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# Improving infinIT Usability at EMC Corporation

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# Improving infinIT Usability at EMC Corporation

## A Major Qualifying Project

**Submitted to**

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March 25, 2015

## Abstract

The purpose of this MQP was to assist the Client Experience Team at EMC Corporation in redesigning the user experience of a globally used internal portal at EMC. EMC employees use this portal to order and manage products and services offered by internal service centers. The MQP team conducted a total of four studies, two benchmarking and two formative studies, to assess the portal's current state and identify improvement opportunities. Using both quantitative and qualitative methods such as eye-tracking, surveys, and interviews, the results of the benchmarking studies were used to propose recommendations for improving the portal's content, layout, and visual appeal. The results of the formative studies confirmed the effectiveness of the recommendations and provided insight for the next step in the process. This MQP served as an integral part of the User Centric Software Development Life Cycle at EMC IT.

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## Executive Summary

With the Internet becoming the backbone of many businesses, companies started to use the Internet as the media through which they deliver services. EMC Corporation is a global company based in Hopkinton, Massachusetts, whose mission is to provide information technology as a service (ITaaS) solutions to its customers (EMC Corporation Stock Report, n.d.). It is an industry leader in cloud computing, big data, and IT storage solutions. Listed several times on the “best places to work” lists, EMC is dedicated to providing its employees outstanding work experiences (EMC, n.d.).

EMC provides services to its employees to meet their everyday needs from purchasing hardware to demanding IT service. The organization has been doing so through an internal service portal called infinIT. This Major Qualifying Project (MQP) had the opportunity to assist the EMC IT Client Experience Team in a series of user studies to evaluate the current state of infinIT usage and user experience, and to test proposed new designs.

The MQP started with understanding EMC missions as well as the role of the Client Experience Team. The MQP team researched the principles of User Experience Design and User Centric Development methodology, which were the core concepts in this project. The MQP team also analyzed the current flow of infinIT, and studied similar website examples in the industry. Then the team conducted two benchmarking studies of infinIT: one was a user testing designed to evaluate its overall user experience, and the other was a comprehensive study of the Google Analytics data available for the website. Afterwards, the team carried out two formative studies

of the proposed new designs of the website: one for determining the usability of the new navigation design, and the other for testing three different navigation layouts.

The MQP team collected extensive user data via multi method testing strategies (e.g., observation, interviews, etc.). From the comprehensive analysis made from these data, the team discovered the main interests and issues of the users, and proposed recommendations for improving the website's user experience. Data collected from Google Analytics include various usage trends, traffic sources information, page view information, etc. Data collected from user testing include surveys results, task performance data, interviews and comments, etc. The team analyzed the collected data by using statistical methods, and comparing it with industry data as well as the data collected previously. Recommendations made were pertinent to the content, layout, and visual appeal of the website.

The results of this MQP served as a good example for highlighting the business value of user experience testing and its role in User Centric Software Development Life Cycle. User experience studies provided invaluable insight for improving the design during the initial stages of the development cycle. Additionally, during this time, these studies helped to evaluate variations in design and select the most effective design for implementation. Finally, these studies served as a metric to track improvements. Hence, continuing these types of user studies for developing the new version of the infinIT at EMC will serve as a valuable tool for evaluating progress toward overall design goals and objectives.

## 1. Introduction

Today's increasingly interconnected markets require that virtually all businesses provide an online service for information regarding and delivery of their products and services. The Internet has quickly become a powerful business tool that allows low-cost business models to be structured around online commerce (Weill & Vitale, 2001). These businesses are known as electronic businesses, or e-businesses. Websites serve as backbones of e-businesses, and therefore must be designed to, at minimum, meet and ideally exceed industry standards for e-business websites.

EMC's infinIT is an internal IT service portal that addresses the needs of EMC employees to order and manage products and services from their internal service centers. It is different from traditional e-business sites because it serves for the internal needs of a company rather than for external customer needs. However, it is similar to them in that it supports similar functionalities such as products purchasing.

EMC IT's Client Experience Team leads the initiative to improve and enhance infinIT's overall user experience. Their developments have prioritized the system's ordering and support functionalities as the first to receive analysis. This MQP team was tasked with evaluating infinIT's current state and assessing opportunities for improvement, in order to help facilitate the agile development of the system.

The MQP team examined infinIT within several core constructs for improvement: usability, trust, engagement, appearance, usefulness, ease of use, intention to use, visual appeal, and layout. This project was iterative in nature, in accordance with EMC's current practices. Four studies



were executed to evaluate and compare improvements to infinIT's overall usability and functionality. These studies were designed in order to gather data to identify both effective and feasible improvements to infinIT's design. The main objective was to deliver recommendations to improve EMC employees' experience of the internal IT service portal.

Two benchmarking studies were conducted, including an analysis of past Google Analytics data of the website and an on-site user experience study. The user experience study gathered qualitative and quantitative user feedback, which were used to make recommendations centered on layout and content. The implementation of these recommendations resulted in a new prototype, which was tested in a second user experience study. The findings from this second user testing resulted in another prototype testing study, which involved testing on navigation design as well as on ways of accessing Inside EMC, an internal social networking platform, from infinIT.

## 2. Background

To better understand this project, it is helpful to provide a brief review of the information technology industry that EMC is in. The information technology industry involves computer-based hardware and software systems that enable the acquisition, representation, storage and transmission of information. There are several attached industries, such as computer hardware, computer software, internet, telecommunication, data storage, networking, e-commerce, etc. (Chandler & Munday, 2011). Among these industries, EMC specializes in data storage, big data, information security cloud computing.

### 2.1. EMC Corporation

EMC Corporation (EMC<sup>2</sup>) is the largest provider of data storage systems and the world leader in cloud computing. The multinational company has more than 60,000 employees worldwide with their headquarters located in Hopkinton, Massachusetts, United States (EMC, n.d.). The main mission of the company is to provide information technology as a service (ITaaS) solutions to their business and service provider customers (EMC Corporation Stock Report, n.d.). NetApp, IBM, Hewlett-Packard and Hitachi Data system are EMC's main competitors in the computing market. EMC targets large companies and small/medium-sized businesses in various fields. Those customers consist of global money center banks, financial services firms, manufacturers, healthcare and life sciences organizations, Internet service and telecommunications providers, airlines and transportation companies, educational institutions, and public-sector agencies (EMC, n.d.). The company is best-known for its VMware and VMAX products. The product categories offered by EMC include Information Storage, Archiving, Backup and Recovery, Storage and

Content Management, Enterprise Content Management, Virtualization, Services, Security/Compliance, Cloud Computing, and Data Computing. Table 1 shows the product categories and specific products/services offered in each category.

Product Categories	Products/Services
Information Storage	VMAX Family, VNX Family, Isilon, Atmos, Xtrem Family, VSPEX, ScaleIO
Archiving, Backup, and Recovery	Avamar, DataDomain, NetWorker, Mozy, RecoverPoint, Centera, SourceOne
Storage and Content Management	Storage Resource Management Suite, Service Assurance Suite, ViPR
Enterprise Content Management	Documentum, Syncplicity, Captiva, ApplicationXtender
Virtualization	VMware, VPLEX
Services	Consulting, Customer support, Education Services, Managed Services, Technology Services and Solutions
Security/Compliance	RSA Security
Cloud Computing	VCE
Data Computing	Greenplum, Pivotal

Table 1 EMC: EMC Products

EMC Corporation has received various awards and has been on the global “best places to work” lists for multiple times. In 2012, the company was listed as No. 2 on Fortune Magazine’s Most Admired Company List in the computer industry (Fortune Magazine, 2012).

### 2.1.1.1. EMC IT Client Experience Team

In this project, the WPI MQP group directly worked with the EMC IT Client Experience Team – Service Enablement Center. The purpose of this team is to “create trust, loyalty, and delight in all interactions with EMC IT through cohesive, user-focused experiences” (J. Wyatt, personal communication, November 13, 2014). The team was less than a year old at the time this report was written. By providing “measurements, consultancy, and UX expertise to strategically improve IT’s services and products”, the team aims to help EMC IT create a contemporary IT and working environment for EMC (J. Wyatt, personal communication, February 03, 2015). The specific functions of the team as of February 2015 are listed in Figure 1 below, offered by John Wyatt in an email correspondence with the team:

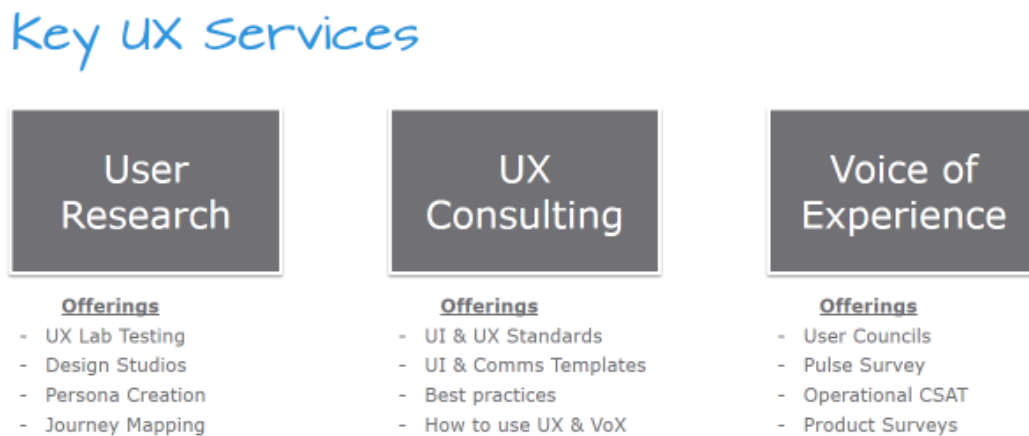


Figure 1: Key UX Services

## 2.2. User Experience, User Centric Development, Agility and Responsive Design

infiniT's purpose is to assist EMC's global-wide employees with their IT needs. The goal of the project was to help the company improve the user experience (UX) of the website. The project team served as an integrated part of the EMC IT team to re-construct the site, using User Centric Development (UCD) methodologies.

Since UX is the center of our project, it is important to understand why UX is important and how UX matters. Intuitively, UX means how users experience a product or service, which in our case is a website. This concept is closely related to how likely customers are to return to the website and how likely they are to recommend it to their friends, as a recent study makes a compelling case for the positive impact of UX on the return on investment for a company (Djamasbi, et al., 2014).

In this project, infinIT isn't focused on bringing sales profit to the company like most ecommerce sites such as amazon.com and bestbuy.com. Rather, it is built around the needs of the employees at EMC, to solve an IT problem for them or to allow them to purchase a new laptop, for example. As a result, the positive impact that the optimized website will bring to EMC could be measured through the upward trends of usage and web traffic statistics, improved employees satisfaction with the system, and increased efficiency of the employees in getting their IT needs met. The saved time that is achieved through system efficiency is beneficial to EMC because employees can put more time into other productive activities for the company. More importantly, satisfied employees also benefit EMC because research shows that happy employees not only help to

shape an overall healthier organizational environment (Fredrickson, 2003) but also impact organizational outcomes significantly and positively (Cameron & Dutton, 2003).

EMC chose to use UCD method to reconstruct the website. UCD method puts users at the focus at every stage of development, as Figure 2 shows. Every stage in development is an iterative process incorporating user feedback (Figure 3). This requires the development process to have agility.

