Multimedia Design and Communication
Copenhagen Business Academy

Report

Executive Education document app

An assesment of Mobile App Building Software
for developing internal enterprise mobile applications

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June 5, 2015

Abstract

Maersk Executive Education documents App

This project has been caried out at A.P.Møller – Mærsk which is a large shipping, logistics, and oil industrial company. The numerous of different groups at Maersk have an increasing need for a system to create fast in development and easy to maintain internal economic mobile applications that will satisfy the need to access company data from a mobile device by company employees and which will serve as a future platform for developing internal employee apps. During this project a system that fulfills this need has been identified and used for development of an app for the Management team for Maersk group. The Management team has participated in an executive course hold for the Maersk Management team by Stanford Business school of graduates. The Maersk Management Team therefore has a need for an app which can be used to handle all the documents from the course. The identified app development system has been used to develop an app that Maersk Management team can use to handle the documents from the executive course.

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Introduction

Project definition

This report is a result of the Final Project on the 4th semester of Academic Profession Program (AP) in Multimedia Design and Communication at Copenhagen Business Academy.

Project purpose

To develop a digital application or a digital presentation, based on methodological approach and by combining all central aspects of multimedia education.

To demonstrate capability to solve, on an analytical and methodical basis, a complex and practice-oriented problem to a specific assignment within multimedia field.

The Final Project is conducted in collaboration with A.P. Møller – Mærsk after prolongation of the internship period at the company.

Areas covered by the Final Project:
The company
Communication and Presentation
Design and Visualization
Interaction Development
Development for Handheld Devices

Project background

During internship at A.P. Møller – Mærsk the project has been conducted in collaboration with the IT Departments mobility team. This collaboration has increased my interest in for development of applications for handheld devices and the way it influences business. Since Multimedia Design and Communication is a broad education, it gives one a good basis and insight into the field of multimedia on all levels from management of multimedia production, UI, UX, IA to web development, communication strategy and video production. To access data from a mobile device may be essential for a business to succeed. The increase in company adoption of mobile devices has brought new challenges as well as opportunities that can increase employee decision-making speed and work productivity.

Massive shift to mobile technologies
With the massive shift to mobile technologies in mind there is a need to create a cost-effective, fast in production apps for business that will support the growing number of employees who use mobile devices to do their work at office, at home and while travelling. Being able to move information to tablet devices and smart phones is a big challenge for IT departments. The difficulty, complexity and cost of mobile app development makes the mobile app development less attractive for enterprises that have a need to create big amount of low-cost apps in short time. Since native apps are costly to build and hard to maintain there is a demand for low-priced, and easy-to-maintain app development, which is the base for my final project with development of a Stanford Conference Document app.

The subject for the final examination project is laid down in consultation with the CBA and in collaboration with A.P. Møller – Mærsk.

> **"*1 "through the last quarter <Q1 2012>, I should say, which is just 2 years after we shipped the initial iPad, we've sold 67 million. And to put that in some context, it took us 24 years to sell that many Macs and 5 years for that many iPods and over 3 years for that many iPhones."**
> **Apple's CEO Tim Cook summed up the tablet adoption phenomenon.**

1 http://www.maersk.com/en/the-maersk-group/about-us

Problem definition

Company

The Maersk Group

The Maersk Group is a worldwide conglomerate and operates in some 130 countries with a workforce of over 89,000 employees. In addition to owning one of the world's largest shipping companies, Maersk is involved in a wide range of activities in the shipping, logistics, and the oil and gas industries.[1]
In such a demanding setup, the IT organization has to navigate between streamlining global processes, thus achieving economies of scale, while also being able to adjust services to the individual needs of each business unit. Maersk's numerous years of growth had makes the technical IT architecture and the portfolio of contracts and agreements extremely complex.

Problem description

Because of the increase in tablets and mobile devices at work companies have to adjust to the new demand. No matter whether an employee has a company device or BYOD (Bring your own device) this need has to be supported and a new digital strategy has to be created for employees to embrace the possibilities of mobile devices at work.

The challenge is to find a cost-efficient and fast app development and easy-to-maintain solution. There is an increased demand on internal mobile apps from Maersk Group. The department has recently received two project orders and one of the projects is covered in this report. The second project will be continued after the final project is over.

Customer
The project has been made at the IT department of Maersk Group Service Functions of Corporate Service Centre in A.P. Møller – Mærsk. The IT departments' primary goal is to serve Maersk Group in order for them to be able to concentrate on their core business. The customer for the project is Maersk Group who needs to develop an internal app for the senior management. The app should give access to a pre-read material from a Stanford School of Business Conference that took place some months ago. The aim for IT department is to get the mobile project up and running fast and at low cost.

This need makes Mobile App Building Software solutions relevant.

For this project a solution has been made for how to optimize operations, reduce costs and time when developing and maintaining the Stanford Conference Documents app. The best available Mobile App CMS solutions on the market has been identified and used to produce a mobile app.

While I am going to research Mobile App Building Software platforms, it should be stressed that I will concentrate on solving a Stanford Conference Documents app project as my main project goal.

The target audience for the app is Maersk top-management, while the target audience for using the App Development service is company employees.

How to create low-cost, fast in development, easy-to-maintain internal mobile applications that will satisfy the need to access company data from a mobile device by company employees and will serve as a future platform for developing internal employee apps?

By solving this problem I would be able both to solve the Stanford Conference Documents app project and create a platform for the internal app development in the future.

Sub-questions
What platforms for building mobile apps exist?
How to easy and fast build a mobile app?
How to maintain the app?
How to secure company information?
Who is target audience for the app?
How to create IA to support the need of audience?
How do I best structure the content?

1 http://www.maersk.com/en/the-maersk-group/about-us

Delimitations

Delimitations

The reason why I want to cover the mobility need is because of the future growth of mobile usage for business and the opportunities it provides to boost employees productivity and competitiveness.

I am only going to cover the development of apps using Do-It-Yourself (DIY) App Building Software because of the requirements set by business and my employer. Moreover this project has a timescale as well as requirements set by the customer, which can be seen below.

Customer requirements:

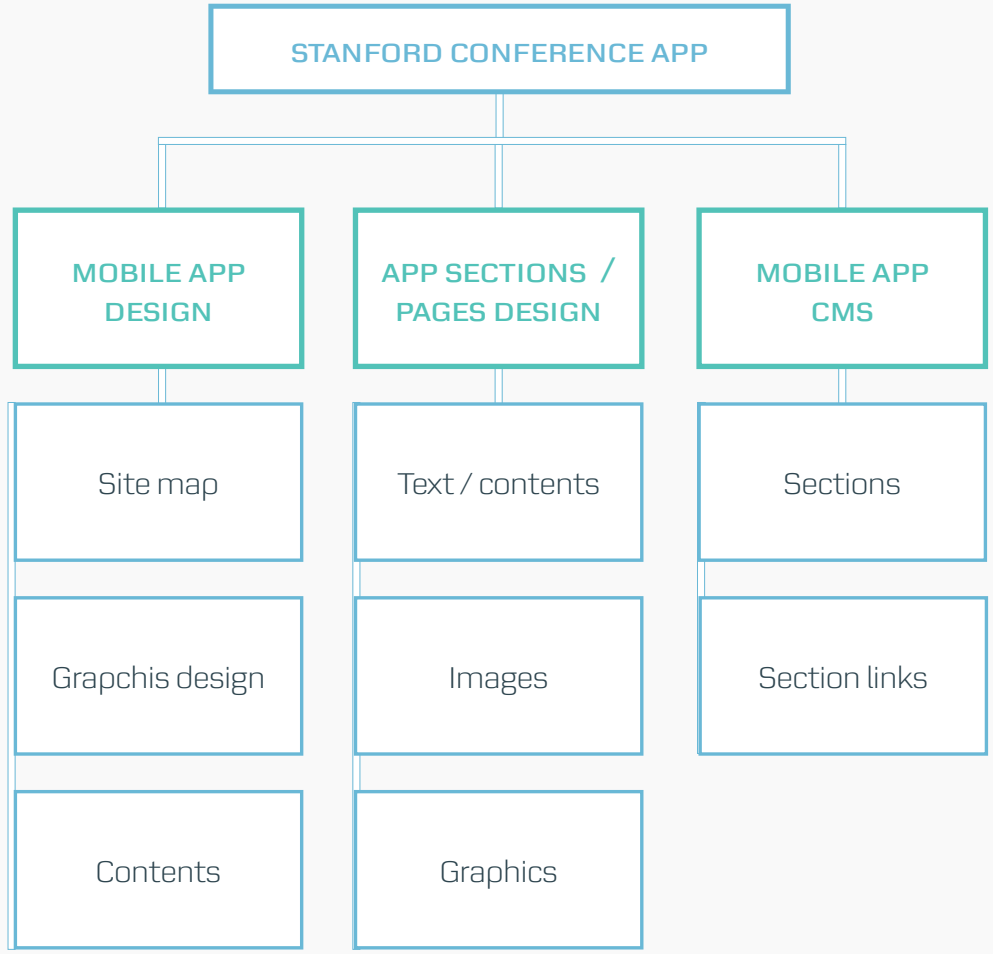
- Cost-efficient and quick solution needed
- Access documents from mobile device
- Share documents from mobile device
- See agenda from the conference
- Support info
- Secure access to documents
- Secure data storage
- Main limitations in this project are cost, time, and method of development I chose.

Cost:
Cost-efficient solution (Required by business)

Time frame:
Quick to set up and run mobile project. Finish this project by close of business May preferably or latest middle of June (Required by the customer)

Resources:
My skills and knowledge are limited. E.g. I would only be able to use HTML5 and CSS3 coding solutions and won't be able to develop an app using Objective C or Java programming languages since I do not acquire these skills.

Product-oriented WBS



Project management

Stanford Conference App project

Duration: 10 Apr - 5 Jun 2015

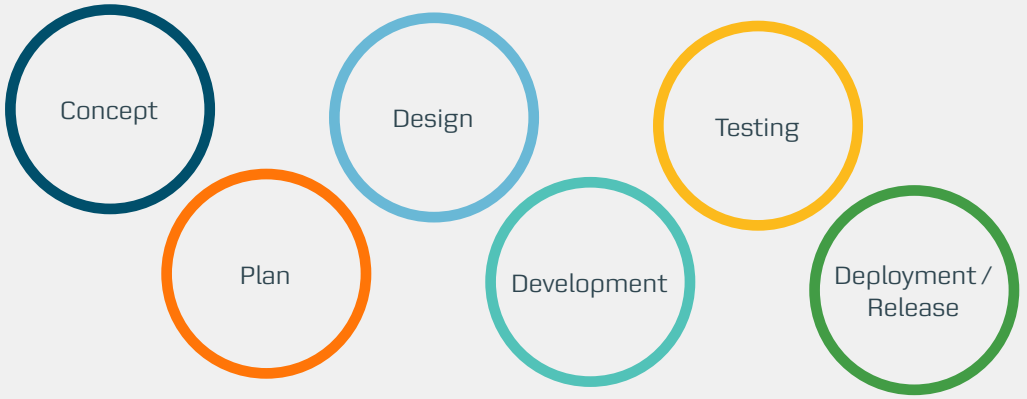
Name: Olena Mikhanosha

Completed

Projected

	Project	2015		
		Apr	May	Jun
1	Initiation / Concept / Planning			
2	Analysis			
3	UI, UX and IA			
4	Construction			
5	Testing			
6	Report			
7	Deployment			
Deadline				

App Development Process



Concept

Understand and identify core problems first

Plan

Identify possible solutions and plan execution

Design

Create designs that resolve the core problem

Development

Develop functional code based on designs

Testing

Review, test, and analyse effectiveness of the design

Deployment and release

Deploy the app by getting a binary file and release to the internal app store

Risk management

Defining risks and risk management

Planning risk management

In order to make sure that the project has been in accordance to with the plan and to deliver the project in time, on budget and with quality results it has been determined what risks that exist in this project and how to handle those risks in a way most suited for the project objectives.

Since new technology (Mobile App CMS) has been used for this project there has been higher complexity and a correspondingly higher risk. For this reason risks and solution for the risks have been planned.

Risk identification and quantification:

The following risks have been identified and divided into groups depending on their probability and impact they will have on the project.

Risks

High impact and likely to occur

1. Unforeseen changes to the project scope
2. Client changes requirements during project

High impact but unlikely to occur

3. Wrong time estimation
4. Failure to identify complex functionalities and time required developing these functionalities
5. Client changes overall strategy of order
6. The project result fails to satisfy project needs
7. Cloud storage failure
8. New technology failure
9. Illness, family emergency or general absence
10. Laptop /equipment failure
11. Resources are not tracked properly

Low impact and likely to occur

12. Domain server is temporary unavailable
13. Completion of project goes past due date

Low impact and unlikely to occur

14. Software or hardware failure

Risk responses

I will use the following risk response strategies to reduce the risk to minimum:

- Risks can be avoided
- Pass on the risk
- Take corrective measures to reduce the impact of the risks
- Acknowledge the risks

Monitoring and controlling risks

After I have identified and understand the risks I will have to monitor the risks during the project lifetime, keeping an eye on occurrence of new risks and defining how to minimize these risks.

Risk matrix

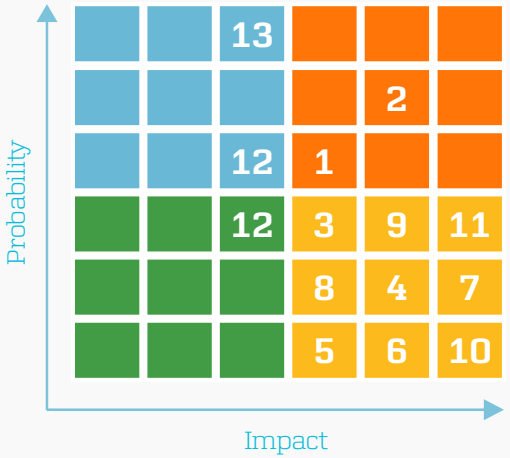


FIGURE:

Using the risk matrix the risks are categorized into four categories as Low, Medium, High and Critical. The probability of occurrence and the impact on the project are the two parameters used for placing the risk in the matrix categories.

Methodology

Considerations on the approach

There are two main approaches to solve the problem:

- Native app development, which requires knowledge of the native language of the platform, Objective-C on iOS, and Java on Android
- Hybrid app development, which requires knowledge of HTML, CSS and JavaScript, using a mobile app Framework such as jQuery mobile, Ionic, Lungo, Intel XDK, The M Project etc.
- Native Hybrid app development, which uses DYI Mobile App Building Software, that doesn't require knowledge of HTML and CSS, but gives an advantage for those who have the knowledge of HTML and CSS to customize the look and feel of the app

Presentation of the development method

- DIY Mobile App Building Software was used to build the app because this solution would save development and maintenance cost, but also make it possible for anyone to be able to use the platform to build internal apps in the future.
- Hybrid app development by using HTML5 and CSS3 which is placed inside a native container provided by a Mobile App CMS platform

CMS & hybrid app development

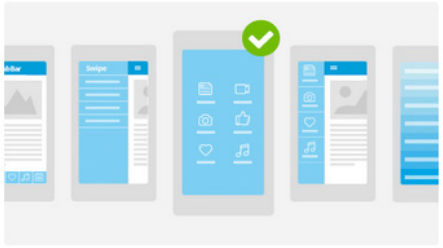
The hybrid app development method was chosen, and placed inside a native container provided by a Mobile App CMS framework.

