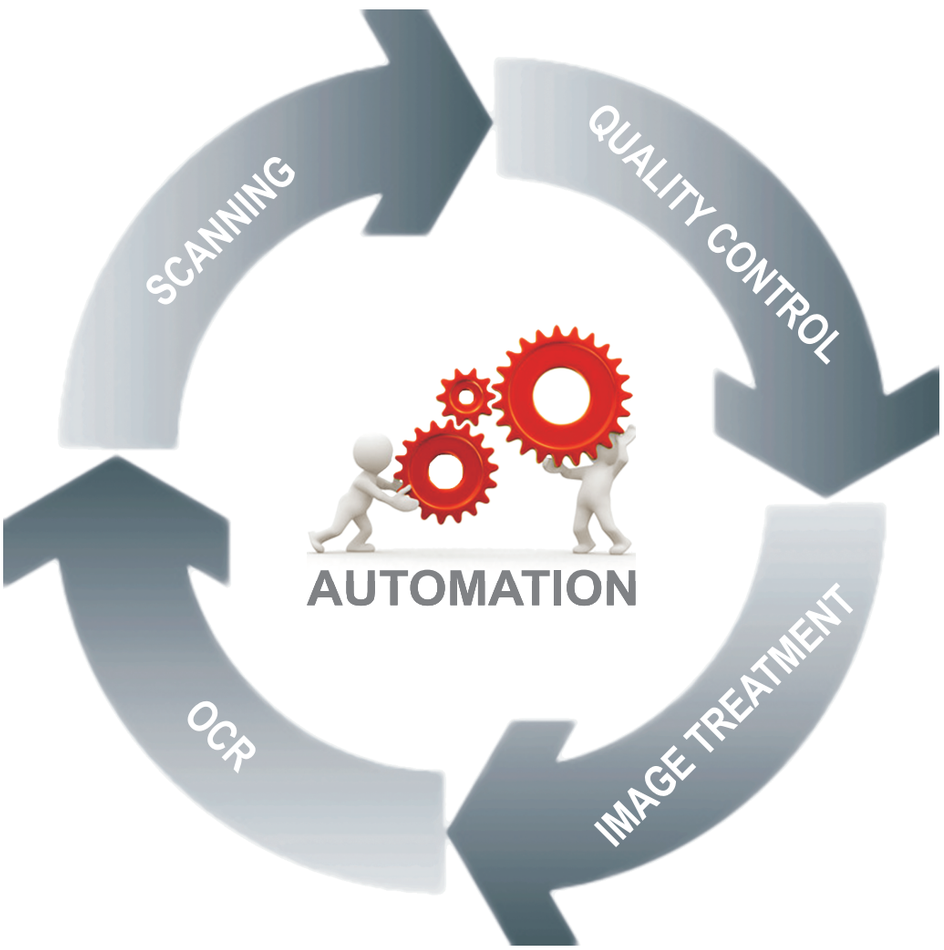
CUSTOMIZED WORKFLOW

ScanFlow®

stay on Track



EFFICIENT WORKFLOW SOLUTION FOR DIGITIZATION PROJECTS

TREVENTUS
MECHATRONICS

WHAT IS SCANFLOW®?

ScanFlow® Professional

Customized workflow solution

ScanFlow® is an efficient and comprehensive workflow & management software for your mass digitization projects.

ScanFlow® is highly customizeable to meet your project requirements.

ScanFlow® increases throughput & output quality.

ScanFlow® ...
assits you to manage your staff!