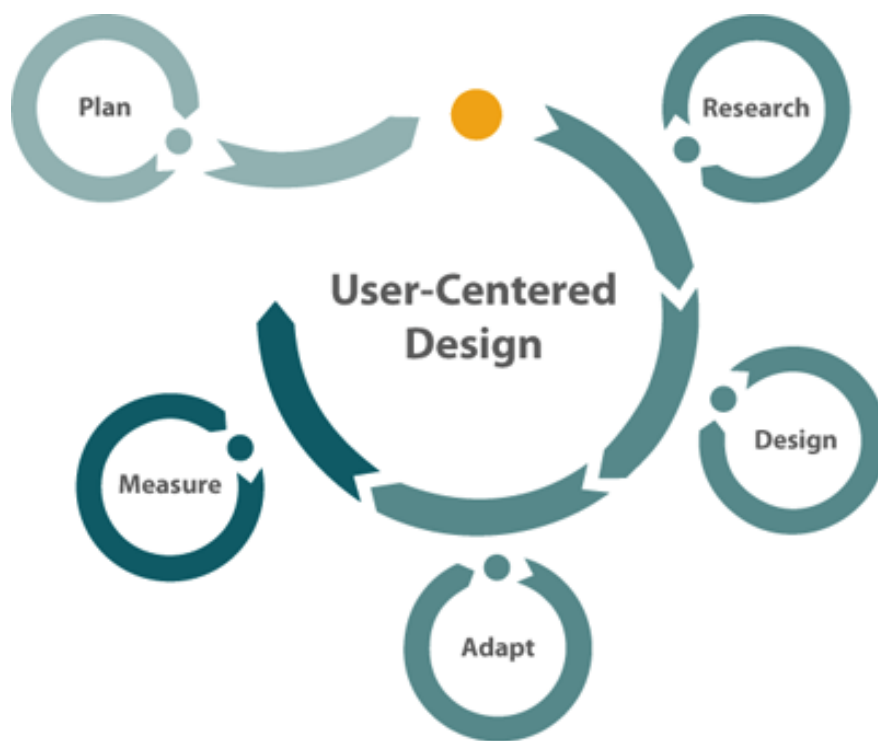


Figure 2: Representation of UCD<sup>1</sup>

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<sup>1</sup> [http://www.sapdesignguild.org/resources/ucd\\_process.asp](http://www.sapdesignguild.org/resources/ucd_process.asp)

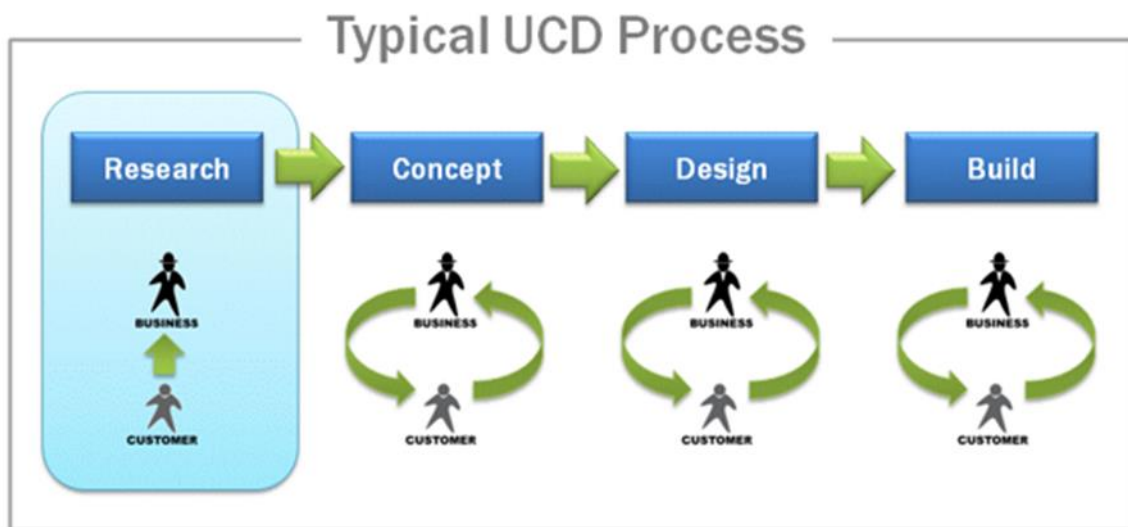


Figure 3: UCD Process<sup>2</sup>

The concept of agility, since its birth, has been defined differently by different people. One of the most comprehensive definitions was given by Conboy, stating that software development agility is the readiness “to rapidly or inherently create change, proactively or reactively embrace change, and learn from change while contributing to perceived customer value (economy, quality, and simplicity), through its collective components and relationships with its environment” (Dingsøyr, Nerur, Moe, & Balijepally, 2012).

Industry practitioner Diana Brown suggested that UX teams can support agile developments by implementing “a process focused on iteration, integrating user feedback and customer needs” (Brown, 2012). The process that this project followed is an iterative path that enabled the team

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<sup>2</sup> <http://boxesandarrows.com/bringing-user-centered-design-to-the-agile-environment/>

to constantly seek and understand the customer needs, and thus to provide insight for refining the development of the website.

Another important concept in this project is responsive design, as it is one of the design goals in this site reconstruction. Responsive design, in sum, is “a way to make websites that can be easily viewed and used on any type of device and size of screen, all the way from the smallest mobile phones up to the widest desktop monitors” (Peterson, 2014). However, it means much more than just resizing the contents so that they can “fit into” different sizes of screens. It can mean changing the layout of the web pages, displaying or hiding certain contents, and enabling certain user-interface interactions if needed. Responsive design utilizes mostly CSS, HTML and JavaScript (Wisniewski, 2013).



### 3. As-is UX Analysis

As an internal EMC website, infinIT not only allows EMC employees to order and manage products and services offered by internal EMC service centers, but also provides knowledge-based articles and forum spaces for its EMC employees to seek self-help. In October 2014, the navigation bar was showing at least 44 kinds of products or services that could be ordered through the system, ranging from “Apple MacBook Air” to “Web Conferencing”. There were a large number of help articles on topics such as “How to Enroll Device with EMC” and “How to Install Desktop Video Conferencing”.

The homepage of infinIT (Figure 4) shows the range of its provided services are categorized under two main functions, “PRODUCTS & SERVICES” and “SUPPORT”, on the blue navigation bar at the top. Under “PRODUCTS & SERVICES”, there is a list of physical and virtual products that employees can purchase through the website. Under “SUPPORT”, there are different places that employees can seek help, when they encounter IT problems. Search bars are located at the top right. After logging in, employees will be presented with customized information such as their “REQUESTS & ORDERS”, as shown in Figure 5. Further below, users can click on pictures of popular products and be led to the product pages. Under there is the “IT Support” section, which is divided into “Service Interruptions”, “Most Viewed”, and “Highest Rated”. On the bottom of the homepage, there are “BROWSE SERVICE CATALOG”, “IT SUPPORT”, and “EMC QUICK LINKS”.

My Account

Cart(0)

English

United States

IT Chat

EMC<sup>2</sup> infinIT

PRODUCTS & SERVICES

SUPPORT

Search infinIT

Welcome JOHN!

CART 0

REQUESTS & ORDERS 7

APPROVALS 0

INCIDENTS 0

Popular

New

Headset

Lenovo Thinkpad

Desktop Video Conferencing

Monitor

>>

IT Support

Service Interruptions »

View a list of current interruptions

Most Viewed

How To: Enroll iPhone or iPad (Have E-mail)

updated 2014-08-29

How To: Install Desktop Video Conferencing

updated 2014-08-29

Highest Rated »

How To: Reset Forgotten Network-Windows Password

updated 2014-08-29

How To: Enroll iPhone or iPad (Have E-mail)

updated 2014-08-29

How To: Order a Wireless Device (US)

updated 2014-08-29

INFINIT DELIVERS IT-AS-A-SERVICE

infinIT makes it easy for you to discover, obtain, and get support on EMC IT products and services.

BROWSE SERVICE CATALOG

- Desktops and Laptops
- Collaboration & Communication
- Cloud Services
- Mobility

IT SUPPORT »

- Self-Help
- Community
- Chat
- Email

EMC QUICK LINKS

- ChannelEMC
- InsideEMC
- Proptel

Figure 4: infinIT Homepage

EMC<sup>2</sup> infinIT

PRODUCTS & SERVICES

SUPPORT

Search infinIT

Welcome JOHN!

CART 0

REQUESTS & ORDERS 7

APPROVALS 0

INCIDENTS 0

Figure 5: infinIT Homepage Welcome

The website contained a great deal of useful information. It also had a uniform layout and clear color theme. However, the information was rather disorganized, scattered throughout the places, which could make them hard to find. We will explain the areas for improving the website more in-depth in later sections in this report.

infinIT originated from a system that was initially designed and used as an account request tool for EMC employees. About three and a half years ago, it was developed by an off-shore company into a service catalog in an effort to centralize IT services at EMC. At the time this project took place, the system was in its 3<sup>rd</sup> iteration of interface reconstruction, using the ServiceNow platform (C. Dukich, personal communication, September 10, 2014).

## 4. Process for the To-be UX Design

The goal of this project was to start the process for making the system scalable, flexible, and responsive to provide a better user experience for EMC employees. According to the project sponsor liaison for this MQP, the vision or ultimate design scenario as imagined by the Client Experience Team, was to design the website in a way that it could eventually serve as a portal for providing a multitude of services that go beyond IT needs of EMC global employees (e.g., HR, financial services) through a unified tool (J. Wyatt, personal communication, September 3, 2014).

### 4.1. The Review Process

To start this project, as customary in UX design process, it is important to identify and study good websites that had similar objectives. The website of Dell's Member Purchase Program, displayed in Figure 6, serves as suitable example of this initial step. The main purpose of the Dell's Member Purchase Program website is to provide member-exclusive offers and discounts. After logging into the website, customers are welcomed by several pictures at the center of the page, leading them into different links according to their identities: employees, university students, military and veteran community, association and credit union members, healthcare and life sciences, and government employees, etc.

## Welcome to the Member Purchase Program

Log-in to get the best price guarantee, member-exclusive offers, electronics and accessories discounts, and Dell Advantage.

Don't know your ID or want to join? Please choose a category below:



Employees >



University Students >



Military and Veteran  
Community >



Federal Government  
Employees >



Association and Credit  
Union Members >



Healthcare and  
Life Sciences >



State and Local Government  
Employees >



K-12 Students >

Figure 6 Dell: Homepage

In addition to clicking on the pictures, customers can also use the navigation bar at top of the page to be directed to the product or service that they expect.

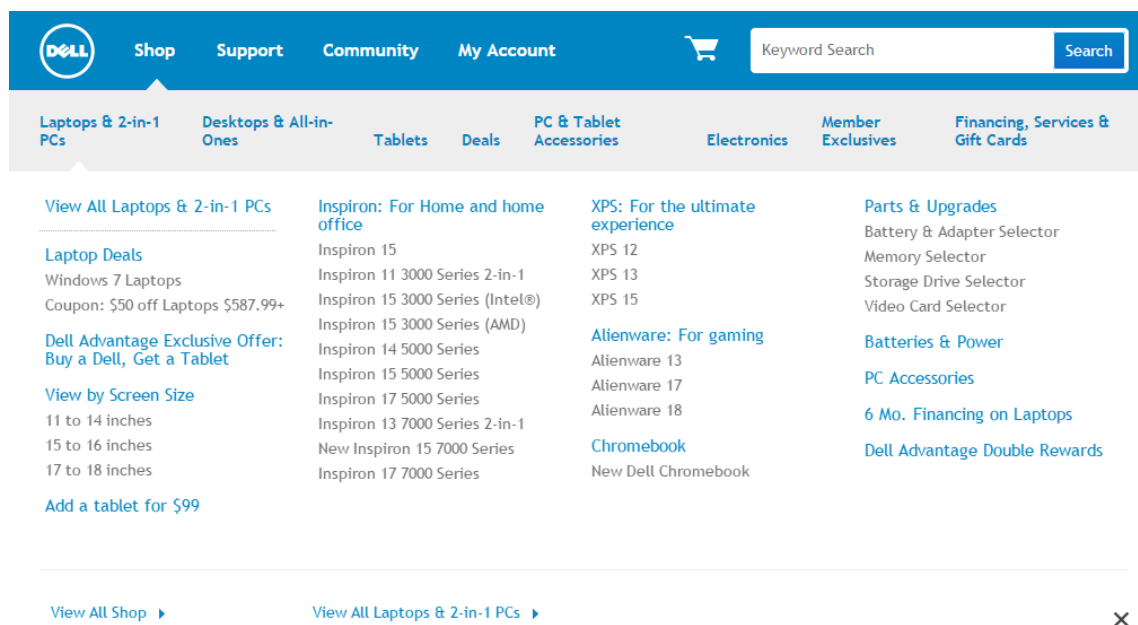


Figure 7 Dell: Navigation

On the main page of the Member Purchase Program, pictures of several categories of products and services are located at the center, with a menu under each of them. Members are able to enter the pages for each category by clicking on the pictures, or to land on the page for a specific product line or service by clicking on the items in the menu (Figure 8). Bestsellers in the program are also listed on the page (Figure 9), so that members can get direct access to them.

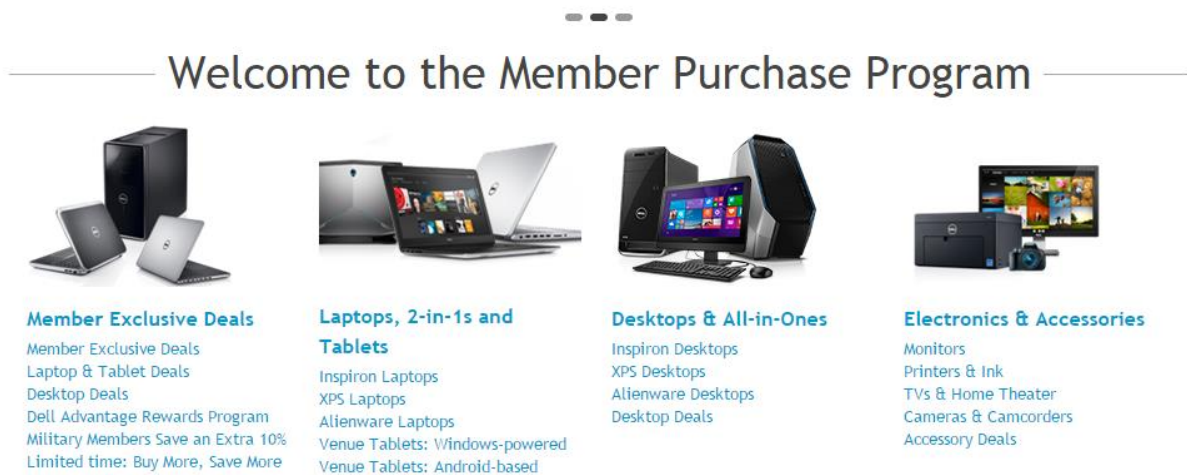


Figure 8 Dell: Product Categories

### Bestsellers in Member Purchase Program



Figure 9 Dell: Bestsellers

On the page for laptops, members are able to filter the products by several technology parameters, such as screen size, operation system, and hard drive size (Figure 10). The filter function helps accelerate the navigation process, and therefore eases the process of finding certain things for members.