Below are the factors that describe the selections for this solution:

- There is more flexibility in designing mobile interface by using Hybrid development technology. Hybrid app development uses HTML5 and CSS3 to design dynamic responsive interfaces.
- During my education as Multimedia Designer I have gained strong knowledge in HTML5 and CSS3 and feel confident using it. Hybrid app development provides the tools to reduce the development time.
- Platform independent: With HTML5 it is only necessary to build an app once and then submit it to all of the platforms using the Mobile App CMS. By doing so the company is able to save money by not having to build the app using programming language of each platform (iPhone or Android).
- HTML5 apps are easier to develop and deploy.
- Hybrid apps are more maintainable because of the Mobile App CMS framework that makes it possible for anyone with a little knowledge in HTML5 and CSS3 to maintain the app without needing a native app
- technology.

Mobile App CMS [1]

Design your app



Add your content

Test your app

Chapter summary

The production of the app should be as cost-effective as possible. Native app development using programming languages as Objective C, or the new Swift for iOS or Java for Android by outsourcing the app development to an external vendor is an expensive and long process, which requires long-term relationship and dependency on the outsourced company in maintenance of the app.
The solution that combines DIY Mobile App Building Software with hybrid app development will both solve the Stanford Conference Documents app project objective as well as provide a solution for the future internal app development platform.

http://goodbarber.com/

Analysis

Mobile market is growing as well as the business need

Market analysis

IT department is facing a challenge to change in order to follow the trend and internal demand to integrate mobile devices into the enterprise's ecosystem.

Usage of mobile apps for business will ensure long-term growth, profitability and industry leadership of the organisation.

Secure access to company sensitive data
The responsibility falls on employees rather than IT departments to keep mobile data private and secure.
IT department has strict rules and guides how to use mobile device for business.

81% OF EMPLOYEES USE AT LEAST ONE DEVICE FOR BUSINESS USE [1]

MOBILE TRENDS [2]

Enterprise tablet adoption is estimated to grow by almost 50% per year

By 2015 modile app development project will outnumber native PC projects by ration 4-to-1

The iOS and Android platforms will be adapted to meet enterprise requirements

Corporations will be challenged between choosing BYOD or corporate device due to security and cost

The introduction of cloud computing and HTML5 will make the tablet more integrated into work

Innovations for tablets to make the laptop obsolete will persist

1 http://www.enterasys.com/company/press-release-item.aspx?id=961
2 http://www.forbes.com/sites/markfidelman/2012/05/02/the-latest-infographics-mobile-business-statistics-for-2012/2/

Stakeholder analysis

By using stakeholder-based approach opinions of the powerful stakeholders can be used to shape the project on an early stage. As more input that can be gathered from the key stakeholders the better project quality can be achieved. Finally, frequent communication with the stakeholders will ensure that they understand the project.

Stakeholders

- My manager
- Team members
- Coworkers
- Customers
- Senior executives
- Business partners
- Suppliers
- Interest groups
- Government

High power, high interest:

- My manager (head of Digital Workspace manager), coworker (IT Infrastructure and Mobility Architect), customer (Senior Strategy Manager from Maersk Group), end users (Senior executives), Supplier (GoodBarber)

High power, low interest:

- Government, IT strategy experts

Low power, high interest:

- Business partners

Low power, less interested people:

- Team members

Key stakeholders:

Direct communication with stakeholders about their views and opinions is a key to a successful relationship with them.

By understanding key stakeholders I made sure to develop the project in the right direction to the satisfaction of the customer and everyone involved.

STAKEHOLDER MAP

BIY App Building Software analysis

The advantages of using mobile app CMS:

- Ease of use
- Low cost development
- Easy content and design change
- Cross-device functionality
- Content previewer in real time
- Analytics

Since Mobile App CMS app development method was used as a starting point research had to be carried out on existing mobile app CMS in order to find the best solution that can satisfy customer needs as well as serve as a future platform for building in-house internal apps that will save time and money.

The following mobile CMS platforms have been tested that can be used to build a cost-efficient apps quickly and with no coding knowledge required. By using Mobile App Builders IT department can offer our customers (Group Functions) a dedicated mobile experience, including increased awareness and engagement.

Among the Mobile App CMS I have tested Fliplet, GoodBarber, TheAppBuilder, Appery.io and Mobile Roadie.

Out of the above mentioned platforms I have identified the top three platforms keeping the following factors in mind:

- Platform functionality
- Internal distribution
- Security
- Encryption
- User-friendliness in using CMS

Appendix : Mobile App CMS Comparison Chart

TWO BEST CMS SYSTEMS

	GoodBarber	Fliplet
Homepage	http://www.goodbarber.com/	http://fliplet.com/
Ease of use	GoodBarber is easy to use for anyone because of a simple platform interfase and pop-up guides.	The app has a limited functionality in terms of building a custom interface, but can be customized by Fliplet
Advantages	• Very easy to use • Full HTML functionality • Good selection of customizable templates • Stats, support and sending of push notifications in preview app • Excellent and fast preview app	• Easy to use • Simple HTML functionality • Adding a link to a picture • Offline compatibility • PDF and MS docs offline preview
Disadvantages	• Doesn't have PDF, MS docs in-app previwer • Doesn't support offline compatibility	• Change of layout for extra cost • Slow preview app
Data storage	Cloud-based	Fliplet server hosting options: 1. On a public cloud service placed on RackSpace, a server hosting company 2. Private cloud server 3. On premise version (inside. our own server)
Customization by CMS user	Yes, fully customizable	Yes, but very limited
Custom font	✗	✓
Comments	✓	✗
Offline compatibility	✗	✓

FIGURE: The two top platforms that support the needs of our current project as well as can potentially be a future platform for quick in-house app development solution

Target audience and communication plan

Audience for the app

Since the project is being executed with two outcomes in mind, two different types of audience must be addressed.
The primary target audience is top-management for the Stanford Conference Document app project as well as CMS users (employees) for the CMS platform project that would be conducted as a result of the first project. Therefore two different communication plans must be produced, though with the focus on the primary project.

The audience
The Stanford Conference Documents app audience is are senior executives, heads and managers of the various departments, as well as their partners, and other parts that have been involved in the conference.

Audience concerns
To do business without having to think about technology and IT systems.

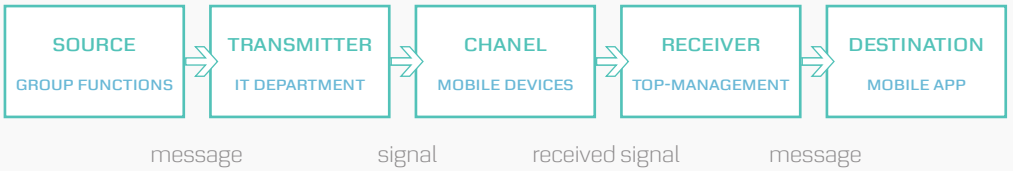
Business, growth, company strategy, focus of Maersk's investments in strategic growth.
Best IT support to be able to do their job in the best possible way.

Needs of the audience
Being able to concentrate on their core business without having to worry about IT systems they are dependent of on.

Targeting criteria:

Education:
Higher education
Characteristics:
Frequent traveler, frequently out of the office, busy, etc.
Needs:
Being able to access data when away from the office.
Communication language:
Easy-to-use information architecture.

The Shannon-Weaver Mathematical Communication Model [1]



Communication plan

Product:
In-house developed app

Sender:
Maersk Group

Message:
Access Stanford Conference pre-read material from mobile device

Media channels:
Enterprise application storefront

Receiver:
Top-management

Intended effect on the target audience:
Ability to access pre-read documents from Stanford School of Business conference from a mobile device

Purpose of the intended effect:
Satisfy customer needs to ensure that audience can concentrate on their core business

1 http://www.shkaminski.com/Classes/Handouts/Communication%20Models.htm#ClassicalCommunicationModels

Design brief

This brief serves as a guiding document for the entire app design process, and describes exactly what to do, and the limitations.

Project name:
Access and sharing mobile application for Maersk Executive Education documents

Client:
Maersk Group

Objectives and goals:
The customer has specific functionality requirements. The Maersk Communication and Branding department set define the design requirements that must be followed.

Budget and scales:
Budget should be as low as possible. The deadline for the project is the end of May or latest the middle of June. The total budget for the app development is send to the client.

Audience:
Top-management

Scope of the project:
Give access to the pre-read documents from the Stanford School of Business to the target audience

Needed product:
Mobile App

Available materials:
Maersk has a well-established brand identity with design guidelines including logo, colors, photos, icons and other design material that I have to follow to complete the app design.

Style and look:
Functionality supported by Maersk design
Usability-wise the app should be easy to use

Customer requirements:
Cost-efficient and quick solution needed

Access documents from mobile device
Share documents from mobile device
See agenda from the conference
Support info
Secure access to documents
Secure data storage

Company requirements:
Secure data storage
Follow design guidelines for any design decisions

Concept

The project has a precise shape and form that is requested by the client. The concept has been to build an app that would support the client requirements as well as company requirements.

Visual identity

Product design

When developing a visual identity for Maersk Executive Education documents app I have to follow Maersks' design guidelines which can be accessed here:
www.brandguide.maersk.com

Maersk is known around the world through its brand. In more than 130 countries, the Maersk brand identity is realized through a powerful, unifying strategy for communicating the value, trust, leadership, and tradition behind Maersk brand.

Maersk ability to build a global brand depends on how well company employees understand and apply the Maersk corporate visual identitity.

App design
since mobile apps are still a new phenomenon in the company, I had a chance to be one of the pioneers to create mobile app visual design. Visual design guidelines for the design architecture of mobile application doesn't exist yet. Group Communication and Branding are currently working on designing the mobile application design guide. They are expecting to finish the guide at the end of this year.

Every Maersk employee developing communication/ marketing materials on behalf of Maersk entities – should understand and consistently apply the Maersk corporate visual identity represented by the chosen design, design elements, typography and imagery. [1]

Therefore I used the general knowledge about Maersk design guidelines combined with the knowledge I received during Multimedia Design and Communication education to develop a visual design for the Maersk Executive Education documents app.

1 http://brandguide.maersk.com/

Primary colors [1]

RGB: R105G184B214 **HEX:** 69b8d6

RGB: R0G78B107 **HEX:** 004e6b

Originally Zetta Serif as headings and Zetta Sans as body text should have been used for the app contents. Unfortunately GoodBarber (CMS) doesn't support custom fonts. Thus Verdana typography was chosen for the app contents.

Verdana as described in the typography guide is the typeface used for everyday office use in Word templates, e-mails and **on the web.**

Verdana

a b c d e f g h i j k l m n o p q r s t u v w x y z
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9

Grumpy wizards make toxic brew...
Grumpy wizards make toxic brew...
Grumpy wizards make toxic brew...

Verdana regular **Verdana bold**

Information architecture

Sketching and wireframing

It has been important to define information architecture of the app as early in the project life cycle as possible to make sure to get a feedback from the key stakeholders early in the project. In this way it can be ensured that the project is formed correctly from the begging.

Navigation is crucial to the user experience to be able to consume content. Navigation has to be as simple and predictable as possible.

In order to create a well-organized structure of the app I need it has been necessary to analyse the type and amount of content keeping in mind all the requirements by from the customer as well as the company's overall security and visual design requirements.

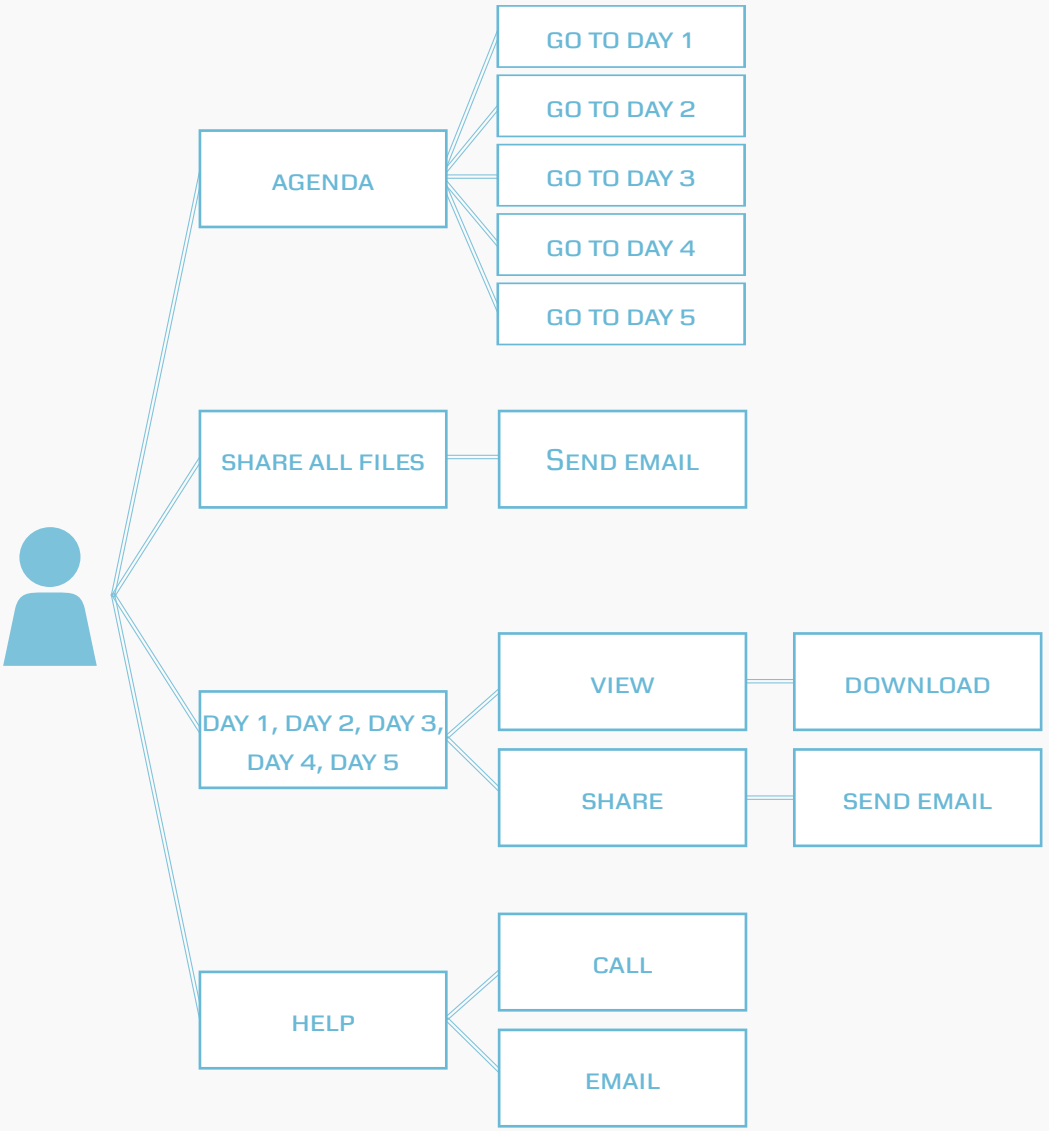
Words to keep in mind when designing IA:

- **Ease of use**
- **Valuable**
- **Accessible**
- **Findable**
- **Usability**
- **Desirability**
- **Simplicity**

Principles used for designing the app:

- Readability
- Navigation
- Hotspots
- Buttons
- Calls to action

User flow



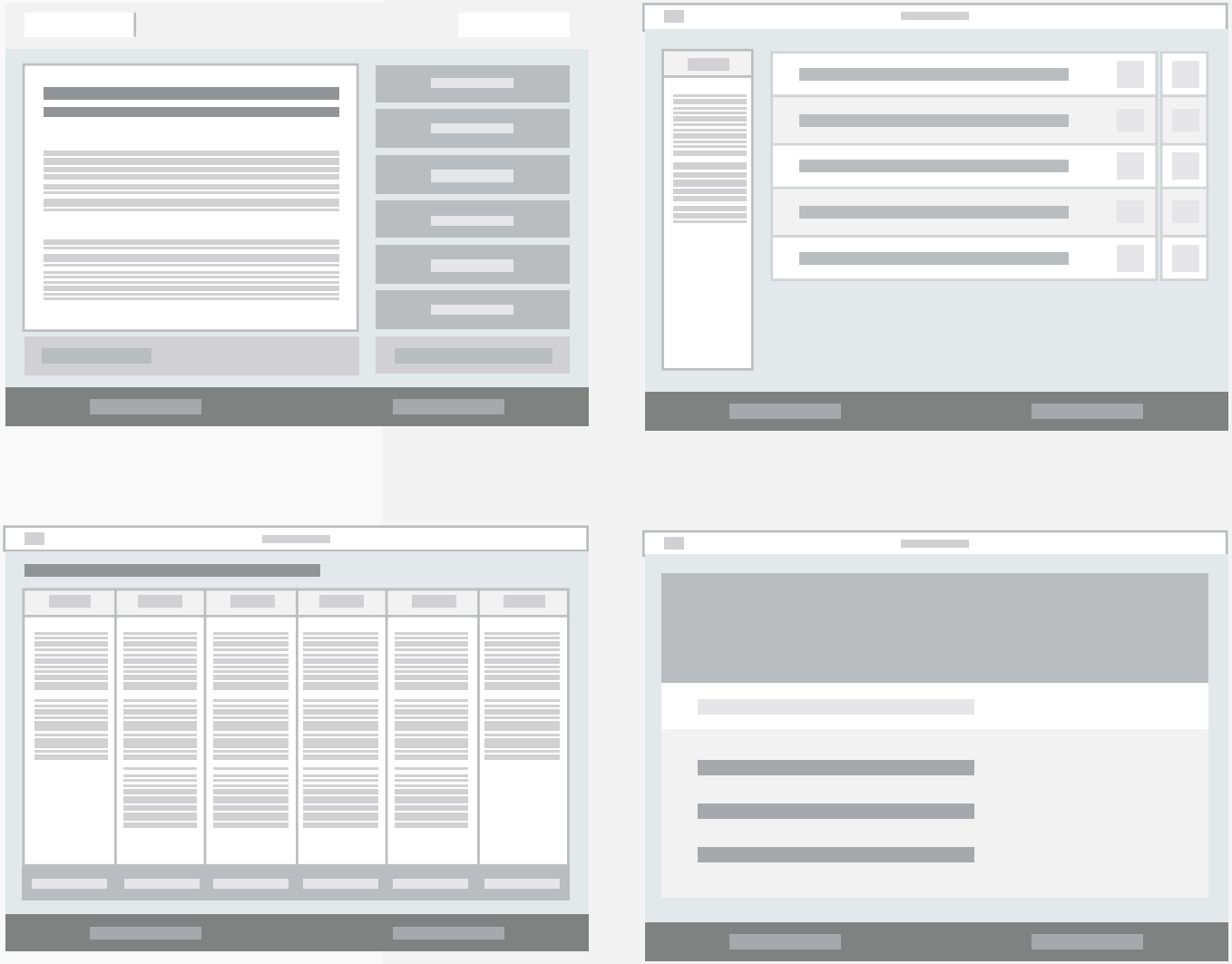
App structure

Wireframes for iPad portrait

App structure
Well-organized structure for the app content will make the app more usable for the end-users. Information structure has been based on the audience research I will strive to create information structure that will make it easy for users to find what they are looking for.

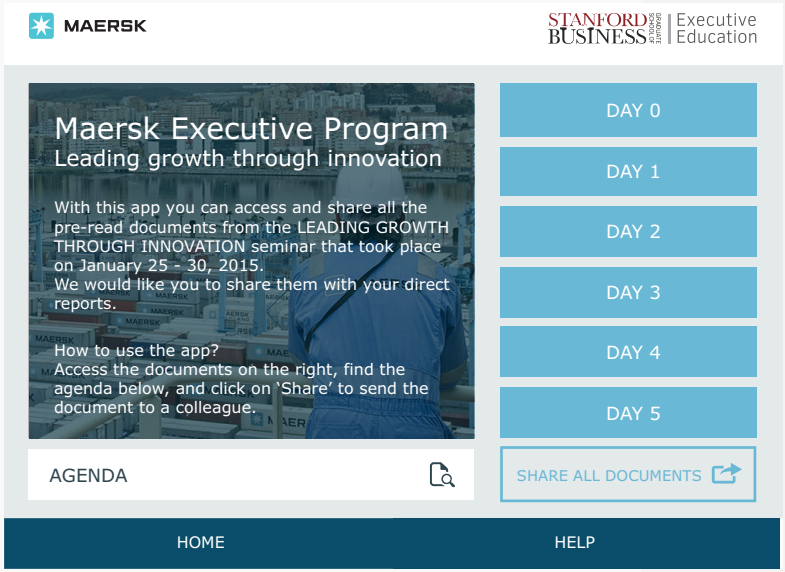
> **Findability precedes usability. In the alphabet and on the Web. You can't use what you can't find."**
>
> Ambient Findability by Peter Morville [1]

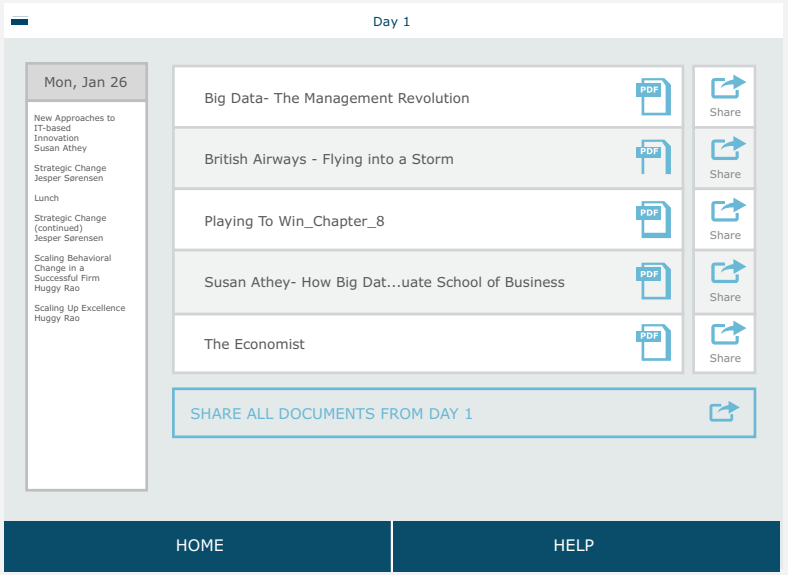
Appendix : Wireframes for hend-held devices

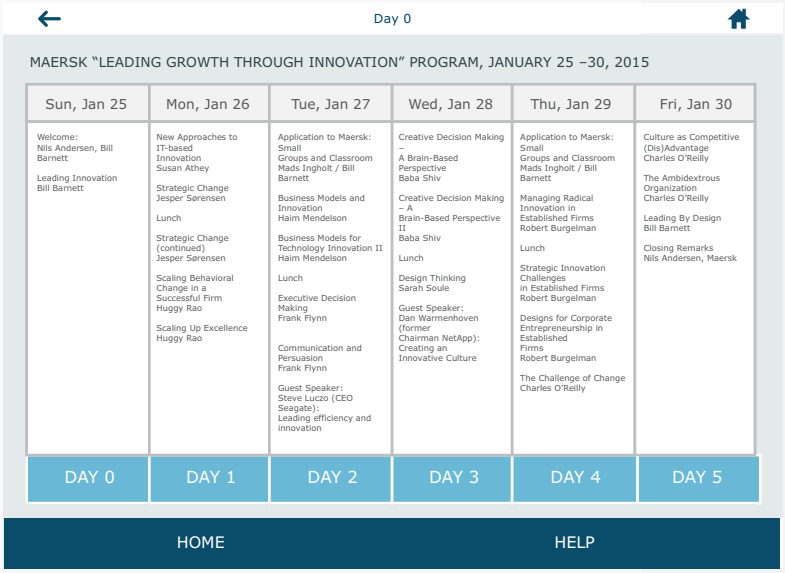


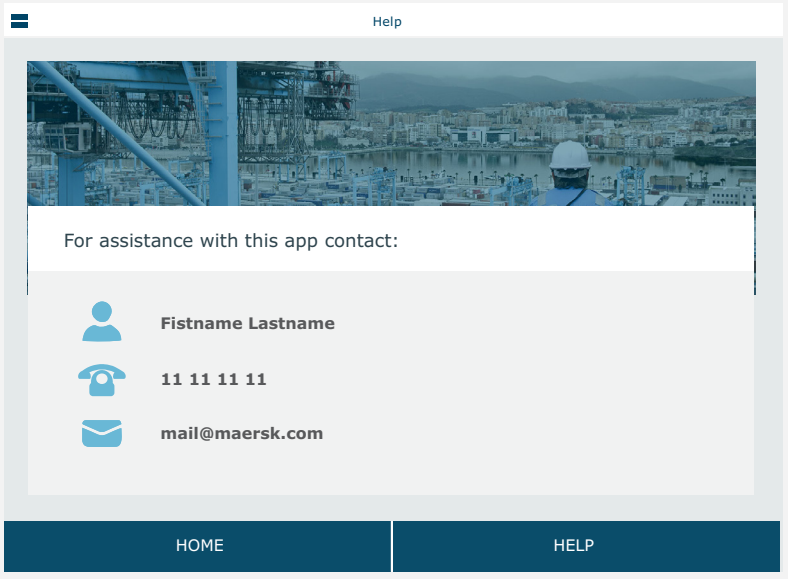
1 http://www.webdesignerdepot.com/2015/02/the-ultimate-guide-to-information-architecture/

Mock-up









Appendix: Mock-up

App development

Hybrid App Development & Mobile CMS

I used a hybrid app development method in this project. Hybrid app is a combination of native app and mobile web app outcome. The native code in my project is provided by Mobile App Building Software (GoodBarber), which provides the native side of the app and a JavaScript API. JavaScript API is used for the cloud CMS. Thus allowing GoodBarber to serve as an online Web Application Platform that makes it easier, faster and more cost-efficient to create, build, manage and distribute content to mobile applications.

Hybrid mobile app wraps **HTML and CSS** files into a native app container and store the files locally on mobile device.

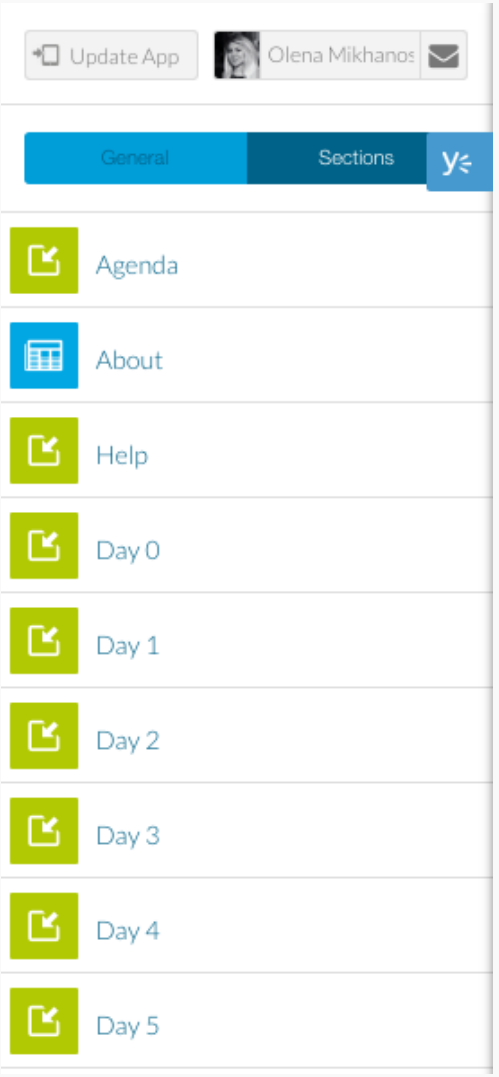
Since the native part of the app can be described as an embedded web browser inside of an application, focus has been on building web pages for the app. As a consequence the platform will package the web code (HTML5 and CSS3) into a cross-platform (iOS, Android and other platforms) mobile app.

The **Mobile App CMS** allows me to manage the content in real time, which makes it easy, and fast to troubleshoot usability and design issues. When working with CMS I instantly able to check the progress of the app development by using a live app previewer that displays the app on any device. Thus I can monitor if the responsive design is working well on both iPhone and iPad as it should and that navigation and gestures are well-structured. Additionally I can see exactly how customers will experience the app in real time previewer. Hence I can do a live demo for the customer to get a constructive feedback during the development process to make sure that the customer gets an experience that matters.

Security

When developing the app a major problem was to make sure that the company documents are stored securely. The way mobile CMS works is that it stores the data in the cloud. Cloud data storage is typically owned and managed by a hosting company. In my case GoodBarber (Mobile App Builder) uses Rackspace public cloud storage. Rackspace is responsible for keeping the data available and accessible, and the physical environment protected and running. Rackspace servers are placed in different countries worldwide,

App sections



App development

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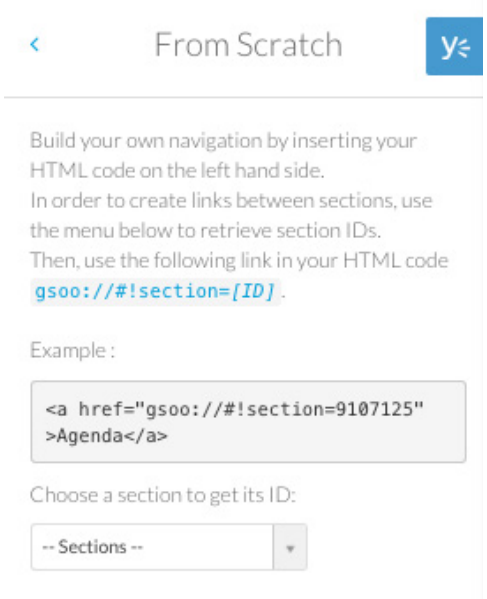
which make it difficult to control where the data is stored and who have access to the information. That compromise the security for the company data. My goal has been to find a solution how to give access to the documents through the app, but at the same time make sure that the documents are stored on company-owned servers and not on Rackspace.



