



# GUI design & ontwikkeling in de machinebouw

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- What is User Experience design?
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# What is User Experience Design?



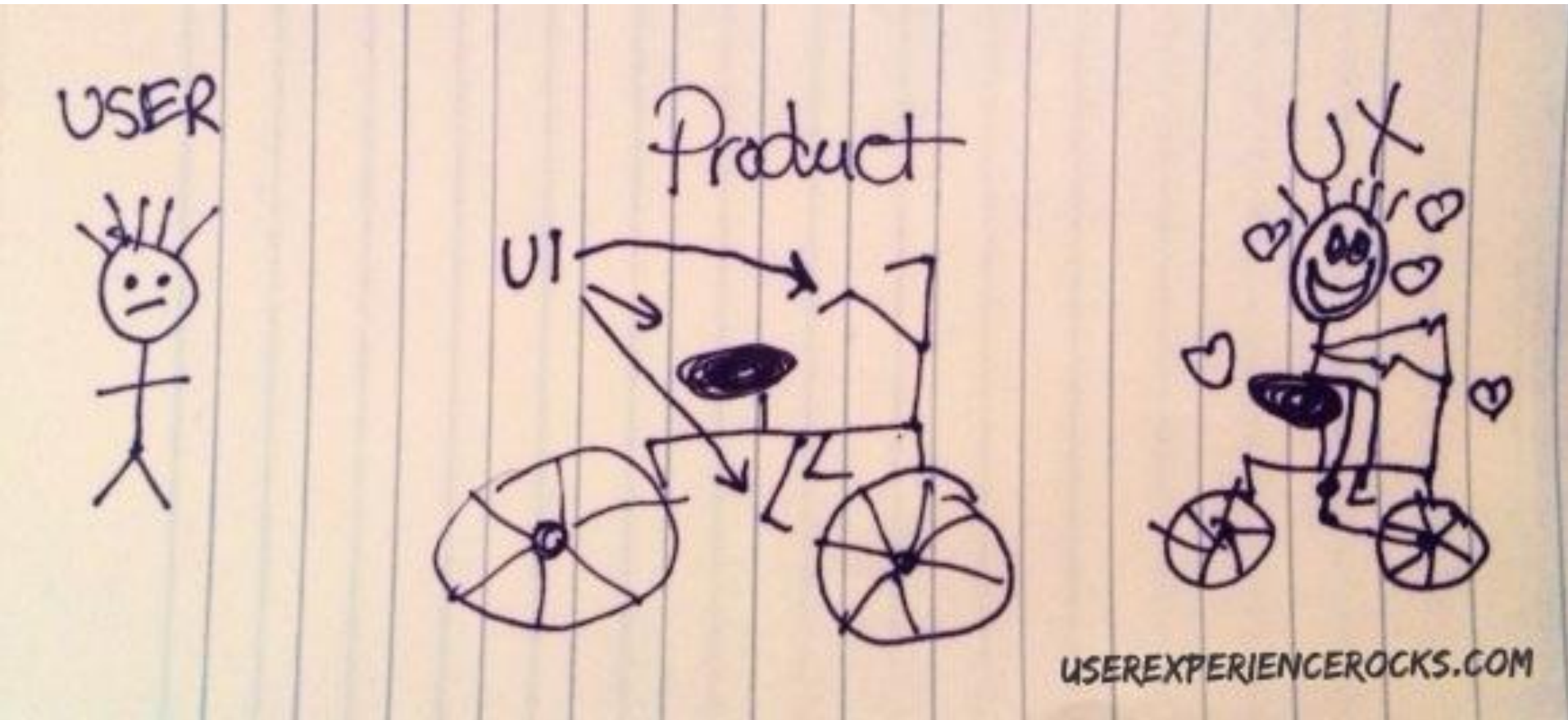
The focus of UX is on web and mobile



# What is User Experience Design?



But UX goes beyond a pretty User Interface and Usability



# What is User Experience Design?



Great UX meets the users needs

