Notat

Kravspecifikation – Simuleringsværktøj ved anvendelse af Dupont pyramiden	Ansvarlig	KGOU/KIHK
	Oprettet	20-12-2017
Projekt: 7438, Tjek økonomien – Styrk bundlinjen	Side	1 af 24

Indhold

Description

The idea of this product started with an interview between a farmer and a consultant. They were to discuss the future financial possibilities of the farmer, and how investments would affect his overall economy. The modelling of data and the calculations needed to visualise the possibilities for the farmers had to be based on existing and accurate date from the databases at SEGES. When these data was acquired, the farmer and the consultant could now help the farmer to understand his economic possibilities by visually showing the changes instead of merely trying to explain the consequences of the actions.

For this purpose SEGES developed the Microsoft Excel-prototype. This prototype was developed in corporation with 2 consultants from an advisory centre located near Copenhagen, Denmark. In this tool, all necessary data and calculations was determined so that the farmer in collaboration with a consultant is able to shape and model the existing data of the farmer to visualize and emphasize the possibilities of that particular farm.

This version of the program is focuses on the user experience, and how to enhance the farmer's understanding of the changes made while working with the program. This version will also allow the farmer to set specific goals, and help him reach these goals.
We want the farmer to play with the numbers and get a feeling of what is possible.

Reason for development

The current prototype have been approved by the consultants who developed the original tool. The program uses specific calculations to presents the user with certain numbers called "Nøgletal"", which changes based on modifications made to the original data.
The numbers are visualized in a pyramid figure, including both the farmers' current data, the new data. Furthermore the average of the best 1/3 of farmers in Denmark is shown in the program, so that the farmers can use this to benchmark against.
When a program with a complexity like this is presented as an Excel document the user might find it hard to keep track with the changes, and might even have trouble telling the usefulness of the program itself.

By improving the design of the program, we hope to illuminate the usefulness of the program and thereby help the farmer to realise their company's potential and help them to rethink their financial possibilities. Furthermore, we also believe that by improving the design of the program, we will give it a more finished feeling and emphasize that the program is developed for professional use.

Existing solution *(The exiting excel solution is included in the project folder*
The existing solution is a prototype build in Microsoft Excel. This prototype is fully functional, but is running on old data. In the new version, the user will have to download his current data from our Data-bank called "RegnskabsDatabanken" and upload these to the new Web-app.

Structure of old solution:
The program is organized in columns, through A-G and the "Nøgletal" presented in the columns J-T. These nøgletal is presented in two charts called "Rentabilitet" & "Soliditet og Risiko".
The data of this program is divided into two sections called "Produktionsgrundlag" & "Balance". This will be explained later.

The two charts are calculated based on the data in column D-E. The definition of the calculations used to make these charts is explained later in this document.
Column D displays the data input from the dataset the user uploads, and column E is where the user is typing the changes he wished to make in the program. When (-) is shown at a row in column D, it means that the farmer currently does not have any earnings or expenses in that field of interest and therefore should be considered as "0" in further calculations. However, the farmer is still able to enter data in column E, to simulate how investments or downscales will affect his economy and the data presented in the carts in column K-U.

	A	B	C	D	E	F	G	H	I	J
1			Simulering af ændringer i nøgletal		5	0		Bedste 3. del Landsplan		
2	Opstilling som intern regnskab.		Beregnet på internt regnskab	9702	Vælg Ejendomsnr.			Årets Resultat	Vælg Sml.Gr.	Renta
3	Og nøgletal efter dette.	006416	Ejendomsnummer	9702	SKRIV NAVN					Nu-situ
4	skal forklares hvorfor!		År	2014				2014		
5	Udbytter/Afregningpris.	006414	Kredsnummer	500				3		
6			**Produktionsgrundlag**							Afkast
7		dyrk_areal	Landbrugsareal, ha	214				202		
8	Korn IO	005210	Årssøer	0	Slagtesvin		Vælg Enhed	370		
9	Korn excl. IO	005250	Antal slagtesvin produceret	6071				7294		
10	Kartofler		*Slagtesvin*							
11	Ærter m.v.		**Resultatopgørelse**		Ændring					
12	Andre industriafgrøder	000100	Korn incl. intern omsætning	1.279.310			0 Kr.pr.ha	1.355.589		Ny-situ
13	Gartneriafgrøder	000105	Frøafgrøder	108.805			0 Kr.pr.ha	95.408		
14	Grovfoder excl. IO	000110	Handelsroer	-			0 Kr.pr.ha	90.892		Afkast
15	Energiafgrøder m.v.	000120	Raps	301.315			0 Kr.pr.ha	230.821		
16	Grovfoder IO	125+000130+000135+000140+000145	Andre afgrøder	-				113.839		
17	Bruttoudbytte Kvæg	000180	Bruttoudbytte Svin	3.521.513			0 Kr.pr.enhed	8.008.923		
18	Bruttoudbytte andre husdyr	bru_a_dyr	Bruttoudbytte andre husdyr	-				62.722		
19		000205	Maskinstationsindtægter	-				144.737		
20		andre_landbrugsindt	Andre landbrugsindtægter	19.140				161.636		Beløb
21		bru_i_alt	**Bruttoudbytte i alt**	5.230.083	0			10.264.570		Ændrin
22										Ændrin
23		000230	Udsæd	-96.545			0 Kr.pr.ha	-119.286		For at
24		000235	Gødning	-154.769			0 Kr.pr.ha	-131.594		Beløbe
25	Eget grovfoder	000240	Planteværn	-215.160			0 Kr.pr.ha	-175.638		
26	Færdigblanding mv.	000245	Diverse. vedr. planteavl	-40.302			0 Kr.pr.ha	-55.681		
27	Produktionsrådgivning	foder	Foderomkostninger incl. eget grovfoder	-881.280			0 Kr.pr.enhed	-3.174.228		Solid
28	Div. vedr. husdyrbrug excl. produkti	000270	Dyrlæge og medicin	-49.844	0		0 Kr.pr.enhed	-263.944		Nu-situ
29	Diverse vedrørende andet	000275	Diverse vedr. husdyr	-43.700			0 Kr.pr.enhed	-249.480		
30	Maskinstation diverse	stykomk_i_alt	Stykomkostninger ialt	-1.481.600	0			-5.911.085		Afkast
31	Maskinstation høst af korn og frø	DB	Dækningsbidrag	3.748.483	0			4.353.486		
32	Maskinstation - optagning									
33	Maskinstation, husdyrgødning	energi	Energi og brændstof	-227.287				-403.175		
34	Maskinstation, høst af grovfoder	maskst_omk	Maskinstation mv.	-55.703				-169.206		Egenka
35	Vedligehold bygninger, gårdsplads	vedl	Vedligeholdelse	-319.092				-413.068		forrent
36	Vedligehold grundforbedring	000357	Investeringer over driften	-7.834				-28.213		
37	Vedligehold markredskaber	000360	Lønomkostninger	-239.016				-845.395		
38	Vedligehold staldinventar	ejendomsskat_forsikring	Ejendomsskat og forsikringer	-85.705				-160.531		Ny-situ

Column A – Description of content in row
Column B – ID Number from our database

Column C – Name of data
Column D – Data input from upload
Column E – Changes made by user
Column F – Unit number
Column G – Unit description (Eg. "Kr. Pr. HA" OR "Kr. Pr.Enhed")
Column H – Average of the best 1/3 of Danish farmers.

All the data is placed into two large categories "Resultatopgørelse" and "Balance". To clarify the summations of data within these two main categories, they are separated into smaller sections "Subtotals". (The subtotals are highlighted with blue boxes in column D & E and a bold font in Column C)

The number highlighted with green is the subtotal of that above section and the yellow highlight shows the new total sum of all the above subtotals of that category, including the one just above.