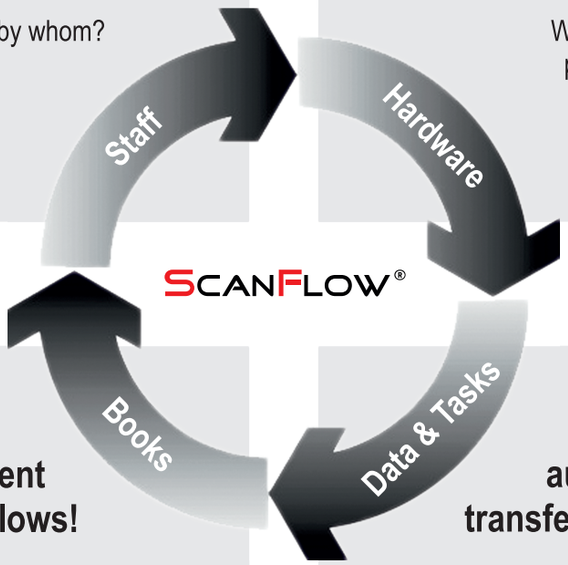
Supervisors | Operators

What shall be done by whom?

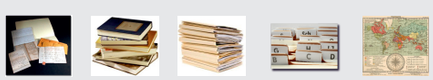
ScanFlow® ...
integrates all your different scanner hardware!

Scanner hardware

Which hardware related processing steps need to be done next?



ScanFlow® ...
supports content specific workflows!



Sheets | Books | Documents | Index cards | Maps

Which image processing steps fit to your documents?

ScanFlow® ...
automatizes data transfer & processing!

Job creation	Job data transfer	Format conversion
Scanning	Quality check	Server
Set parameter	Processing	Archiving

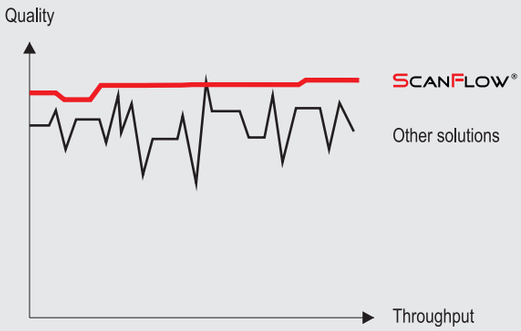
Which task shall be processed next?

TREVENTUS MECHATRONICS

WHAT ARE GENERAL BENEFITS?

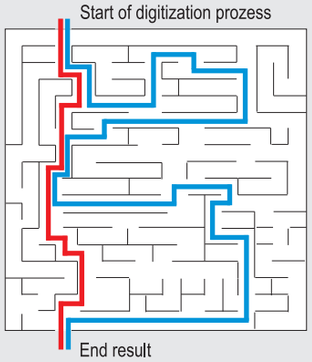
ScanFlow® Professional

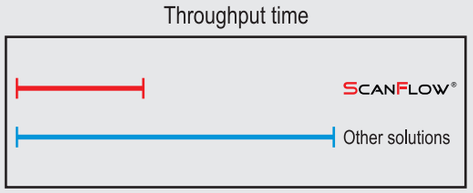
High output quality



ScanFlow® ensures a constant & high output quality!

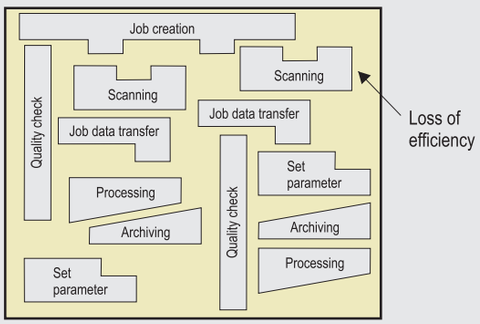
Increased productivity

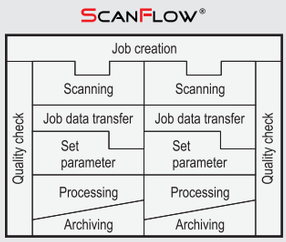




ScanFlow® increases the throughput!

Maximized efficiency





ADVANTAGES

- Highly efficient
- All tasks fit perfectly

ScanFlow® leads to a clear structure!

TREVENTUS MECHATRONICS

MANAGEMENT & QUALITY CONTROL TOOLS

ScanFlow® Professional

Efficient job management

ScanFlow® offers a professional job management interface to organize and monitor all scan-jobs within the system.