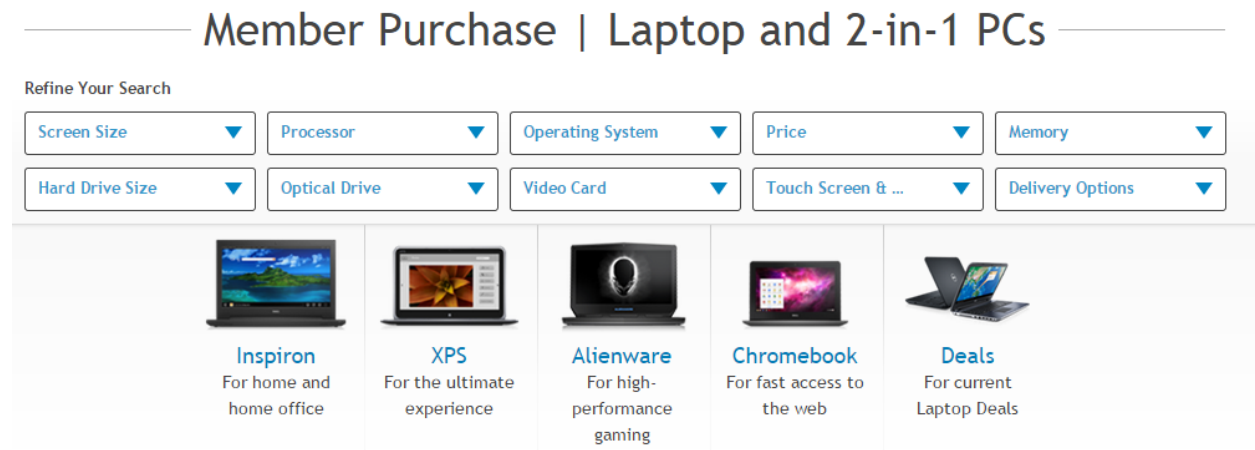


Figure 10 Dell: Filters

After members find their expected products, they will enter a page that allows them to choose configurations, customize features, buy accessories, and read ratings/reviews from other members. This page enables members to quickly review the most important features of different models before making decisions.

Configurations

Features & Design

Accessories & Services

Ratings & Reviews

Drivers, Manuals & Support

XPS 12 2-in-1 Touch

\$1,077.99

4th Generation Intel® Core™ i5 Processor

Windows 8.1

4GB Memory

128GB Solid State Drive

Touch Screen

XPS 12 2-in-1 Touch + Leather Sleeve

\$1,128.07

4th Generation Intel® Core™ i5 Processor

Windows 8.1

4GB Memory

128GB Solid State Drive

Touch Screen

XPS 12 2-in-1 Touch

\$1,567.99

4th Generation Intel® Core™ i7 Processor

Windows 8.1

8GB Memory

256GB Solid State Drive

Touch Screen

XPS 12 2-in-1 Touch

\$1,714.99

4th Generation Intel® Core™ i7 Processor

Windows 8.1

8GB Memory

256GB Solid State Drive

Touch Screen

Dell XPS Leather Sleeve Included

3 Year Accidental Damage Service Included: Save \$178

Figure 11 Dell: Configurations

Finally when customers choose a specific model, they are directed to the product page that displays detailed technology parameters (Figure 12). Customers are then able to evaluate the chosen product by an all-round set of constructs, to help them make their final decision.

31



Processor	<a href="#">Help Me Choose</a>
4th generation Intel® Core™ i5-4210U Processor (3M Cache, up to 2.7 GHz)	
Operating System	<a href="#">Help Me Choose</a>
Windows 8.1 (64Bit) English	
Memory <sup>1</sup>	<a href="#">Help Me Choose</a>
4GB DDR3L-RS 1600Mhz (On Board)	
Hard Drive <sup>2</sup>	<a href="#">Help Me Choose</a>
128GB Solid State Drive	

*Figure 12 Dell: Product Details*

The clear categorization of products/services, highlighted main functions, easy navigation, and eye-catching page layout make the website for Dell's Member Purchase Program an example of the industry's best practices.

#### 4.2. The UX Testing Process

In order to accommodate the User Centric Development method, the MQP team started with two benchmarking studies followed by two prototype testing studies. After each test, the results were incorporated into the design of the product. Each test, reported in the upcoming sections, included the following process stages:

**Planning:** For each experiment, the EMC IT Client Experience Team members, MQP Faculty Advisor Professor Djasasbi, and the MQP team members met to discuss the design of the experiment that would best accommodate the project's user data needs. Based on the discussion in these meetings, a plan for user testing was developed. This process included various

discussions including those about the experimental design (e.g., within and/or between subject design), experimental material (e.g., live websites and/or prototypes), representative tasks, sample size, participants' pool and recruitment, as well as reliable and validated measures to capture the objective of the experiment (i.e., capturing experience through subject indicators such as surveys, interviews, and/or objective indicators such as eye movements, performance scores, or behavioral data).

**Implementation:** Next the MQP team was in charge of implementing the UX testing plan by creating experimenter scripts, randomized prototype orders and randomized tasks orders, digital implementation of surveys instruments (e.g., using Qualtrics), etc. The Client Experience Team recruited the participants.

**Experimentation:** With the help of Client Experience Team, the MQP team set up appointments with test participants. On the selected appointment dates, the team met with the participants to conduct the user testing and collect necessary data for the next phase of the project.

**Analysis:** Next, the MQP team converted the collected data into electronic formats for statistical analysis. In addition to numeric values for surveys and objective measures (e.g., task completion time, number of clicks, etc.), interview and observation logs were transcribed by the MQP team for qualitative and quantitative analysis. This data was then recorded in an Excel workbook to create a consolidated data package for analysis. This data file was then used to run various analyses that could reveal user behavior and experience.

**Report:** Next, the MQP team aggregated the analyzed data into reports to convey the results of the experiment. Based on the results, the MQP team reported to Client Experience Team the

areas that provided opportunities for improvement. Based on these reports as well as discussion in the meetings the next step for the project was decided.

## 5. User Studies and Data Analysis

In this project, the MQP team carried out two benchmarking studies and two formative studies. Of benchmarking studies, one was a user testing of infinIT, and the other was a study and analysis of available Google Analytics data for infinIT. EMC then developed a new prototype incorporating the suggestions made in benchmarking studies. The MQP team conducted a formative study designed to evaluate the navigational functions of the new prototype. Later, the MQP designed and conducted another formative study to test users' preferences for three different header layout designs derived from the new prototype.

### 5.1. Benchmarking Studies

Grounded in user experience design principles and industry best practices (Djamasbi, 2014), the development of the new website for the services offered through infinIT took a formative UX design approach. In order to do so, two benchmarking studies were conducted:

- 1) An experiment at EMC to assess the user experience of the as-is system.
- 2) A comprehensive study to analyze the available Google Analytics data for the as-is system.

These studies are described below.

#### 5.1.1. Benchmarking User Study

As a starting point of the iterative process of formative user experience design, and to provide initial assessment for the Client Experience Team, a benchmarking user experience test on infinIT was carried out in September 2014. In addition to providing information about usability issues

and user reactions, this initial user experience test also aimed to better understand the EMC employees' needs and to find opportunities to innovate with user experience (Djamasbi, 2014).

The information for designing the benchmarking user experience study was gathered in a meeting with two of the Client Experience Team members at EMC, John Wyatt and Mark Traietti.

This test was conducted at the EMC Southborough location, using specific tasks derived from major use cases for infinIT. Participants for this test were recruited from a pool of IT professionals.

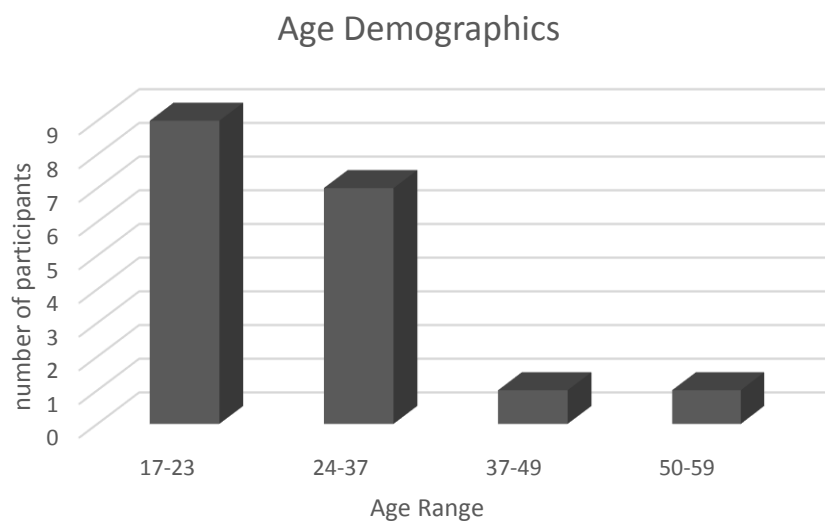
The measurement methods in this test included surveys, interviews and gaze tracking. While eye tracking has proven to be an excellent tool in summative designs when two or more completed designs are compared (e.g., competitor's sites), gaze tracking is often omitted during the initial steps of design. This is partly related to the cost of eye trackers and the labor intensive nature of analyzing eye data (Djamasbi, 2014). However, research at the WPI User Experience and Decision Making (UXDM) lab reveals that using eye trackers as a qualitative measure and as an observation tool can be quite helpful in increasing the value of observation data and interviews (Gomez, Kardzhaliyski, Liu, & Oglesby, 2012).

The result of this initial test was a comprehensive set of data that encompassed survey scores, interview results and gaze-related data, from which the team was able to conduct analysis, recognize trends and generate recommendations for EMC. The result also provided a baseline measure for the project, which can serve as a benchmark to assess improvements over time.

#### *5.1.1.1. Participants*

The experiment recruited a total of 19 participants, 10 male and 9 female, from the EMC IT Leadership Program. One participant's survey answers weren't recorded into the system due to

technical issues. Thus, we had survey data from a total of 18 participants. According to the demographics survey, nine of the participants were in the age range from 17 to 23 years old, seven in the range from 24 to 37, one in the range from 37 to 49, and one in the range from 50 to 59. Among all participants, only one had never used infinIT before the experiment. One out of the remaining seventeen had used infinIT weekly, ten monthly, and six yearly. Most participants were young, within the age range of 17-37. The chart below indicates the distribution of participants' ages:



*Figure 13 Benchmarking: Age Distribution for Benchmarking Study*

#### *5.1.1.2. Tasks*

The goal of this initial testing was to gather user insight on infinIT's most frequently used processes and establish a benchmark for future improvements. Based on the major functions of infinIT, two tasks were developed for the participants. The first task was designed to test infinIT's process of ordering products. This task required participants to assume their current laptop (a

Lenovo T420) was eligible for an upgrade and that they decided to order a Lenovo T440. They were then instructed to use the infinIT website to complete the process.

The second task was designed to test infinIT's IT support function. This task required users to find a help article that described the procedures to enroll a mobile device with the EMC network. The sequence of the two tasks was randomized to minimize the learning effect.

#### *5.1.1.3. Devices*

In order to collect detailed user performance data, the MQP team used several devices during the experiment. They are described below:

**Laptops:** Participants conducted the tasks on Dell laptops provided by UXDM Laboratory, connected to the EMC guest wireless network. The Tobii Eye Tracker was attached to the laptops.

**Eye Tracker:** The team used eye tracking equipment from WPI's UXDM Laboratory, with the help of staffs from the lab. The Tobii Eye Tracker recorded participants' eye gaze during the experiments, and provided gaze videos, plots and heat maps for visualization and analysis after the experiments. The gaze videos and gaze plots showed individual points on the screen each participant looked at over time, and the heat maps showed the intensity of each participant's gazes on different places of a page.

**Audio Recorder:** The MQP team used open-ended interview questions to capture details of users' experience of the website and their suggestions for improving it. To ensure that participants' points were thoroughly captured, the team used audio recorders to record their answers, with the participants' permissions, and then transcribed them later.

#### *5.1.1.4. Procedure*

The participants were welcomed by the MQP team and informed about the purpose of the study. Next, the participants were presented with information about the eye tracking device and its calibration process. This material was prepared by the UXDM lab staff.