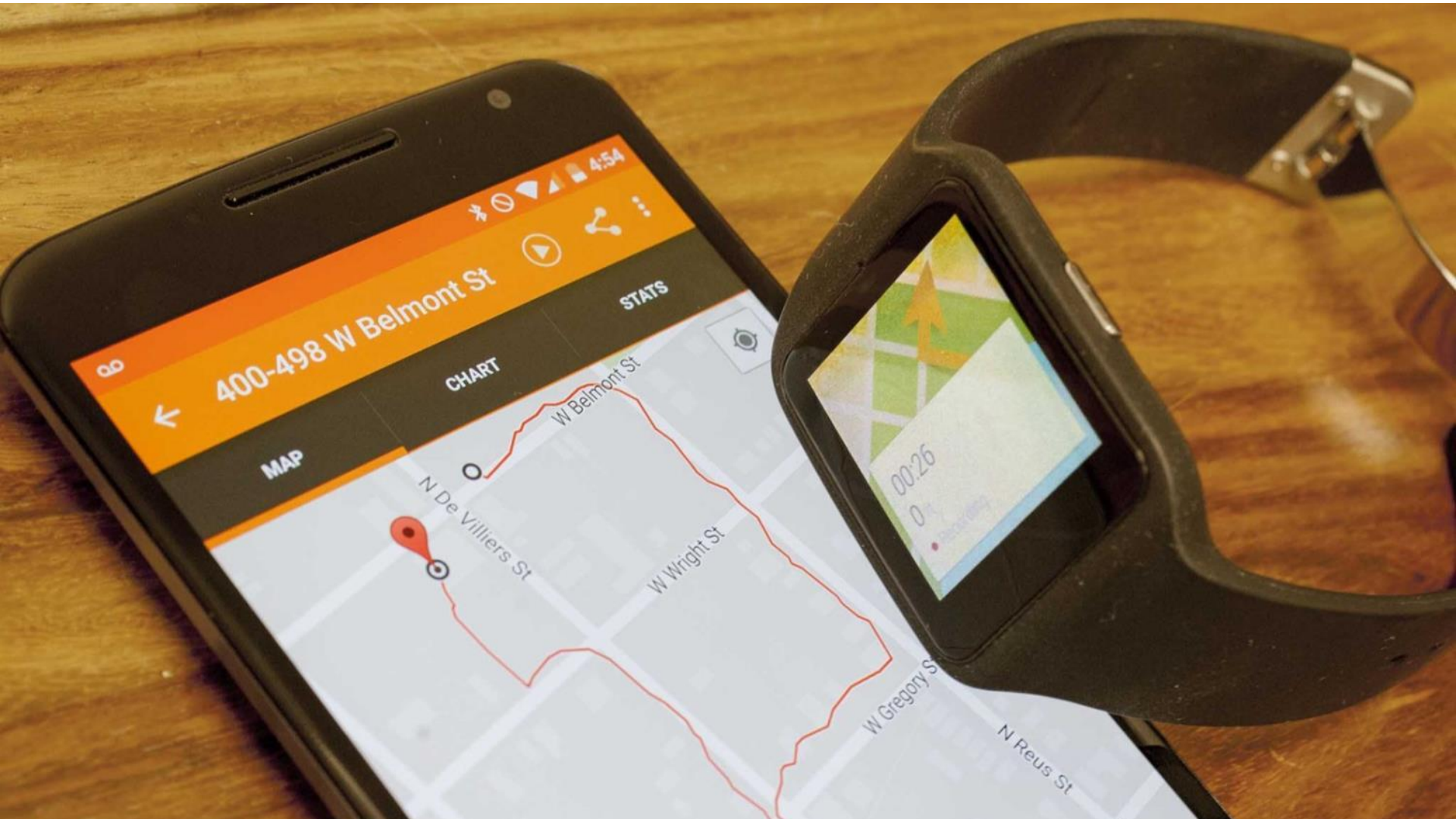




# What is User Experience Design?



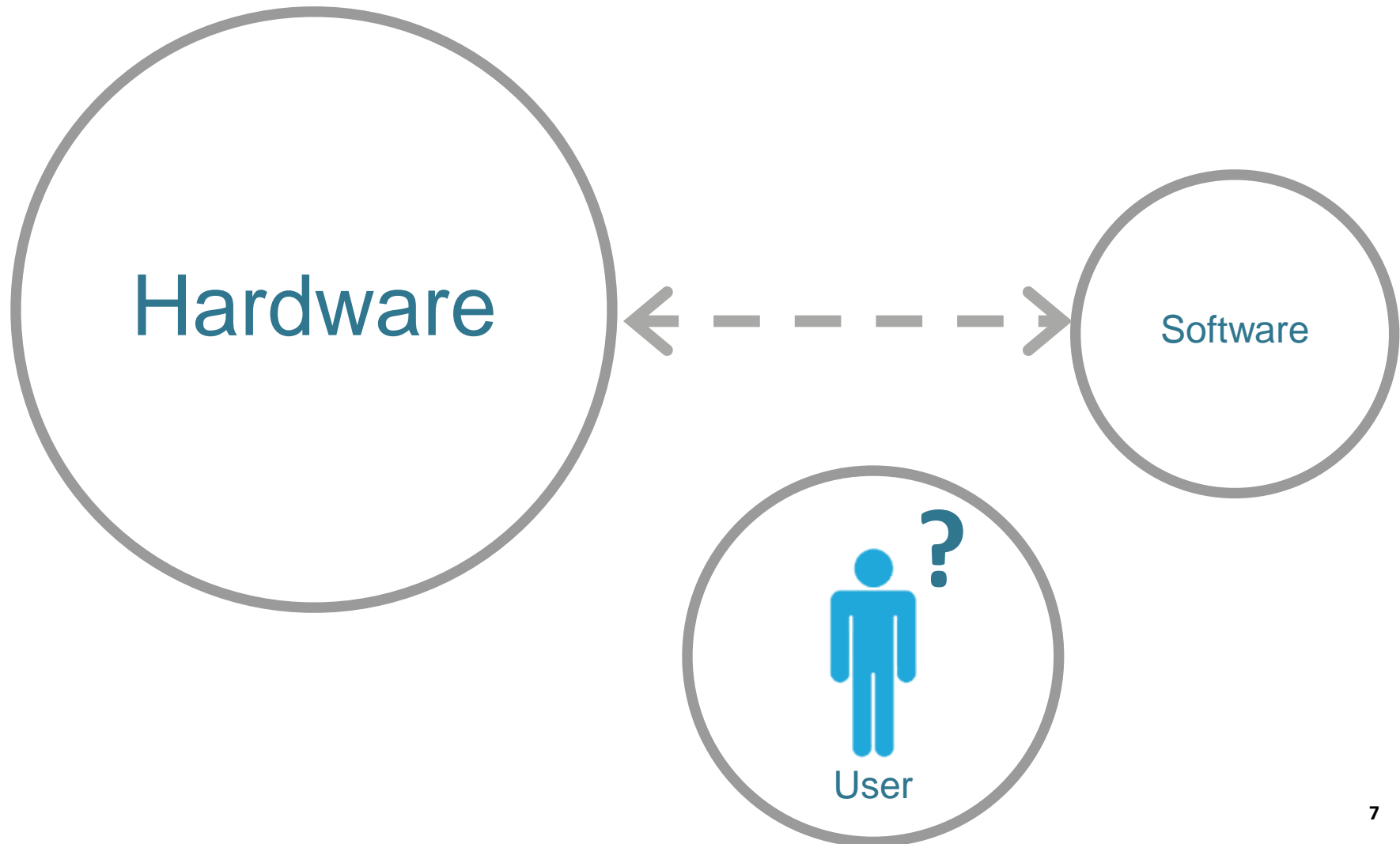
Great UX fits the users workflow



# What is the added value?



Software design in the field of engineering



# What is the added value?



- Software is increasingly becoming user centred
- User experience is a selling point
- Good UX ties all functionalities together
- Clients are triggered but lack the necessary expertise