22						
23		Udsæd	-96.545		0 Kr.pr.ha	-119.286
24		Gødning	-154.769		0 Kr.pr.ha	-131.594
25	Eget grovfoder	Planteværn	-215.160		0 Kr.pr.ha	-175.638
26	Færdigblanding mv.	Diverse. vedr. planteavl	-40.302		0 Kr.pr.ha	-55.681
27	Produktionsrådgivning	Foderomkostninger incl. eget grovfoder	-881.280		0 Kr.pr.enhed	-3.174.228
28	Div. vedr. husdyrbrug excl. produktio	Dyrlæge og medicin	-49.844	0	0 Kr.pr.enhed	-263.944
29	Diverse vedrørende andet	Diverse vedr. husdyr	-43.700		0 Kr.pr.enhed	-249.480
30	Maskinstation diverse	**Stykomkostninger ialt**	-1.481.600	0		-5.911.085
31	Maskinstation høst af korn og frø	**Dækningsbidrag**	3.748.483	0		4.353.486

These subtotals are also included in the new design. Here all the subtotals have their own box, in which both the current data and changes are shown. The structure of this page will be described in the "design" section of this document.

Overblik	Produktionsgrundlag	Resultatopgørelse	Balance	Ændringer

Målsat ændring i afkastningsgrad
110.000 / 331.000 kr

Bruttoudbytte i alt	Dækningsbidrag	Resultat af primær drift	Resultat før finansiering
5.913.000 kr	4.000.000kr	1.936.000 kr	2.300.000 kr
Ændring	Ændring	Ændring	Ændring
0	0	0	0

Resultat efter finansiering	Resultat før regulering og skat	Årets resultat før skat	Årets resultat
902.000 kr	1.120.000 kr	1.203.000 kr	1.400.000 kr
Ændring	Ændring	Ændring	Ændring
0	0	0	0

All the boxes are clickable and will present the user with a subpage, containing all the data necessary to generate that particular subtotal. The data from the first box is included in the second one, and so on. Resulting in the final box called "Årets resultat".

The "Nøgletal" Charts

These charts show the key-numbers for the property, as well as the best 1/3 of farms in Denmark. The best 1/3 is the numbers written with red numbers. The charts are divided into "now-situation" (Nu-situation) & "New situation" (NY-situation). This allows the user to see how the key-numbers change when making changes in the data I column E. The Chart "Rentabilitet" Starts with Rentabilitet and fans out into 4 sublevels.

The Farmer also have the opportunity to easily check how much money he has to "find" to reach a specific percentage increase in the "Afkastningsgrad" (Return on asset) in either the "results" section or the "balance" section.

This is done in the bottom of the chart for "rentabilitet". Entering 0.01-100.00 in either of the two entry fields will run the calculations on how much money the user will have to reach to match that rise.

Ændring i afkastningsgrad på	1%	-point kræver ændring i resultat på	331.009 kr.	som kan fordeles i resultatopgørelsen efter ønske.
Ændring i afkastningsgrad på	1%	-point kræver ændring i balance på	5.840.259 kr.	som kan fordeles i balancen efter ønske.
For at opnå en ændring i afkastningsgrad kan man naturligvis også kombinere ændringer i resultatopgørelse og balance.				
Beløbene ovenfor er "alt andet lige".				

(Eg. Here the farmer wants to sse how much money he has to find to reach 1% increase in the "Afkastningsgrad". the program now tells him that this requires 331.009 DKK in income, or a balance of 5.84 Mio. Dkk.)

This is the ID's and calculations needed.

X = desired % increase

Ændring I afkastningsgrad på X % point kræver ændring i resultat på XXX kr. som fordeles i resultatopgørelsen efter ønske = $\frac{Aktiver\_i\_alt\_du}{100} * X$

Ændring I afkastningsgrad på X % point kræver ændring i balance på XXX kr. som fordeles i balancen efter ønske =

$$ver\_i\_alt\_du - \frac{\text{Virksomhedens afkast} + X}{(res\_e\_finans) + (Forpagtningsafgift)}$$
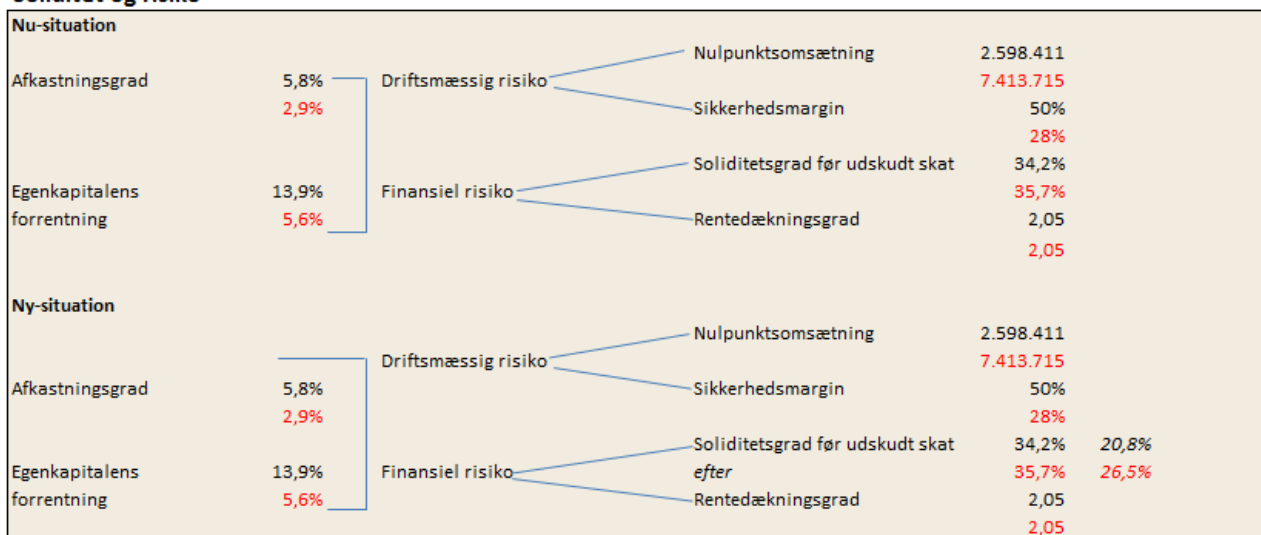
Best 1/3 of Danish farmers

Throughout the program, the user can compare themselves to the average best 1/3 of Danish farmers. This is shown at certain places in the program.

The data for the best 1/3 is updated/uploaded from the backend of the program and every user sees these data when SEGES uploads or updates the best 1/3, the data looks exactly like the users spread sheet.

Rentabilitet

Nu-situation

	Aktivernes oms.hastighed	0,16
		0,22
Afkastningsgrad	5,8%	Kapacitetsgrad 2,01
	2,9%	1,38
	Overskudsgrad	35,5%
		13,2%
		Dækningsgrad 71,7%
		42,4%

Ny-situation

	Aktivernes oms.hastighed	0,16
		0,22
Afkastningsgrad	5,8%	Kapacitetsgrad 2,01
	2,9%	1,38
	Overskudsgrad	35,5%
		13,2%
		Dækningsgrad 71,7%
		42,4%

Beløb

Ændring i afkastningsgrad på   1% -point kræver ændring i resultat på   331.009 kr. som kan fordeles i resultatopgørelsen efter ønske.
Ændring i afkastningsgrad på   1% -point kræver ændring i balance på 5.840.259 kr. som kan fordeles i balancen efter ønske.
For at opnå en ændring i afkastningsgrad kan man naturligvis også kombinere ændringer i resultatopgørelse og balance.
Beløbene ovenfor er "alt andet lige".

Soliditet og risiko

Nu-situation

		Nulpunktsomsætning	2.598.411
Afkastningsgrad	5,8%	Driftsmæssig risiko	7.413.715
	2,9%	Sikkerhedsmargin	50%
			28%
		Soliditetsgrad før udskudt skat	34,2%
Egenkapitalens	13,9%	Finansiel risiko	35,7%
forrentning	5,6%	Rentedækningsgrad	2,05
			2,05

Ny-situation

		Nulpunktsomsætning	2.598.411	
Afkastningsgrad	5,8%	Driftsmæssig risiko	7.413.715	
	2,9%	Sikkerhedsmargin	50%	
			28%	
		Soliditetsgrad før udskudt skat	34,2%	20,8%
Egenkapitalens	13,9%	Finansiel risiko	efter 35,7%	26,5%
forrentning	5,6%	Rentedækningsgrad	2,05	
			2,05	

The second chart has the title "Soliditet og risiko". This has the same general features as the one before called "rentabilitet". This however is just the fan of numbers and the black numbers represents the user's data, and the red numbers show the average of best 1/3 Danish farmers.