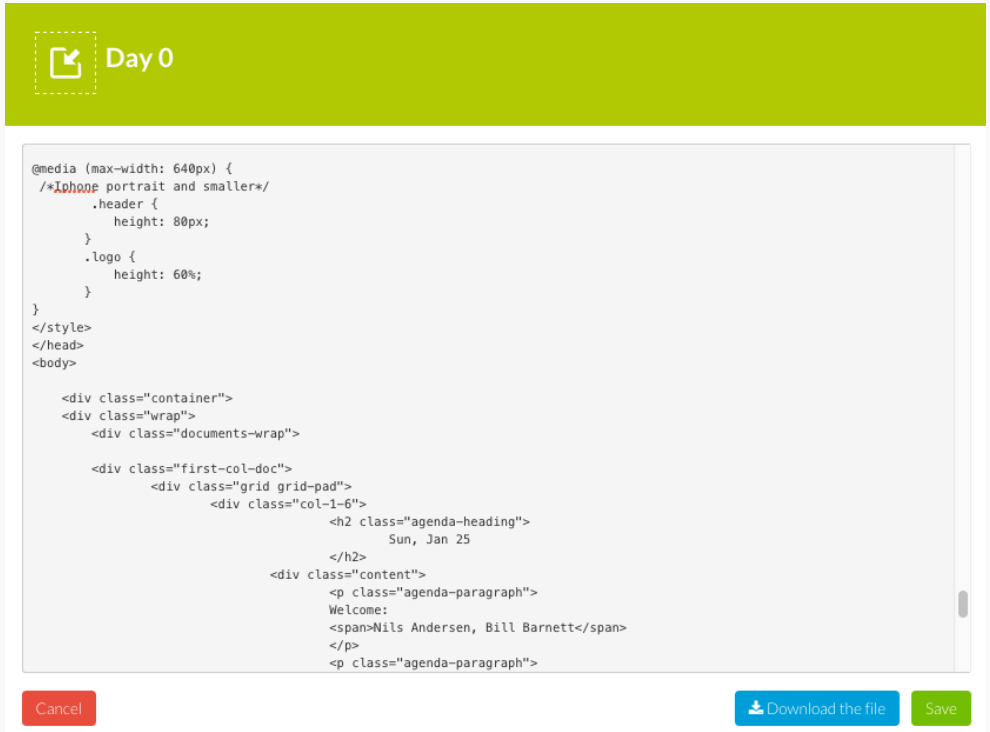
ShareFile
Maersk has a private storage server hosted by Citrix ShareFile. ShareFile provides a set of features for secure enterprise file storage. ShareFile stores enterprise data in the optimal locations for Maersk, in the cloud, and lets sync and share enterprise files everywhere. By using ShareFile to store the all the Stanford Conference pre-read documents I can extract a sharing link to the each of the documents and use it as a reference in the app. Thus when the user clicks on the document link it goes to the ShareFile server instead of Rackspace server. In this case an in-app browser will be launched and user will be taken to a ShareFile landing page with a link to download the file. For the user experience the difference is that the user will have to click one more time using ShareFile cloud storage than if the files would be stored on GoodBarbers servers (provided by Rackspace).

Prebuild templates with no coding skills required vs. HTML section
I had two options when developing the app inside the CMS. Either use prebuild app templates to build the app or to develop each section of the app using HTML5 and CSS3.

Among advantages of using pre-build templates are
JavaScript functionality is included
More options for complex functionality
No need to use the code

Among disadvantages of using prebuild templates are
Limited amount of template sections
Doesn't support the communication I need for the Stanford project
Can't be completely customized to the customer needs
Can't be changed shape-wise

HTML sections
Therefore I chose to use HTML sections when building the app.
I coded each of the section using purely HTML5 and CSS3. When all the



App development

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sections were coded I implemented them into the HTML section wireframe of the CMS. I combined all the sections together by using a link provided for each section inside the CMS. GoodBarber doesn't support a separate file library for keeping CSS file. Therefore I have to use a style tag inside the HTML page for each of the pages. Since the app is not very complex it doesn't present a problem for the development process.

Responsiveness - CSS media queries

To make sure to create the right experience for the right device I used CSS media queries. I have received a list of devices that can be seen below.

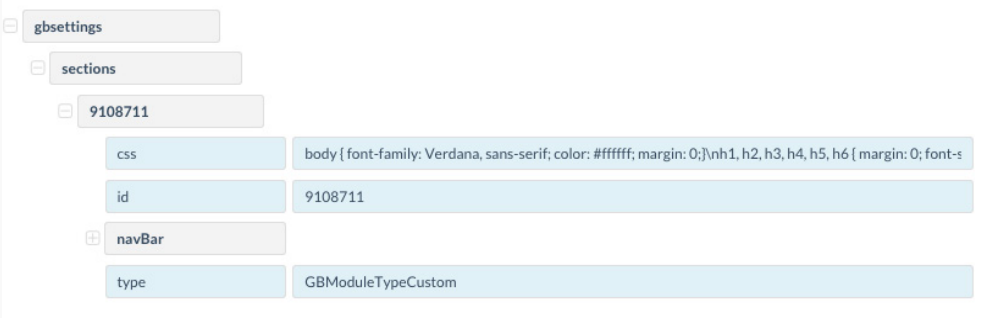
Mobile devices:
iPhone portrait
iPad mini portrait
iPad mini landscape
iPad portrait
iPad landscape

CSS styles make it easy to change styles based on devices including characteristics as the display type, width, height, orientation and even resolution.

> **David Emm, senior security researcher at Kaspersky Lab comments: "Recently, trust in cloud storage has been undermined somewhat by the Snowden leaks and growing fears about privacy**
> **"I think it's too early to say whether this will affect the take-up of cloud services significantly. Although, it may well ensure that security issues become a key part of the negotiations between cloud providers and prospective clients." 1**

1 http://www.techradar.com/news/internet/cloud-services/cloud-security-how-to-keep-your-data-safe-1260769

</> Json



Chapter summary

I used GoodBarber Mobile App Builder Software in combination with HTML5 and CSS3 to build the Stanford Conference App. Keeping security, user-friendliness, customer and company requirements in mind I have achieved my goal and successfully build the app. The next stage is to make usability testing to ensure that everything works as it supposed to and the app lives up to the customer needs.

Conclusion and reflection

Conclusion

The final project of Multimedia Design and Communication study involved development of mobile application that supports the functionality of viewing and sharing documents as well as security and design requirements set by the company.

The goal of the project was resolved by finding a low-cost, fast in development, and easy-to-maintain mobile app development method. During the project over 8 different Mobile App Content Management Systems were tested. Multiple discussions were conducted with the CMS Software providers to find the best solution that supports both security requirements and client needs. On the background of CMS testing best platform was identified. BIT Mobile App Software and hybrid app development were combined to deliver the Maersk Executive Education documents app. Prototype app was developed as result, which is ready to be launched and released. There is a hope that one of the tested platforms will serve as a future BIT platform for developing internal employee apps.

Evaluation of the project

During the final project the task was to demonstrate knowledge, skills and competences acquired during Multimedia Design and Communication program.

During the project I used a wide range of technical skills such as graphics design, web design, multimedia presentation, web development, hybrid development, MCS, mobility, digital communication, image processing, multimedia production, UI and UX, management of multimedia production etc.

I used visual communication skills to present information in a multimedia context combined with IT and programming skills to develop the mobile application.

Organisation, time and project management skills helped me to deliver the project in time and to the customer expectations.

Competencies in design software helped me to create visual design of the product, while image and manipulation software have provided me with exceptional visual presentation skills that I used to present the product to the customer for each milestone of the project.

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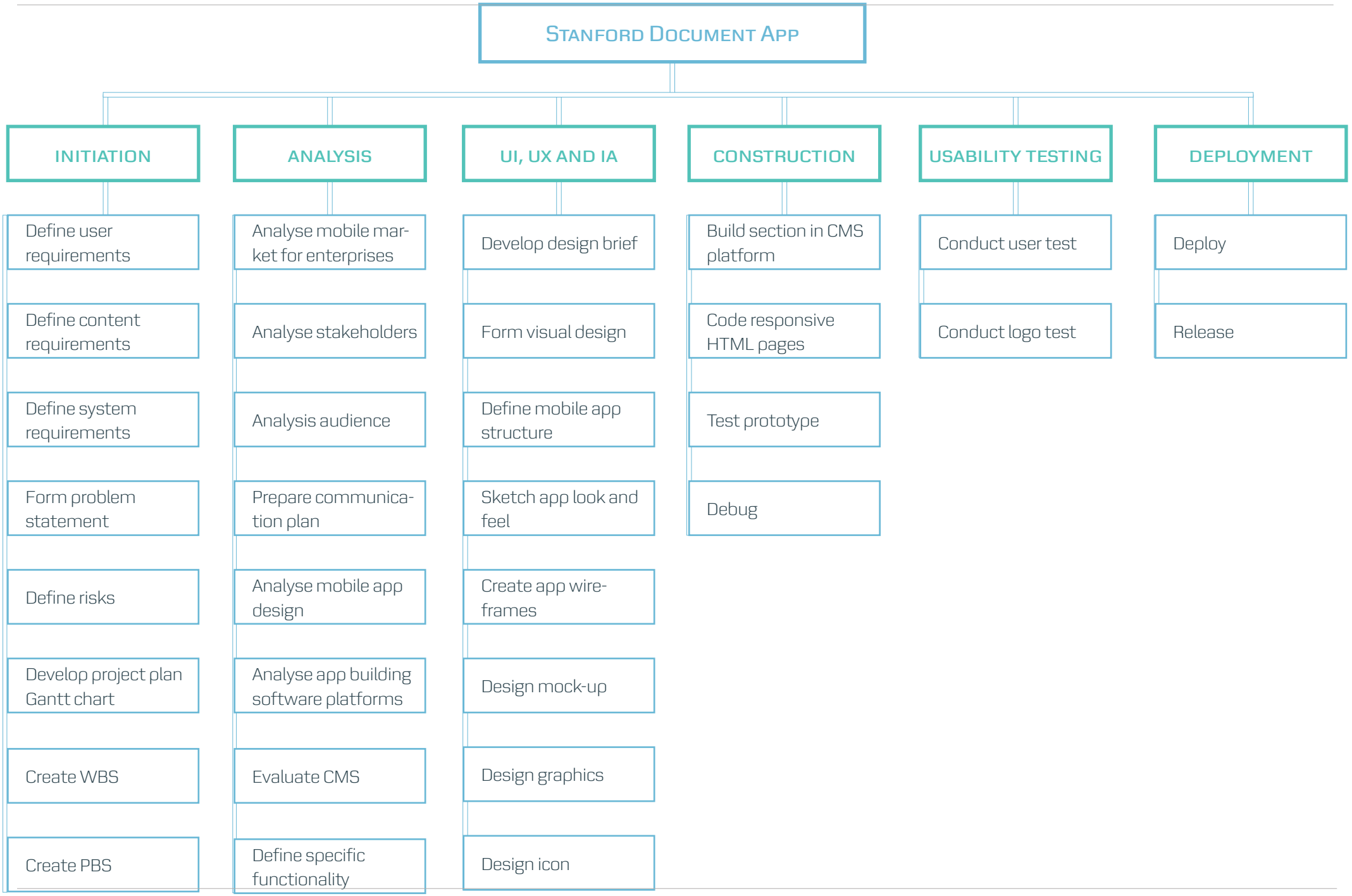
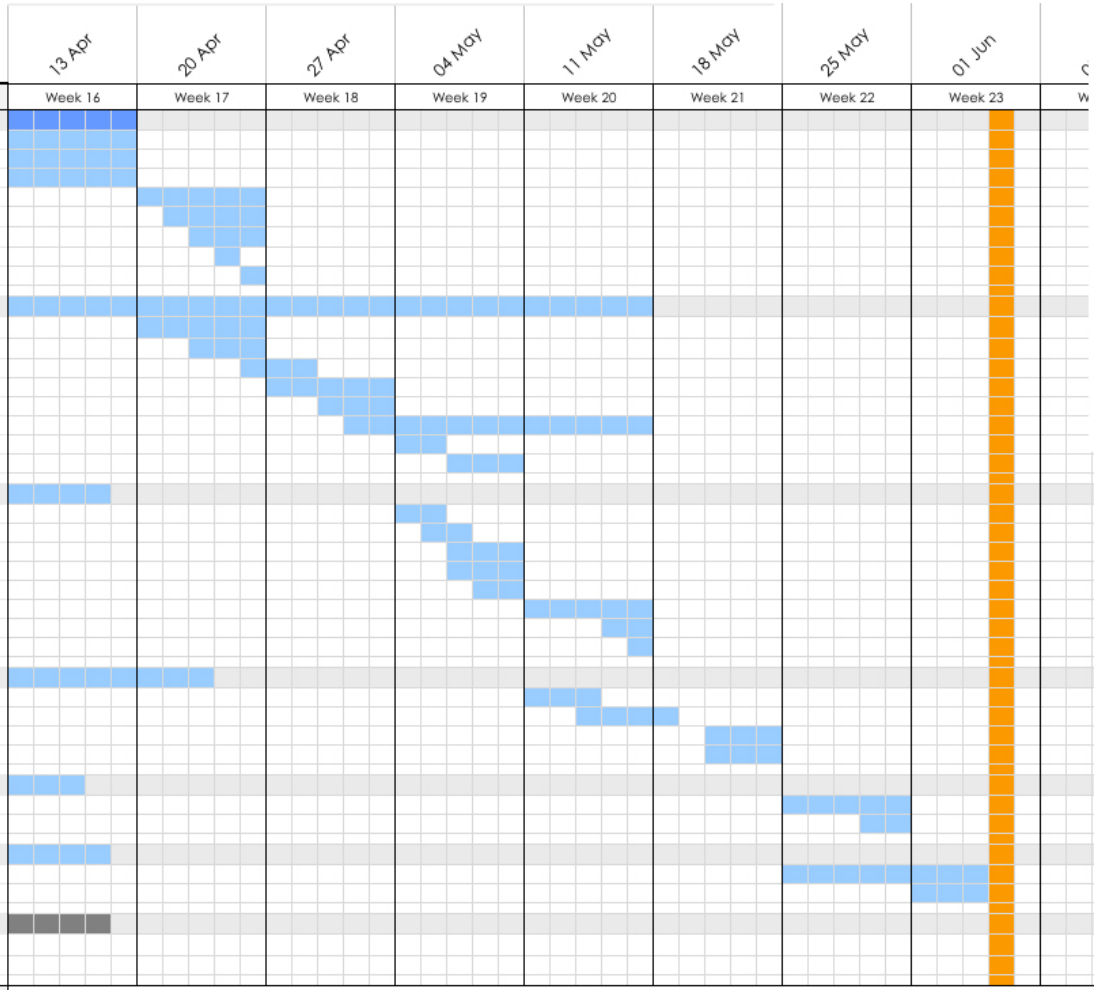

STANFORD DOCUMENT APP
INITIATION
Define user requirements
Define content requirements
Define system requirements
Form problem statement
Define risks
Develop project plan Gantt chart
Create WBS
Create PBS
ANALYSIS
Analyse mobile market for enterprises
Analyse stakeholders
Analysis audience
Prepare communication plan
Analyse mobile app design
Analyse app building software platforms
Evaluate CMS
Define specific functionality
UI, UX AND IA
Develop design brief
Form visual design
Define mobile app structure
Sketch app look and feel
Create app wire-frames
Design mock-up
Design graphics
Design icon
CONSTRUCTION
Build section in CMS platform
Code responsive HTML pages
Test prototype
Debug
USABILITY TESTING
Conduct user test
Conduct logo test
DEPLOYMENT
Deploy
Release