# Greefa –Fruit grading machines



Producer of fruit grading machines





# Greefa –Fruit grading machines



A full redesign of the current grading software





# Greefa –Fruit grading machines



Fruit is graded using various measurement systems

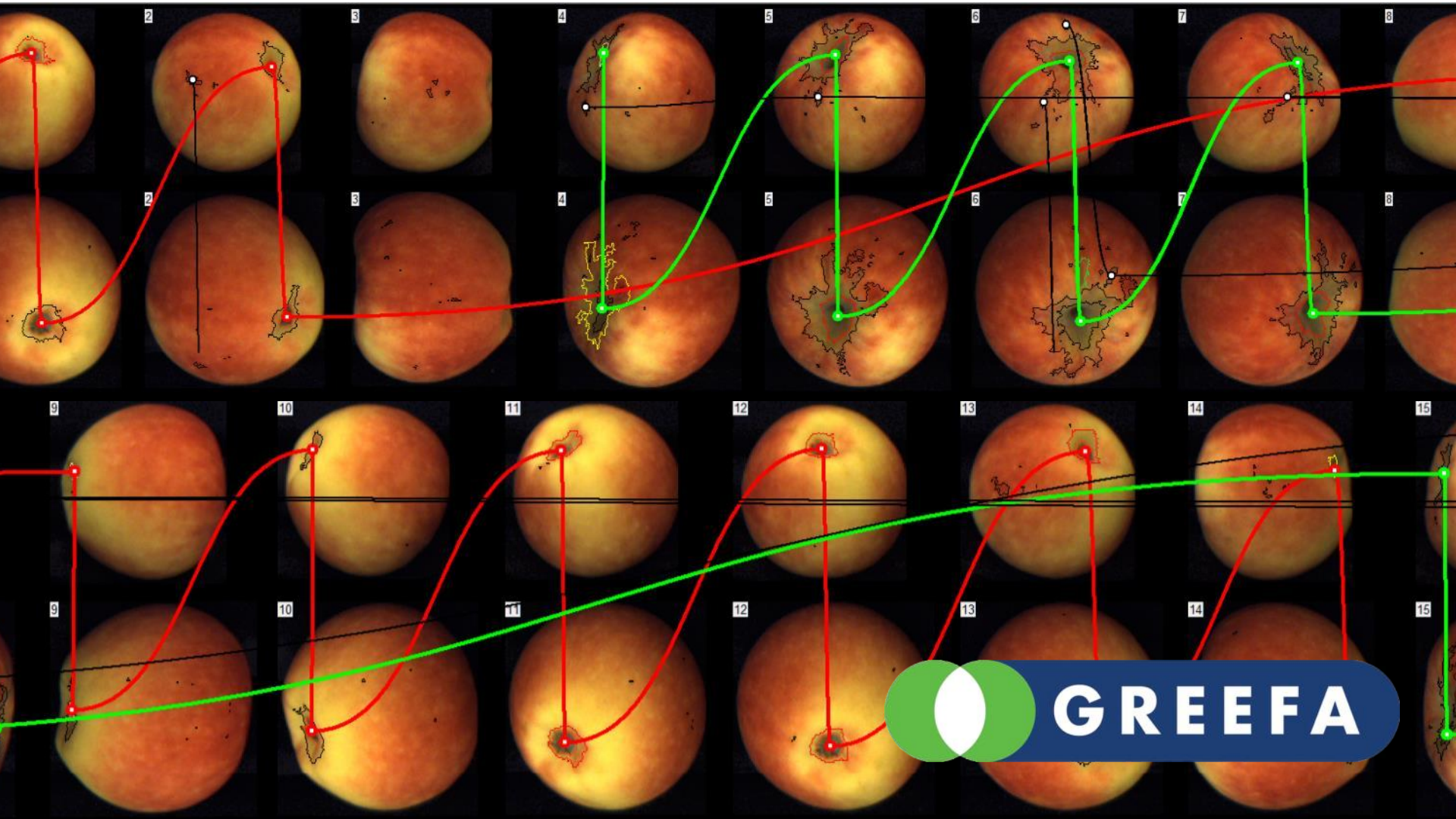




# Greefa –Fruit grading machines



Quality is measured by photographing each piece of fruit



# Greefa –Fruit grading machines



Weighing and measuring each individual piece of fruit





# Greefa –Fruit grading machines



Each individual piece of fruit is transported to the designated outlet





# Greefa –Fruit grading machines



Where it is packed for shipment or stored in the warehouse



## Large Corporations

- High functional demand
- Large quantities of fruit
- Automated processes
- Regulated sorting processes
- Multiple operators, different roles
- Often inexperienced or uneducated