After asking the participants some preliminary questions, the team read task descriptions to the participants. While the participants were performing the tasks, their gazes were recorded by the eye tracking device.

After finishing the two tasks, the participants were asked to fill out an online survey in Qualtrics. At the end of the survey, the participants answered some interview questions. Participants' responses were recorded with their permission.

Finally, the participants were informed that as a token of appreciation, they would be entered into a drawing for a chance to win a \$50 gift card. Then the team escorted them out of the room.

During the experiment, one of the MQP team members, other than the experimenter, took charge of observing the participants and taking notes of their comments and behaviors.

#### *5.1.1.5. Measurements*

##### *Surveys*

In addition to basic background information, users' reactions to the infinIT website were collected through a set of previously validated surveys. These surveys, described below, asked users to report their reactions to the website on a 1-7 Likert scale, with 1 denoting the worst and 7 denoting the best possible reactions.



### Disorientation, Engagement, and Future Intention to Use

One of the most common problems that website users encounter is disorientation. In the user experience field, disorientation can be interpreted as losing one's sense of location, which can lead to the user's frustration, loss of engagement, and decline of efficiency. A desirable website design should keep the users' disorientation levels low to increase the website efficiency and user engagement, enticing the user to revisit the website (Webster & Ahuja, 2006).

Thus for our user experience testing, we used three constructs from a previously validated survey: Perceived Disorientation, Engagement, and Future Intention to Use. These constructs were adopted from the model developed by Webster and Ahuja (Webster & Ahuja, 2006). The first construct consisted of seven questions which the participants could rate from 1 ("Never") to 7 ("Always"). This construct focused on participants' perception of their orientation when browsing the website. The second construct examined the users' experiences as feelings of engagement with the website. This construct also had seven questions with scales from 1 to 7, ranging from "Strongly Disagree" to "Strongly Agree". The third construct had six items that captured the participants' intentions to revisit the website.

### System Usability Scale (SUS)

The MQP team also used the System Usability Scale (SUS), a popular survey used mostly in industry research to measure the usability of various products and services. SUS was developed in 1986 by John Brooke, consisting of 10 items with five response options ("Strongly Disagree", "Disagree", "Neutral", "Agree", and "Strongly Agree"). The scale offers many benefits, such as easy administration, and providing valid and reliable results even with small sample sizes (Tullis & Stetson, 2004).

To calculate the SUS score, raw data was manipulated so that all items had values ranging from 0 to 4 (with 4 being the most positive response). Then, all converted responses were added up and multiplied by 2.5. The result is called the SUS Score, which ranges from 0 to 100 (Tullis & Albert, 2013). It essentially is a percentile: the average industry SUS score is about 68. Normally, the score will be converted into percentile rank, which is later marked with letter grades from A to F. A SUS score in the top 10% of all scores is considered an A; the average score 68 represents a C while anything below 51 is an F (Sauro, 2011).

#### Technology Acceptance Model (TAM)

Another validated survey that was used in the user experience study was the Technology Acceptance Model (TAM), developed by Fred Davis in 1989 to predict user acceptance of computers (Davis, 1989). According to Davis, an individual's willingness to accept and use available systems has a significant impact on performance gains, so the level of user's acceptance has long become a critical consideration when implementing new information systems (Davis, 1989). Over time, TAM has become one of the most popular models used to explain and predict a person's acceptance of information system technology.

In this model, there are two main variables that affect the acceptance of a new system. The first variable is called Perceived Usefulness, which measures how a person perceives the usefulness of the system. Davis's definition for Perceived Usefulness is "the degree to which a person believes that using a particular system would enhance his or her performance" (Davis, 1989). The second variable is associated with the user's opinion regarding the difficulty level of using the system. This variable is called Perceived Ease of Use, which means "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). In this usability

study, the question statements were modified with reference to EMC's infinIT website. The third variable in TAM is Behavioral Intention, which captures a person's willingness to use a system.

#### Net Promoter Score (NPS) & other variables

The MQP team also used additional sets of validated survey questions to measure Usability, Trust, Growth and Appearance/Appeal. For Usability we used a three-item survey that examines the difficulty level of a website and whether it brings profitable experience to the users (Zhang, Agarwal, & Lucas, 2011). For Trust we used a three-question survey that captures users' reactions in regard to trusting a website (Cyr, Head, Larios, & Pan, 2009). To assess growth we used a survey item, which assesses a person's willingness to recommend the website to a colleague. This survey is often used to calculate the Net Promoter Score, which has been shown to be strongly correlated with revenue growth (Tullis & Albert, 2013). This is because when a person recommends a product he or she is likely to repurchase the product. A recent study shows that this concept is also applicable to websites, that is, intention to recommend a website is strongly correlated with intention to visit a website (Djamasbi & Wilson, 2013). The construct Appearance/Appeal, looks at the appearance of the website to see if it is attractive (Falk, Hammerschmidt, & Schepers, 2010). Additionally, we used surveys that were used in prior industry user experience studies to measure the layout of the website (Gomez, Kardzhaliyski, Liu, & Oglesby, 2012). The complete list of all surveys used in this study is in Appendix B (Page 129).

#### Interviews

In addition to quantitative survey questions, interviews were conducted to solicit more in-depth users' feedback of the website. These interviews also aimed at collecting information about users' needs. During the interviews, participants were asked to provide comments and

recommendations for improvement, what they would look for in websites like infinIT, and what they liked or disliked about infinIT. The complete list of interview questions are provided in Appendix A (Page 128).

### Observations

During the testing, one MQP team member was taking notes of the participants. These notes recorded participants' comments as well as their non-verbal expressions and behaviors. The descriptive data obtained was used in conjunction with other qualitative and quantitative data drawn from other measurements in the analysis stage.

### Objective Measures

Besides the traditional measurements mentioned above, eye-tracking was utilized to collect users' gaze during the test. This process provided a fresh look into the user experience with infinIT. At the beginning of each task, participants were asked to sit in front of a laptop, which was already equipped with an eye-tracking device. A trained assistant from the UXDM lab calibrated the eye tracking device for each participant, and made sure that the participants' gaze was collected properly throughout the testing process. The resulting videos contained recordings of participants' mouse actions, their gaze plots, and heat maps of their gazes.

In the analysis stage, these videos were not only used for qualitative analysis (e.g., enhanced observation data) but also to extract quantitative data, such as viewing patterns and time spent on each page, numbers of clicks, numbers of total pages, and numbers of unique pages. Using this data, the team was able to compare each participant's performance to optimal performance for each task. This analysis yielded to performance measures including indicators such as lostness

scores (Tullis & Albert, 2013). The videos also helped to calculate task success rates to determine which task was more difficult for users. These data combined with the data gathered via surveys and interviews were substantially helpful benchmarking information.

#### *5.1.1.6. Results and Recommendations*

##### *Results*

The analysis of data, collected through various methods as described in the previous section, is summarized in this section.

##### *Survey Results*

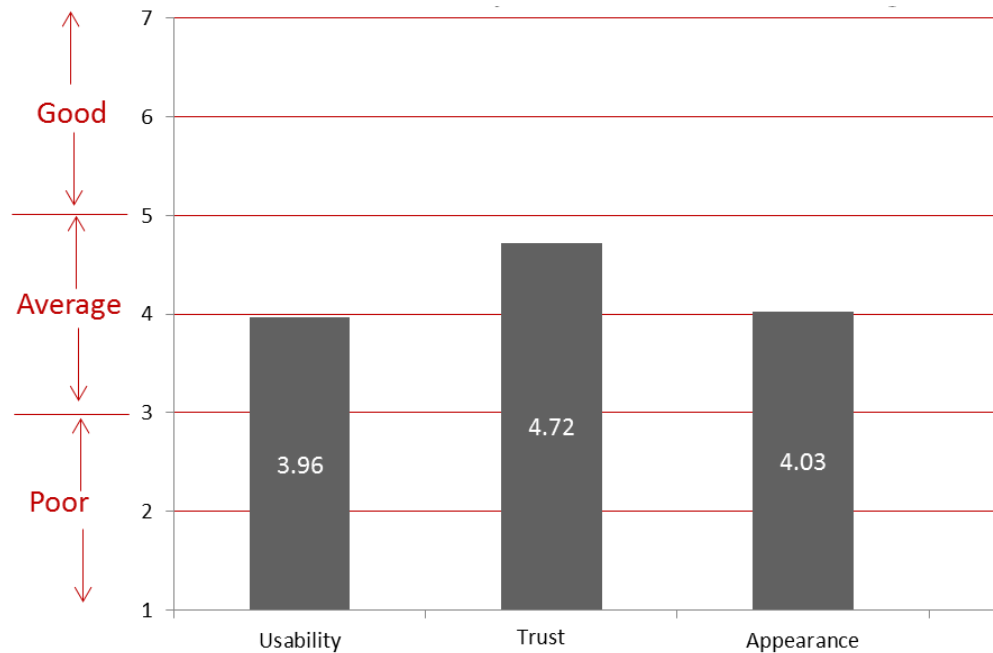
The descriptions of the first group of four measurements – Usability, Trust, Appearance/Appeal and Growth – are listed below:

Variable	Description
<b>Usability</b>	Captures user’s perception of the website usability.
<b>Trust</b>	Captures users’ level of trust in a website.
<b>Appearance/Appeal</b>	Captures users’ reactions in regard to the attractiveness of the website.
<b>Growth</b>	Assesses return on investment by measuring users’ willingness to promote the website to others.

*Table 2 Benchmarking: First Group of Variables Summary*

Figure 14 shows the average score for the first three constructs: Usability, Trust, and Appearance/Appeal. These average scores were categorized into three different ratings: “Poor”

(1 to 3), “Average” (3 to 5), and “Good” (5 to 6). All three constructs had “Average” ratings, indicating that there was an opportunity for improving the scores from “Average” to “Good”.



*Figure 14 Benchmarking: Adjective Construct Rating*

The survey for measuring growth, as indicated by Net Promoter Score (NPS), is typically captured on a 0-10 point scale. The average for this single item survey in this initial study was 5.72, which falls in the midrange of “Average” rating on a 0-10 point scale (Figure 15.1). Industry research, however, does not consider equal distribution for the points on the scale. For example, promoters are identified by scores that are above 8 and detractors by scores that are smaller or equal to 6. A score (NPS) is then calculated by the difference between the percentage of promoters (people with  $NPS > 8$ ) and detractors (people with  $NPS < 6$ ) (Tullis & Albert, 2013). As displayed in Figure 15.2, the data showed no promoters, while 61% of participants were categorized as detractors. These results showed a great deal of opportunity for improving the growth or increasing the number of promoters.

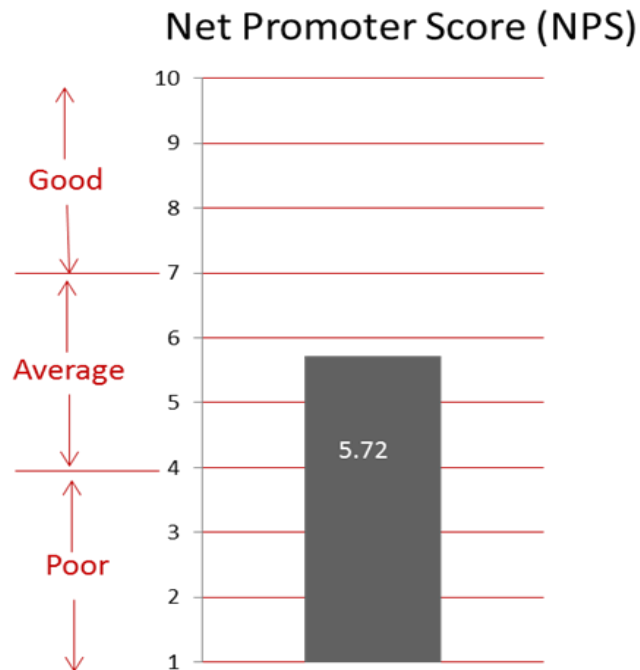


Figure 15.1 Benchmarking: Net Promoter Score (NPS)

