



**project:**

e-books  
usability of i-readers, user interaction application development

**project client:**

DocWolves  
DocWolves assist in simplifying document streams by combining the use of the e-reader with a unique publishing system. The services and products DocWolves offer are cost and time reducing. DocWolves helps offices prepare for a hoardcopy-free future.

*<http://www.docwolves.nl/>*

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## 1. INTRODUCTION

This document contains the results of our desk research based on the briefing by Eelco Kodde from NotuBiz. The purpose of this document is to form a picture of the market, its competitors and the users. We also investigated some technical possibilities and tested several PDF/EPUB-readers. The findings of our research will be used to improve the NotuBox-application and develop a proof of concept that suits the target group.

## 2. METHOD

The main method we used was desk research. Besides desk research we tested several applications such as GoodReader and Stanza to develop ideas on usability. Some of the sources we used are: Techcrunch.com, iPad-applications and a report from Daadkracht B.V on demographics of council members. Later on we will interview actual users of the NotuBox iPad-application.

## 3. RESULTS

First we will describe what we think are the unique selling points of the NotuBox application. Then we will describe the competitors. After that we could visualize a market positioning matrix. We have also conducted desk research on the demographics of the council members. We have used this information to create persona's. In the end we will describe some technical insights.

### 3.1 UNIQUE SELLING POINTS NOTUBOX

In the following part we will describe what we think are the unique selling points of Notubox.

- When NotuBox is used in combination with NotuDoc users receive agenda points, minutes and important documents in one place.
- Agenda points are hyperlinked to the corresponding reports.
- NotuBox is safe. The NotuBox application is optimally protected.
- By using NotuBox councils use less paper. Therefore they save money and act environmentally friendly.

### 3.2 COMPETITOR ANALYSIS

In this paragraph we will give an overview of the competitors. We divided them in indirect competitors and direct competitors. We will also describe foreign companies that have the same purpose as NotuBiz. We will not label the MyDox application as a competitor because it is also developed by DocWolves.

- competition will not come from abroad.
- Communited is a direct competitor but does not have an iPad-application.

One of NotuBiz's usp's is that it creates a safe and paperless environment where important documents, agenda points and minutes of council meetings are gathered and linked. So direct competitors are the organizations that have or could have the same purpose. Competitors that compete indirectly are company's like Fuze Meeting, who create meeting applications. We have also conducted research on foreign company's that digitize document flows for municipals, but we do not label them as competitors. Dutch municipals would not want their information structure to be arranged by foreign company's, because classified information might be leaked. We also will not label the Dutch application MyDox as a competitor, because its also developed by DocWolves.

## **FOREIGN COMPANIES**

We will not label them as competitors because Dutch municipals would not want their information structure to be arranged by foreign companies. The reason for this is that they do not want classified information to be leaked.

### **Grancius**

Grancius is a company comparable to NotuBiz. They are testing an iPad-application similar to NotuBox but they have recently received a 'no go' by the council of Morgan Hills, California.

### **NIC**

NIC is the United State's leading provider of official government online services. The Company's eGovernment services help reduce costs and increase efficiencies for government agencies, citizens, and businesses. As far as we know they do not have a specific application similar to NotuBox.

## **DIRECT COMPETITORS**

One of NotuBiz's usp's is that it creates a safe and paperless environment where important documents, agenda points and minutes of council meetings are gathered and linked. So direct competitors are the organizations that have or could have the same purpose.

We did not discover any applications similar to NotuBox. But we did trace a company that goes by the name Communitied. They have the same vision as NotuBiz and are already testing their paperless document system on several municipals. Communitied looks at the future with a broad perspective that matches the vision and strategy of municipals for the long term. Especially now everyone is talking about the iPad as the solution for digital perusal of documents and taking notes. Communitied believes they should not only be looking for a solution suitable for use with the iPad. They are looking for a comprehensive solution that enables documents to be accessed via all digital channels. Such as Internet, extranet, intranet, mobiles and tablets.

## **INDIRECT COMPETITORS**

Indirect competitors are the companies that develop meeting applications. These apps could be used for the same purpose as the NotuBox application and have features the NotuBox-application does not have.

Meeting apps such as Fuze Meeting and Meeting Mngr Pro can be used for actual (long distance) meetings. Where NotuBox is used for preparing a meeting and facilitating the document flow, applications like Meeting Mngr Pro and Fuze Meeting help creating actual interaction during a meeting.