This chart has also a divided into two sections, New & Now, whereas "Now" calculates the numbers based on the data original data and "New" does the culculations based on the changes made in column C&D in the left side of the spreadsheet.

Schedule

We aim to have a working project ready to test by the end of April. Therefore the time scheduled to for development stretches from early March to late April, giving the developers approximately 2 months to code this program.

By late April we plan to test the program on 4 consultants in 2 of the Danish agricultural advisory companies. Furthermore, we also want to run tests on farmers to get their opinions on the program as well. The Current state of the program (spreadsheet), haven't yet been tested on actual farmers.

	1/2	15/2	1/3	15/3	1/4	15/4	1/5	15/5	C
Devspec report	███	███	███	███					
Development					███	███			
Test - Consultants						███			
Test - Farmers							███		
Changes to program								███	
Program launch									███

When the tests have been completed, severe changes have to be corrected before the official release of the program. These Changes will as seen in the timeline above be changed before we can launch the final version.

Functional requirements

Description of navigation (Klicks and custom data entry)

Data Entry

In this new version we aim to use the newest data. Therefore, the consultant has to upload their datasheet each time they use the program.
The structure and ID-references in the datasheet is the same for all users. These data origins from "rergnskabsdatabanken" Has to be saved as an .xlsx file before uploading to this program. In this datasheet is many rows of data, but only the first 1500 rows is required for this program to work. This includes:

(*IDnumber-Description-Unit description – quantity*)
In the document "Simuleringnøgletal_With_IDNumbers.xlsx" all ID numbers need is shown in column B

Data_input

All data must be whole thousands, unless the data is below 1000.
(E.g. 172.877 = 172.000)

When uploading data
When the user uploads his/her data, it has to happen on a landing page before entering the program.

The square in the middle of the sqreen is a upload button, that open the pathfinder on the computer, for the user to locate the spreadsheed. If possible, a drag and drop solution should also be included.
Beneath the entry box, a help button. This enables a box with a helpful text and possibly a youtube video. Helping the user to find and download the correct spreadsheet.
Clicking outside this box or bressing the "close" button will disable the help box. If a dataset is uploaded in a different forfat than excel, an error message saying "Vælg venligst korrekt format" shall appear above the upload button.
If however ID numbers are missing or doesn't have the same ID numbers in the spreadsheet, as need in the program, these should be calculated as a zero throughout the this session. Therefore not dening the user access, but just using the Data with matching ID refences.

Only data with a number larger than 0, should be included in the program. While working with the program, the user is able to add more elements, to that section. This is done by pressing the "Tilføj Ny" button. This displays a list of un-used data for that section, which in the imported data= 0. These also have a predefined ID-reference, and can therefore be included in the calculations throughout the program.

Lists & comments
When the user is finished working with the program, to option to print/export the changes they made should be accessable through the tab called "Ændringer" meaning "changes " in Danish.
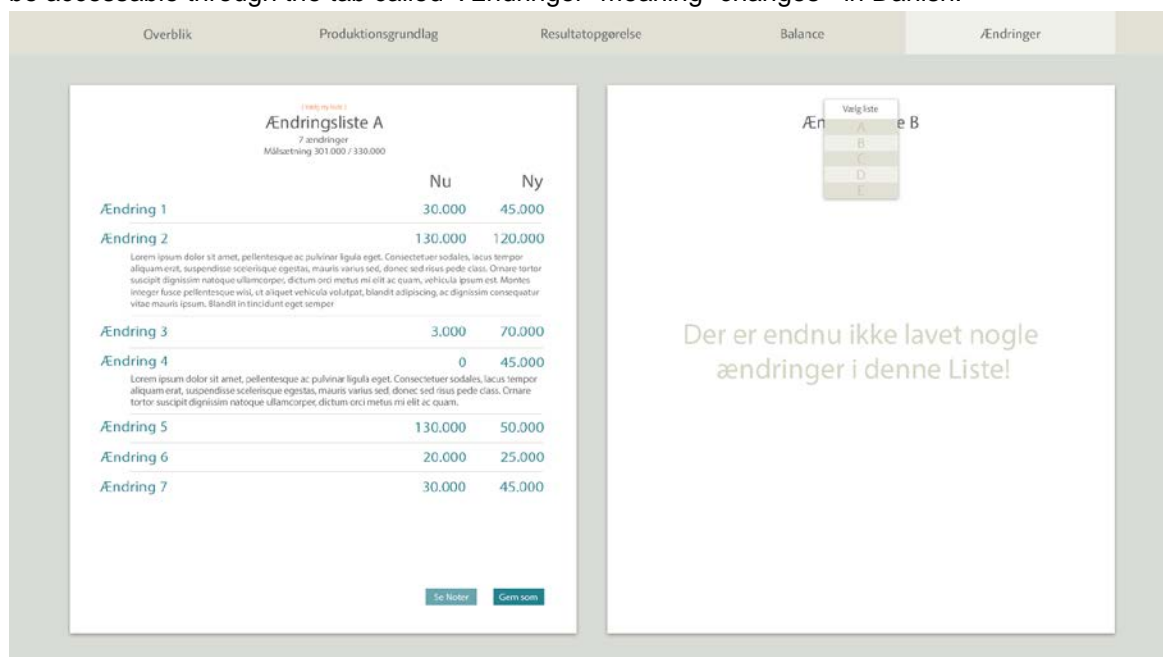
Tab – "Ændringer" – Provides a Changes overview – Save/Export document

When the user is working Changing data in either of the tabs "Resultatopgørelse" and "Balance", he can at each individual modification choose to tie that specific action to a "List" of changes. These lists are called "action plans".

The user can link to 5 different lists (A-J) *See picture below (Green= List not chosen / Red = list chosen).* The user can connect as many changes to a single action plan as he wants. If however, the user does not select any groups throughout the use of the program; all changes will be presented in the "overall" list, which
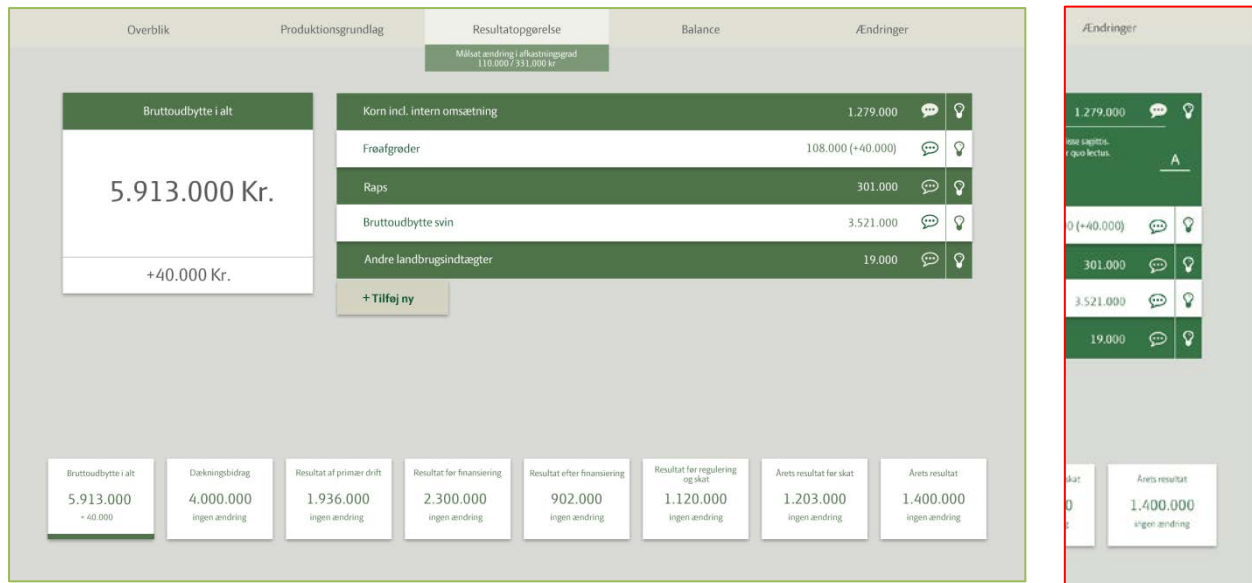
is just called "Ændringsliste".
These lists can at all time we viewed in the menu tab called "Ændringer".

