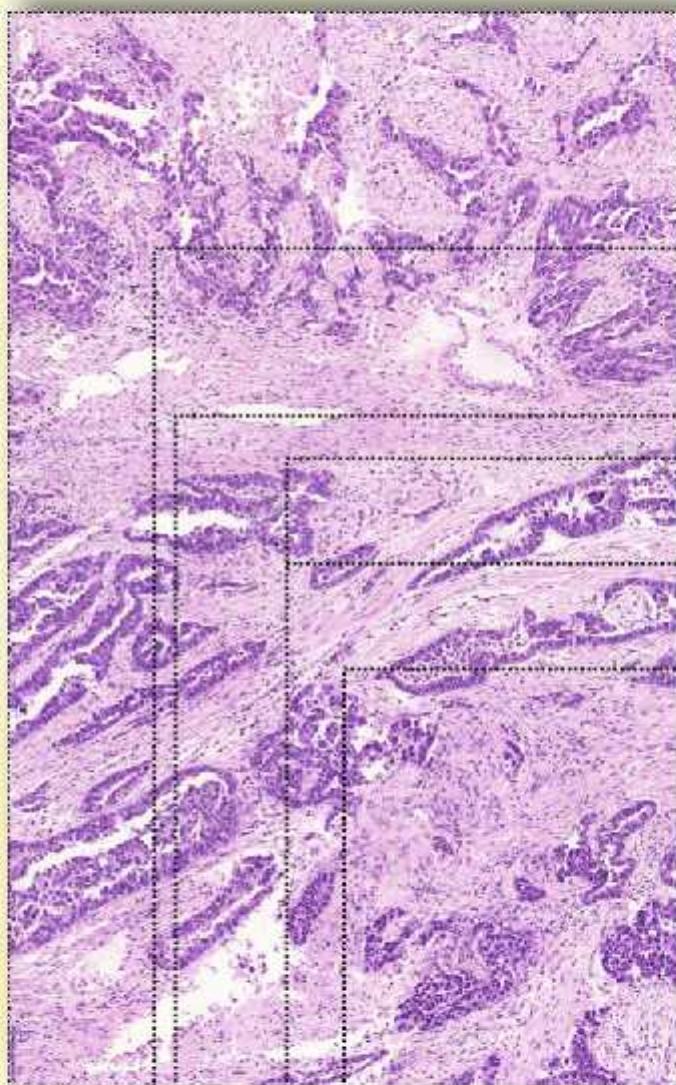
- snelste
- beste kwaliteit
- 1 coupe -> 250 coupes
-> volcontinu
- BF & FL (ook op midi)
- Z-stacking
- slide driver

digitale slides

- image analyse
- automatische organisatie in cases
- tele consultatie software

beeldschermen

- Barco



ICT

- Nieuwe samenwerking met IRIS ICT
 - gespecialiseerd in data opslag, ook in ziekenhuis setting
 - serverbeheer, back up on and off site
 - cloud opslag

Service

- 2 getrainde techniekers
- enthousiaste sales engineer
- toegewijd team
- regelmatig trainingen en opvolging
 - demo's on en off site
- Europeese user club

vragen?