### **These apps have features such as:**

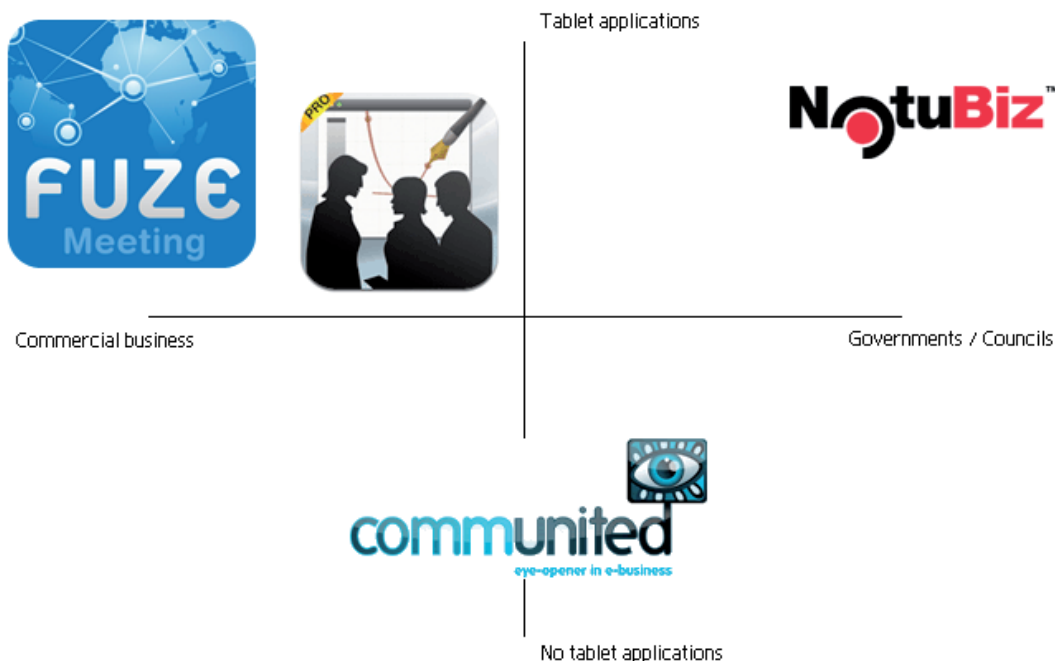
- participants can give instant feedback in real time on what is being discussed.
- participants can ask questions to the presenter without interrupting.
- the presenter can put out a vote which results can be shown as a graph to all participants.

## **CONCLUSION OF COMPETITOR ANALYSIS**

We can conclude three things:

- Communitied is a direct competitor but does not have an iPad-application.
- competition will not come from abroad.
- We might learn about new features from meeting applications like Fuze Meeting.

### 3.3 MARKET POSITIONING



### 3.4 DEMOGRAPHIC RESEARCH OF COUNCIL MEMBERS

#### DEMOGRAPHIC DATA (of council members):

- 25% female
- 75% male
- average age is 54
- 70% of the council members is between the age of 40 en 63
- 70% of the council members has a job or study besides the council work
- female council members spend 18% more time on council work
- average time spend on council work is 14 hours a week
- 2/3 of the time is spend on meetings and preparing meetings
- council members from the smaller municipals earn around 4,40 an hour
- council members from the bigger municipals (25.000 – 300.000 civilians) earn around 27,35 an hour

### 3.5 PERSONA'S

#### **Lieneke Heuvel** (female, 54 years old)

Lieneke is a mother of two children and a lovely housewife. Besides being a mother and housewife, she works as a councillor. Normally she spends around fourteen hours a week on council work. She earns five euro's an hour. Her husband Tim is the main earner of the family. In her leisure time Lieneke loves to work in the garden, meet friends and shop in the city. Lieneke is not really interested in the latest technological gadgets like the iPhone and the iPad, but she is not an antagonist of new gadgets. When someone familiar introduces her to new products and programs she will use it.

#### **Stijn Van Brekelenkam** (male, 42 years old)

Stijn is living together with his wife and his three children in Haarlem. He spends around thirteen hours a week on council work. Besides being a councillor, Stijn is CEO at the Rabobank. All in all he earns 3000 euro's a month. In his leisure time he likes spending his time with his family, practice sport and meeting friends. Stijn always wants to have the latest gadgets, especially the ones from Apple!