The lists (Action plan) include:

-   Title (Ændringsliste A, B, C ETC.)
-   Number of changes in that specific list
-   Målsætning "Target" (The goal set in the tab called "Resulatopgørelse", and the sum of changes made in this list)
-   Content
-   Export button (Gem som)
-   Toggle notes button

The content of the lists is:

-   Title of section
-   Current data (Before changes)
-   New Data (Modified data)
-   Comments (Notes the user made on this section) – These comments can be toggled on/off by clicking the button in the lower right corner.

Notes

The user can access the comment section – List chooser included, by clicking the "Comment" icon on the right side of each element. This toggles a drop down effect from that specific element, and allows the user to write comments and select a list.

When a comment has been attached or the element has been included in a list, the "comment" icon changes color, from only being outline too full color. This helps the user to recognize that changes have been made to this element.

If the user wants to make more changes to the data, they can do so. When changing between menu tabs, changes are saved. Therefore, the user can go back to element they want to correct. When re-entering the tab "Ændringer", these changes have been saved and is now shown in the lists as well.

Export
Exporting lists is done by clicking the button in the bottom right corner of each list. This allows the user to save the lists to their computer, and thereby access them later.
The exported list is saved as PDF, and the user decide the name of the document. A placeholder name is given, by combining data and list name. (E.g. *08-03-2017_Aendringsliste_A*. pdf)

Calculations – data management

The calculations showed here are mainly to make the two charts "Rentabilitet" and "Soliditet og Risiko" works. Here you see the calculations with data names. Beneath that are the same calculations with ID numbers.

Rentabilitet

Virksomhedens afkast
$$\frac{\text{Resultat før finansiering} + \text{Nettoforpagtning} + \text{Ejeraflønning}}{\text{gns.aktiver i alt} - \text{gns.private aktiver} - \text{gns.finansaktiver}} \times 100$$

Virksomhedens overskudsgrad
$$\frac{\text{Resultat før finansiering} + \text{Nettoforpagtning} + \text{Ejeraflønning}}{\text{Bruttoudbytte}} \times 100$$

Aktivernes omsætningshastighed
$$\frac{\text{Bruttoudbytte}}{\text{gns.aktiver i alt} - \text{gns.private aktiver} - \text{gns.finansaktiver}}$$

Dækningsgrad
$$\frac{Dækningsbidrag}{Bruttoudbytte} \times 100$$

Kapacitetsgrad
$$\frac{Dækningsbidrag}{Kapacitetsomkostninger\ i\ alt + Ejeraflønning}$$

Soliditet og Risiko

Virksomhedens afkast
$$\frac{Egenkapital, ultimo}{Aktiver\ i\ alt, ultimo} \; x \; 100$$

Virksomhedens afkast
Til egenkapital
$$\frac{\text{Resultat før finansiering} + \text{Nettoforpagtning} + \text{Renteindtægter}}{\text{Renteomkostninger}} \times 100$$

Nettobærenede gæld/res før
Renter, skat og afskrivning
$$\frac{Realkredit- og\ pengeinstitutlån, inkl.kassekredit - indlån - aktier\ mv.}{\text{EBITDA}}$$

Soliditetsgrad
$$\frac{Egenkapital}{Aktiver\ i\ alt} * 100$$

Rentedækning
$$\frac{\text{Resultat før finansiering} + \text{Nettoforpagtning} + \text{Renteindtægter}}{\text{Renteomkostninger}}$$

Rentabilitet

Virksomhedens afkast

$$\frac{\text{res\_f\_fin} - \text{norm\_ejerlon} + 000815 + 000810}{aktiver\_i\_alt\_du - 001054 - fin\_a\_u} * 100$$

Virksomhedens overskudsgrad

$$\frac{\text{res\_f\_fin} - \text{norm\_ejerlon} + 000815 + 000810}{\text{bru\_i\_alt}} * 100$$

Aktivernes omsætningshastighed

$$\frac{\text{bru\_i\_alt}}{\text{aktiver\_i\_alt\_du} - 001054 - \text{fin\_a\_u}} \, x100$$

Dækningsgrad

$$\frac{DB}{Bru\_i\_alt} * 100$$

Kapacitetsgrad

$$\frac{DB}{\text{kap\_omk\_i\_alt} + \text{norm\_ejerlon}}$$

Soliditet og Risiko

Virksomhedens afkast

$$\frac{\text{res\_f\_fin} - \text{norm\_ejerlon} + 000815 + 000810}{aktiver\_i\_alt\_du - 001054 - fin\_a\_u} * 100$$

Virksomhedens afkast til egenkapital, pct.

$$\frac{\text{res\_e\_fin} - \text{norm\_ejerlon}}{\text{egen\_kap\_u}} * 100$$

Nettorentebærenede gæld/res før
Renter, skat og afskrivning

$$\frac{-(\text{realkredit}_u + \text{pengeinst}_u + 001260 - \text{indlaan\_mv\_u} - \text{aktier\_u} - oblig\_u)}{\text{DB} + \text{kont\_kap\_omk} + \text{anden\_indt} + \text{afk\_stotte\_mv} + 000815 + 000810 + 001400 + 000899}$$

Soliditetsgrad

$$\frac{\text{egen\_kap\_u}}{\text{aktiver\_i\_alt\_du}} * 100$$

Rentedækningsgrad

$$\frac{\text{res\_f\_fin} + 000815 + 000810 + 000820}{\text{renter\_u\_landb}}$$

Non-functional requirements:
Intro
Because this is a program developed by SEGES, it has to follow the essentials of our company design manual. Throughout this next section we will cover these predefined guidelines.

Font
SEGES has established its own font, which has to be used throughout all graphic material and programs developed by SEGES. This font is called "LF Press". LF Press has several different styles which have to be correctly integrated in the user interface of this program.

Regular   Bold   Heavy   Light   Poster

Regular: Most common throughout the program. E.g. used for Content / Numbers and comments
Bold: Used for conclusion / Sums of numbers and buttons
Heavy: Used for special uses, where special text and numbers have to be further enhanced than normal and the Title on the landing page.
Light: Used mostly as helping text, E.g. Re-selecting lists on the "Ændringer" page.
Poster: Used for warnings and notifications (during this development, this font style is not used).

The Font will be provided by SEGES during development.

Colour
Like the font, SEGES also uses specific colours in publications and program development.