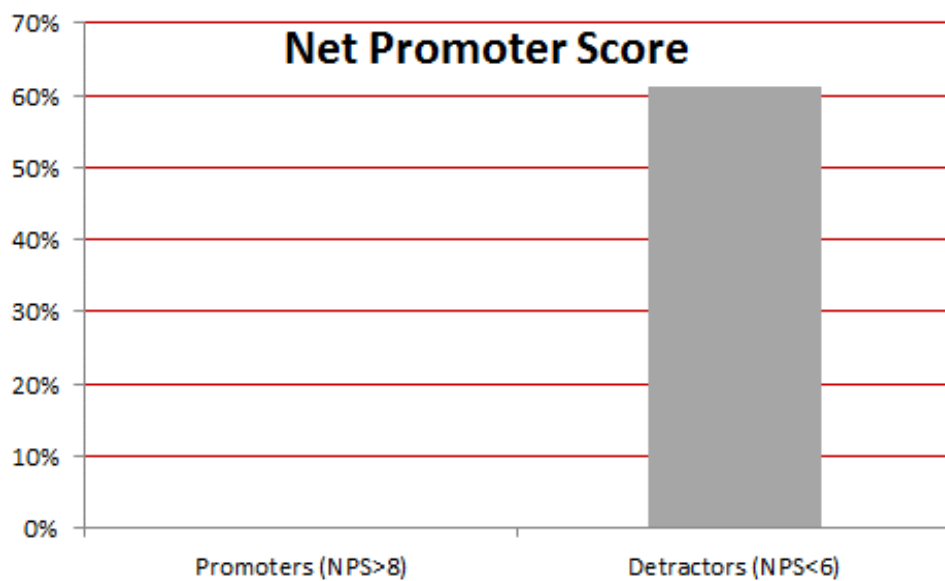
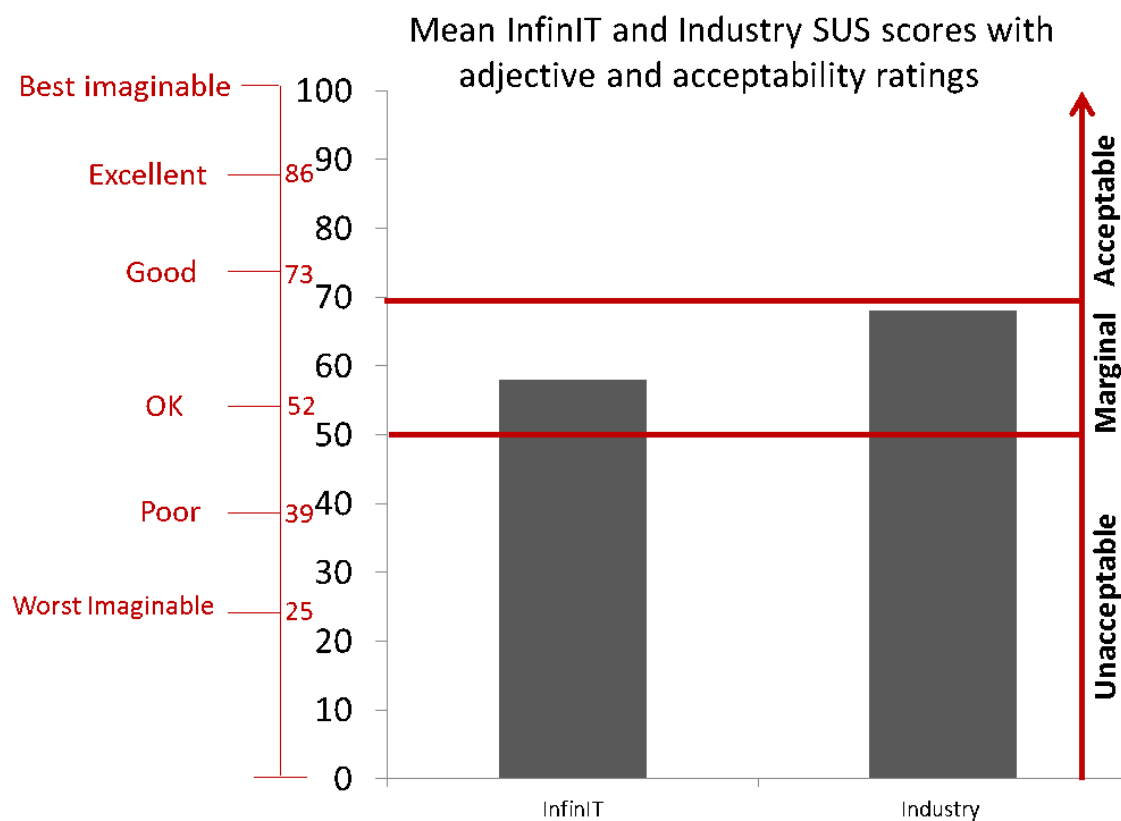


Figure 15.2 Benchmarking: Net Promoter Score (NPS)

As previously mentioned, SUS is a popular survey in industry research to measure the usability and experience of various products and services. On average, participants rated infinIT at 58,

below the industry average of 68. Figure 16 exhibits infinIT's SUS Score and the industry average along with the Adjective and Acceptability rating scales (Bangor, Kortum, & Miller, An Empirical Evaluation of the System Usability Scale, 2008). The Adjective rating scale (0 to 100) has six ranges: "Worst Imaginable" (0 to 24), "Poor" (25 to 38), "OK" (39 to 51), "Good" (52 to 72), "Excellent" (73 to 85), and "Best Imaginable" (86 to 100) (Bangor, Kortum, & Miller, An Empirical Evaluation of the System Usability Scale, 2008). The Acceptability rating scale (0 to 100) has three ranges: "Unacceptable" (0 to 49), "Marginal" (50 to 69), and "Acceptable" (70 to 100).

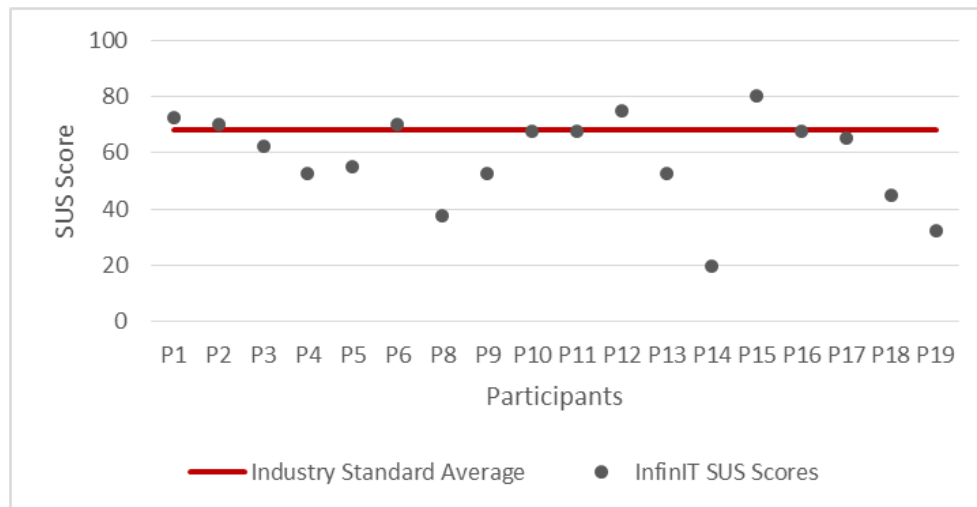


*Figure 16 Benchmarking: Mean infinIT and Industry SUS Scores with Adjectives and Acceptability Ratings*



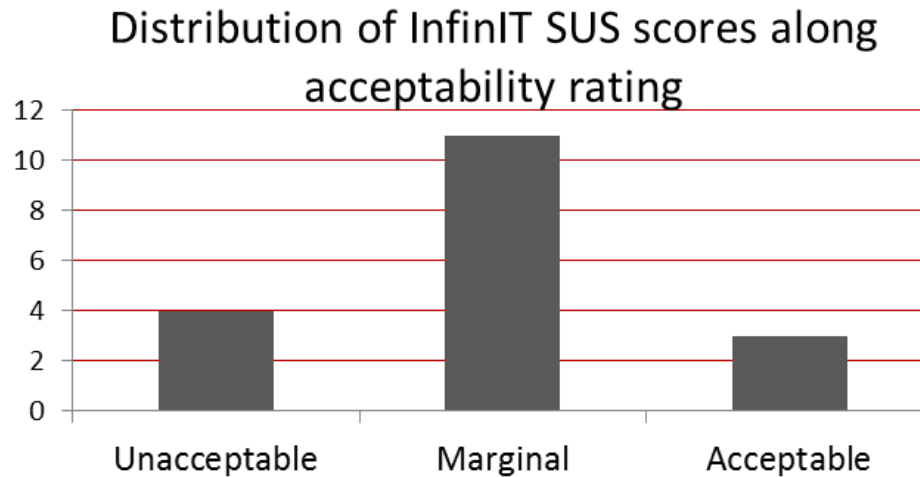
Both infinIT's SUS Score and the industry average fell in the "OK" range in the adjective rating scale and in the "Marginal" range in the acceptability rating scale. Figure 17 shows that many participants' SUS ratings for infinIT were under 68.

### Distribution of InfinIT SUS vs. Industry Average (68)



*Figure 17 Benchmarking: Distribution of infinIT SUS vs. Industry Average*

Figure 18 expands on Figure 16 and shows the distribution of SUS Scores given by the participants. In Figure 18, most participants' SUS Scores fell in the "Marginal" category. This implies potential room for growth in the website's usability with the new iteration implemented.



*Figure 18 Benchmarking: Distribution of infinIT SUS Scores along Acceptability Rating*

In addition to SUS, we used various other constructs to examine the user experience of infinIT via an exploratory model. These constructs/variables were classified into two main categories: Perception Variables and Outcome Variables. The table below summarizes all the variables and their descriptions:

Category	Variable	Description
<b>Perception</b>	Disorientation	Focuses on the users' perception of their orientation when browsing the website.
	Visual Appeal	Captures the users' feelings towards the visual appeal of the website.
	Layout	Looks at the users' opinion regarding the layout of the website.
	Engagement	Examines the users' experiences as feelings of engagement with the website.

	Usefulness	Measures how the users perceive the usefulness of the website.
	Ease of Use	Assesses the users' opinion regarding the difficulty level of using the website.
<b>Outcome</b>	Overall Experience	Evaluates the users' overall experience after using the website.
	Intention to Use	Captures the intentions of the users to revisit the website.

*Table 3 Benchmarking: Variables Summary*

Details about each survey and construct can be found in section 5.1.1.5. Measurements.

Because these variables are measured with a 7-point Likert Scale, Figure 19 classifies the variables' averages into three categories: "Poor" (1 to 3), "Average" (3 to 5), and "Good" (5 to 7). All the variable results from this study fell into the "Average" range. The Visual Appeal rating was close to "Poor", showing a big room for improvement in the visual design of the website. Similarly, other ratings suggested an opportunity to improve user perception and behavioral outcomes from "Average" to "Good".

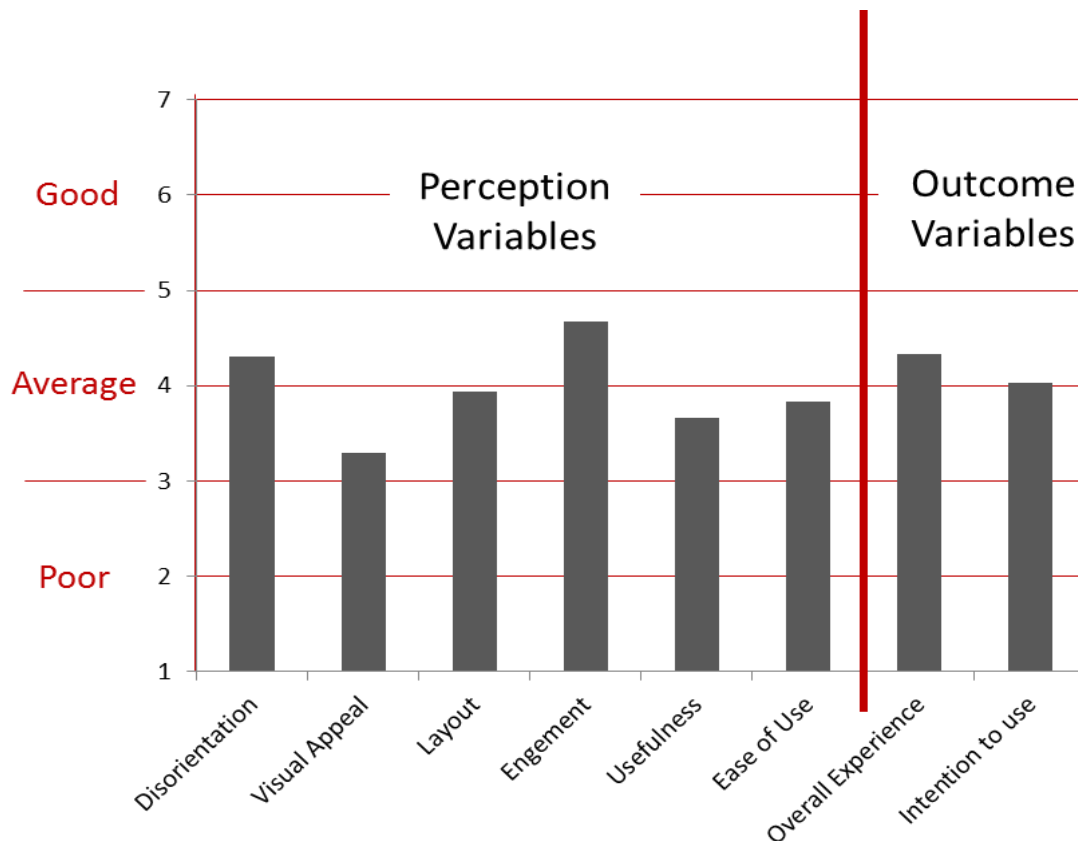


Figure 19 Benchmarking: User Perceptions and Behavioral Outcomes

The team also used regression analysis to understand the relationships among different variables and how these variables influenced one another. The variables examined include: Layout, Visual Appeal, Engagement, Usefulness, Ease-of-Use, and Disorientation.