**Bram Vogel** (male, 61 years old)

Bram is retired, has one child and two grand-children. He likes to travel with his wife and visit their friends from all over the world. In the past Bram was a mayor in a suburb of Amsterdam. He has been living in the centre of Amsterdam for five years now. Normally he spends ten to twelve hours a week on council work. He earns twenty five euro's an hour. Bram thinks he is too old for new gadgets like smartphones and tablets, and he is a little scared to use them.

### 3.6 TECHNICAL INSIGHTS

**REQUIREMENTS (Notubiz)**

Beside the technical insights the following part also contain our experiences with the different PDF- and E-PUB-Readers.

- The Notubox application cannot be cloud-based because of safety issues and problems with wifi.
- Council members have to be able to download documents on their tablet.

So therefore a web-based application is excluded at the moment. On the other hand there is a possibility that Google's Chrome OS might be a solution in the future. Chrome OS is an operating system built entirely around HTML5 but is very much in beta mode right now so there is nothing much to say about that at the moment. We can not ground our conclusions on rumours.

**NATIVE**

What is left is what is called native-based applications. Native means that the framework of the application is based on Javascript. Apple's iOS and Google's Honeycomb both handle different technical demands for their frameworks. That means two different versions of the Notubox application have to be developed.

**PRO AND CON NATIVE-CODING**

- Native gives a better user experience because development tools and compiled code go very well hand in hand.
- Native is highly fragmented and consumes a lot of resources (time,developers,money) and also is hard to maintain (for the same fragmentation reasons).

**PROTOTYPING WITH HTML5**

Developers want cross-platform reach, and HTML5 looks very seductive to meet that challenge. Though HTML5 alone cannot, as yet, offer the speed and functionality that native code offers. Though HTML5 will be a good way of prototyping applications destined to become native. This because nothing can beat HTML5 in getting an idea off the ground and creating something to show.

**EPUB VS. PDF**

Both PDF and EPUB are open standard. When you have the right viewer, you can read PDF and EPUB on any Operation System and any device. The document standard municipals currently use is PDF. We wondered if maybe EPUB could be a better solution.

**pros pdf**

- PDF is well known for it is security feature. That is the main reason PDF files are used by governments and businesses around the world.
- Regardless of the application used to create them, PDF files can look the same as the original format. If you scan a paper into PDF, it will look exactly the same like the paper.

- PDF users can easily create a PDF bookmark or add links to it, so it is easier to navigate to particular pages or get access to Internet through PDF.

#### **cons pdf**

- The readability of PDF is not always that good. Zooming in on a PDF will cause the text go outside the screen. This means the user will have to scroll in order to read the entire text.

#### **pros epub**

- EPUB is designed for reflowable content, so that it can adjust properly to fit whatever size screen a tablet has, and with whatever font size you choose to read at.
- EPUB can be optimized for the particular display device, the readability for tablets is better than PDF.

#### **cons epub**

- EPUB is less safe. An EPUB file can optionally contain DRM, but it is not required by the specifications.
- EPUB does not support interactivity, it is read-only.

## **ANDROID**

Android 3.0, also known as honeycomb, is an open-source software for mobile devices which includes an operating system, the middleware (Hard-and Software) and key applications.

Android has been designed with mobile tablets which give users a interface that offers the larger screen sizes, to give more over the appearance of the display, and resources that are available with the devices.

The home screen is fully customizable, allowing the users to organize applications and gadgets easily on the five-screen interface.

Android's mobile operating system is based on a modified version of the Linux kernel. An analysis reported that in 2010 the Android operating system was the world's best-selling smartphone platform and depose Nokia's Symbian from the 10-year top position.

Android has a large community of developers writing apps, which extend the functionality of instructions. A huge number of 200.000 apps are available for Android.

## **PDF- AND EPUB-READER**

### **GoodReader**

GoodReader is a PDF-reader for iPad.

#### **primary functions:**

thumbnail previews, read, bookmark, searching, file management (which includes the ability to protect files, star them, mark them as read, create new files and folders, e-mail files, rename files, create links to files, and even compress files and folders), browse and download files from Web sites.