#	Tasks	Task Lead	Resource	Start	End	Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining
1,0	**Initiation**			13-Apr-15	25-Apr-15	7	100%	10	7	0
1,01	Define user requirements		OM	13-Apr-15	17-Apr-15	5	100%	5	5	0
1,02	Define content requirements		OM	13-Apr-15	17-Apr-15	5	100%	5	5	0
1,03	Define system requirements		OM	13-Apr-15	17-Apr-15	5	100%	5	5	0
1,04	Form problem statement		OM	20-Apr-15	24-Apr-15	5	100%	5	5	0
1,05	Define risks		OM	21-Apr-15	24-Apr-15	4	100%	4	4	0
1,06	Develop project plan		OM	22-Apr-15	24-Apr-15	3	100%	3	3	0
1,07	Create WBS		OM	23-Apr-15	23-Apr-15	1	100%	1	1	0
1,08	Create PBS		OM	24-Apr-15	24-Apr-15	1	100%	1	1	0
2,0	**Analysis**			13-Apr-15	17-May-15	35	100%	25	35	0
2,01	Analyse mobile market for enterprises		OM	20-Apr-15	24-Apr-15	5	100%	5	5	0
2,02	Analyse stakeholders		OM	22-Apr-15	24-Apr-15	3	100%	3	3	0
2,03	Analyse audience		OM	24-Apr-15	28-Apr-15	5	100%	3	5	0
2,04	Prepare communication plan		OM	27-Apr-15	1-May-15	5	100%	5	5	0
2,05	Analyse mobile app design		OM	29-Apr-15	1-May-15	3	100%	3	3	0
2,06	Analyse mobile app building software platforms		OM	30-Apr-15	17-May-15	18	100%	12	18	0
2,07	Define specific functionality		OM	4-May-15	5-May-15	2	100%	2	2	0
2,08	Evaluate CMS		OM	6-May-15	8-May-15	3	100%	3	3	0
3,0	**UI, UX and IA**			13-Apr-15	15-May-15	4	100%	25	4	0
3,01	Develop design brief		OM	4-May-15	5-May-15	2	100%	2	2	0
3,02	Form visual design		OM	5-May-15	6-May-15	2	100%	2	2	0
3,03	Define mobile app structure		OM	6-May-15	8-May-15	3	100%	3	3	0
3,04	Sketch app look and feel		OM	6-May-15	8-May-15	3	100%	3	3	0
3,05	Create app wireframes		OM	7-May-15	9-May-15	3	100%	2	3	0
3,06	Design mock-up		OM	11-May-15	15-May-15	5	100%	5	5	0
3,07	Design graphics		OM	14-May-15	15-May-15	2	100%	2	2	0
3,08	Design icon		OM	15-May-15	15-May-15	1	100%	1	1	0
5,0	**Construction**			13-Apr-15	22-Apr-15	10	100%	8	10	0
5,01	Build sections in CMS		OM	11-May-15	13-May-15	3	100%	3	3	0
5,02	Code responsive HTML pages		OM	13-May-15	18-May-15	6	100%	4	6	0
5,03	Test prototype		OM	20-May-15	22-May-15	3	100%	3	3	0
5,04	Debug		OM	20-May-15	22-May-15	3	100%	3	3	0
6,0	**Testing**			13-Apr-15	15-Apr-15	3	100%	3	3	0
6,01	Conduct user test		OM	25-May-15	29-May-15	5	100%	5	5	0
6,02	Conduct logo test		OM	28-May-15	30-May-15	3	100%	2	3	0
7,0	**Report**			13-Apr-15	16-Apr-15	4	100%	4	4	0
7,01	Write report		OM	25-May-15	3-Jun-15	10	100%	8	10	0
7,02	Set-up report		OM	1-Jun-15	3-Jun-15	3	100%	3	3	0
8,0	**Deployment**			13-Apr-15	16-Apr-15	4	0%	4	0	4
8,01	Deploy		OM	15-Jun-15	28-Jun-15	14	0%	10	0	14
8,02	Release		OM	29-Jun-15	3-Jul-15	5	0%	5	0	5
			Totals	**13-Apr-15**	**5-Jun-15**	53		**40**		



#	Tasks	Task Lead	Resource	Start	End	Duration (Days)	% Complete	Working Days	Days Complete	Days Remaining

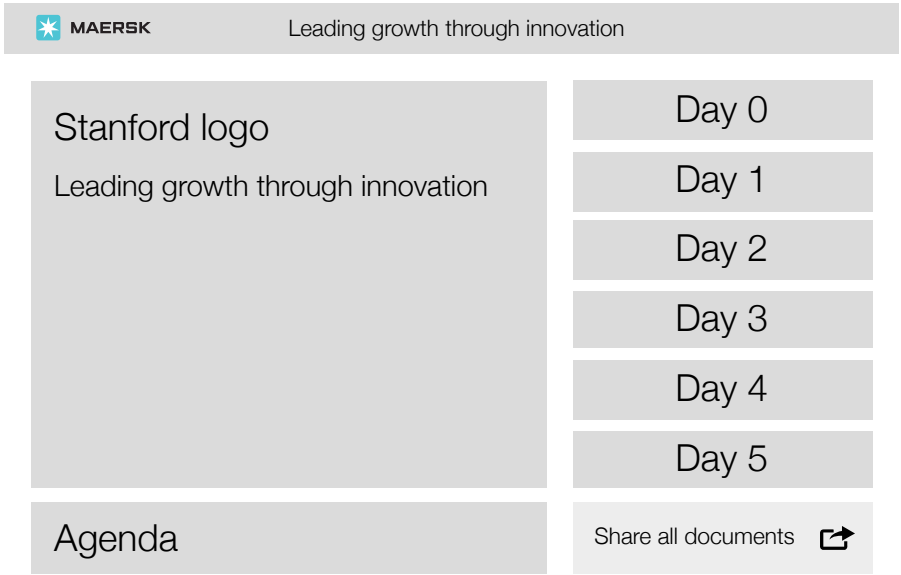
Please notice that Duration (Days) is not a full day but a frame within the task is done.

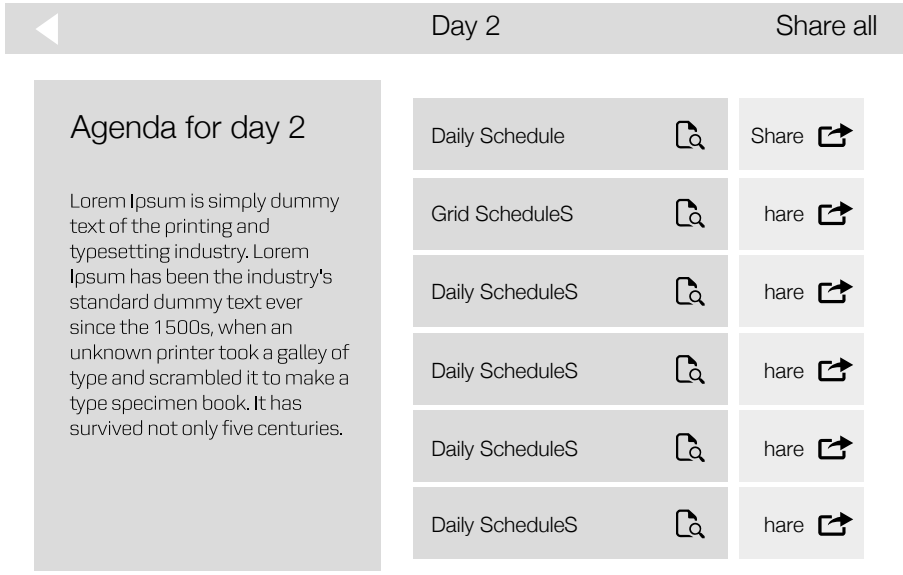
Comparison chart for top three Mobile App CMS platforms

	GoodBarber	Fliplet	TheAppBuilder
Homepage	http://www.goodbarber.com/	http://fliplet.com/	http://theappbuilder.com/
About	Good Barber provides a platform to build iPhone and Android apps, allowing you to take control of every detail of your app without producing a single line of code.	It enables HR managers to launch Health & Safety apps, salespeople to launch presentation apps and Finance to launch reporting apps. If your company has unique needs Fliplet can be extended to work with your existing systems.	Using our simple-to-use content management system, you can modify and create an app that ties in with your corporate branding and marketing. It's as simple as that!
Company	30 people. 15 technical, and 15 marketing and support people	12 people	Small company: 15 employees in Ireland
Financial situation	• Company was created in 2009, company name is Duo Apps. GoodBarber is created in 2011. • Since 2012 the product is growing. • Wmaker.net is a mother company	• Legal company name is Weboo Online Limited • 12 UK staff • Over £500,000 investment early this year http://techcrunch.com/2015/04/25/fliplet-secures-seed-funding-for-its-fast-enterprise-apps-building-platform/ • Over £300,000 revenue last year	
Example apps	Webinar tutorials https://www.youtube.com/user/GoodBarberTV		https://itunes.apple.com/gb/app/theappbuilder/id455241745?mt=8 User Name "DemoUser" and the Password "DemoUser1" Video Demo: https://vimeo.com/100991978
Installation/Platform log in page	Web-based application	Web-based application	Web-based application
Preview app	✓	✓	✓
Ease of use	GoodBarber is easy to use for anyone because of a simple platform interfase and pop-up guides.	The app has a very limited functionality in terms of building a custom interface, but can be customized by Fliplet	THeAppBuilder has a limited functionality and it is hard to edit HTML code
Advantages	• Very easy to use • HTML editing • Many customization features • Good templates • Good sections with high customization • Stats, support and sending of push notifications in preview app • Good survey forms • Excellent and fast preview app	• OK easy to use • HTML editing • Many customization features • Good sections with high customization • Adding a link to a picture • Support offline compatibility • Submit of surveys offline • Good survey forms • Support PDF and MS docs in-app preview with sharing features	• Good app structure • Offline view •
Disadvantages	• Doesn't have PDF, MS docs in-app previwer • Doesn't support offline compatibility • Can't submit survey offline	• Limited design templates • Slow preview app	• Hard to use • HEML edit is not optimal • Not many customization features

	GoodBarber	Fliplet	TheAppBuilder
Security		Fliplet can integrate with your existing mobile security and mobile device management solution. Fliplet can also be hosted within your company cloud or in a private secure cloud with companies like Rackspace, IBM or Microsoft Azure.	
App deployment *Can we get a binary file?*	✓	✓	✓
Data storage *Where do you store data?*	Cloud-based	Cloud-based Fliplet server hosting options: 1. On a public cloud service placed on RackSpace, a server hosting company 2. Private cloud server 3. On premise version (inside. our own server) Yes, we can build a reference to a secure file on apmm server in order to access the documents.	Cloud-based • On a public cloud service placed on RackSpace, a server hosting company. • We have only two servers because we didn't have a need to go outside USA or EU. TheAppBuilder is open to it and would like to do it if APMM need it. • You can't store data on your own server. We store the data on SaaS, RockSpace servers
Encryption		✗	✓
Customization by vendor *Can company create a custom theme?*	✗	✓	✗
Customization by CMS user	Yes, fully customizable	Yes, but very limited and doesn't work properly	Yes, but limited. Only body part
Custom font	✗		✗
In-app PDF preview	✗ ✓	✓	✓
In-app MS Office documents preview	✗	✓	✗
In-app website preview	✓	✓	✗
Comments *Do you have comment system*		✗ ✓	✓

	GoodBarber	Fliplet	TheAppBuilder
Comments *Do you have comment system*		✗ ✓	✓
Edit HTML code	✓	✓	✗ ✓
PHP	✗	✗	✗
Stats	✓	✓	
Submission process by vendor	✓		
Offline compatibility	✗	✓	✓
Survey offline	✗	✓	✓
Images in article section *Can I insert an image into the article section?*	✓	✓	✗
Support	48 hours legally Better support quality from October 2015	Custom features from support	
SharePoint intergtaion	✗	✓	
SLA / Terms and condition		• We put in terms and conditions that you as a company can get access to all the code. • Our standard terms and conditions are available at http://fliplet.com/terms/ Often large customers request we can integrate an escrow clause that gives you access to the Fliplet code and your Fliplet customizations, data and code if we were to shutdown	We can look in to a Custom SLA - for example, you may require and unlimited number of CMS users. It is also important for you to be aware that there may be some up-front costs for Professional Services depending on your final requirements and the volume of work involved in setting up your account - for example, setting up user authentication, helping you with a mass on-boarding project, etc. We can discuss this in more detail in due course.


MAERSK
Leading growth through innovation
Stanford logo
Leading growth through innovation
Day 0
Day 1
Day 2
Day 3
Day 4
Day 5
Agenda
Share all documents
Home
Support


Day 2
Share all
Agenda for day 2
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries.
Daily Schedule
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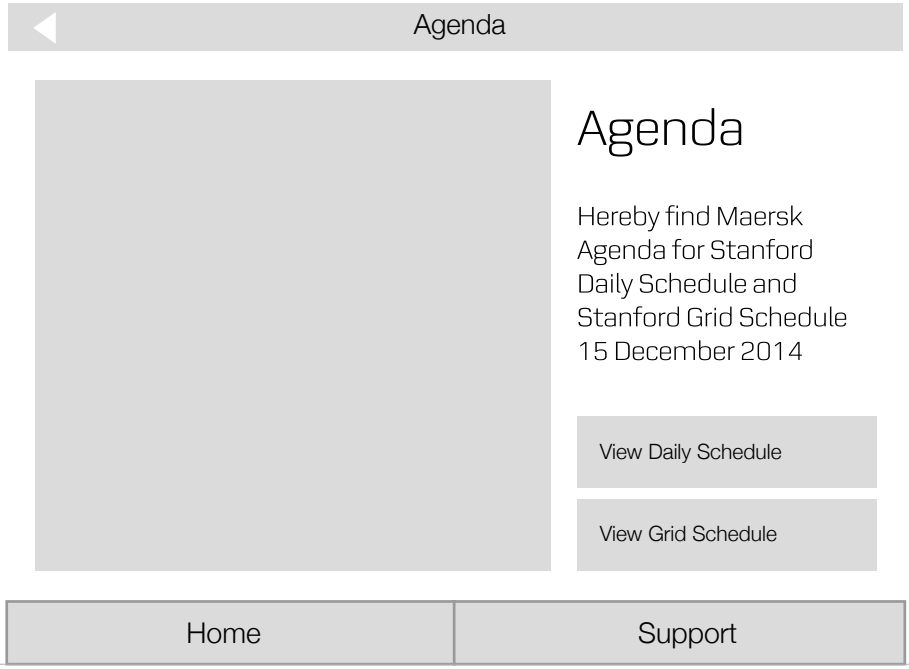
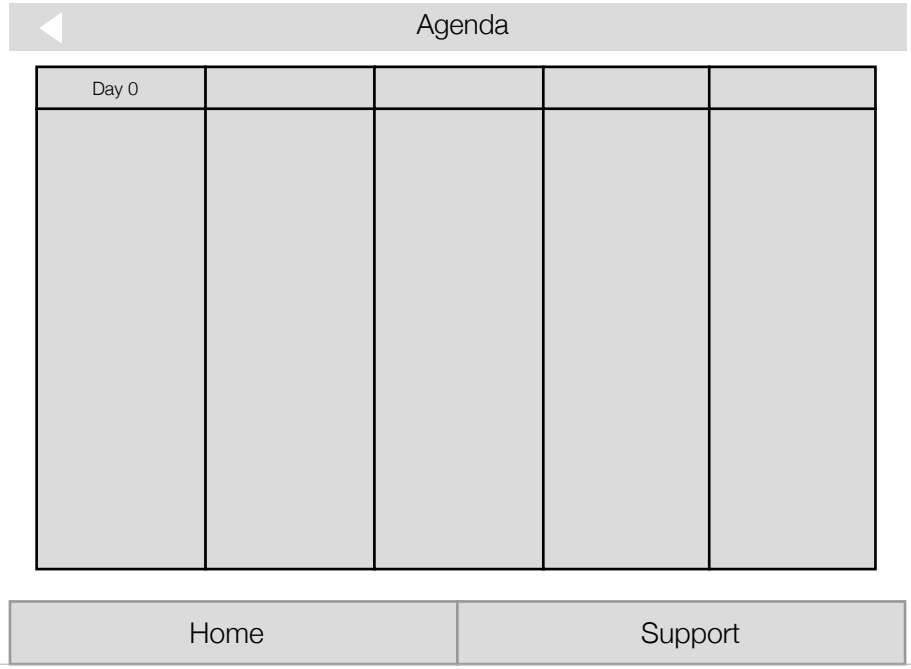
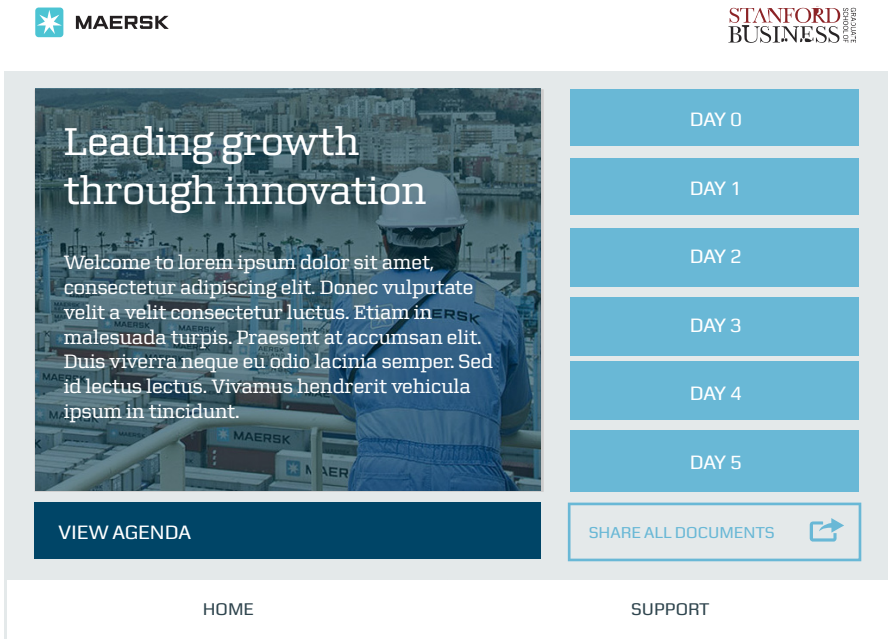
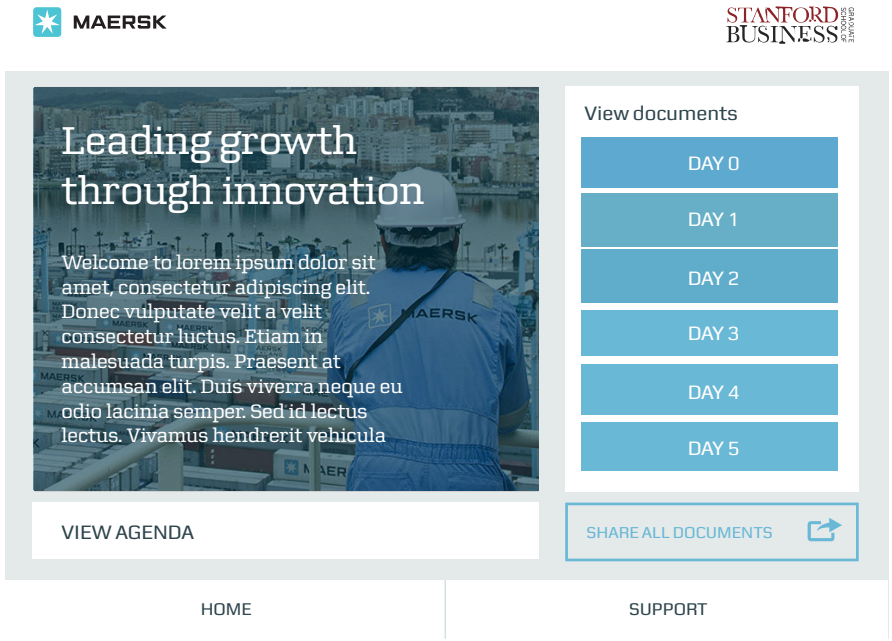
Support