Figure 20 is the model resulted from the statistical data analysis. It shows that outcome variables (blue boxes in the model) can be improved through user perceptions (gray boxes). It can be read that Layout contributes to the Visual Appeal of the website, which in turn improves the Engagement with the website. Engagement and lack of Disorientation improves Usefulness, which influences Overall Experience, and Overall Experience affects Intention to Use.

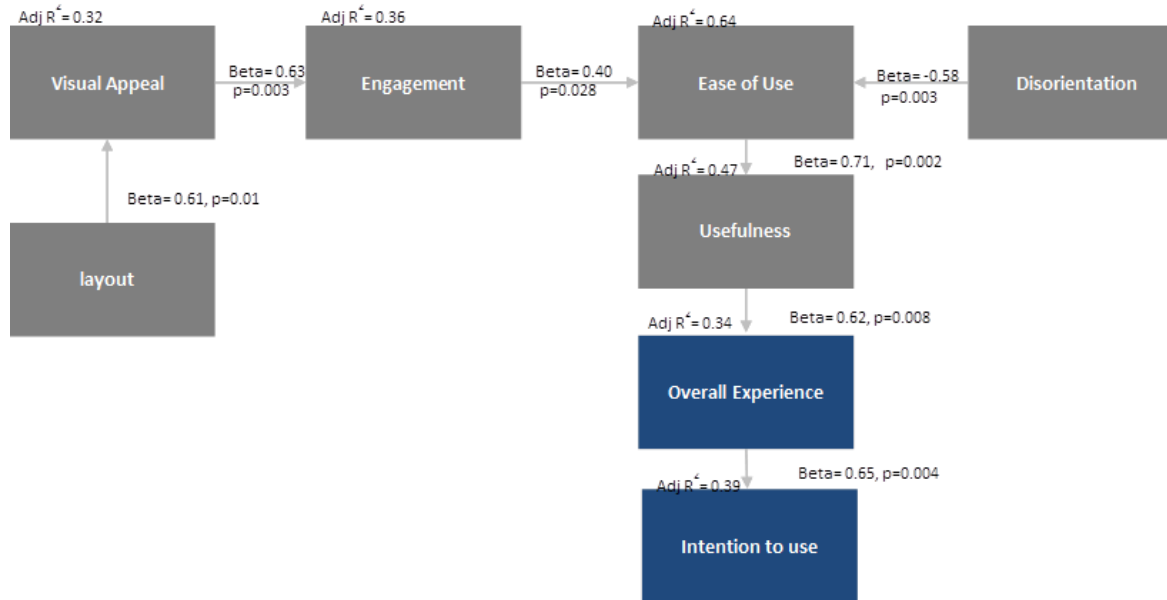


Figure 20 Benchmarking: Data Model

### Interview and Observation Results

Interview and observation data supports the perceptions and behavioral outcomes analysis and provides insight for improving user experience and acceptance of infinIT through high-impact changes in search, navigation, and visual design.

In Figure 21, key words and impact ratings were derived from user interviews. Numbers in parenthesis indicate how many times the key word was mentioned, as things that could be improved, in all participants' responses. Some of the most common key words were "Search", "Navigation", "Screen Space/Layout", "Visual Appeal", and "Categorization". These results align with the previous analysis about the website's layout, visual design, etc.

## Things to improve

- Search (fields and results) (8)
- Navigation (7)
- screen space/layout(7)
- Visual Appeal (7)
- Categorization (7)
- Upfront the support/help and most frequently used features (5)
- Findability (4)
- Ease of use/user friendliness (4)
- Design ( make it simple and consistent) (4)
- Forms, menus, and button (3)
- Not intuitive (2)
- Text Size

*Figure 21 Benchmarking: Things to Improve*

Common emotions observed when participants performing tasks included: frustration, feeling lost, feeling “failed”, confusion, and disorientation. One user commented: “This is awful ... I would rather call the help desk”.

Observed difficulties included: trouble with the drop-down menu due to text size, clutter, and language, search fields, locating items in search results, and locating the “Submit Order” button.

Figure 22 lists some of the users’ recommendations for the EMC development team. Major items from users’ wish list included an automation system, filtering functions, “like” words search ability, etc. These wish items showed that users had similar expectations for the internal service website with what they would expect from many ecommerce websites.

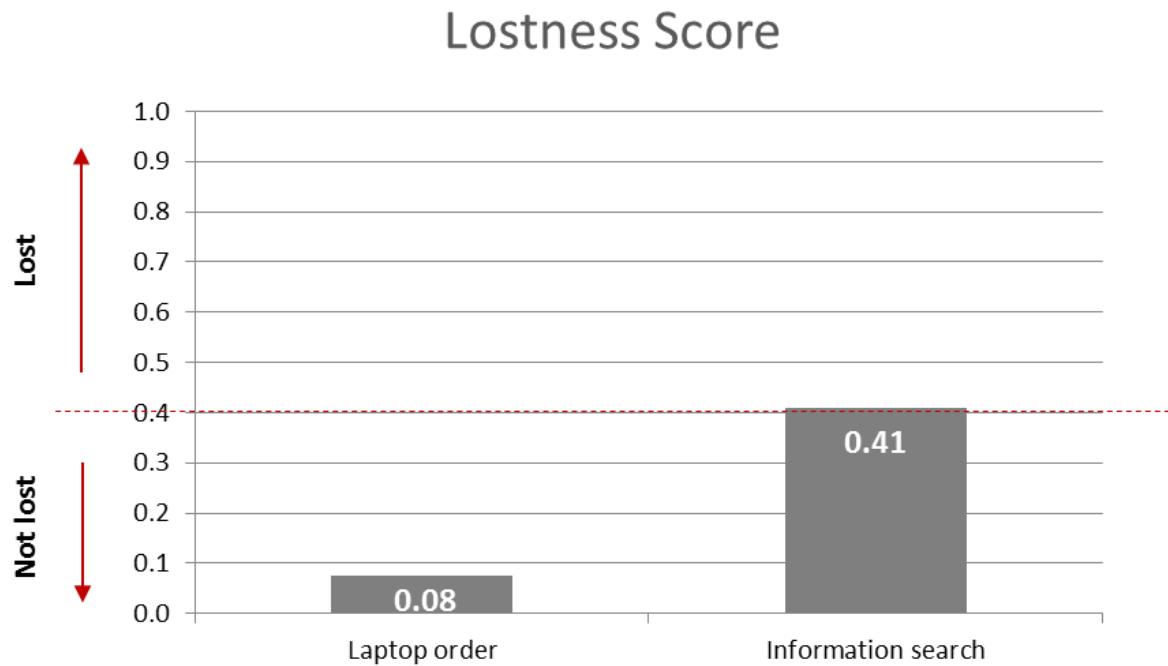
## Nice Things to have on InfiniT

- “Automation that it knows I have this computer for 4 years.”
- “Ability to manage my orders”
- “Filter (by price, category, etc.) like on popular shopping websites “
- “Have more useful things to pop up”
- “Search for "like" words”
- “Ordering software”

*Figure 22 Benchmarking: Nice Things to have on infinIT*

### Objective Performance Results

A lostness score may be used to assess the usability of a website (Tullis & Albert, 2013). Lostness scores (0 to 1) calculate users’ deviation from the optimal navigation path: 0.4 and higher scores indicate difficulty in navigation. In this study, the laptop ordering task had a lostness score of 0.08, while the information search task had a lostness score of 0.41 (Figure 23). This tells that ordering a laptop was a relatively easy navigational experience for users, while the information search task may be eased by improvement in information search path design.



*Figure 23 Benchmarking: Lostness Score*

The unique numbers of pages that participants navigated through during the information search task reveals an interesting fact. Figure 24 shows that some participants who used the search function had to navigate through more pages to locate the information than those who didn't use the search function. This finding infers that the search function (which should, in theory, simplify steps in finding specific information) may be improved to be more accurate and helpful.



## Locating a Help Article Number of Pages: Search vs. non-Search

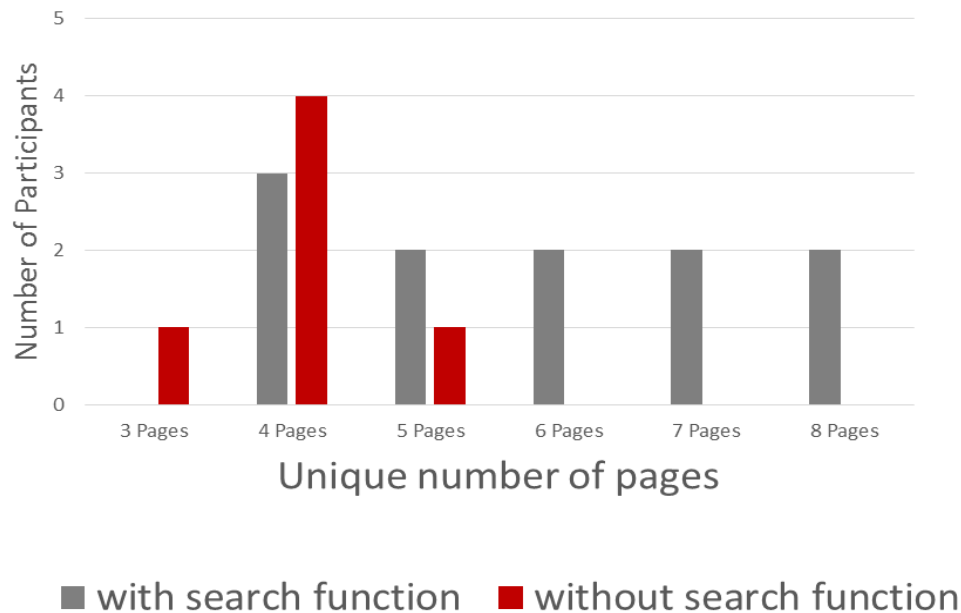


Figure 24 Benchmarking: Locating a Help Article Number of Pages: Search vs. Non-Search

Whether users are able to navigate a website to complete a task may be assessed with several objective measures: numbers of clicks, total numbers of visited pages, total numbers of unique pages visited, task completion time, and task success rates (Tullis & Albert, 2013).

As seen in Figure 22, on average, users made approximately 15.2 clicks for the laptop ordering task (task 1) and 5.2 clicks for information search task (task 2). Figure 26 shows that users spent around 125 seconds on task 1 and nearly 100 seconds on task 2. Task 2 required the users to go through a total of 6 pages while task 1 required only 5 pages (Figure 27). On average, users went through 4 unique pages to complete task 1 and 5 unique pages to do task 2 (Figure 28).

Task 1 took more average clicks and longer average completion time (Figure 25 and Figure 26), while task 2 required more average total pages and more average unique pages (Figure 27 and

Figure 28). This is because to order a laptop, participants had to fill out an order form, which demanded more clicks and longer completion time. However, the ordering process, except filling out the order form, was easier and more explicit, because average participants went through less total pages and less unique pages.