## Small fruit growers

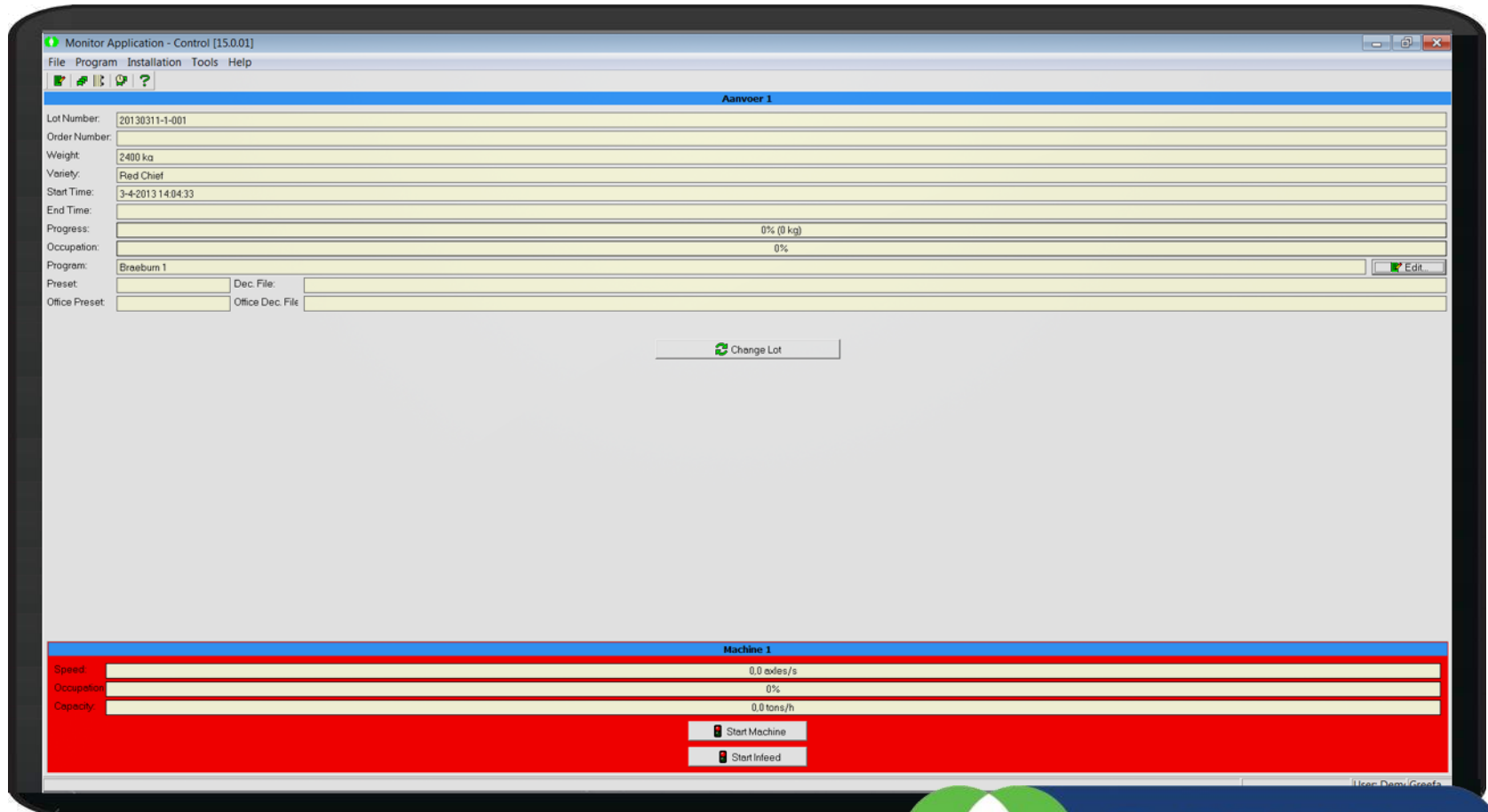
- Low functional demand
- Often sorting their own fruit
- Packing often done by hand
- One or two key operators
- Working by intuition
- Little computer experience



# Greefa – Current software



## Analyses of the current grading software





# Greefa – Current software



## Multiple screens used for monitoring running processes

The screenshot displays the Greefa software interface, which is used for monitoring running processes. The interface consists of several overlapping windows:

- Monitor Application - Control [15.0.01]**: This window shows a list of channels (1-48) and their corresponding flow contents, W. Flow, L. Flow, Pending, Contents, Contents 2, Gate 2, Wait, Blocked, Fill Status, Meta Group, Bin Number, and Remarks.
- Monitor Application - Lot History [15.0.13]**: This window shows a list of lots (1-48) and their corresponding flow contents, W. Flow, L. Flow, Pending, Contents, Contents 2, Gate 2, Wait, Blocked, Fill Status, Meta Group, Bin Number, and Remarks.
- Monitor Application - Lots [15.0.11]**: This window shows a list of lots (1-48) and their corresponding flow contents, W. Flow, L. Flow, Pending, Contents, Contents 2, Gate 2, Wait, Blocked, Fill Status, Meta Group, Bin Number, and Remarks.
- Monitor Application - Lots [15.0.11]**: This window shows a list of lots (1-48) and their corresponding flow contents, W. Flow, L. Flow, Pending, Contents, Contents 2, Gate 2, Wait, Blocked, Fill Status, Meta Group, Bin Number, and Remarks.

The interface also includes a sidebar with a tree view of the system components, a status bar at the bottom, and a large green and white logo with the text "GREEFA" in the bottom right corner.

# Greefa – Current software



An accumulation of functionalities throughout the years

The screenshot displays the Greefa software interface, which is a multi-window application for monitoring and data management. The main window, titled "Monitor Application - Control [15.0.01]", shows a list of channels (1-48) on the left and a detailed data table on the right. The table includes columns for Flow Contents, W. Flow, L. Flow, Pending, Contents, Contents 2, Gate 2, Wait, Blocked, Fill Status, Mista Group, Bin Number, and Remarks. A secondary window, "Monitor Application - Lot History [15.0.13]", is open in the foreground, showing a table with columns for Lot Number, Barcode, Order Number, Sorting Program, Variety ID, Variety, Harvest Weight, Bin, Demoted, Bedliner, and Quality. The interface also includes a sidebar with buttons for "Speed", "Occupation", and "Capacity", and a bottom status bar with "Edit Mode" and "Anvoer 1" indicators. The Greefa logo is prominently displayed in the bottom right corner.