Task completeness check

ScanFlow® reports automatically task execution and generates status reports of all workflow tasks.

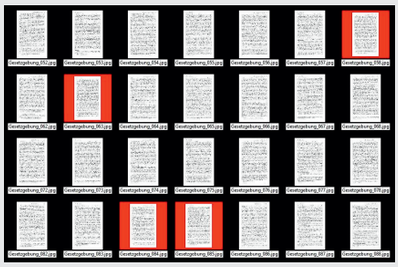
Quality control recommendation

ScanFlow® supports recommendations for:
- lower quality pages and
- pages requiring additional quality control

Quality check

ScanFlow® supports fast quality checking:
- Pages can be easily marked
- Explanatory notes can be easily added

FAST QUALITY CHECK



* Lower quality pages are marked red.

IMAGE PROCESSING & TREATMENT FEATURES

executed within your customized workflows

Powerful recognition & evaluation functions

Automatic border & page color recognition, text base line detection, border evaluation (e.g. page size, page spread, margins etc.)

Image treatment tools

Deskewing, cropping, rotation, extrapolation, ICC profile rendering, background homogenization / normalization, achromatism reducing, binarization (dynamic threshold), brightness / contrast adaption, unsharp masking, image scaling (resizing)

Advanced image processing features

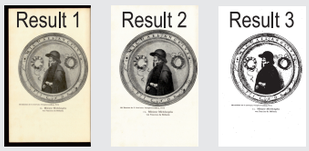
Color depth conversion, color replacing, background removing, moiré effect removing, blurring, image file resolution setting, black margin coloring, watermark / ruler / trim mark adding, split line detection, tiff tag changing, page renaming, page splitting / combining / interlinking & re-interlinking, one dimensional structuring of pages (groups) & group naming

MULTIPLE WORKFLOWS & OUTPUTS

ScanFlow® Professional

Advantages

- ScanFlow® creates multiple output & file formats according to customer specifications
- File formats are created automatically and simultaneously. Examples:



TIFF, color, 400 dpi
JPEG, greyscale, 400 dpi
PNG, b/w, 300 dpi
PDF, OCR*, XML*, etc.
* In combination with OCR (optional acquirable).

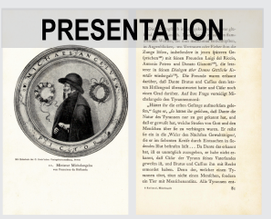
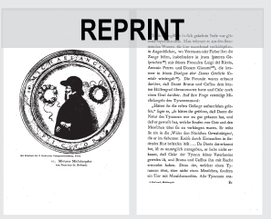
Unique ”Master & Work Copy” concept

All processing steps are parameter based steps which are applied to a file copy. This enables ScanFlow® to create several outputs based on the untouched master files. This ScanFlow® concept guarantees an undo possibiliy at every stage.

Example for to be processed tasks:

- Page splitting, deskewing and cropping
- Background homogenization & binarization
- OCR, TIFF and PDF creation

Various processing outputs

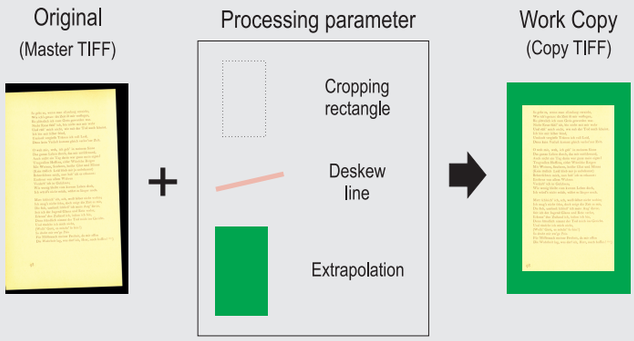
Output	ARCHIVING	 PRESENTATION	 REPRINT
Goal	As close to the original as possible (facsimile)	Good looking images for presentation	Optimal quality for printer
Use cases	• Digital heritage • Digital master files	• Digital library • Web (downloadable content)	• Print on demand • Reprint of books
Guidelines	• Limited image processing (only rotation by multiples of 90° and cropping) • Uncompressed file storage (except lossless compression)	• Good contrast & readability • Background homogenization • Deskewed & cropped (only page should be visible but no outside margins) • Lossy file compression to achive a small file size	• White background with black text • Binarized • Despeckled • Deskewed & cropped (no borders visible)