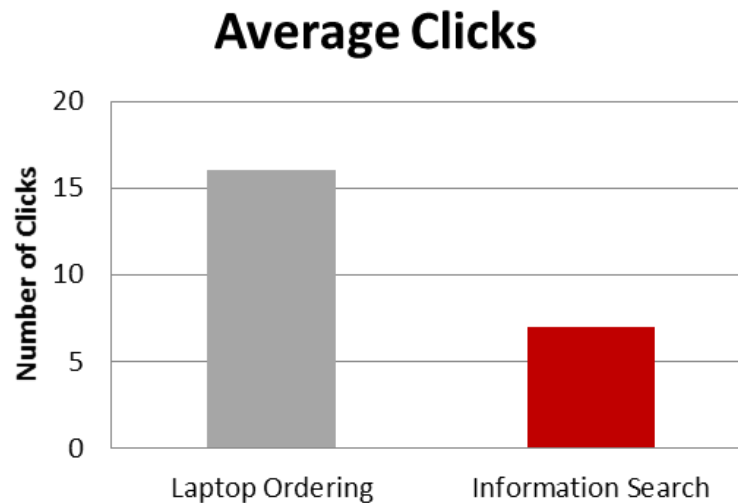


Figure 25 Benchmarking: Average Clicks

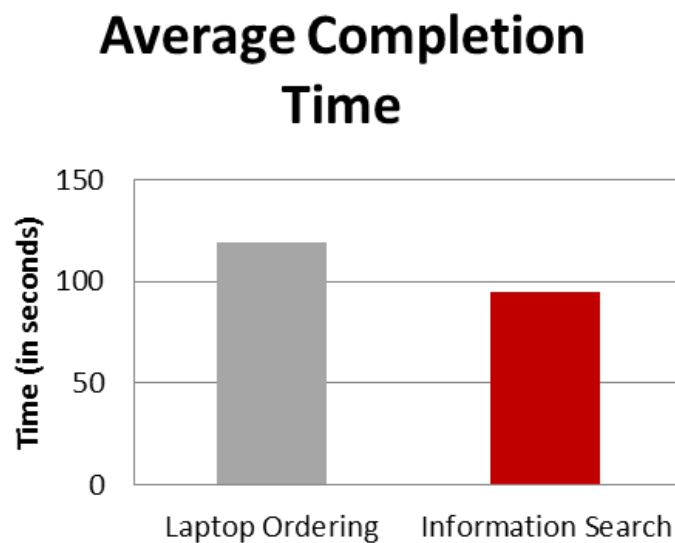


Figure 26 Benchmarking: Average Completion Time

## Average Total Pages



Figure 27 Benchmarking: Average Total Pages

## Average Unique Pages

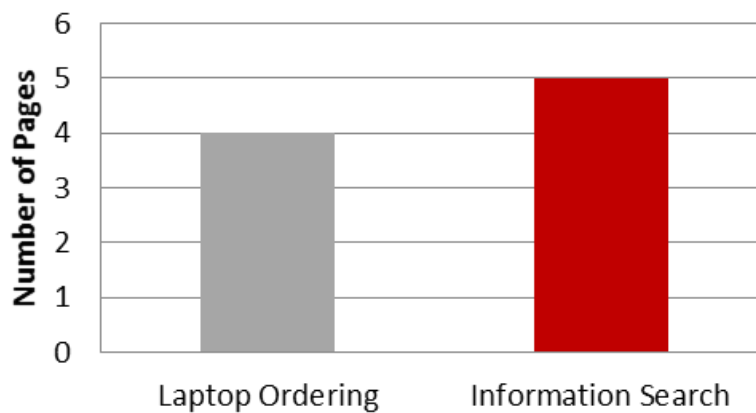
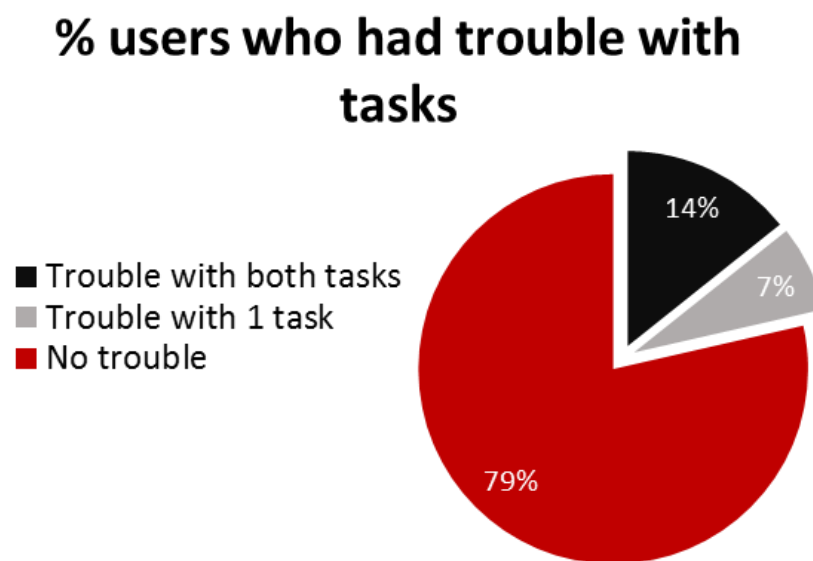


Figure 28 Benchmarking: Average Unique Pages

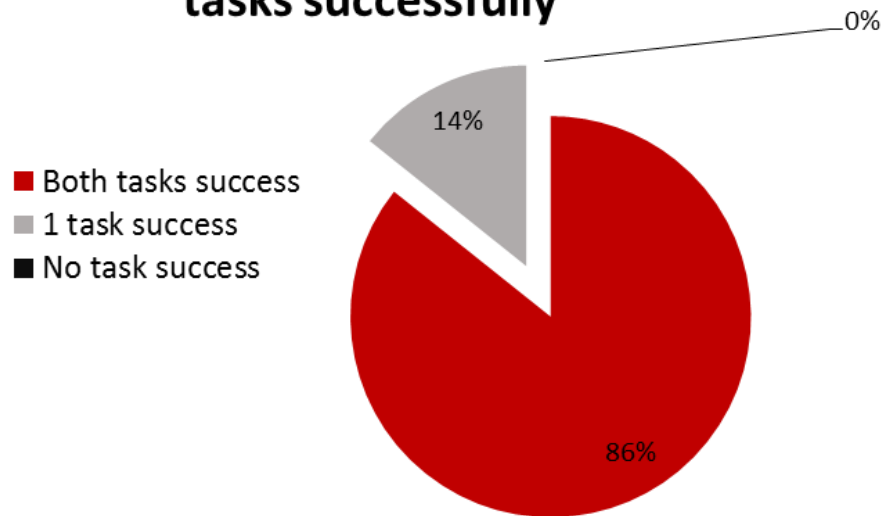
Task success rates are also important indicators for assessing the usability of a website. Figure 29 shows that 79% of users had no trouble completing the tasks. 14% of users had trouble with both tasks and 7% of users had trouble with one of the tasks. On the other hand, Figure 30 shows that all users were able to complete at least one task. Specifically, 86% of users were able to complete both tasks, while 14% of users were able to complete only one task.

This shows that although the majority of the participants were able to complete both tasks in the end, there were a small percentage of participants who failed at one task. Moreover, some participants completed the tasks, but with trouble. Given the that these results were observed with a relatively small number of participants (pool of 18 participants) and that our participants were mostly IT professionals who tend to be experts in using web technologies, the results make a good case for improving the usability of the website.



*Figure 29 Benchmarking: Percentage of Users Who Had Trouble with Tasks*

## % of users who completed the tasks successfully



*Figure 30 Benchmarking: Percentage of Users Who Completed the Tasks Successfully*

Finally, eye-tracking technology was utilized to collect users' gaze during their performance. In addition to using gaze videos for qualitative analysis, we created aggregated heat maps to identify trends in viewing behavior. Below are three heat map samples that illustrate viewing pattern of the users demonstrating most-focused areas as well areas that went unnoticed. The heat maps samples shown in Figure 31-33 were obtained from task 1 (laptop ordering). In these heat maps, red indicates areas that users concentrate the most on. Yellow is used for less focused areas while green denotes the least focused areas among three colors. The areas with no color were not viewed by the users.

The first heat map of infinIT's homepage (Figure 31), shows two areas with the most intense gaze: the welcome message and the Lenovo laptop image in the middle. This heat map indicates that pictures played an important role drawing attention from people. This interpretation was also

supported by participants' comments during the experiment and/or post task interviews. The dispersed viewing pattern suggests that the participants looked at various sections on this page, e.g., the textual information below the images. This behavior supports prior research that suggests images can act as entry points to a page promoting looking for information around them (Djamasbi, Siegel, Skorinko, & Tullis, 2011).

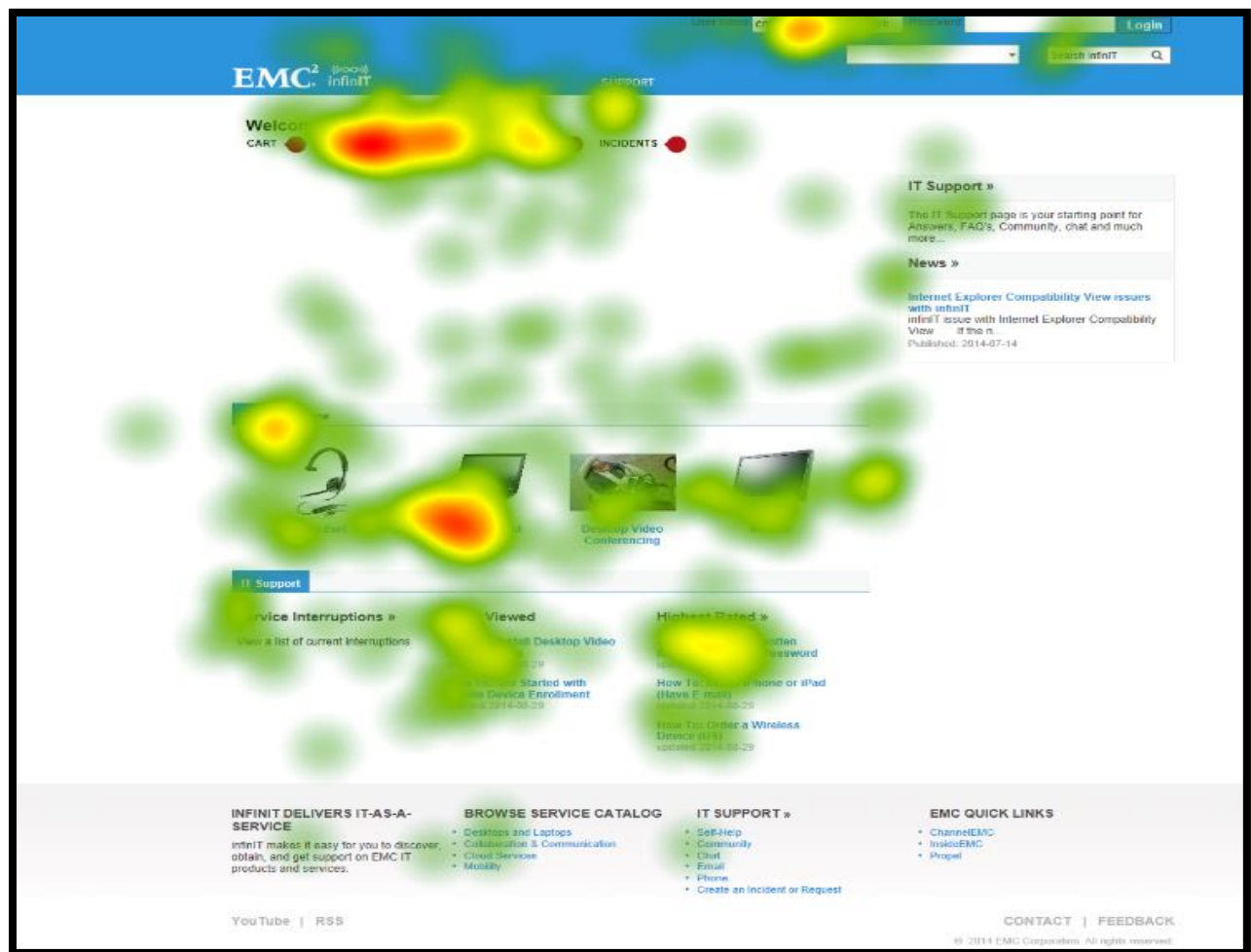


Figure 31 Benchmarking: Heat Map of Main Page

Figure 32 is a heat map of infinIT's product page. Two areas had the most attention: the "Order" button and the navigation tabs in the middle. The viewing pattern on this page is less dispersed,

for example, there is little attention on the bottom half of the page. However, this behavior is consistent with the goal oriented visual search patterns. At this time, participants have found the laptop that they were looking for and they are paying attention only to information that is pertinent to their goal, in this case ordering the laptop.