# Greefa – Current software



## Complex UI for creating sorting programs

The screenshot displays the Greefa software interface, which is used for creating sorting programs. The interface is divided into several windows and panels:

- Monitor Application - Program Manager [15.0.02]:** This window shows the current program settings, including the fruit type (Apfel), variety (Golden Delicious), and program name (Apfel - Golden Delicious - Golden Delicious 1). It also displays a list of machine outlets and their corresponding sorting groups.
- Monitor Application - Outlets [15.0.05]:** This window shows a list of machine outlets, including 'Avt Grun 65-70', 'Avt Grun 70-75', 'Avt Grun 75-80', 'Avt Grun 80-85', 'Avt Grun 85-90', 'Avt Hell 65-70', 'Avt Hell 70-75', 'Avt Hell 75-80', 'Avt Hell 80-85', 'Avt Hell 85-90', and 'Avt Hell 90-95'.
- Monitor Application - Sorting Groups [15.0.04]:** This window shows a list of sorting groups, including 'Avt Grun 65-70', 'Avt Grun 70-75', 'Avt Grun 75-80', 'Avt Grun 80-85', 'Avt Grun 85-90', 'Avt Hell 65-70', 'Avt Hell 70-75', 'Avt Hell 75-80', 'Avt Hell 80-85', 'Avt Hell 85-90', and 'Avt Hell 90-95'.
- Monitor Application - Criteria [15.0.03]:** This window shows a list of criteria, including 'Class', 'Colour (Green)', 'Red%', 'Weight', 'Yellow%', 'Size', 'Length', 'Green%', 'Colour (Yellow)', 'Colour (Red)', and 'Total Color'.
- Machine Outlet Settings:** This panel allows users to configure the settings for each machine outlet, including the number of groups and the installation outlets.
- Installation Outlets:** This panel shows a list of installation outlets, including 'Canal 2', 'Canal 3', 'Canal 4', 'Canal 5', 'Canal 6', 'Canal 7', 'Canal 8', 'Canal 9', 'Canal 10', 'Canal 11', 'Canal 12', 'Canal 13', 'Canal 14', 'Canal 15', 'Canal 16', 'Canal 17', 'Canal 18', 'Canal 19', 'Canal 20', and 'Canal 21'.
- Sub Sorting Groups:** This panel shows a list of sub sorting groups, including 'Size', 'Class', 'Colour (Green)', 'Red%', and 'Weight'.

The interface is designed to be complex and user-friendly, allowing users to create and manage sorting programs efficiently.



# Greefa – Current software



## Disconnected from the workflow

Monitor Application - Program Manager [15.0.02]

File Program Installation Tools Help

Current Program

Infeed: Aarnvoer 1 Fruit: Apfel Variety: Golden Delicious Program: Golden Delicious 1 Variety: Golden Delicious

Version: 55 Author: Greefa

Monitor Application - Outlets [15.0.05]

File Program Installation Tools Help

Program

Infeed: Aarnvoer 1 Name: Apfel - Golden Delicious - Golden Delicious 1 Version: 55 Variety: Golden Delicious

Machine Outlets

Outlet	Outlet Type	Bin Type	Is
2	Canal 2	1120x1120x770	
3	Canal 3	1120x1120x770	
4	Canal 4	1120x1120x770	
5	Canal 5	1120x1120x770	
6	Canal 6	1120x1120x770	
7	Canal 7	1120x1120x770	
8	Canal 8	1120x1120x770	
9	Canal 9	1120x1120x770	
10	Canal 10	1120x1120x770	
11	Canal 11	1120x1120x770	
12	Canal 12	1120x1120x770	
13	Canal 13	1120x1120x770	
14	Canal 14	1120x1120x770	
15	Canal 15	1120x1120x770	
16	Canal 16	1120x1120x770	
17	Canal 17	1120x1120x770	
18	Canal 18	1120x1120x770	
19	Canal 19	1120x1120x770	
20	Canal 20	1120x1120x770	
21	Canal 21	1120x1120x770	

Machine Outlet Settings

Jump to the next outlet after:

Spindle label

Installation Outlets

Monitor Application - Sorting Groups [15.0.04]

File Program Installation Tools Help

Program

Infeed: Aarnvoer 1 Name: Apfel - Golden Delicious - Golden Delicious 1 Version: 55 Variety: Golden Delicious

Sorting Group List

Sorting Group	A
1	A-Hell 65-70
2	A-Hell 70-75
3	A-Hell 75-80
4	A-Hell 80-85
5	A-Hell 85-90
6	A-Hell 90-95
7	A-Hell 95-100
8	A-Hell 100-105
9	A-Hell 105-110
10	A-Hell 110-115
11	A-Hell 115-120

Criteria

Criteria	Categories	Min	Max	Step	Active	Predefined	Color
1	Class	5	1	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Colour (Green)	4	1	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3	Red%	0	100	1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4	Weight	5	10	2500	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5	Yellow%	2	0	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6	Size	13	0	200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7	Length	1	0	300	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8	Green%	1	0	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9	Colour (Yellow)	1	0	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10	Colour (Red)	1	0	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11	Total Color	1	0	1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