TREVENTUS MECHATRONICS

GLOBAL FUNCTIONS (excerpt)

ScanFlow® Professional

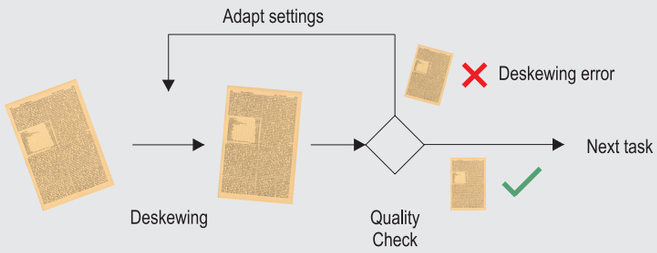
Parameter controlled processing



ADVANTAGES

- Simple setting of processing parameters
- Processing parameters can be set
  a) globally for a whole job and
  b) individually for single pages
- Master files remain unchanged

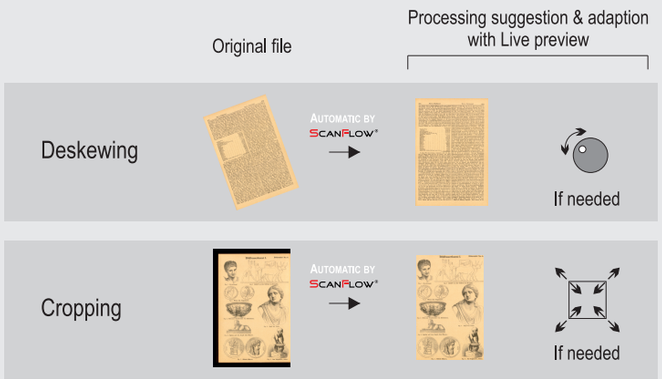
Undo function (example for deskewing)



ADVANTAGES

- Go back to any previous task
- Easy correction of paramter settings:
  a) Correct settings remain
  b) Wrong settings can be corrected

Processing suggestion & Live preview



ADVANTAGES

- Automatic processing suggestions
- Live preview
- Exact adjustment of processing parameters
- Available for all processing functions
  (e.g. Deskewing, Cropping, Extrapolation, Brightness & Contrast adaption,...)

TREVENTUS MECHATRONICS

AUTOMATED BATCH PROCESSING™

ScanFlow® Professional

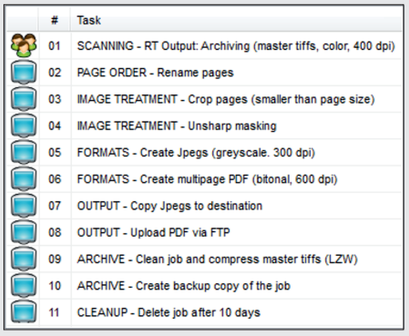
Advantages & Benefits

This included functionality enables automated batch processing of a customized set of functions like:

- creating further output formats
- copying files to a final storage place
- executing various image processing functions etc.

Automatic execution of several tasks in the batch-processing

Tasks can be combined to a batch, which is executed sequentially and automatically until the last task.



#	Task
01	SCANNING - RT Output: Archiving (master tiffs, color, 400 dpi)
02	PAGE ORDER - Rename pages
03	IMAGE TREATMENT - Crop pages (smaller than page size)
04	IMAGE TREATMENT - Unsharp masking
05	FORMATS - Create Jpegs (greyscale. 300 dpi)
06	FORMATS - Create multipage PDF (bitonal, 600 dpi)
07	OUTPUT - Copy Jpegs to destination
08	OUTPUT - Upload PDF via FTP
09	ARCHIVE - Clean job and compress master tiffs (LZW)
10	ARCHIVE - Create backup copy of the job
11	CLEANUP - Delete job after 10 days

- Scanning of the images in the format ”Output: Archiving”
- Rename all pages systematically
- Execute time consuming image treatment functions
- Create different output formats
- Copy the created output safely to its destination
- Reduce data size to a minimum for a backup copy
- Empty the disk space after a certain period

Queuing of several jobs for the batch-processing

During the day the jobs* are pushed to the batch-processing queue, which are then executed.