#### **pros:**

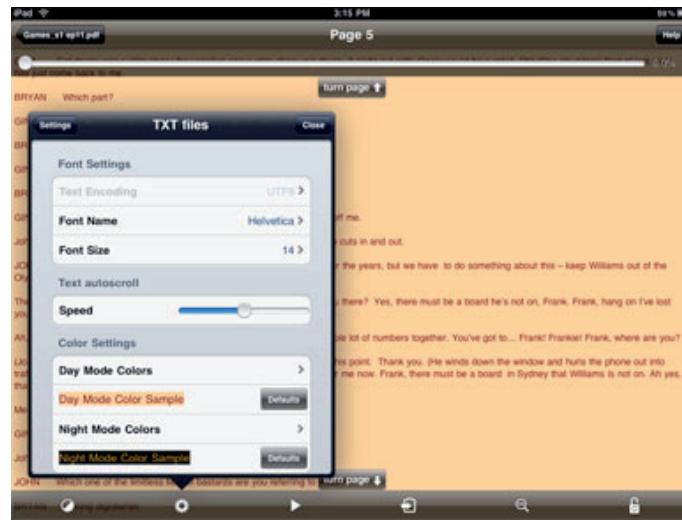
- it can handle PDF's, office documents, web pages, audio and video files
- GoodReader can sync with Google Docs, Dropbox, etc. (so you can download documents from these locations directly on to the iPad and read them even while you are offline)
- turning pages is really easy



- the sidebar for searching a website is convenient
- the brightness can be changed
- it is possible to find a page manual („go to page“), which is very good

**cons:**

- when you turn a page, the next page is not rendered instantly
- the actual page-sign, which is shown after every page-turning, is shown too short
- some features are absolutely unnecessary, at the same time some really important features are missing.



GoodReader for iPad can automatically extract text from many PDF files and reformat it into a very readable format.

**Inkling**

Inkling is a platform for interactive textbooks, built from the ground up for iPad. It turns paper-based textbooks books into engaging, interactive learning experiences while staying compatible with the print book for classroom use.

**pros:**

- menu is very easy to handle
- icons are very clear and easy to understand
- glossary is available
- you can set bookmarks

**cons:**

- it is really hard to swipe to the next page
- some features are not necessary (like hiding the page numbers)
- it is not very similar to reading a book (for turning a page you must go down!)

## iBooks

iBooks is an EPUB/PDF-reader by Apple.

It is primarily meant for EPUB content from the iBookstore, but users can also add their own EPUB- and PDF-files via data synchronization with iTunes. Additionally, PDFs can be downloaded to iBooks through Safari or Apple Mail. It is also capable of displaying e-books that incorporate multimedia.

pros:

- Users are able to change the font and text size displayed  
Available fonts are: Baskerville, Cochin, Georgia, Palatino, Times New Roman, and Verdana.
- users can adjust screen brightness from within the application
- words can be selected and searched throughout the book
- pages are turned by tapping or dragging the page

cons:

- its features are still severely limited
- the interface is very slow (two seconds for a single page to be rendered)
- no way to highlight, annotate or copy any of the text
- the search function kicks you out of the ,iBooks‘ app and into Safari

## Stanza

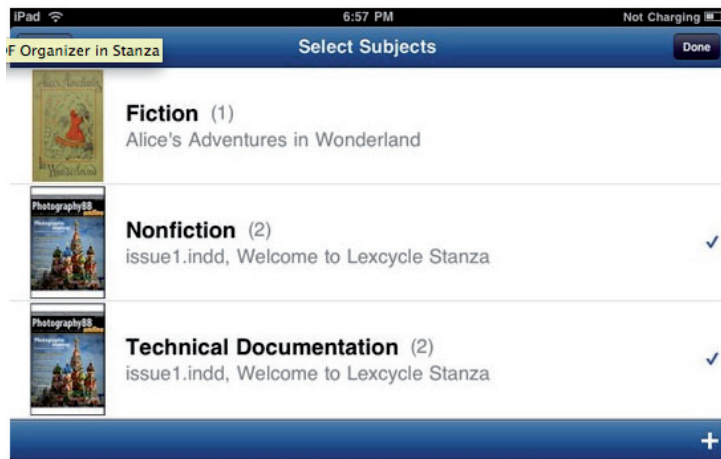
With Stanza you can read both PDF and EPUB.

pros:

- reads PDF and EPUB
- renders fast
- it is possible to share
- dictionary included
- clear ‘back‘ button
- you can easily arrange books in categories and it also displays thumbnails of books and magazines
- If the user does not like the default cover image, a new one can be grabbed from the web

cons:

- the page turns when you push on the left or right side of the screen but also when you swipe. That might be confusing to the user.
- unclear icons
- EPUB and PDF have different sharing options. So it is inconsistent.
- unclear how to copy
- changing the clarity by holding your finger on the screen.
- unclear icons



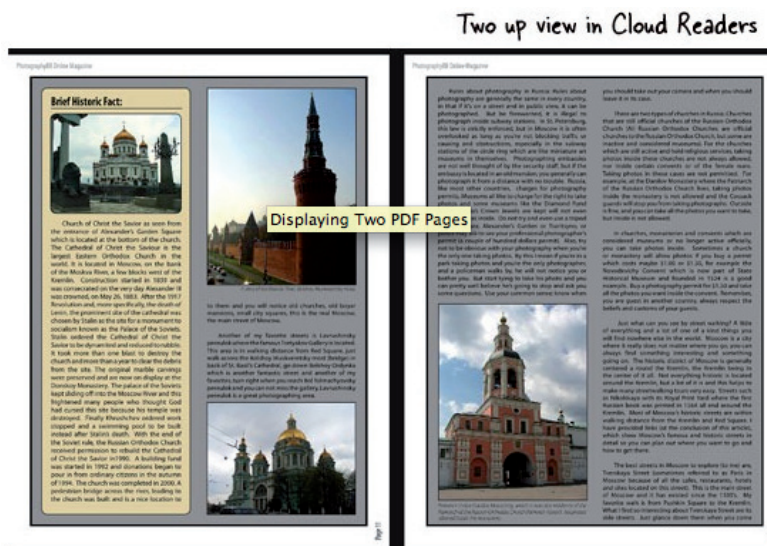
Stanza supports cover images and also makes it easy to organize PDFs

## Cloud Reader

Another choice for reading PDFs on your iPad is the Cloud Readers app, which is free and simple.

pros:

- USB cable or wireless network to copy PDFs from the computer to Cloud Readers
- it renders documents really fast
- unique “Two Up” view (you can display two pages of a PDF side-by-side)



## SIZES AND FONTS

The font sizes on e-readers are very different. In fact, nearly all e-readers have their own specific font sizes. Typically, there are about four to six sizes. Usually, there is not a specific point size associated with these.

## Kindle

Kindle uses PMN Caecilia. This serif font is published by Linotype. Kindle allows 6 font sizes.

The 6 font sizes:

- Kindle Font Size 1 = 7pt
- Kindle Font Size 2 = 9pt
- Kindle Font Size 3 = 11 pt
- Kindle Font Size 4 = 14 pt
- Kindle Font Size 5 = 17 pt
- Kindle Font Size 6 = 20 pt

## Kindle DX

Like the Kindle above in addition that the largest font size is bigger. The Size of the Kindle DX screen is 2.5 times the size of the Kindle 2 screen. Kindle DX does have landscape mode – Font size does not change in landscape mode (except for PDFs).

## Nook

Nook has three fonts including Helvetica Neue (sans-serif), Amasis (serif), and Light Classic (serif). Nook has 5 different font sizes.

- Extra Extra Large
- Extra Large
- Large
- Medium
- Small
- Extra Small

## Sony 505

Sony 505 uses Dutch Roman for the body font and Courier and Swis701 for the interface.

## Sony 600

Sony 600 uses Dutch 801 as the default font. The Sony Reader Touch Edition allows 5 font sizes. It also has a Zoom in feature which lets you zoom a page. This feature can be used while using any of the 5 font sizes.

## iPhone Font Choices:

### iBooks

- Baskerville (a monospace font – bigger character width)
- Conchin (serif font)
- Palatino
- Times New Roman (Book Font)
- Verdana (Computer screen optimized font)

iBooks allows 10 font sizes!

## Kindle for iPad

Very similar to Caecilia. There are 5 font sizes.

**Kobo Books** (for iPad)

- Baskerville
- Arial
- Helvetica
- Times New Roman
- Trebuchet MS
- Verdana
- Georgia (serif font)
- Trebuchet (sans-serif)

There are 9 font sizes!

**Wattpad**

- Georgia
- Courier
- Arial
- Apple Gothic
- Courier New
- Zapfino

There are 26 font sizes.

**B&N eReader**

- Arial
- Courier
- Georgia
- Helvetica
- Marker Felt
- Times New Roman
- Trebuchet MS
- Verdana

There are 6 font sizes.