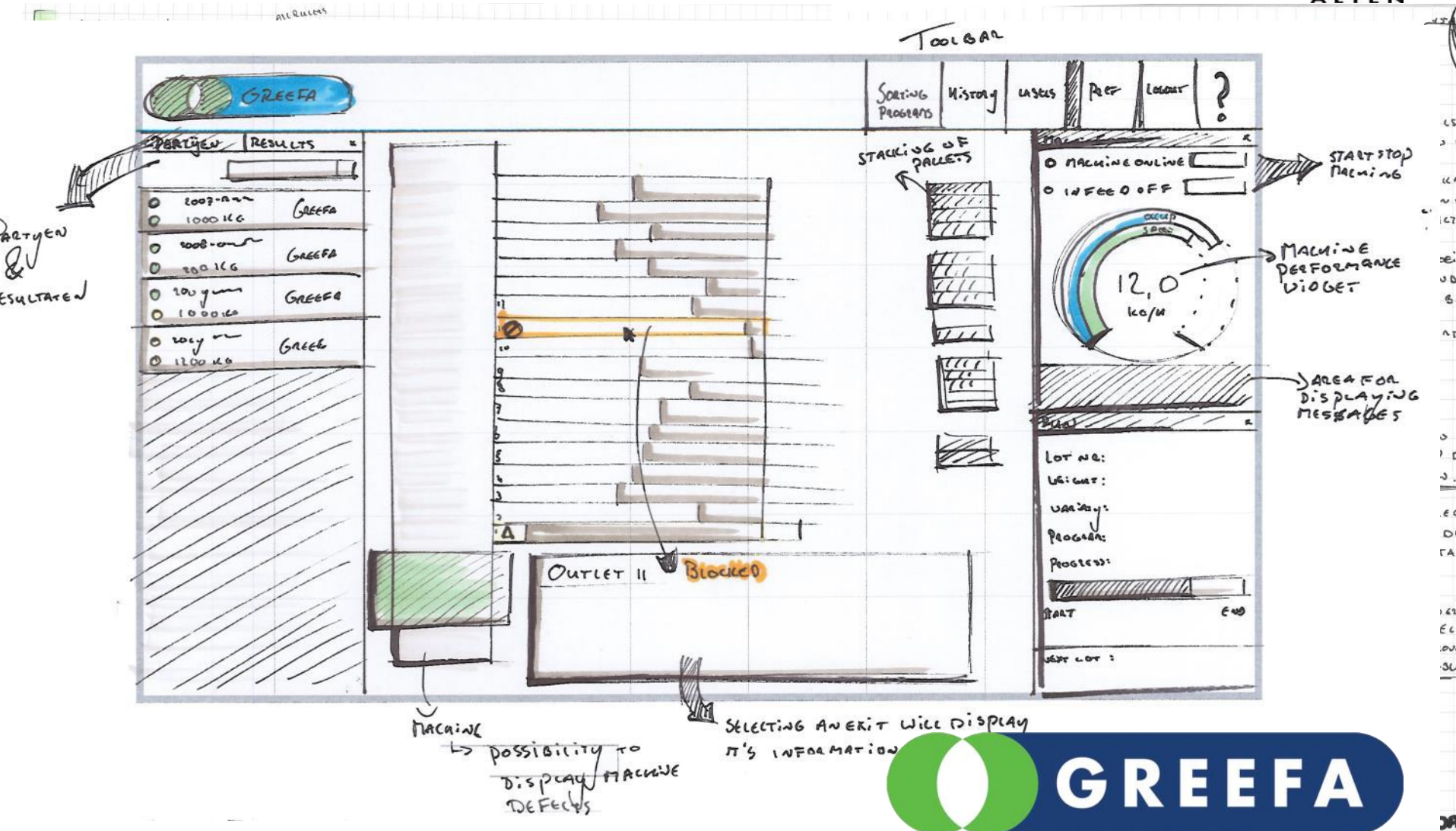
Categories

Category	Min	Description
1	1	A
2	2	I
3	3	II
4	4	III
5	5	C+M

Program Manager Criteria Sorting Groups Outlets Labels Miscellaneous

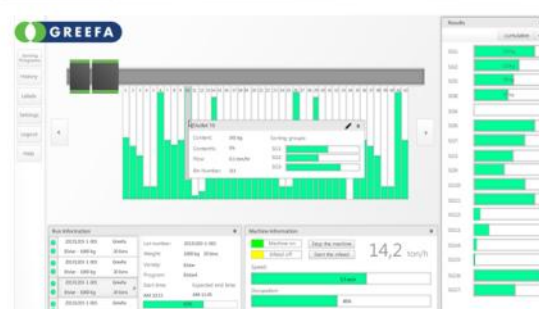
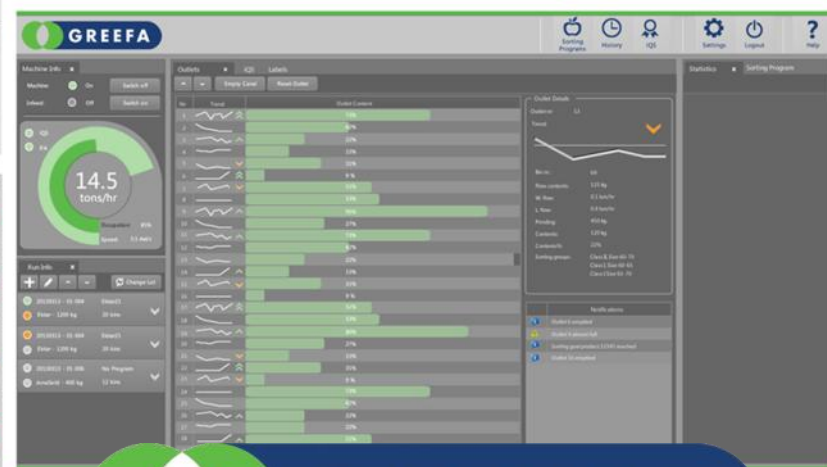
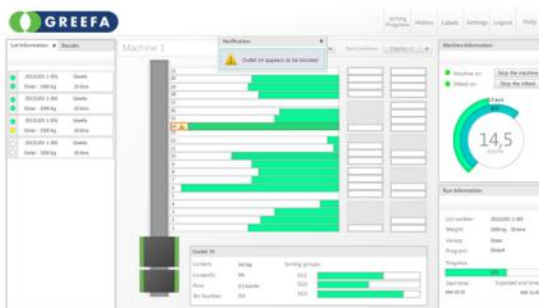
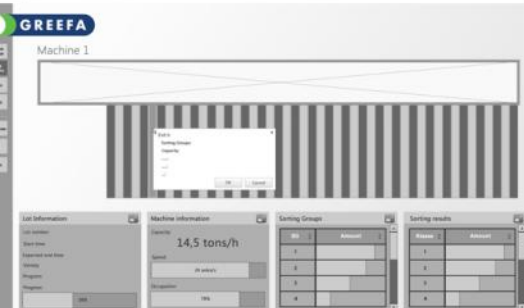
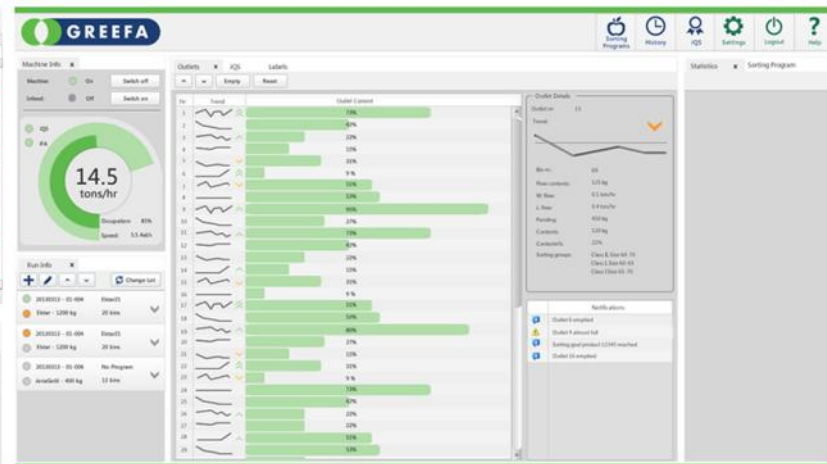