#	Job name	Pages	Task	Workflow name	Priority	Progress
1	Job_05	250	PAGE ORDER - Rename pages	BatchProcessingWorkflow_01	very high	
2	Job_01	100	FORMATS - Create Jpegs (greyscale. 300 dpi)	BatchProcessingWorkflow_01		
3	Job_03	150	ARCHIVE - Clean job and compress master tiffs (LZW)	BatchProcessingWorkflow_03		
4	Job_04	400	OUTPUT - Copy Jpegs to destination	BatchProcessingWorkflow_01		
5	Job_02	200	CLEANUP - Delete job after 10 days	BatchProcessingWorkflow_02	-1	

* Jobs can have different tasks, processing stages, priorities, batch-processing-workflows etc.

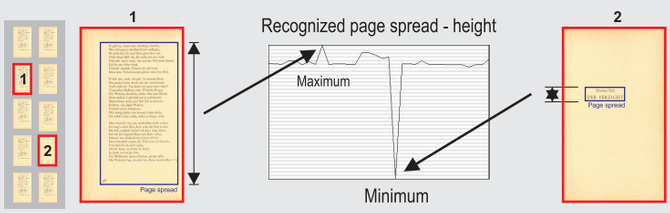
TREVENTUS MECHATRONICS

RECOGNITION & IMAGE SHAPE FUNCTIONS (excerpt)

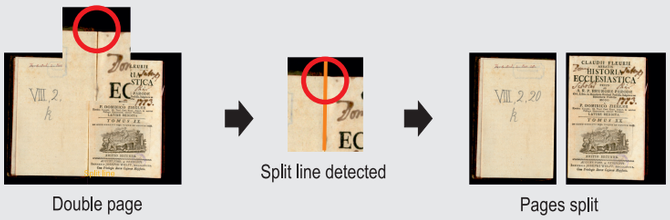
ScanFlow® Professional

Automatic border recognition

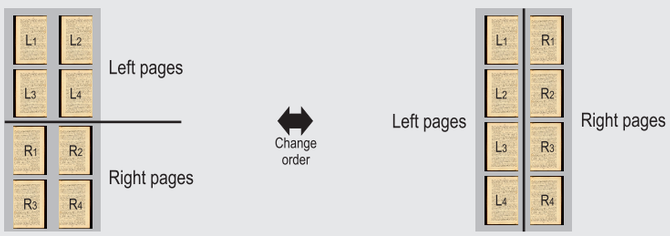
Border evaluation - e.g. page spread etc.



Automatic split line detection and page splitting



Interlink & re-interlink pages (...for scanners that scan only single pages

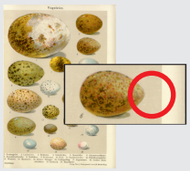


TREVENTUS MECHATRONICS

IMAGE OPTIMIZATION FUNCTIONS (excerpt)

ScanFlow® Professional

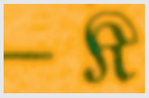
Automatic background removing



Original

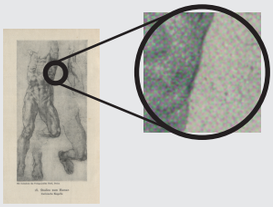
- Image is unchanged
- only background is removed