#dd8854	#367446	#6f9976
#22818f	#69a5af	#58595b

#d6d4c3	#d8dad5	#e0e0d4
#f0f0e9	#ffffff	
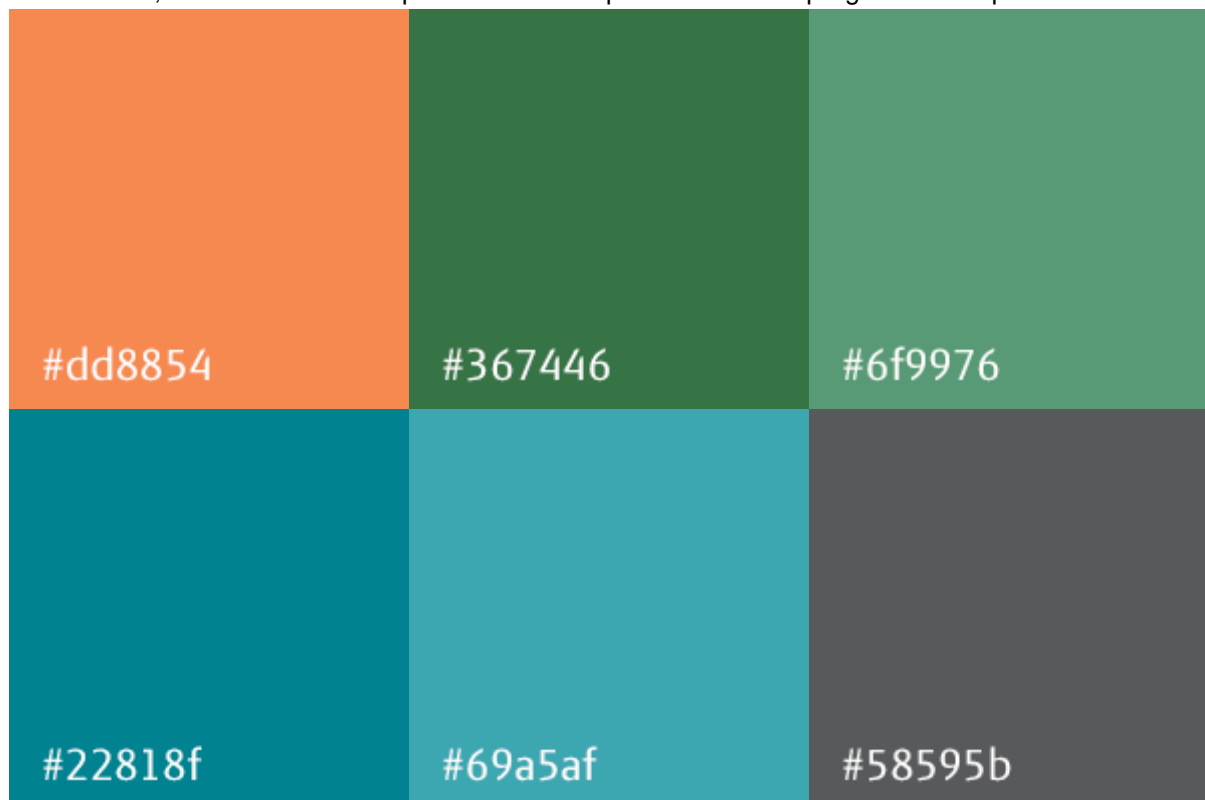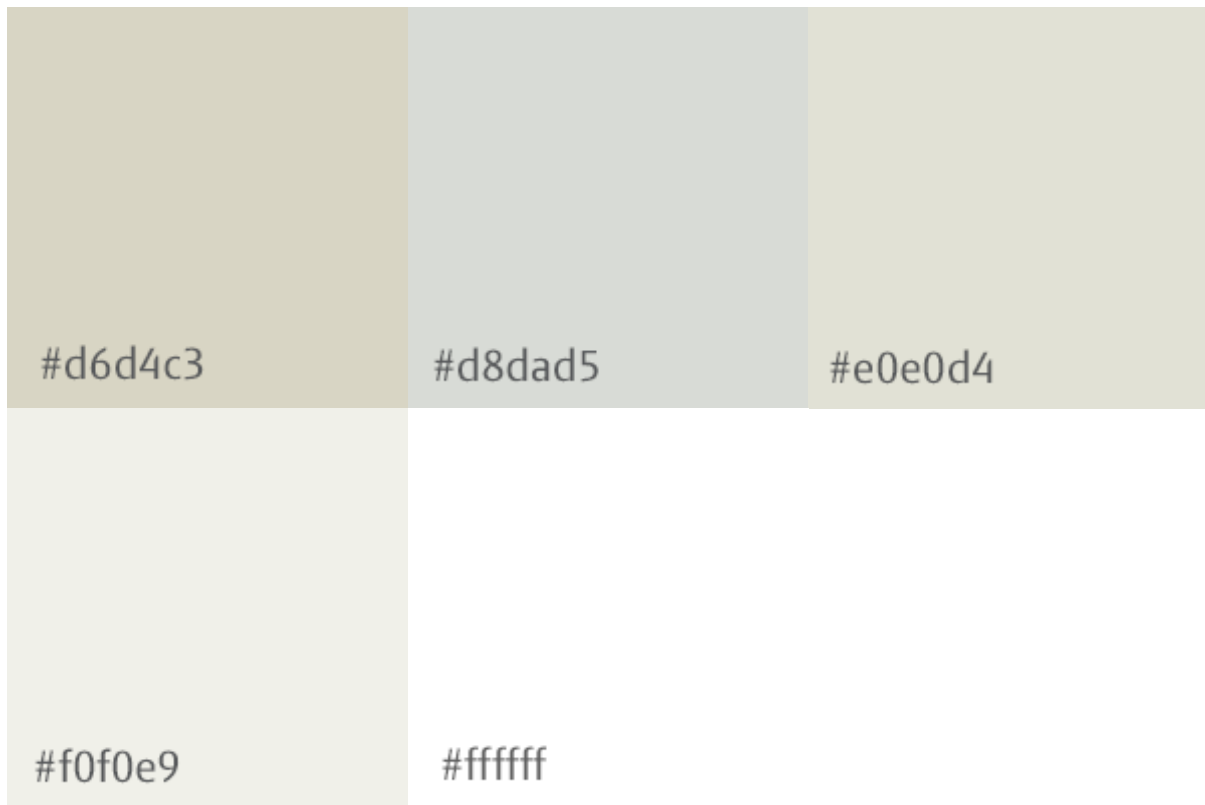
These 12 colours are the main colours used in the program. Colours of icons may astray from these, but can be defined from the mock-ups shown later in this document.

Each tab in this program is assigned a colour code, so it is easier for the user to keep track os the different data.

These colourcodes are defined like this:
Overblik: Orange (#dd8854)
Produktionsgrundlag: Light blue (#7da3ad)
Resultatopgørelse: Green(#4f734a)
Balance: Blue(#22818f)
Ændringer: White/Grey (#f0f0e9)

Overall design
The dimensions and proportions described in this section is based on a resolution of 1920x1080. The program has to be responsive and scale with different screen sizes, for the program to be considered useful post development. This is important, since consultants use different devises when visiting the farmer on his property.

Intro
The core design of this program is based on googles design principals "Material Design". The idea of material design is to create hierarchy, meaning and focus towards the objects presented to the user. Throughout the program, we will focus on whitespace and a graphic interface, to easy the use of complex data.
We will not follow the guidelines of googles material design complete, but follow the key features. These

features will ensure that the User interface of the program is kept simple, and that future programs developed by SEGES will have a similar visual appearance.

The explanation of google "material design" can be found here:
https://material.io/guidelines/material-design/introduction.html

Content looks

The visual expression of the program build on the section of "material design" called cards. Cards are square shapes, in which content is presented. The "cards" use shadows to give the perception of depth. By elevating the content we easily but effectively separate content from another.

The shadow elevation is different, when different squared overlap, the elevation increase. Bottom layer cards are normally elevated 2px, but the layers thereafter is 8px above the one below (See picture).

This, elevation is not included in the top menu.

All cards have a white background and a title bar at the top. This bar changes color, relative to each individual page.
However, on the subpages of "balance" and "Resultatopgøelse", the white bars are always elevated above the colored ones. (This is the first level of elevation = 2px shadow)
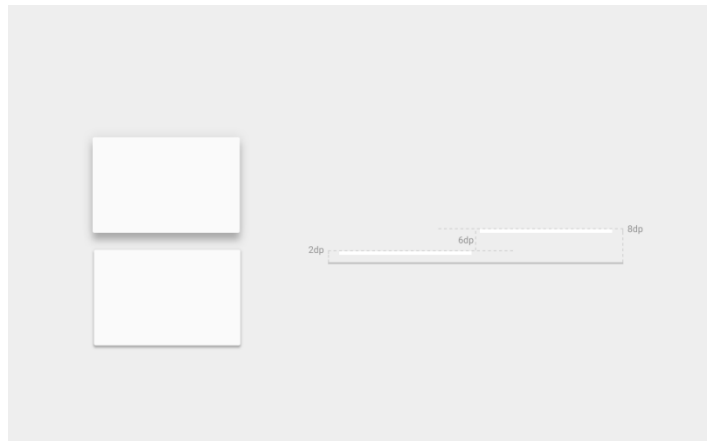
Tilgodehavender	265.000		
Andel og mellemregning I/S	0		
Værdipapirer	649.000		
Likvide beholdninger	88.000		

 Some cards have a title bar. This title bar changes color and width, depending on the card. The height is however fixed. = 75px.

Menu

Target objective - menu

If the user has set a target objective in the tab "Overblik", this objective will be displayed in a box below the menu bar, when entering the tabs "Resultatopgørelse" and "Balance".

These "Target objective" boxes have the colour of the related Content, and the text is white (#ffffff)
Resultatopgørelse = green (#6f9976)
Balance = Blue (#69a5af)
This box shows the user how close he is to reaching his target objective for that area, without having to go back to the "Overblik" tab each time changes are made.
(Note. The Target objective will be different in the two tabs, since it is based on different calculations. See the Section about calculations for further explanation)

Difference in target objective for "Resultatopgørelse" & "Balance"

User interface

In this next section, I will go through the mockups of the program and explain the functionalities each page, along with the design information.