# Greefa – Wireframing

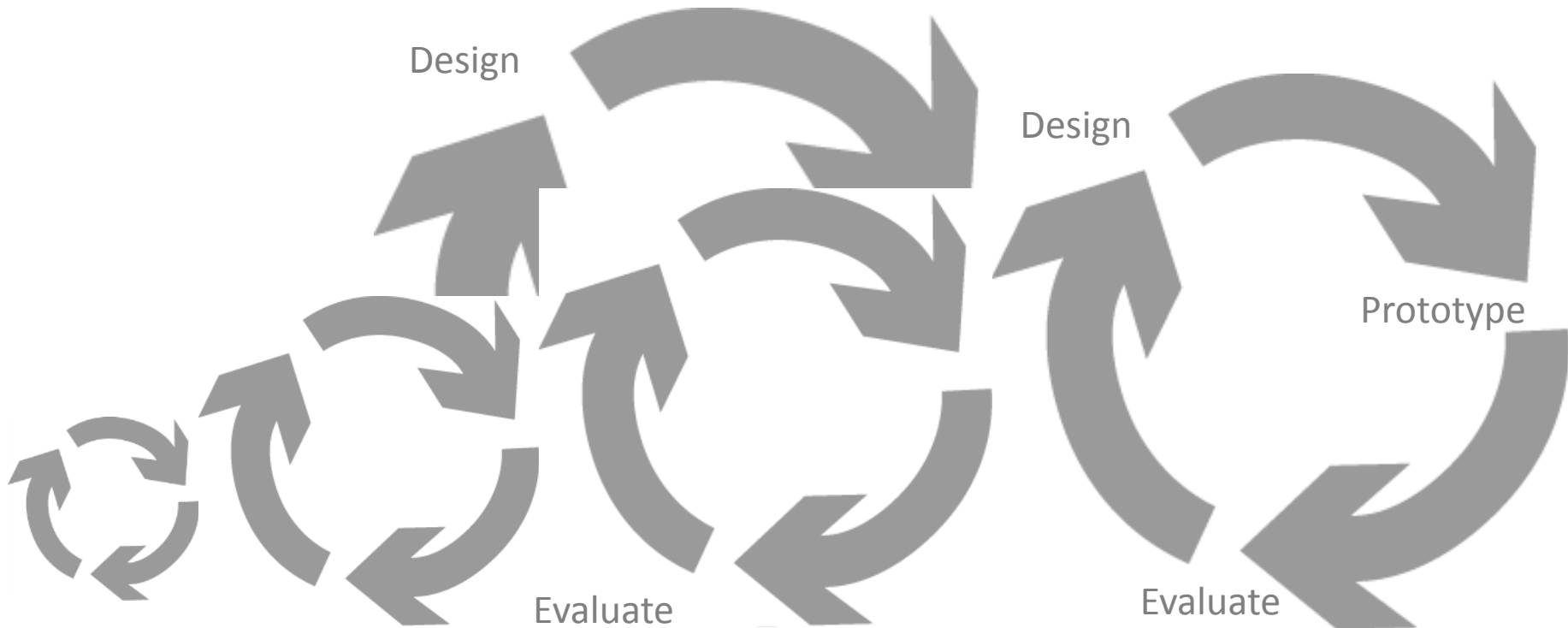




# Greefa – Wireframing



## Iterative design cycles



# Greefa – Current software

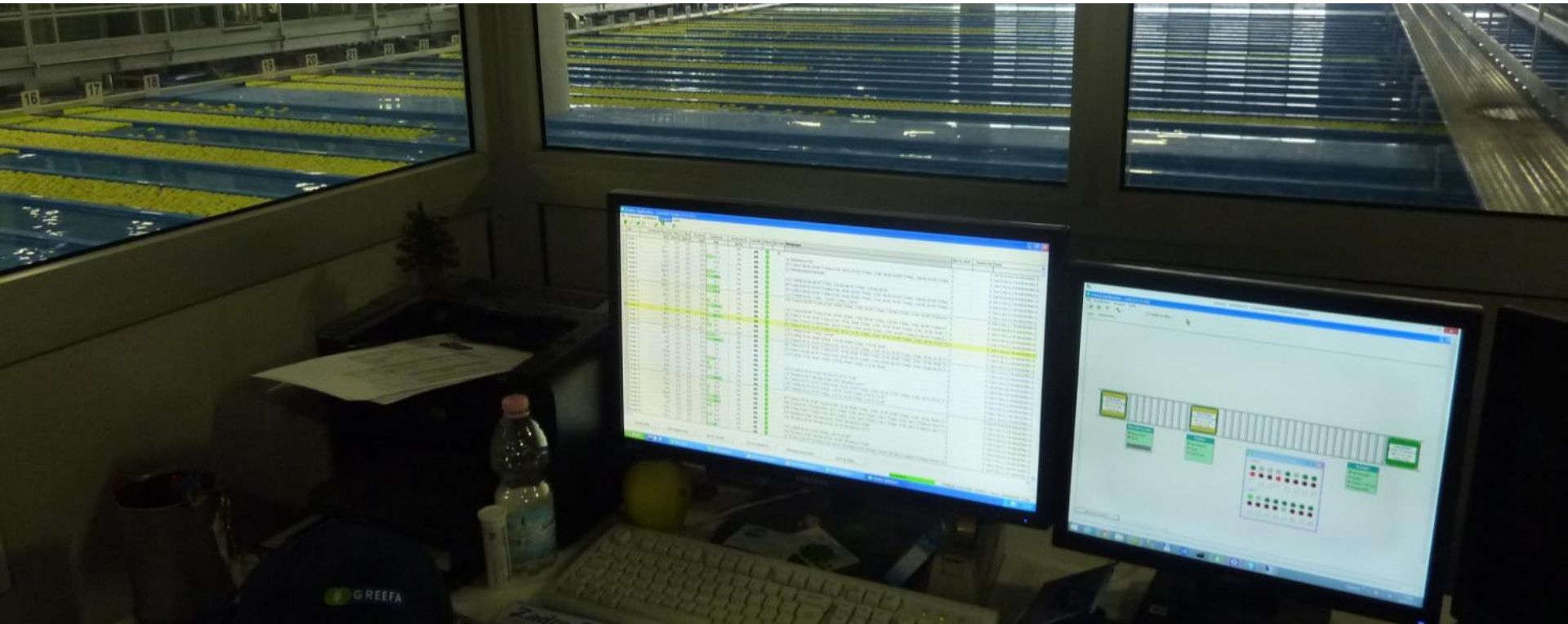


## Agile approach

- 2-weekly sprints;
- Iterative process;
- Embrace change into the process;

## Technical constraints

- Compatible with the old software
- Include all current functionality;
- Windows XP and Windows 8 compatible;





# Greefa – Intelligent Grading Software



# Greefa – Intelligent Grading Software



# Greefa – Intelligent Grading Software





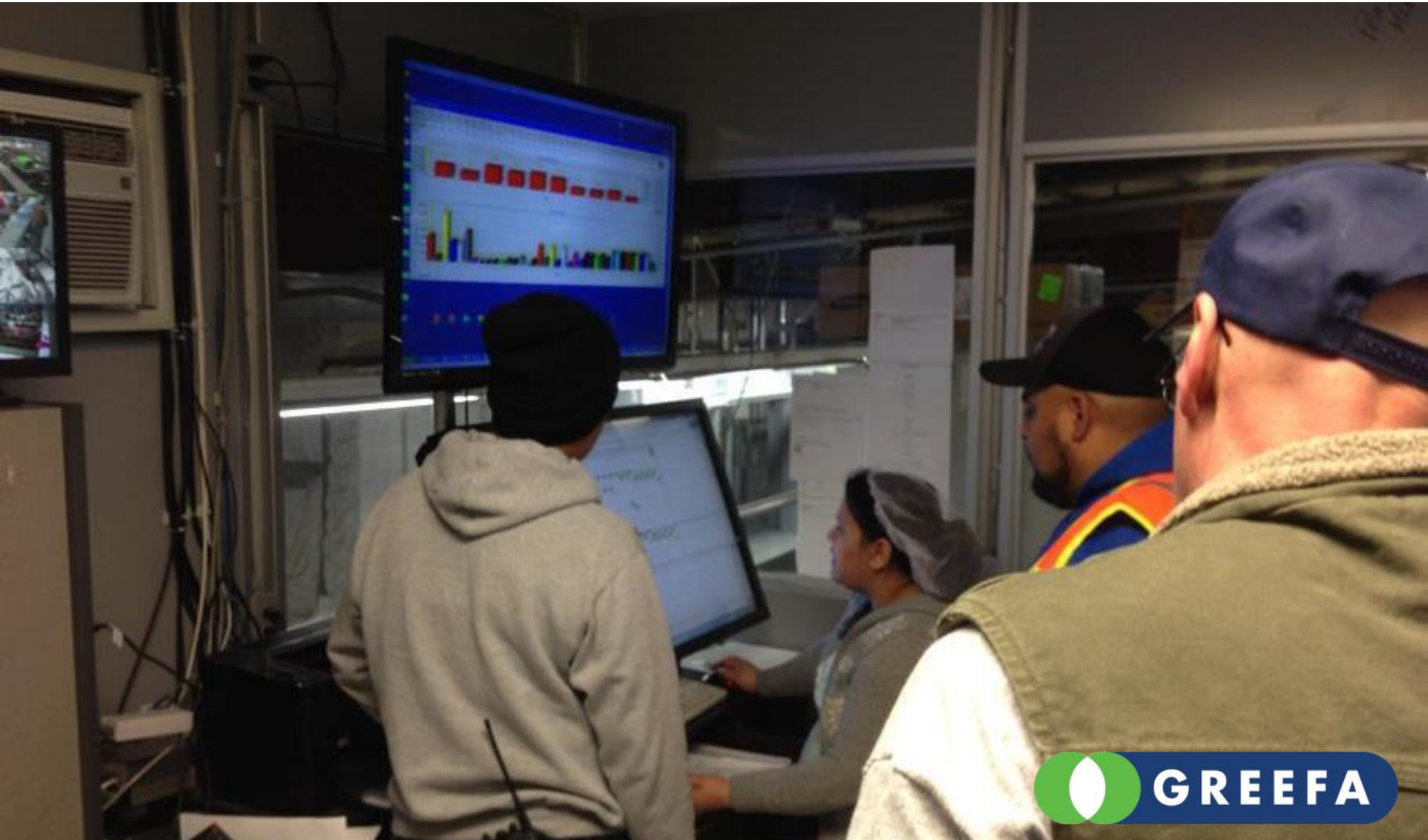
# Greefa – Intelligent Grading Software



# Greefa – Intelligent Grading Software



# Beta Testing





# Lessons Learned

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- Outsourcing works very well in these situations
- Agile software development offers the flexibility needed
- Domain knowledge is vital. Invest time and effort to obtain it!
- Part of the job is teaching your clients
- Involve your clients in the design process



# Questions?

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