Automatic achromatism reducing



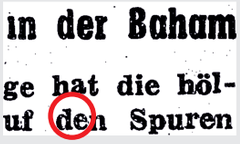
Achromatism is removed

Automatic Moiré effect removing

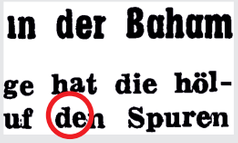


Moiré effect is removed

Automatic despeckling



Binarized, white and black dots visible



White and black dots are removed

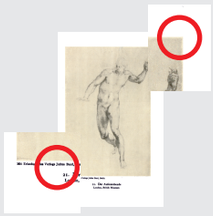
TREVENTUS MECHATRONICS

REPRINT FUNCTIONS (excerpt)

ScanFlow® Professional

Area protection

- Image is unchanged
- Background is removed
- Text is binarized



Processed image

Area removing (Copyright issue)

Picture visible

- Image is removed
- Text is binarized

Processed image

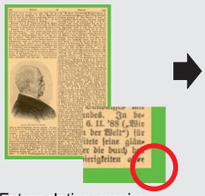
Image scaling

Scaled to predefined height

Scaled to predefined width

Extrapolation

No extrapolation



Extrapolation preview

Extrapolation with background color

TREVENTUS MECHATRONICS

ADVANCED IMAGE PROCESSING TOOLS

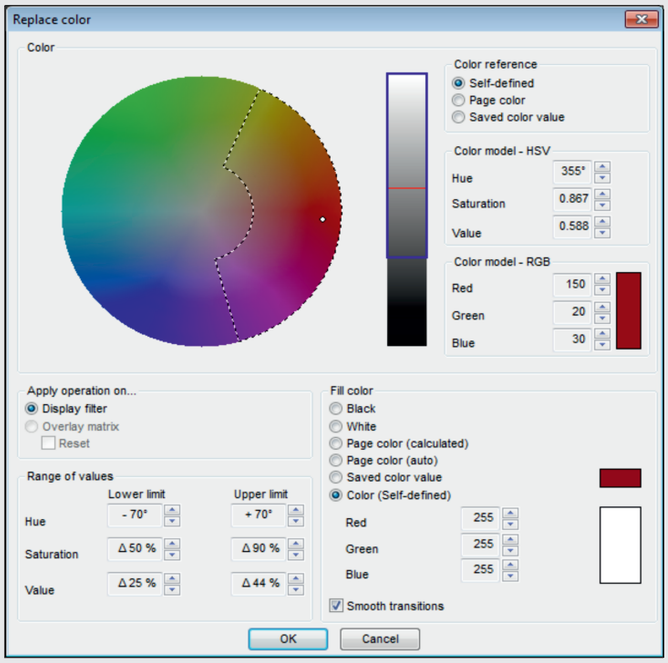
ScanFlow® Professional

Available advanced features

- Color depth conversion
- Color replacing
- Background removing
- Moiré effect removing, blurring, black margin coloring
- Image file resolution setting, Tiff tag changing
- Watermark / ruler / trim mark adding
- Split line recognition, page splitting / combination
- Zip merge & unzip merge
- Grouping of pages (group naming)
- Page renaming

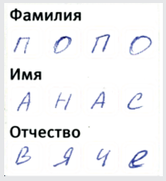
Example: Color replacing

This function enables you to replace a color by another one.