The Mockups are made in 1920x1080 resolutions, and the developer can therefore use the Photoshop files as reference during development.

All Mockups are included in the project folder, when development begins (PNG + PSD files). If corrections are needed to certain elements during the development phase, the employee at SEGES will correct these and send them to the developer.

An interactive prototype has been produced, for the development of this project. This can be used to increase the understanding of the basic structure of the program.
The interactive prototype can be found here: https://invis.io/AB9NLZSK7#/210318162_Oversigt_-_Tom

Mockups

Data entry:

Functionalities

This page is the landing page of the program.

It basically has one function. This is to upload the Spreadsheet file, downloaded from our website "regskabsdatabanken".

This is done by clicking the center button and selecting the file. Below this button is a help button.

This enables a drop textbox with the text "Du skal hente dine data fra regnskabsdatabaken, og gemme dem I excel. Herefter kan du bruge dem i dette program". A video can also be added. (video originates from youtube/Vimeo – Link will come during development.)

Design:

Background image: The background image is included in the project folder.
  - Filename: sky-field-summer-agriculture.jpg

Title:
  - font style: Bold
  - Color: #58595b
  - Size: 120pt

Subtitle:
  - font style: regular/italic
  - Size: 30pt

Button:
  - Color: #58595b
  - Line width: 3px.
  - Font style: Regular
  - Font size: 30pt

Help button:
  - Color: #58595b
  - Line width: 2px.
  - Font style: Regular
  - Font size: 16p

Produktionsgrundlag
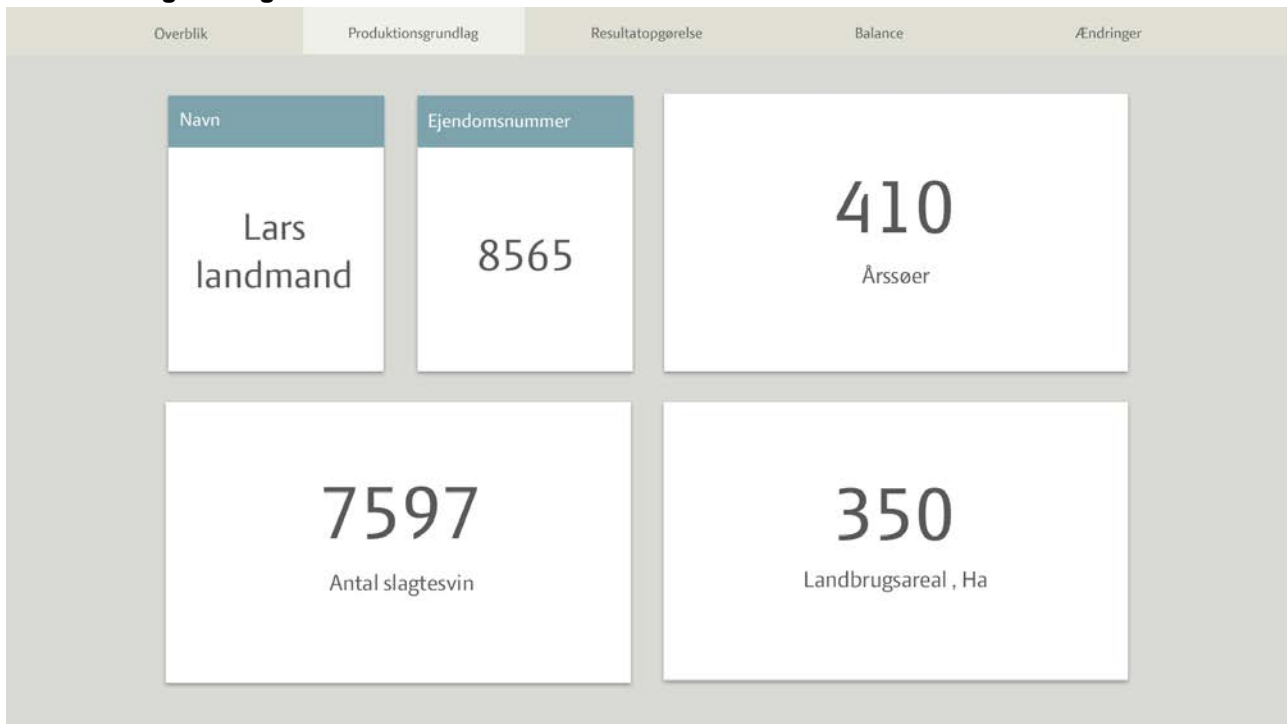
After uploading the spreadsheet successfully, the user will be directed to this page. This shows the key information about the specific farmer (These data are also included in the spreadsheet).

This information on this page are:
1) Name (Navn)
2) Property number (Ejendomsnummer) & (Kredsnummer)
3) Pigs (Årssøer & Slagtesvin)
4 farmand (Landbrugsareal)

None of these cards are clickable. The user is presented with these key data, to assure that the data are in fact correct and up to date and to ensure that the correct user is selected.

Design
Cards:
  - Background color: (#d8dad5)
  - Size (*Big/small*): 700x420px / 320x420px
  - Space between: 50px
  - Font Key data (*Size/Type*)*:* 120pt / Regular
  - Font title key data (*Size/Type*)*:* 36 / Regular
  - Font color: (#58595b)
  - Title bar color: (#7da3ad)

Overblik
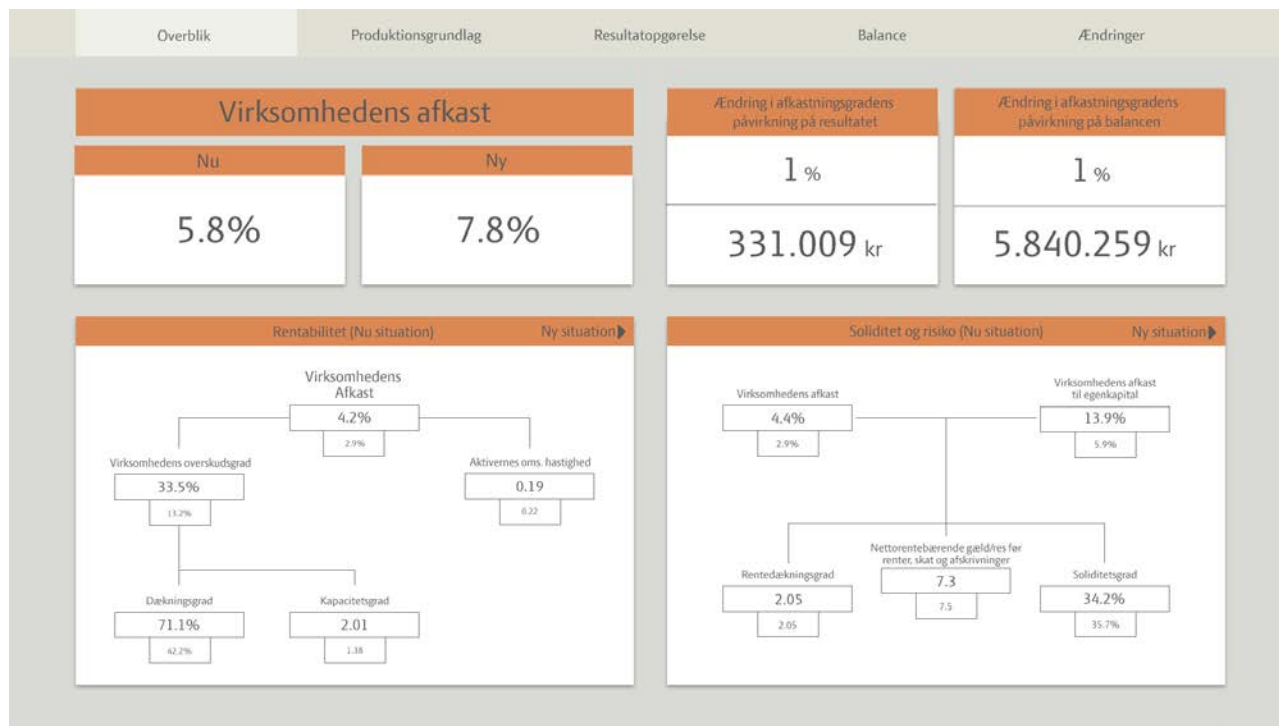
This page displays how all the numbers affect each other, and presents the user two charts "Rentabilitet" and "Soliditet og Risiko" in a new layout.