Agenda
Agenda
Hereby find Maersk Agenda for Stanford Daily Schedule and Stanford Grid Schedule 15 December 2014
View Daily Schedule
View Grid Schedule
Home
Support


Agenda
Day 0
Home
Support


MAERSK
STANFORD BUSINESS
Leading growth through innovation
Welcome to lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec vulputate velit a velit consectetur luctus. Etiam in malesuada turpis. Praesent at accumsan elit. Duis viverra neque eu odio lacinia semper. Sed id lectus lectus. Vivamus hendrerit vehicula ipsum in tincidunt.
DAY 0
DAY 1
DAY 2
DAY 3
DAY 4
DAY 5
VIEW AGENDA
SHARE ALL DOCUMENTS
HOME
SUPPORT


MAERSK
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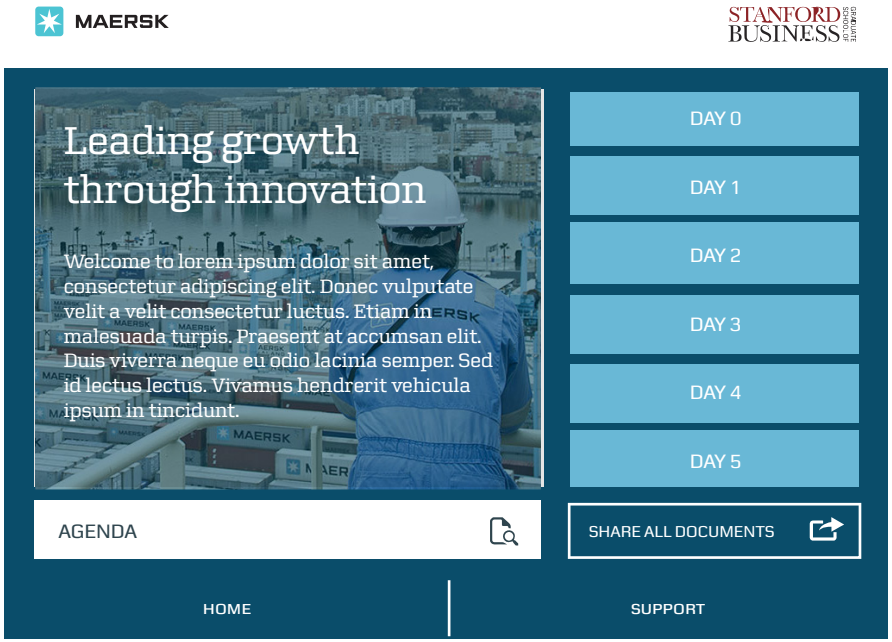
View documents
DAY 0
DAY 1
DAY 2
DAY 3
DAY 4
DAY 5
VIEW AGENDA
SHARE ALL DOCUMENTS
HOME
SUPPORT