Original

Red rectangles removed



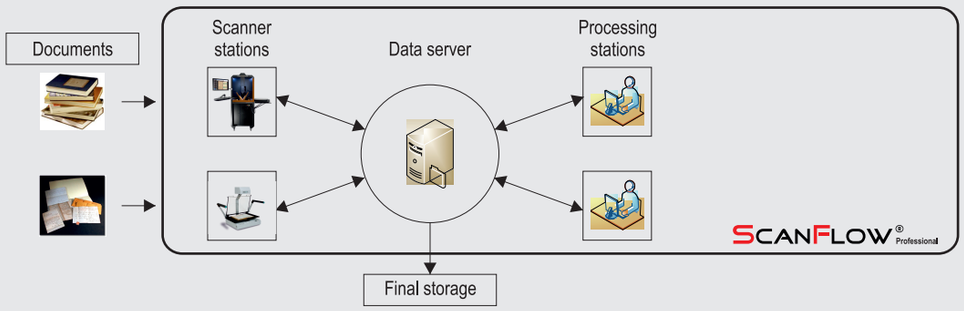
Blue pen removed

TREVENTUS MECHATRONICS

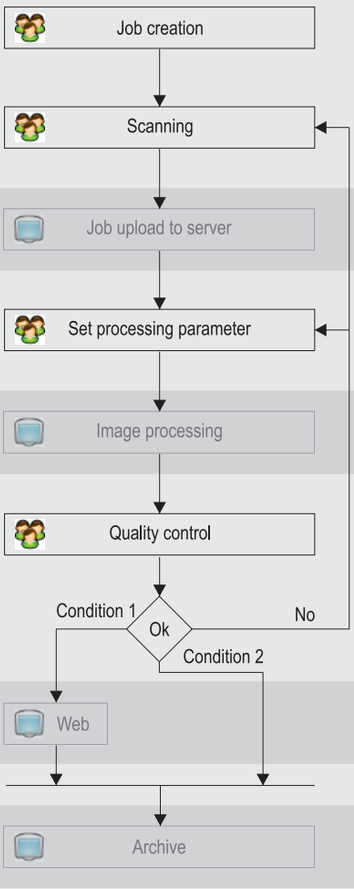
STRUCTURED WORKING WITH SCANFLOW®

Workflow example (simplified)

Environment / Data flow diagram



Workflow



Executors	Tasks
Supervisor	Insert meta data Assign scanner Assign workflow
	Scan book pages Scan book cover & spine Scan fold outs / maps
Automatic by ScanFlow®	Upload job to the server
Operator	Check scan quality Check and set page alignment Set image pixel functions
Automatic by ScanFlow®	Create image work copy Deskew and crop images Process image pixel functions
Supervisor	Check cropping and alignment Check image processing Mark incorrect pages for re-processing
Automatic by ScanFlow®	Upload images to web server
Automatic by ScanFlow®	Store processing parameters Store original TIFFs Delete work copies

User task = manual tasks

System task = tasks that are done automatically

... let the software work!

TREVENTUS MECHATRONICS

SOFTWARE ADD-ONS & INTERFACES (excerpt)

Optional & customizeable for ScanFlow® Professional

OCR Enterprise solution™ PRO - UNLIMITED*

- OCR for over 130 languages (incl. Gothic/Fraktur)
- Batch module for automated processing of multiple OCR-jobs
- Unlimited OCR-contingent (no page limitation)
- Interface to the Tesseract engine

* Please see more information within the separate "OCR Solutions™" brochure of Treventus.

ScanRobot® Interface module

This available interface allows a direct integration of your ScanRobots®.

Adavantages & Benefits of the ScanRobot®

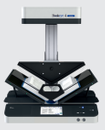
- Fast - up to 2,500 pages per hour
- Distortion free & gentle scanning (prism technology)
- Unique 60° V-shape book cradle
- Single scan technology (for covers, folded maps, loose pages, ...)
- Self standing unit on wheels for easy relocating
- Ergonomic design

Bookeye® Interface module

This available interface allows a direct integration of your Bookeye® systems.

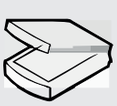
Supported models:

DIN A1: Bookeye® 4 V1A Professional
DIN A1: Bookeye® 4 V1A-C35 Professional
DIN A2+: Bookeye® 4 V2 Professional Archive
(with V-shaped book cradle & glass plate)



Integration of other scanners

Please contact solutions@treventus.com for your individual needs.