The tab "Overblik" basically contains the same information as the forms in the picture with a red border.

The number "Virksomhedens afkast" is precent in both charts, and can be seen as the foundation for the rest of the numbers in the charts.

Therefore it is in the user's interest to see how much money they need to earn to change this number. They can do this in the top boxes.

In the top right side, is a % to DKK Calculator, here the user can enter either a "%" or a number, and see equivalent in the opposite text field. *This percentage can go from 0.01% to 100.00%.*

E.g. the user wants to see how much money 1% change is equivalent to in the "resultatopgørelse" tab. He enters 1% and is shown the number 331.000Dkk. Now he knows he needs to raise the numbers in the "resusltatopgørelse" tab, by this amount for "Virksomhedens afkast" to raise 1%.

This function works the other way around as well, so the user can see how many %, 500.000Dkk is equivalent too.

The other box shows changes in the "balance" tab.

When changes are made, they are shown in the top right box called "NY" – and the number of DKK is shown as the target objective in the menu from that moment.

Old design

Resultatopgørelse

This is an overview page of all the subtotals in "Resultatopgørelse". The data of the subtotals multiplies with each other (starting in the top left), ending with "Årests resultat".

These cards are clickable and will direct the user to pages with the data for that specific area. In those sub-pages the user can change the content.

The Subtotals of This page is:
- Bruttoudbytte I alt
- Dækningsbidrag
- Resultat af primær drift
- Resultat før finansiering
- Resultat efter finansiering
- Resultat før regulering og skat
- Årets resultat før skat
- Årets resultat

Design
- Background color: (#d8dad5)
- Card size: 320x420px
- Space between: 50px
- Font Card title (*Size/Type*): 24pt / Regular
- Font title data (*Size/Type*): 40 / Regular
- Font color: (#58595b / #ffffff)
- Title bar color: (#367446)

Subpage Resultatopgørelse
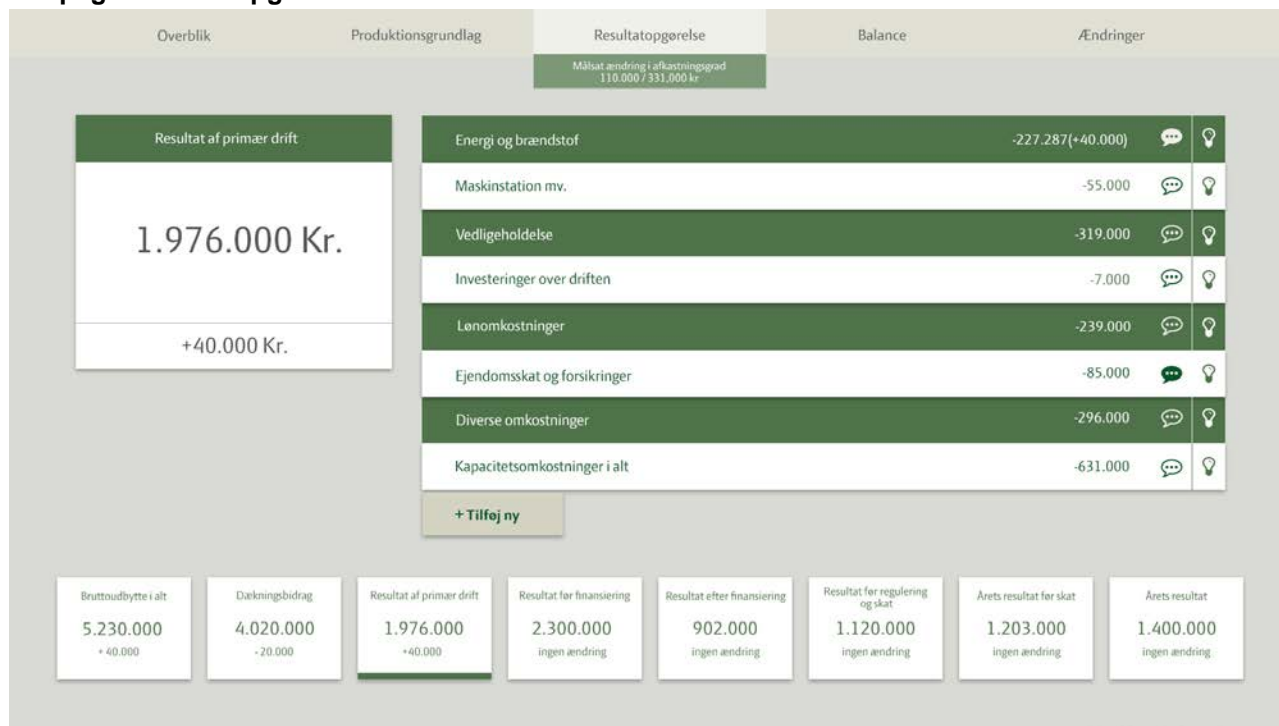
This is where the user is presented with all the data for that specific element and makes changes to his data. In the box on the left side the user have the total sum, until that point. (The previous subtotals, and this one added together) below this is the sum of changes make on this current subpage. (the mockup shows Minus 20.000 on the subject "Udsæd")

In the big striped box on the right side, are all the topics that, when put together form the subtotal "Dækningsbidrag".
The user can modify these topics by clicking on the number on the right side, and write the new number.
This can also be negative numbers (If the user wants to stop/downscale production on something)
More lines can be added, if they were not included (= 0) in the original data. The user is NOT able to create custom topics.

In the bottom of the screen is many small boxes. These represent all the subtotal boxes displayed on the previous page. Here the subtotals are displayed, along with adjustments made to that specific number.

On this page the user can also write comments and include certain adjustments to different action plans, as described earlier in the document. This is done by clicking the "comment symbol in the right side. (Marked Yellow in picture below). When a comment have been placed or the changes have been included in a action plan the, comment symbol changes from outline too full color.
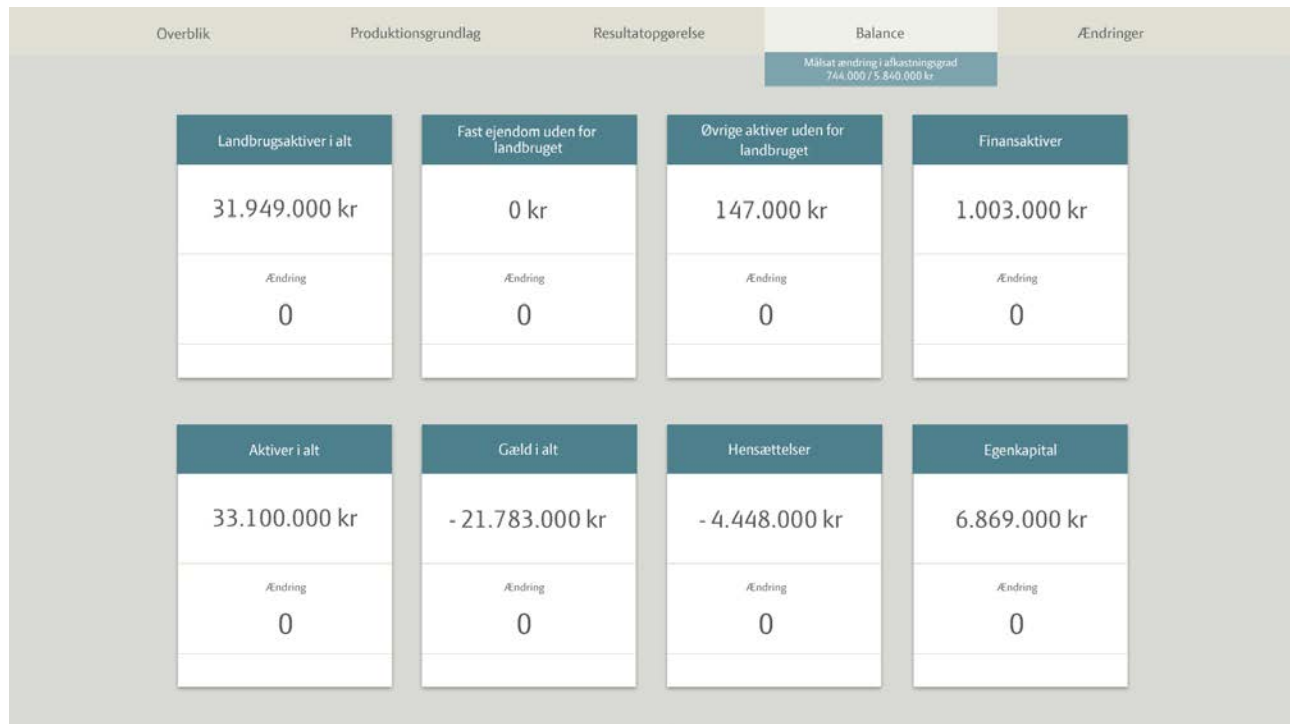
Balance

This is the Subtotals of the second data tab, called "Balancen". This tab contains a different dataset than "Resultatopgørelsen, but is also included in the calculations of the charts "Rentabilitet" and "Soliditet og Risiko" on tab 1 (Overblik).