**iPhone Font Choices**

**Stanza** (26 different fonts and 22 font sizes) include...

- American Typewriter
- Applegothic
- Arial
- Arial Hebrew
- Arial Rounded MT Bold
- Arial Unicode MS
- Courier
- Courier New
- DB LCD Temp
- Geeza Pro
- Georgia
- Heiti J

- Heiti K
- Heiti SC
- Heiti TC
- Helvetica
- Helvetica Neue
- Hirgagino Kaku Gothic ProN
- Marker Felt
- Thonburi
- Times New Roman
- Trebuchet MS
- Verdana
- Zapfino

### **eReaders – The importance of Fonts**

- **Serif fonts**

Have little details at the end of alphabets. In printed books Serifs are used traditional and are considered more readable.

- **Sans-serif fonts**

They are considered more readable on computer screens and are preferred for web pages – mostly because computer screens don't have enough resolution to show the tiny serifs properly.

eReaders have much higher concentration of pixels so that they prefer using serif fonts because the fact that books use serif fonts also motivates eReader companies to use serif fonts.

### **The ways in which fonts are important**

- **Readability**  
The right font increases readability. Obviously size and line spacing and other factors play a big role.
- **Aesthetics**  
Fonts, when used intelligently, can increase the aesthetic appeal of a book.
- **Personalization**  
Font choice would let readers choose a font that suits their reading preferences.
- **Book Uniqueness**  
Font choice would also let authors and typesetters choose a font that best suits a book.
- **Familiarity**  
Use of Serif Fonts makes reading on eReaders closer to reading an actual book (as opposed to reading a computer screen).
- **Long Form Reading**  
There was a belief that serif fonts helped guide the eye when reading long passages of text.

### **How important are Fonts for eReaders?**

- Fonts have a lot of impact on readability.
- By using serif fonts on an eReader's strength the reading experience get very familiar (similar to printed books).
- There are three effects fonts can have – increased aesthetics, more

- comfortable reading, quicker reading.
- The ability to Change Fonts allows eReaders to be much more flexible than a physical book.

### Fonts and Typesetting

- Caecilia (known as a good font for reading)
- Baskerville (not monospaced, good long document font, widely used today)
- Georgia (good readability)
- Palatino Linotype (book font, oldstyle text font)
- Conchin (display font but very hard to read in text for long)
- Times New Roman (font for newspapers and office reports)
- Verdana (san-serif font, specifically designed for display on screens)

### What the iPad is Missing

The release of Mac OS X – the system came with Lucida Grande, an excellent screen-optimized version of Kris Holmes' Lucida Sans. The clean, readable face, modern but fairly neutral, was used throughout the OS X interface and embraced by web designers as their go-to family for small text. But since there is no Lucida Grande Italic. The option with Lucida by designing are limited to size and weight.

Then there is the iPhone, Apple choose Helvetica as the iPhone's system font. Helvetica has a lot of closed forms and closey spacing which makes reading harder, especially when the text is small.

#### The iPad – Apple offers five Fonts:

- Baskerville Monotype (work well in print but not so good for text in pixels)
- Cochin (pretty letters but not good for diving into pages of text)
- Palatino (good Font for reading a book on screen)
- Times New Roman (does not work very good for text type on-screen)
- Verdana

### Short conclusion about the fonts

The most used font is Helvetica which is used by for instance Stanza, Nook and iPhone. It is important to mention that Helvetica is known as one of the most common sans-serif fonts. The advantages of sans-serif fonts are that they are easier to read on the web than serif fonts, they are readable in small font sizes and they have a modern look.

A disadvantage of the sans-serif font is that you cannot distinguish between a l like (list) and a l like (Inside). Helvetica letters like „m“ and „n“ stay open so they are recognised clearly. Especially when the letters are very small. Therefore, the screen non-serif fonts are clearly more suitable than serif fonts.

We also want to mention the pmn Caecilia which is used by Kindle. Caecilia is a good font for reading and more useful as a text typeface. The Caecilia is in the Slab-Serif Classification. The slab serif is a genre of letterforms that has been in use for almost 200 years and means a serif typeface which is characterized by thick, block-like serifs.

### TOUCHPEN (for iPad)

Using a touchpen to edit notes, make sketches and mark up documents with own handwritten comments. Also with no touch experience, it is easy to use the pen because new users have the feeling of writing with a normal pen and get simple used to it by moving around the tablet, make selections and complete other tasks on the tablet.

Although the pen is not included as standard, the touchpen is often called as a must-have accessory.