TREVENTUS MECHATRONICS

OCR Enterprise solution™ - UNLIMITED

Optionally available for ScanFlow® Professional

OcrSolutions™

Functions / Features	OCR Enterprise solution™ PRO - UNLIMITED
Needed base license	
ScanGate® RT	–
ScanGate® LWF	–
ScanFlow® Professional	●
NAINUWA® Digital Archive System	–
OCR page contingent	
Unlimited (no page limitation)	●
Customization options / Flexibility	
Creation of multiple (customized) PDF derivatives (e.g. creation of PDFs with different resolutions, color depths, file sizes etc.)	●
File naming customizable	●
Pre-configured OCR workflows (workflows are fixed / hard-coded; OCR languages can be set)	●
Customizeable OCR workflows	●
Performance	
Automated background OCR processing - 24/7	●
Batch processing of multiple OCR-jobs	●
Parallelization of the OCR processing on multiple PCs (to accelerate the processing)	●
Output formats (by default / standard)	
PDF (PDF/a, multi- and single pages)	●
TXT (multi- and single page)	●
XML (hOCR, single pages only)	●
OCR languages	
Over 130 available languages (excerpt: Afrikaans, Azerbaijani, Bengali, Bulgarian, Catalan, Czech, Cyrillic, Danish, German, Greek, English, Esperanto, Estonian, Persian, Finnish, French, Hebrew, Croatian, Hungarian, Italian, Georgian, Latin, Latvian, Lithuanian, Nepali, Norwegian, Polish, Portuguese, Romanian, Russian, Slovak, Slovenian, Spanish, Swedish, Thai, Tibetan, Turkish, Ukrainian, etc.)	●
Gothic font (Fraktur) / Korean / Chinese / Arabic / Vietnamese	●

CUSTOMER FEEDBACK

Bavarian State Libray (Munich, GERMANY)

Dr. Markus Brantl, Head of MDZ
(Munich Digitization Center)

Interview

What was the trigger to look for a suitable workflow software?

Dr. Brantl [MDZ]: In the Scanning Center there are more than 24 different scanners [...]. It is a real challenge to coordinate the different processes caused by different hardware: this was the trigger to look for a special workflow-solution in order to manage all scanner devices within a single workflow.
After an implementation phase we are running now all scanners with the ScanFlow® software of Treventus.

Why did you choose or go for the ScanFlow® workflow from Treventus?

Dr. Brantl [MDZ]: ScanFlow® is scalable and flexible for nearly all customization needs. As soon as it is implemented it is an easy to use system.

Which problems or challenges does the ScanFlow® workflow solve?

Dr. Brantl [MDZ]: ScanFlow® is ideal for managing jobs on different systems. You can start e.g. with scanning at the robot and you can always switch to another system e.g. a manual book scanner. The software integrates the whole hardware within our digitization centre.

What were your expectations with using the ScanFlow® workflow?

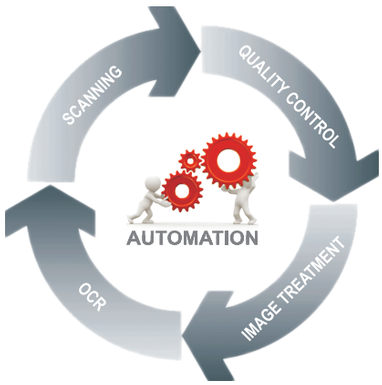
Dr. Brantl [MDZ]: We expected time and cost reduction through automization of the workflow. We made the experience that there are now less errors and less questions within the production cycle of a digitized book through the functionality of ScanFlow®. With this solutions we do save time and costs along the digitizing process.

Purchased products

ScanRobot® *turn the Page*

AUTOMATIC BOOK SCANNER
TO MAXIMIZE UP YOUR PRODUCTIVITY

ScanFlow® *stay on Track*



EFFICIENT WORKFLOW SOLUTION
FOR YOUR DIGITIZATION PROJECTS

TREVENTUS MECHATRONICS

REFERENCES (excerpt)

Awards of Treventus

Winner of the European ICT Grand Prize

Innovation prize of the Theodor Kery foundation

1st place in Genius Innovation Award

TREVENTUS Mechatronics GmbH
Siebenbrunnengasse 17 / Top 2
1050 Vienna - AUSTRIA - Europe

Tel: +43 1 890 35 10-02
Fax: +43 1 890 35 10-15

E-Mail: solutions@treventus.com
www.treventus.com

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