The structure of this subpage is the exact same as the one for "Resultatopgørelsen", but in a different color (Blue). The blue color helps the user to easily differentiate between the two tabs.

The combined amount of changes made to each subtotal, is shown in the bottom half of each card. (E.g. +120.000DKK) this area is marked with the small title "Ændring".

When entering this page for the first time, all "ændring" numbers shall be "0", because no changes have yet been made.

The Subtotals of This page is:
- Landbrugsaktiver i alt
- Fast ejendom uden for landbruget
- Øvrige aktiver uden for landbruget
- Finansaktiver
- Aktiver i alt
- Gæld i alt
- Hensættelser
- Egenkapital

Design
- Background color: (#d8dad5)
- Card size: 320x420px
- Space between: 50px
- Font Card title (*Size/Type*): 24pt / Regular
- Font title data (*Size/Type*): 40 / Regular
- Font color: (#58595b / #ffffff)
- Title bar color: (#22818f)

Balance subpage
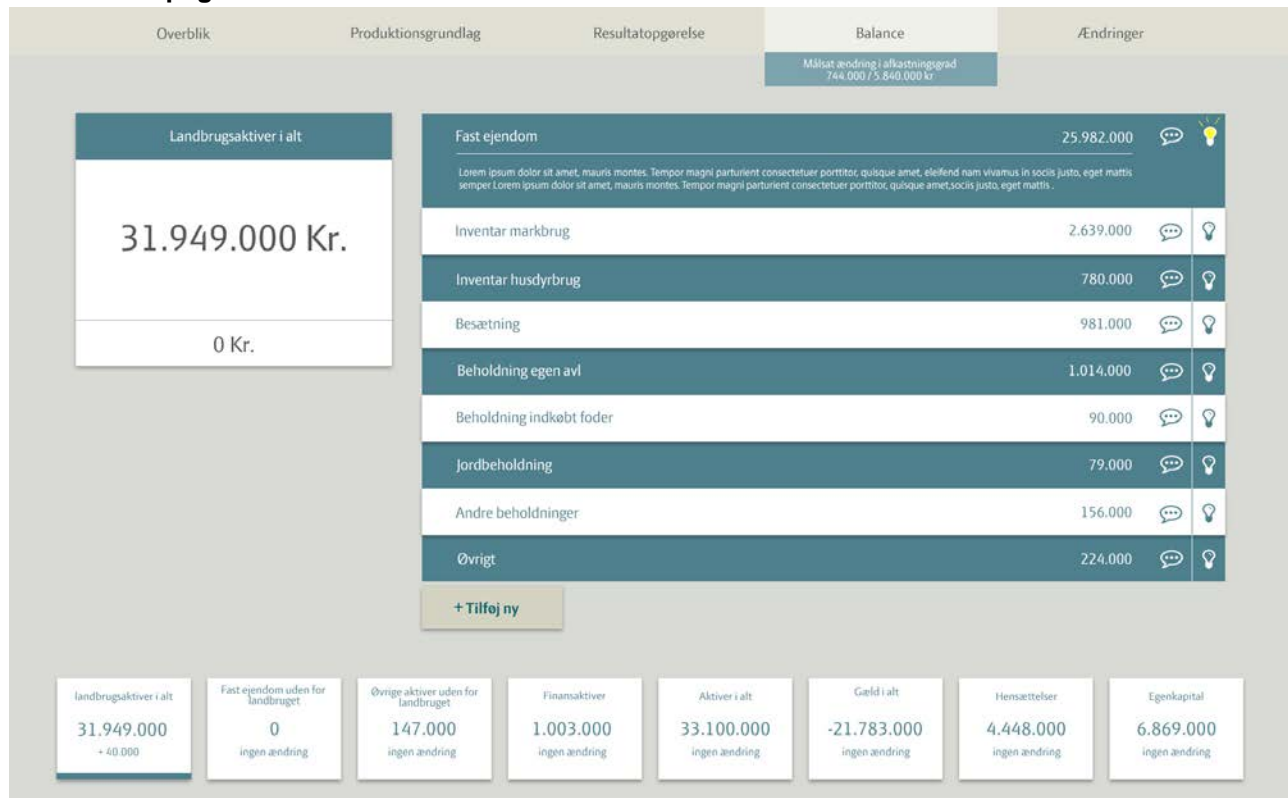
The subpages of the "balance" tab, have the same structure and functions as the subpages for "Resultatopgørelsen".

Clicking one of the 8 squares in the bottom of the screen will direct the user to that subpage and save the changes that have been made to the current page.
Since

A small line indicates what subpage the user is currently on. The line is blue for "Balance" pages, and green for "Resultatopgørelse" pages.

Ændringer

This page serves as a page to sum-up all the changes made while working with the program. The user is presented with the changes in list form. The user can see two different lists at once.

These lists are based on the category (Action plan) chosen for each subject on the subpages for "Resultatopgørelsen" and "Balance".

If no category has been chosen while working in the program, all changes is automatically included in Category A, when switching to this tab.

The "Action plans" include
- Action plan name (A-J)
- Number of changes
- Target objective and current reach (301.000 / 330.000)
- Changes
    * Name
    * Comment
    * Now (Original data)
    * New (Data after changes)

A drop down menu is enabled by clicking the orange text at the top of each list. This menu allows the user to change lists and navigate through different action plans.

All empty lists have the placeholder text " Der er endnu ikke lavet nogle ændringer I denne liste". This is also the case if all data is presented in action plan A.

In the bottom of each lists, is two buttons.
Button 1: Enables comments.
Button 2: Enables the save option, which allows the user to save that list locally as a PDF to their computer.

Maintenance

This section will describe how the maintenance of the program will be after the development phase has been successfully completed.

This program is completely dependent on the calculations made in the backend. However these calculations may change during the upcoming years. When changes are made to the calculations, the program needs to be updated before it can be used to model real data.
(These will probably change in 2018, and every year thereafter)

This requires either an on-going contract with the developers, or a pay-by-hour agreement.

If the program has to be redesigned or undergo major structural changes in the future, these will be described in a new document and developed as a separate project on a freelance portal E.g. Upwork.

Communication during development:

All communication between SEGES employee and the developers will be done via Skype. A weekly meeting will be schedule between the developer and the SEGES employee, to make sure that the development is going as scheduled. These meetings can be held either via chat or calls through Skype.

SEGES employees can normally be contacted on phone from Mon-Friday between 8-16 GMT+1, and at all times on E-mail.

The payment of the milestones of this project is done through Upwork.

Success criteria

- When uploading of data all the boxes on all the tabs should be updated.
- When uploading the data. The program should only show the IDrows were there is a value different from zero.
- It should be possible to make target goals on the "resultatopgørelse" and the "balance" and these goals shall appear on the tabs "resultatopgørelse" and "balance".
- All the shifts between tabs should flow easily.
- The calculation should be correct.
- It should be possible to make changes in all the rows and the changes shall appear on all the relevant boxes on the tabs.
- The reports at the final tab should collect all the changes.
- The saved pdf with the changes should be the same design as the tabs were it is shown.