MAERSK
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Leading growth through innovation
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DAY 0
DAY 1
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DAY 3
DAY 4
DAY 5
AGENDA
SHARE ALL DOCUMENTS
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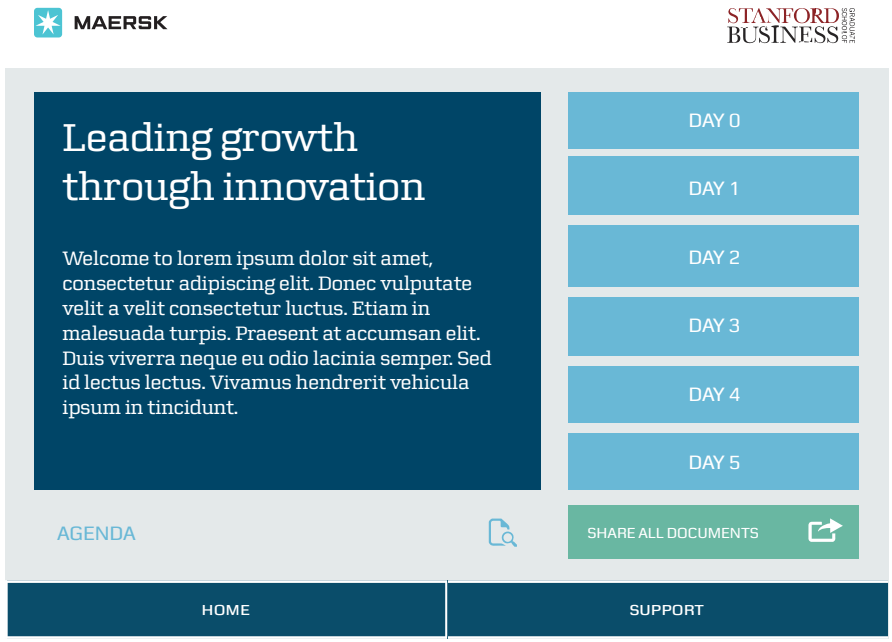
MAERSK
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Leading growth through innovation
Welcome to lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec vulputate velit a velit consectetur luctus. Etiam in malesuada turpis. Praesent at accumsan elit. Duis viverra neque eu odio lacinia semper. Sed id lectus lectus. Vivamus hendrerit vehicula ipsum in tincidunt.
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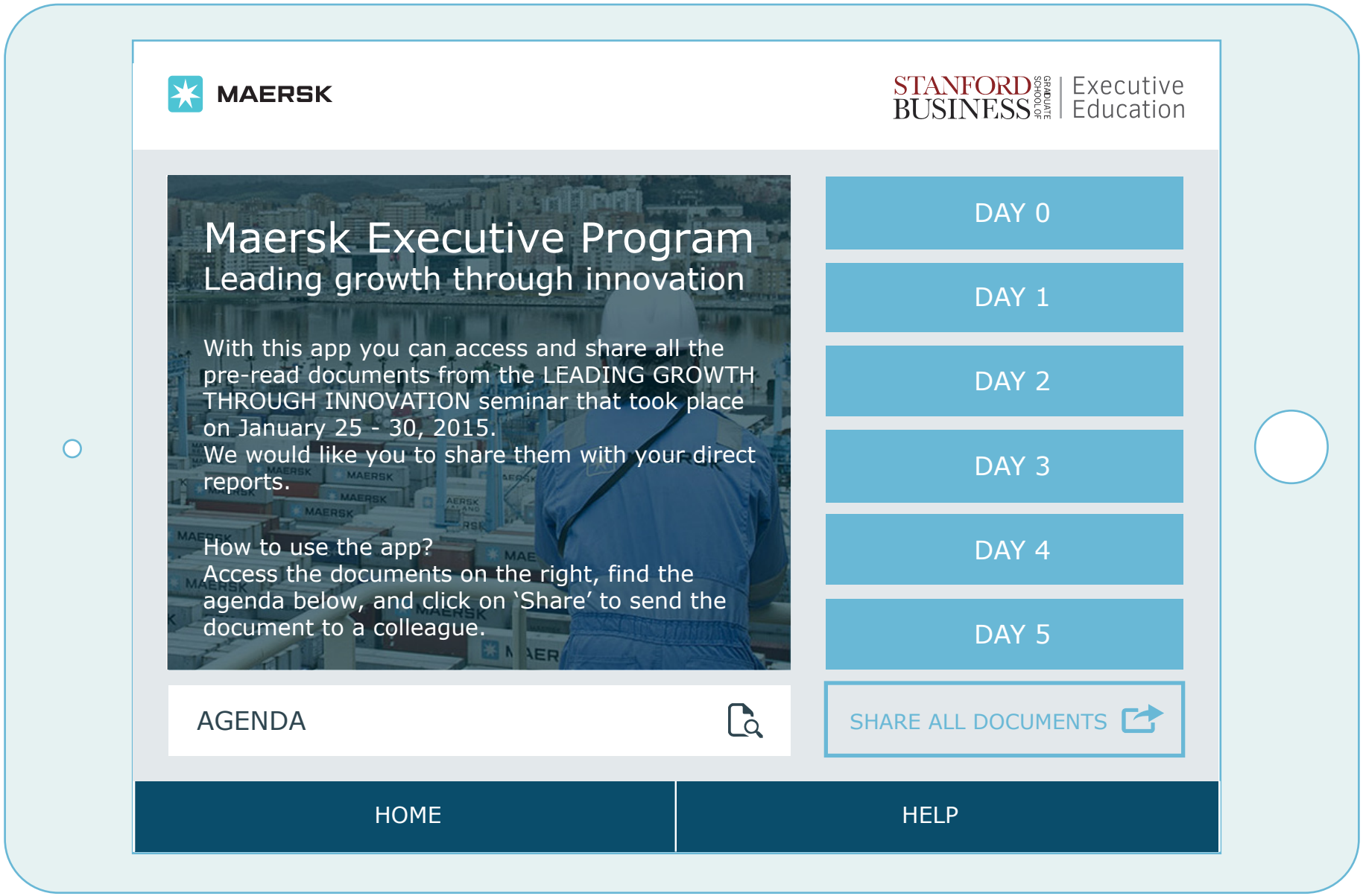
DAY 1
DAY 2
DAY 3
DAY 4
DAY 5
AGENDA
SHARE ALL DOCUMENTS
HOME
SUPPORT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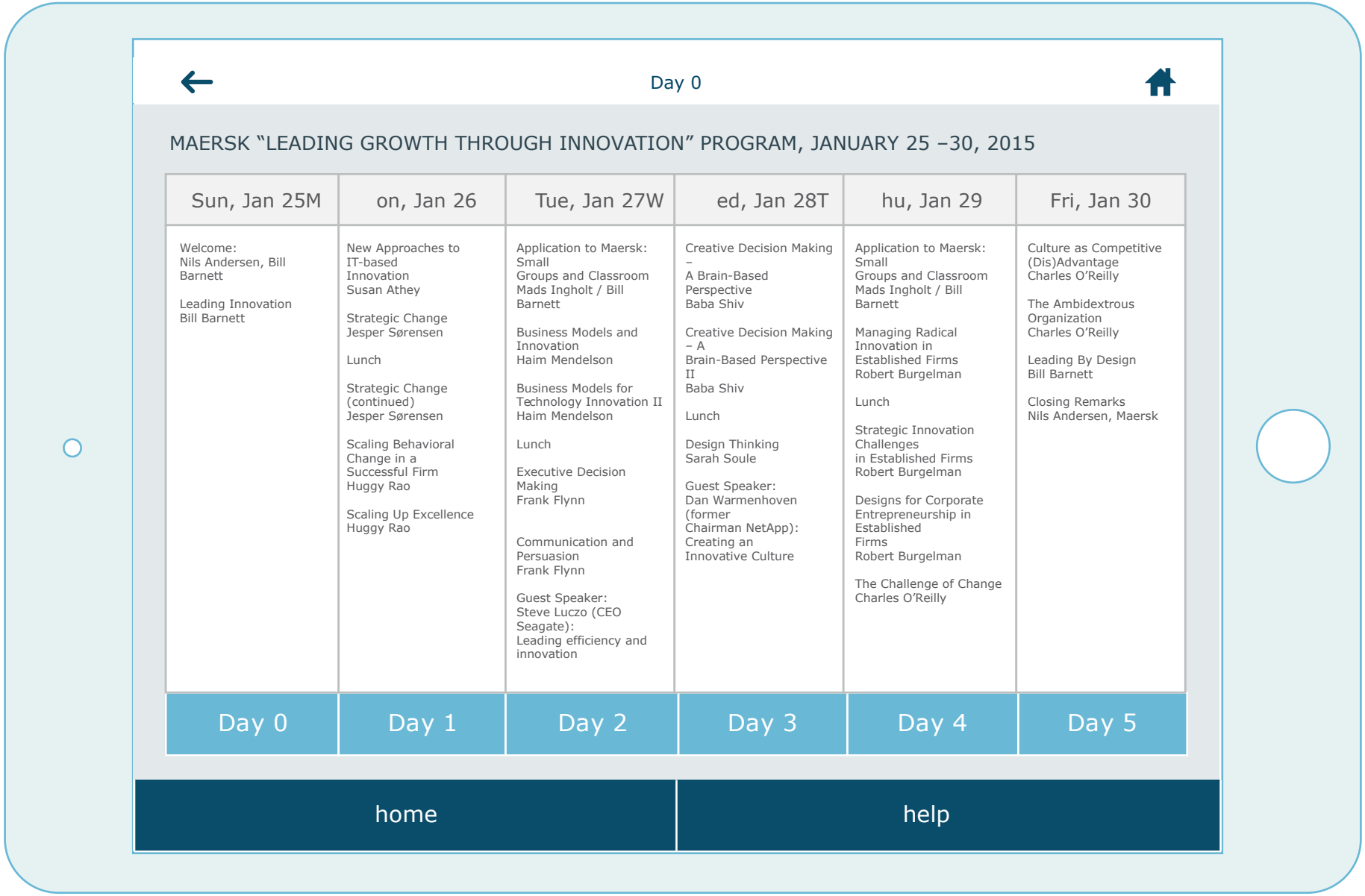
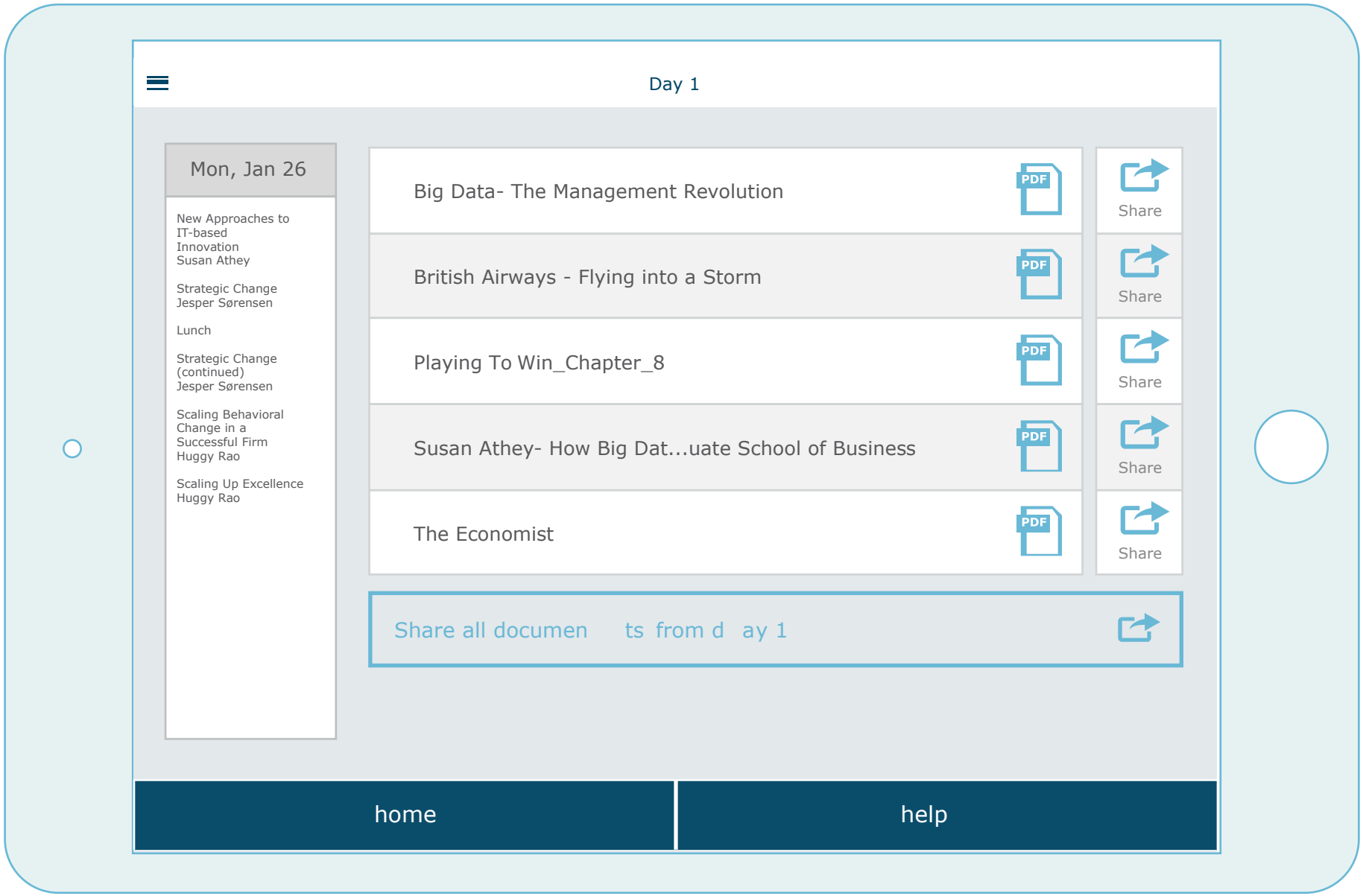
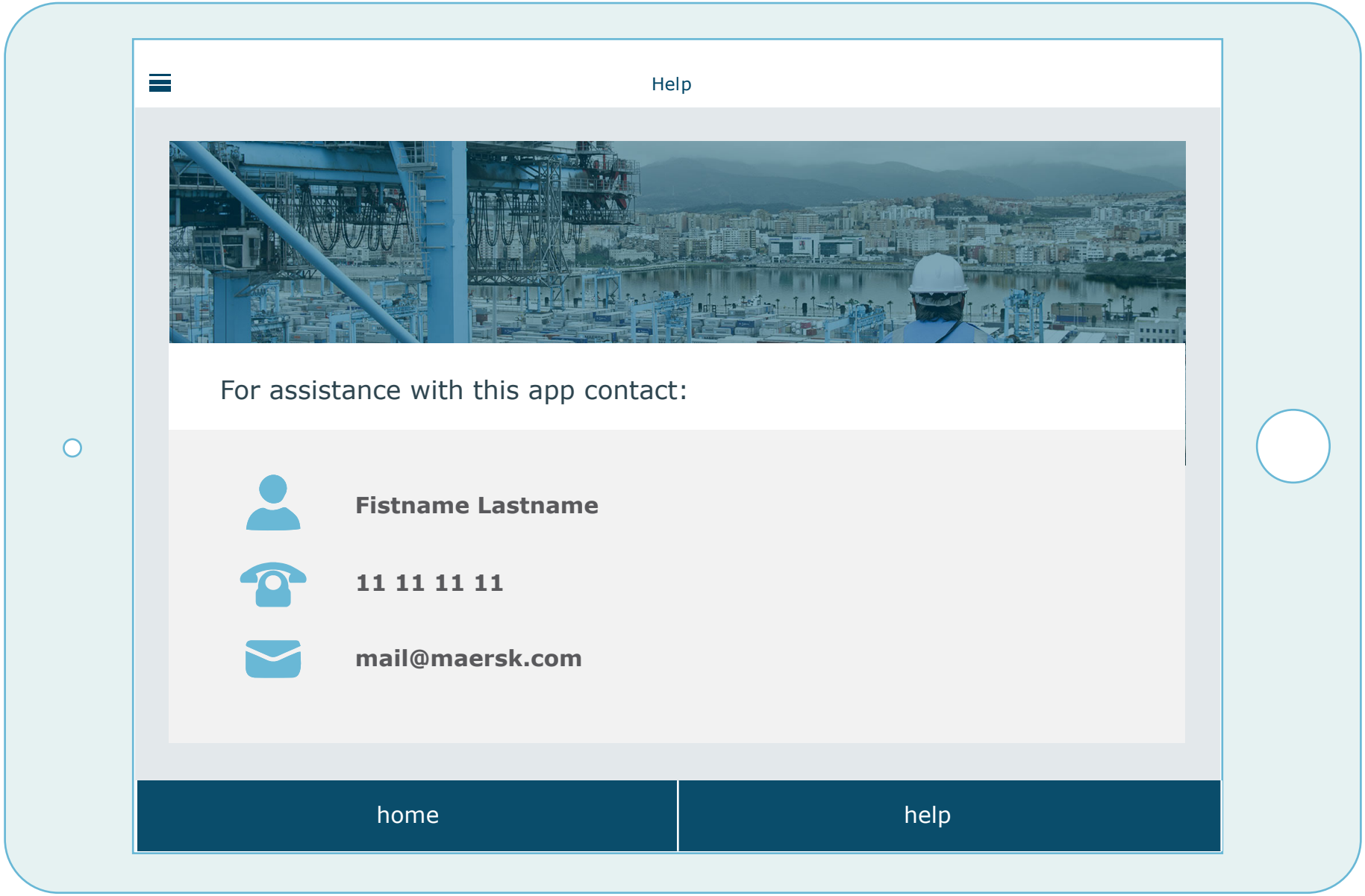
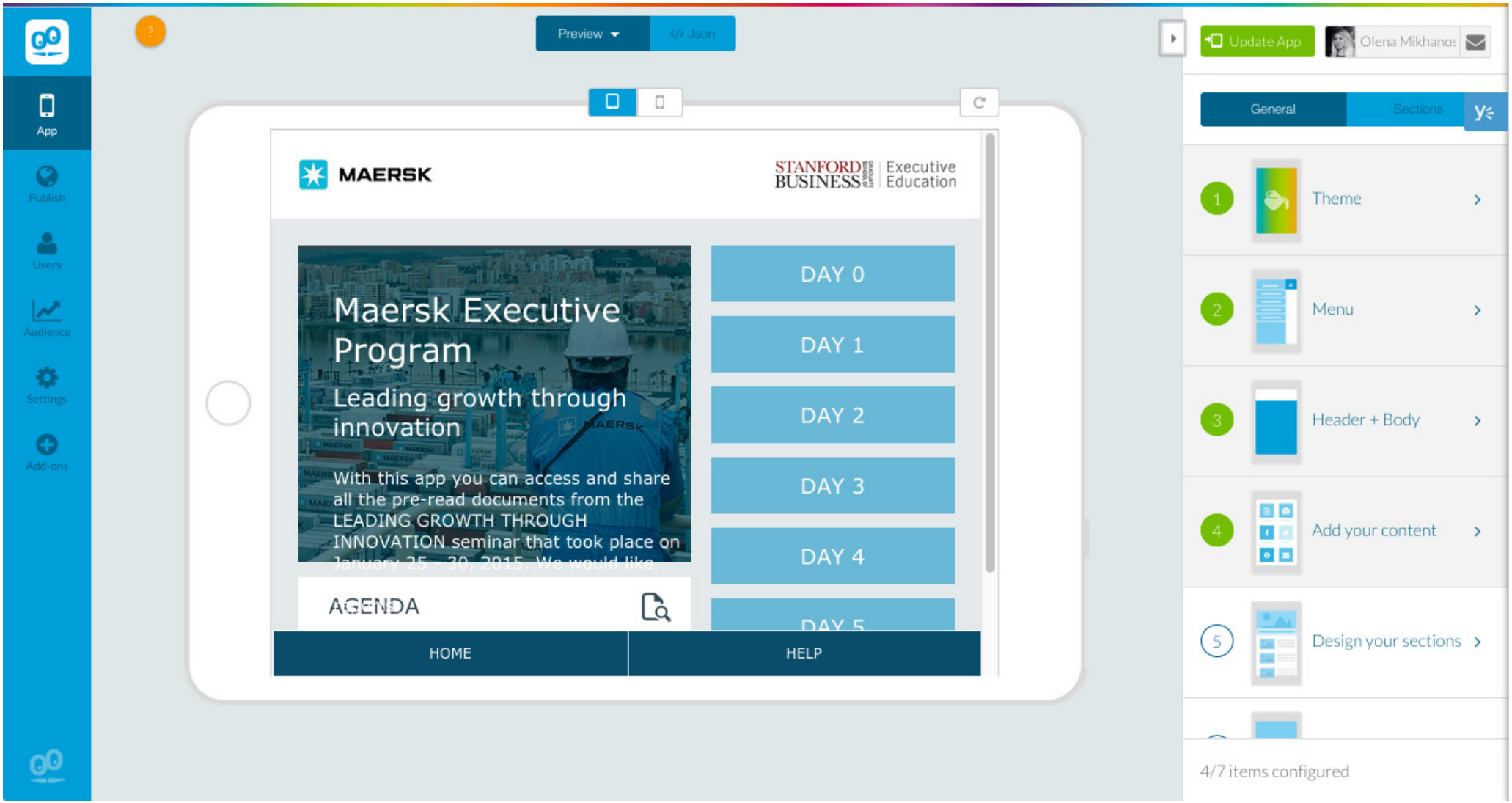
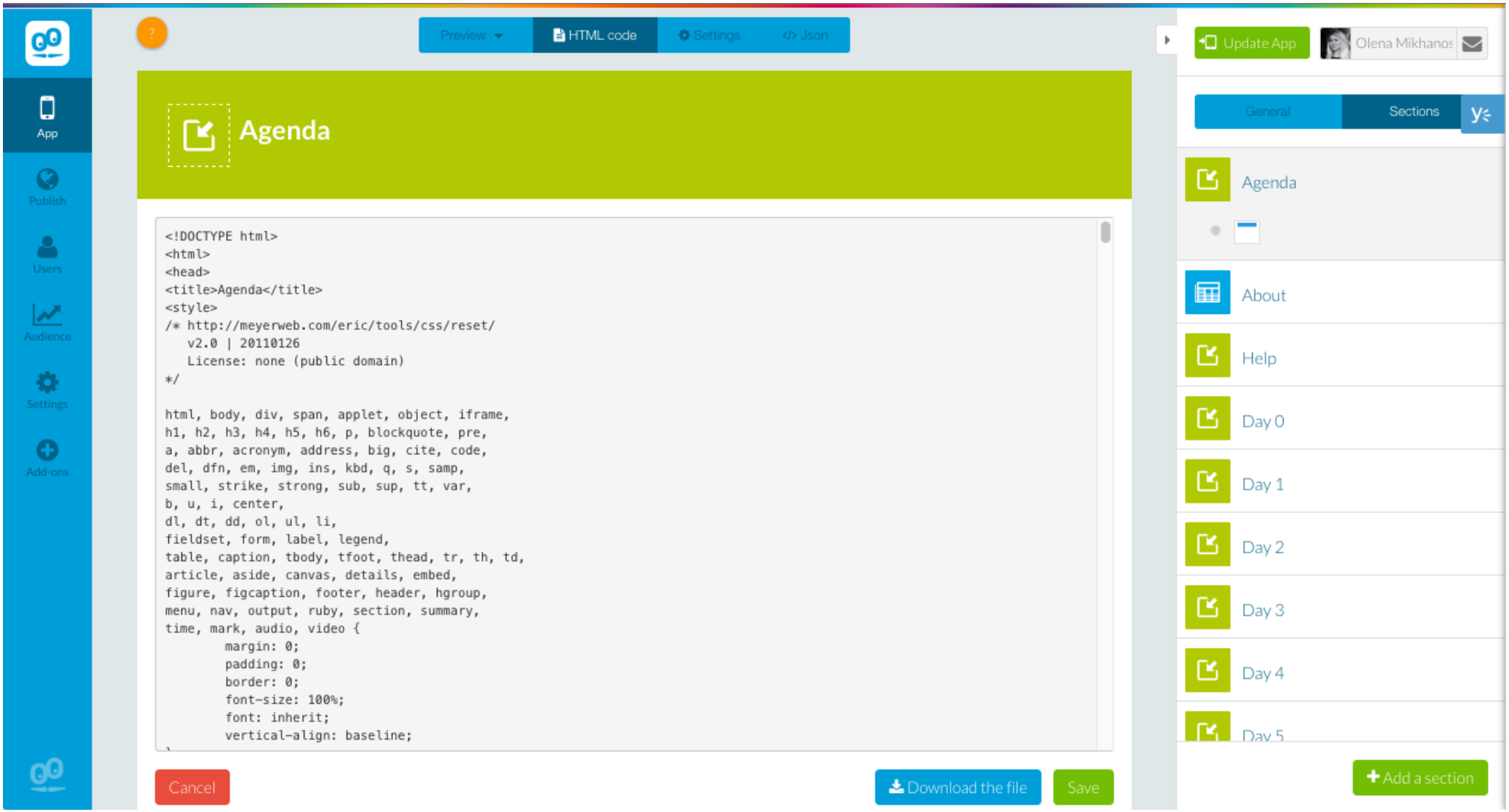
STANFORD BUSINESS GRADUATE SCHOOL OF | Executive Education
Maersk Executive Program
Leading growth through innovation
With this app you can access and share all the pre-read documents from the LEADING GROWTH THROUGH INNOVATION seminar that took place on January 25 - 30, 2015.
We would like you to share them with your direct reports.
How to use the app?
Access the documents on the right, find the agenda below, and click on 'Share' to send the document to a colleague.
DAY 0
DAY 1
DAY 2
DAY 3
DAY 4
DAY 5
AGENDA
SHARE ALL DOCUMENTS
HOME
HELP