The touchpen will help users to gain precision by controlling over the tablets touch-screen and let users enjoy their funfactor by drawing and writing on the tablet. By choosing the touchpen users have to look for a pen which is comfortable to hold and is designed specifically to work with the touch-screen.

There are a lot of different touchpens on the market:

The size of the touchpen is not always the same, the differences give users even more creative freedom by making it simple and comfortable to use, even if the user is new to touch.

Another positive aspect is that especially the mini-version has a jack attachment, so users can secure it to the tablet, that means no searching in the bag for finding the pen!

**pros:**

- easier than typing with a finger
- no fingerprints all over the tablet
- exact choice is possible
- you can use the tablet also with gloves
- easy to draw and for hand written notes
- remembers more to the typically writing

#### 4. CONCLUSIONS

- For now native coding is the best option. So different applications for different operating systems have to be developed.
- HTML5 will be used for prototyping.
- We will use the advantages of all the applications we tested and our new knowledge about fonts to improve the NotuBox-application.

**More research is necessary for:**

- The research we did concerning the target group is not sufficient to draw conclusions from. We will have to interview actual users of the NotuBox-application to form a better picture of what features we would have to add.
- We will have to keep track of what the new possibilities of Android's Honeycomb and iPad2 will be. Most of the information that is out there now is based on rumours.
- We have to investigate what the document flow of the municipals looks like and process the (im)possibilities that this knowledge brings us.





iPad



iPhone 4



Touchpen for iPad and iPhone

## 5. SOURCES

[http://www.pcworld.com/article/215914/android\\_honeycomb\\_a\\_detailed\\_tour\\_of\\_googles\\_tablet\\_os.html](http://www.pcworld.com/article/215914/android_honeycomb_a_detailed_tour_of_googles_tablet_os.html)  
<http://wikipedia.org>  
<http://www.helium.com/items/2081109-google-to-hold-android-honeycomb-event-february-2>  
[http://www.raadslid.nu/images/stories/documenten/Nationaal\\_Raadslidenonderzoek\\_2009\\_1-meting.pdf](http://www.raadslid.nu/images/stories/documenten/Nationaal_Raadslidenonderzoek_2009_1-meting.pdf)  
[http://www.gemeenteraad.nl/pagina/weblogs\\_van\\_raadsliden](http://www.gemeenteraad.nl/pagina/weblogs_van_raadsliden)  
<http://indebuurt.trouw.nl/gemeenteraad.html>  
[http://actieprogrammalokaalbestuur.nl/3\\_profielschets\\_individueel\\_gemeenteraadslid](http://actieprogrammalokaalbestuur.nl/3_profielschets_individueel_gemeenteraadslid)  
<http://www.nicusa.com>  
<http://www.morganhilltimes.com/news/272293-council-holds-off-on-ipad-purchase>  
<http://www.communited.nl/News/264/Communitied+biedt+oplossing+papierloos+vergaderen/page.aspx/1090>  
<http://www.frankwatching.com/archive/2010/12/17/business-case-ipad-voor-gemeenteraden/>  
<http://www.anypdftools.com/ebook-reading/pdf-vs-epub.html>  
<http://www.labnol.org/software/ipad-pdf-reader-apps/13807/>  
<http://www.macworld.com/appguide/app.html?id=460078>  
<http://www.goodreader.net/goodreader.html>  
[http://en.wikipedia.org/wiki/Amazon\\_Kindle](http://en.wikipedia.org/wiki/Amazon_Kindle)  
<http://www.switched.com/2010/09/14/the-best-pdf-reader-apps-for-the-ipad/>  
[http://en.wikipedia.org/wiki/Sony\\_Reader](http://en.wikipedia.org/wiki/Sony_Reader)  
<http://ireaderreview.com/2010/04/11/ereader-fonts-importance-of-fonts-for-ereaders/>  
[www.wikipedia.org](http://www.wikipedia.org)  
<http://ireaderreview.com/2009/12/22/kindle-font-size-kindle-2-dx-font-size/>  
<http://gizmodo.com/#!5522341/how-to-fix-todays-ebook-readers>  
<http://www.informationarchitects.jp/en/wired-on-ipad-just-like-a-paper-tiger/>  
<http://www.thebookdesigner.com/2010/01/apple-ipad-e-book-reading-kindle-killing-business-saving-product-of-the-century/>  
<http://itunes.apple.com/us/app/inkling/id379351586?mt=8>