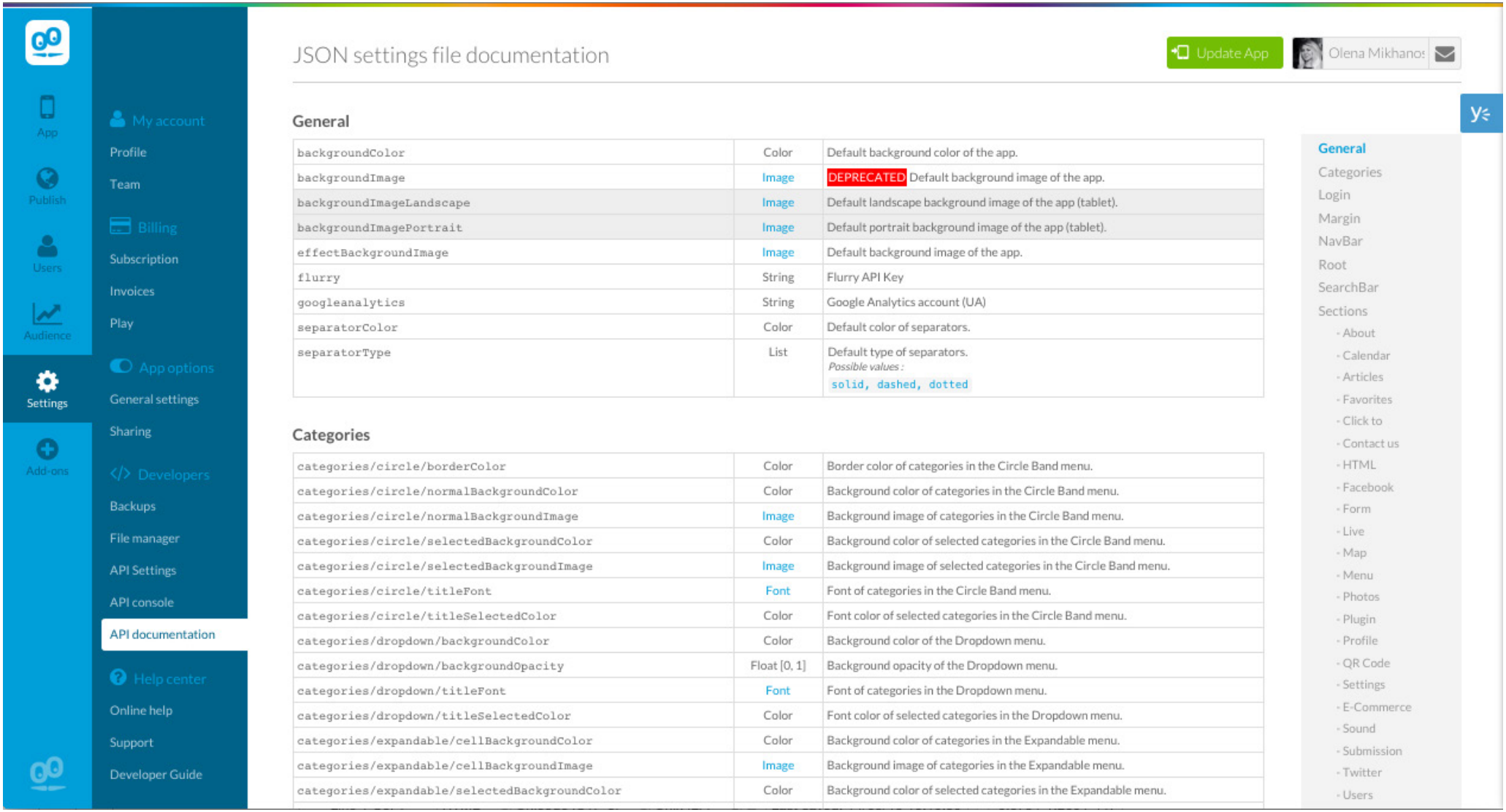

Day 0
MAERSK "LEADING GROWTH THROUGH INNOVATION" PROGRAM, JANUARY 25 –30, 2015
Sun, Jan 25M
on, Jan 26
Tue, Jan 27W
ed, Jan 28T
hu, Jan 29
Fri, Jan 30
Welcome:
Nils Andersen, Bill Barnett
Leading Innovation
Bill Barnett
New Approaches to IT-based Innovation
Susan Athey
Strategic Change
Jesper Sørensen
Lunch
Strategic Change (continued)
Jesper Sørensen
Scaling Behavioral Change in a Successful Firm
Huggy Rao
Scaling Up Excellence
Huggy Rao
Application to Maersk: Small Groups and Classroom
Mads Ingholt / Bill Barnett
Business Models and Innovation
Haim Mendelson
Business Models for Technology Innovation II
Haim Mendelson
Lunch
Executive Decision Making
Frank Flynn
Communication and Persuasion
Frank Flynn
Guest Speaker:
Steve Luczo (CEO Seagate):
Leading efficiency and innovation
Creative Decision Making –
A Brain-Based Perspective
Baba Shiv
Creative Decision Making – A
Brain-Based Perspective II
Baba Shiv
Lunch
Design Thinking
Sarah Soule
Guest Speaker:
Dan Warmenhoven (former Chairman NetApp):
Creating an Innovative Culture
Application to Maersk: Small Groups and Classroom
Mads Ingholt / Bill Barnett
Managing Radical Innovation in Established Firms
Robert Burgelman
Lunch
Strategic Innovation Challenges in Established Firms
Robert Burgelman
Designs for Corporate Entrepreneurship in Established Firms
Robert Burgelman
The Challenge of Change
Charles O'Reilly
Culture as Competitive (Dis)Advantage
Charles O'Reilly
The Ambidextrous Organization
Charles O'Reilly
Leading By Design
Bill Barnett
Closing Remarks
Nils Andersen, Maersk
Day 0
Day 1
Day 2
Day 3
Day 4
Day 5
home
help


Day 1
Mon, Jan 26
New Approaches to IT-based Innovation
Susan Athey
Strategic Change
Jesper Sørensen
Lunch
Strategic Change (continued)
Jesper Sørensen
Scaling Behavioral Change in a Successful Firm
Huggy Rao
Scaling Up Excellence
Huggy Rao
Big Data- The Management Revolution
British Airways - Flying into a Storm
Playing To Win_Chapter_8
Susan Athey- How Big Dat...uate School of Business
The Economist
PDF
Share
Share all documen ts from d ay 1
home
help


Help
For assistance with this app contact:
Fistname Lastname
11 11 11 11
mail@maersk.com
home
help


Preview
Json
Update App
Olena Mikhanos
App
Publish
Users
Audience
Settings
Add-ons
General
Sections
MAERSK
STANFORD BUSINESS
Executive Education
Maersk Executive Program
Leading growth through innovation
With this app you can access and share all the pre-read documents from the LEADING GROWTH THROUGH INNOVATION seminar that took place on
DAY 0
DAY 1
DAY 2
DAY 3
DAY 4
AGENDA
HOME
HELP
1 Theme
2 Menu
3 Header + Body
4 Add your content
5 Design your sections
4/7 items configured


Preview
HTML code
Settings
Json
Update App
Olena Mikhanos
App
Publish
Users
Audience
Settings
Add-ons
Agenda
General
Sections
Agenda
About
Help
Day 0
Day 1
Day 2
Day 3
Day 4
Day 5
<!DOCTYPE html>
<html>
<head>
<title>Agenda</title>
<style>
/* http://meyerweb.com/eric/tools/css/reset/
v2.0 | 20110126
License: none (public domain)
*/
html, body, div, span, applet, object, iframe,
h1, h2, h3, h4, h5, h6, p, blockquote, pre,
a, abbr, acronym, address, big, cite, code,
del, dfn, em, img, ins, kbd, q, s, samp,
small, strike, strong, sub, sup, tt, var,
b, u, i, center,
dl, dt, dd, ol, ul, li,
fieldset, form, label, legend,
table, caption, tbody, tfoot, thead, tr, th, td,
article, aside, canvas, details, embed,
figure, figcaption, footer, header, hgroup,
menu, nav, output, ruby, section, summary,
time, mark, audio, video {
margin: 0;
padding: 0;
border: 0;
font-size: 100%;
font: inherit;
vertical-align: baseline;
Cancel
Download the file
Save
Add a section


App
Publish
Users
Audience
Settings
Add-ons
My account
Profile
Team
Billing
Subscription
Invoices
Play
App options
General settings
Sharing
Developers
Backups
File manager
API Settings
API console
API documentation
Help center
Online help
Support
Developer Guide
JSON settings file documentation
Update App
Olena Mikhanos
General
backgroundColor Color Default background color of the app.
backgroundImage Image DEPRECATED Default background image of the app.
backgroundImageLandscape Image Default landscape background image of the app (tablet).
backgroundImagePortrait Image Default portrait background image of the app (tablet).
effectBackgroundImage Image Default background image of the app.
flurry String Flurry API Key
googleanalytics String Google Analytics account (UA)
separatorColor Color Default color of separators.
separatorType List Default type of separators.
Possible values :
solid, dashed, dotted
Categories
categories/circle/borderColor Color Border color of categories in the Circle Band menu.
categories/circle/normalBackgroundColor Color Background color of categories in the Circle Band menu.
categories/circle/normalBackgroundImage Image Background image of categories in the Circle Band menu.
categories/circle/selectedBackgroundColor Color Background color of selected categories in the Circle Band menu.
categories/circle/selectedBackgroundImage Image Background image of selected categories in the Circle Band menu.
categories/circle/titleFont Font Font of categories in the Circle Band menu.
categories/circle/titleSelectedColor Color Font color of selected categories in the Circle Band menu.
categories/dropdown/backgroundColor Color Background color of the Dropdown menu.
categories/dropdown/backgroundOpacity Float [0, 1] Background opacity of the Dropdown menu.
categories/dropdown/titleFont Font Font of categories in the Dropdown menu.
categories/dropdown/titleSelectedColor Color Font color of selected categories in the Dropdown menu.
categories/expandable/cellBackgroundColor Color Background color of categories in the Expandable menu.
categories/expandable/cellBackgroundImage Image Background image of categories in the Expandable menu.
categories/expandable/selectedBackgroundColor Color Background color of selected categories in the Expandable menu.
General
Categories
Login
Margin
NavBar
Root
SearchBar
Sections
- About
- Calendar
- Articles
- Favorites
- Click to
- Contact us
- HTML
- Facebook
- Form
- Live
- Map
- Menu
- Photos
- Plugin
- Profile
- QR Code
- Settings
- E-Commerce
- Sound
- Submission
- Twitter
- Users

```
                    </div>
                    <div class="icon">
                        <img src="img/view-icon.png" />
                    </div>
                </div>
            </a>
        </div>
        <div class="col-right">
            <a href="day-0.html" class="blue-button">DAY 0</a>
            <a href="day-1.html" class="blue-button">DAY 1</a>
            <a href="day-2.html" class="blue-button">DAY 2</a>
            <a href="day-3.html" class="blue-button">DAY 3</a>
            <a href="day-4.html" class="blue-button">DAY 4</a>
            <a href="day-5.html" class="blue-button">DAY 5</a>
        <a class="blue-button share-all-button"
           href="mailto:%20?subject=Download pre-read documents
           from Maersk Executive Program&body=Please download link
           as a zip-folder for all pre-read documents from Maersk
           Executive Program %0D%0A%0D%0A #ShareFile link to documents goes here">
            SHARE ALL FILES
        <img class="share-all-img" src="img/share-icon.png" />
        </a>
            <a class="agenda-link-phone" href="agenda.html">
                <div class="button">
                    <div class="text">
                        AGENDA
                    </div>
                    <div class="icon">
                        <img src="img/view-icon.png" />
                    </div>
                </div>
            </a>
        </div>
    </div>
    </div>

    <div class="menu3">
        <div class="menu-right"><a href="help.html">HELP</a></div>
        <div class="menu-left"><a href="index.html" >HOME</a></div>
    </div>
```

```
/* iPhone 5 and 5S in portrait */
@media only screen
and (min-device-width : 320px)
and (max-device-width : 568px)
and (orientation : portrait) {
    .wrap {
        margin: 10px;
    }
    /* Header */
    .header {
        height: 80px;
    }
    .logo-left {
        height: 80px;
    }
    .logo-right {
        float: right;
        position: relative;
        height: 80px;
        width: auto;
    }
    .logo {
        height: 80%;
        margin-top: 10px;
    }
    /* Help contents */
    .h2-help {
        font-size: 0.9em;
        line-height: normal;
        height: auto;
        text-indent: 0;
        padding-top: 20px;
        padding-bottom: 20px;
    }
    .h2-help span {
        padding-left: 20px;
    }
    .contact-details {
```

```
</head>
<body>

    <div class="container">
    <div class="wrap">
        <div class="documents-wrap">

    <div class="first-col-doc">
        <div class="grid grid-pad">
            <div class="col-1-6">
                    <h2 class="agenda-heading">
                        Sun, Jan 25
                    </h2>
                <div class="content">
                    <p class="agenda-paragraph">
                    Welcome:
                    <span>Nils Andersen, Bill Barnett</span>
                    </p>
                    <p class="agenda-paragraph">
                    Leading Innovation
                    <span>Bill Barnett</span>
                    </p>
                </div>
            </div>
                </div>
        </div>

        <div class="second-col-doc">
            <div class="docs">
                <a href="pdf/Design Is the Problem The Future of Design Must be Sustainable.pdf" class="doc-view
                    <div class="doc-view-wrap">
                        <span>
                            Design Is the Problem The Future of Design Must be Sustainable
                        </span>
                        <img src="img/pdf.png" />
                    </div>
                </a>
```

Technical terms used in this report

A mobile app is a computer program designed to run on smartphones, tablet computers and other mobile devices.

A native application (native app) is an application program that has been developed for use on a particular platform or device

Hybrid App is a combination of native app and mobile web app concepts

API - Application Program Interface, a set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service

JavaScript APIs can be used to build web pages, which can act as web applications

HTTP - HyperText Transfer Protocol

CSS, Cascading Style Sheets is a style sheet language used for describing the look and formatting of a document written in a markup language.

HTML, HyperText Markup Language, is the standard markup language used to create web pages. It is written in the form of HTML elements consisting of tags enclosed in angle brackets.

A media query consists of a media type and at least one expression that limits the style sheets' scope by using media features, such as width, height, and color. Media queries, added in CSS3, let the presentation of content be tailored to a specific range of output devices without having to change the content itself.

A Mobile Content Management system (MCMs) is a type of content management system (CMS) capable of storing and delivering content and services to mobile devices, such as mobile phones, smart phones, and PtDAs.

Information architecture (IA) is the structural design of shared information environments; the art and science of organizing and labelling websites, intranets, online communities and software to support usability and findability;

JSON or JavaScript Object Notation, is an open standard format that uses human-readable text to transmit data objects consisting of attribute–value pairs. It is used primarily to transmit data between a server and web application, as an alternative to XML.

Wireframe, also known as a page schematic or screen blueprint, is a visual guide that represents the skeletal framework of a website

Mock-up, is a scale or full-size model of a design or device, used for teaching, demonstration, design evaluation, promotion, and other purposes.