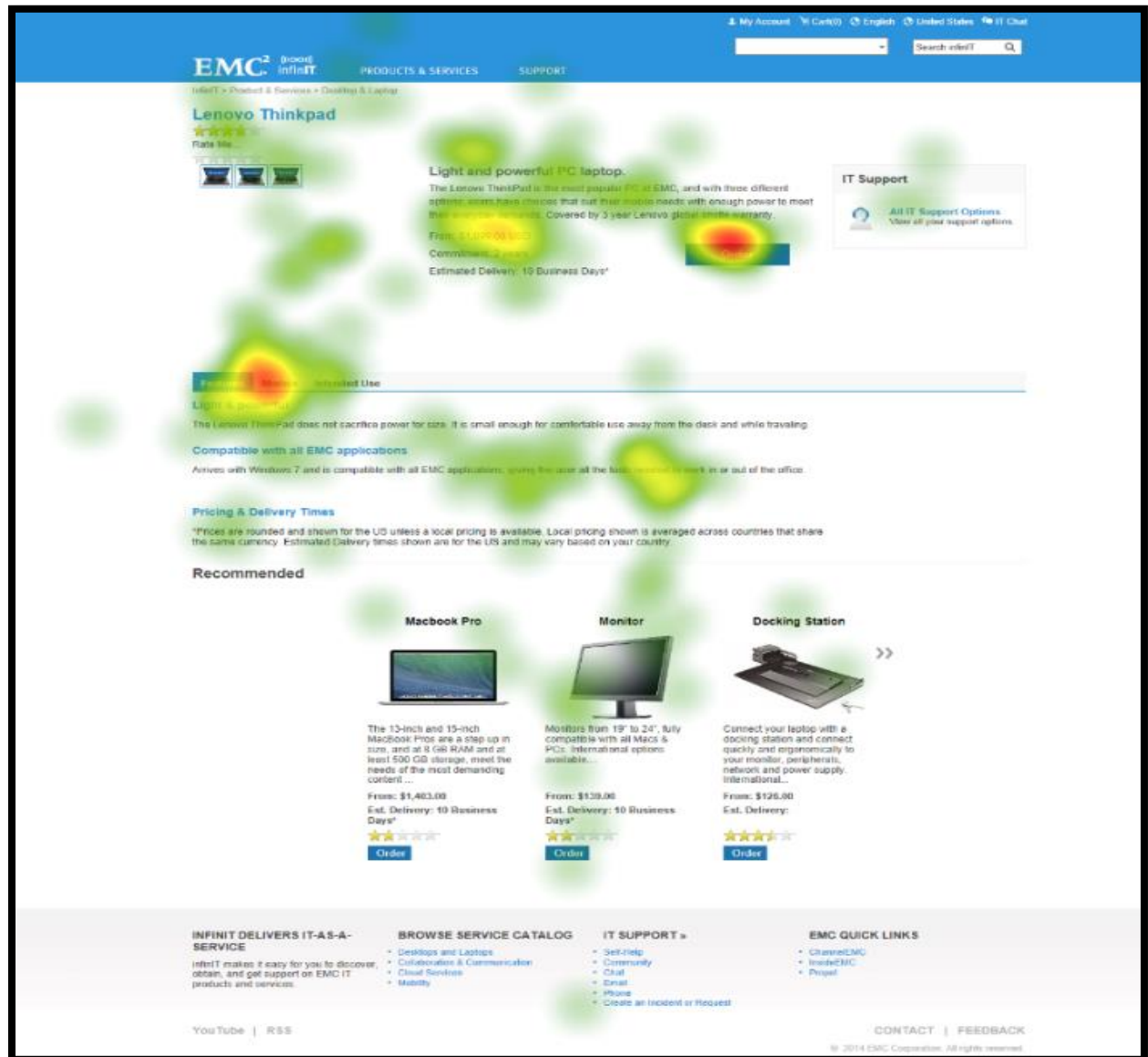


Figure 32 Benchmarking: Heat Map of the Lenovo ThinkPad Page

The heat map of infinIT's order form page (Figure 33) is yet another good example of viewing pattern for a goal-oriented task. As shown in the figure, users' most attention was on the form's drop-down menus. The heat map, shows glances on the right side of the page despite the fact that the page design encouraged users to view primarily the left side of the page, by leaving a great deal of white space on the right. These glances suggest that eliminating the white space on the right is likely to provide a more natural viewing experience for the users.





## Recommendations

Incorporating all the analysis and taking into consideration of the above discussions, the MQP team recognized a need for implementing changes to achieve both content and layout optimization. The team reviewed the pages associated with Task 1 and 2 (Appendix E and F), from the perspective of an infinIT user. Below is an outline of the recommendations made to EMC at the conclusion of the Benchmarking User Study.

Analysis (Figure 21) shows that navigation, search, categorization, visual appeal, screen space/layout, and support/help function were among users' top candidates for areas that needed improvement. User interviews, gaze videos, observation logs, survey results, as well as performance data provided additional support for these needed improvements. Thus, based on these results, the key recommendations to enhance the overall user experience are:

- Improve navigation;
- Improve search field design and accuracy of search results;
- Improve products/services categorization;
- Enhance visual appeal;
- Optimize utilization of screen space;
- Present help and support features in a more observable manner;
- Simplify the overall design in a consistent manner;
- Place forms, menus, and buttons in appropriate locations;
- Enlarge text sizes.

Based on users' wish lists for things they would like to see on infinIT, we also had the following recommendations for the EMC development team to consider:

- Enable an automation system that can customize contents based on users' identities, past histories, etc.;
- Add filtering functions to allow users to select products by category, price, etc.;
- Enable the searching for "like" words function;
- Make useful functions such as Help pop up to the users;
- Allow users to manage their orders, e.g. tracking product, etc.

These recommendations are also aligned with the team's initial research for best practices for website usability and standards of prevailing examples in commercial websites. If implemented properly, they should raise adjective construct ratings, net promoter score, and SUS scores while lowering lostness scores and the amount of clicks and time required to complete laptop ordering and information search tasks.

#### 5.1.2. Analysis of Google Analytics Data

Google Analytics can serve as a valuable benchmarking tool, in particular if companies are interested in tracking design improvements reflected in web usage behavior (Djamasbi, et al., 2014). EMC has been tracking the performance of infinIT using Google Analytics since March 2014. To have an overview of infinIT's performance history and to better understand the website's usage behavior, the MQP team analyzed infinIT's Google Analytics data for the months during which data was available, namely March 2014 to October 2014 when this analysis took

place. The analysis reveals a few meaningful indications for the site's future development, which is explained in the following sections.

#### *5.1.2.1. Key metrics*

Google Analytics provides many metrics to measure the performance of websites. Based on the availability of types of data and their importance to infinIT, the MQP team examined the following metrics. The definitions come from the company's Google Analytics account.

Metric Name	Definition
<b>Session</b>	A session is the period time a user is actively engaged with your website, app, etc. All usage data (Screen Views, Events, Ecommerce, etc.) is associated with a session.
<b>% New Sessions</b>	An estimate of the percentage of first time visits.
<b>Users</b>	Users that have had at least one session within the selected date range. Includes both new and returning users.
<b>Avg. Session Duration</b>	The average length of a Session.
<b>New Users</b>	The number of first-time users during the selected date range.
<b>Channel</b>	The Channel describes how users arrived at your content.
<b>Channel: Direct</b>	Sessions in which the user typed the name of your website URL into the browser or who came to your site via a bookmark.

<b>Channel: Organic Search</b>	Traffic from unpaid search on any search engine.
<b>Channel: Referral</b>	Traffic from websites that are not social networks.
<b>Channel: Social</b>	Traffic from any of approximately 400 social networks (that are not tagged as ads).
<b>Source</b>	The Source is the place users are before seeing your content, like a search engine or another website.
<b>Pageviews</b>	Pageviews is the total number of pages viewed. Repeated views of a single page are counted.
<b>Landing Page</b>	The pages through which visitors entered your site.

*Table 4 Google Analytics: Metrics Summary*

#### *5.1.2.2. Analysis and Recommendations*

##### *Analysis and Results*

Google Analytics data provides four major sections in regards with a website's performance: Audience, Acquisition, Behavior, and Conversions. The following table presents the specific areas that can be analyzed under each section. This information was also obtained from the infinIT Google Analytics account.

Section	Specific Areas Included
<b>Audience</b>	Demographics, interests, geology, behavior, technology, and mobile.

<b>Acquisition</b>	All traffic, AdWords, Search Engine Optimization, social and campaigns.
<b>Behavior</b>	Site content, site speed, site search, events, and AdSense.
<b>Conversions</b>	Goals, ecommerce, multi-channel funnels, and attribution.

*Table 5 Google Analytics: Sections & Benefits*

Because infinIT is an internal service website, it did not include Conversions (although it can be set up in future, as explained later in the text) and thus this metric was not included in our analysis. We looked at available aspects in the other three areas, and summarized our findings.

#### Audience

When analyzing the audience, we focused on identifying trends in the usage of the website for the past few months. We also reviewed the audience's geographic information, their engagement level, as well as the types of devices they used when browsing infinIT. The results are displayed in figures below.

Figure 34 displays the number of sessions from March 2014 to October 2014. As explained before a session refers to a period of time that a user is actively involved with viewing a page.

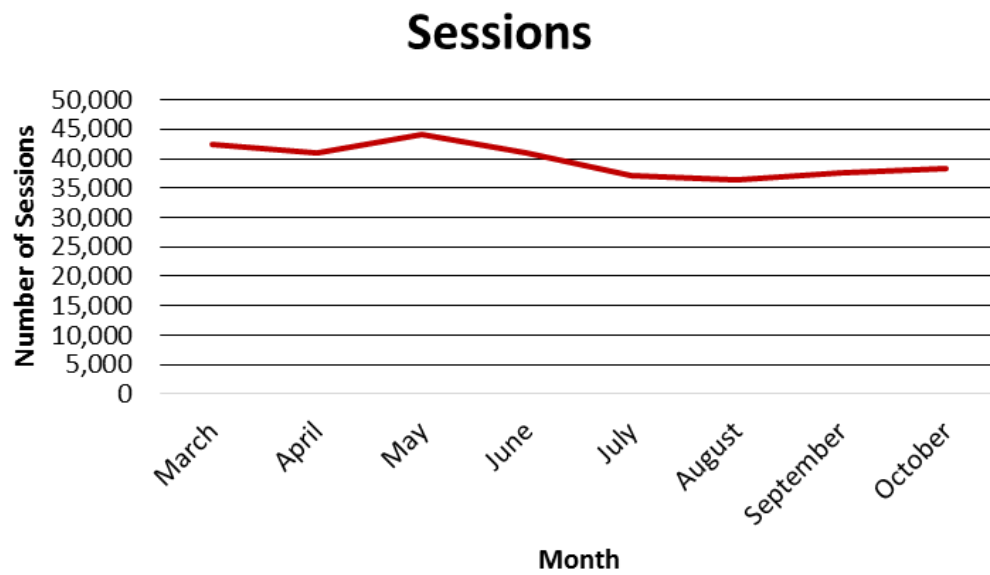


Figure 34 Google Analytics: Overview Sessions

Similarly, Figure 35 shows the number of new sessions from March to October 2014. New sessions are sessions from first time visits.

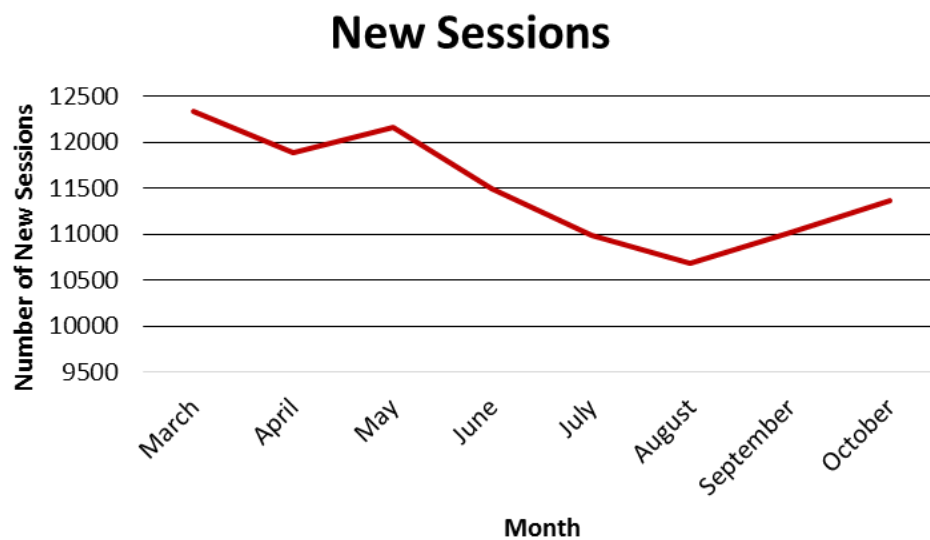


Figure 35 Google Analytics: Overview New Sessions

Figure 36 shows the number of users over the months.

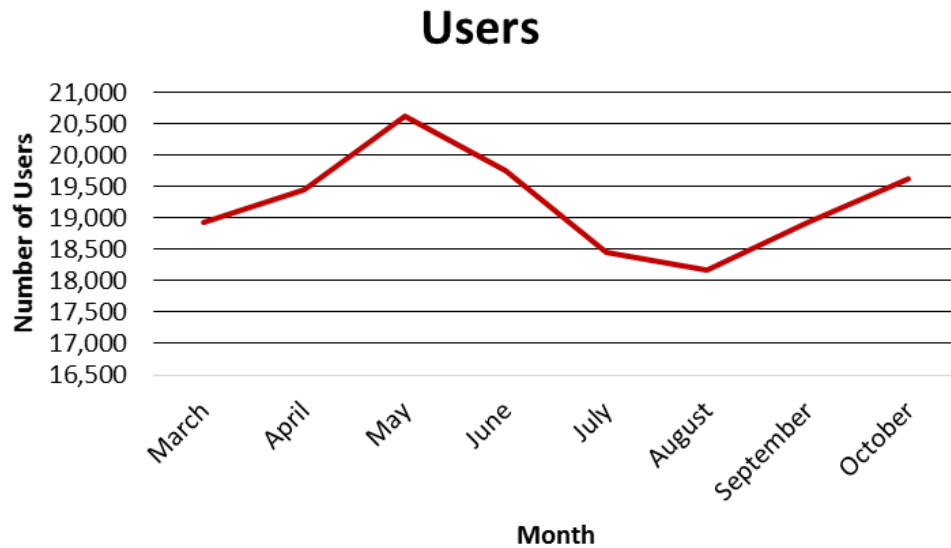


Figure 36 Google Analytics: Overview Users

Figure 37 below exhibits the average session durations across the months. Average session duration means the average length of a session.

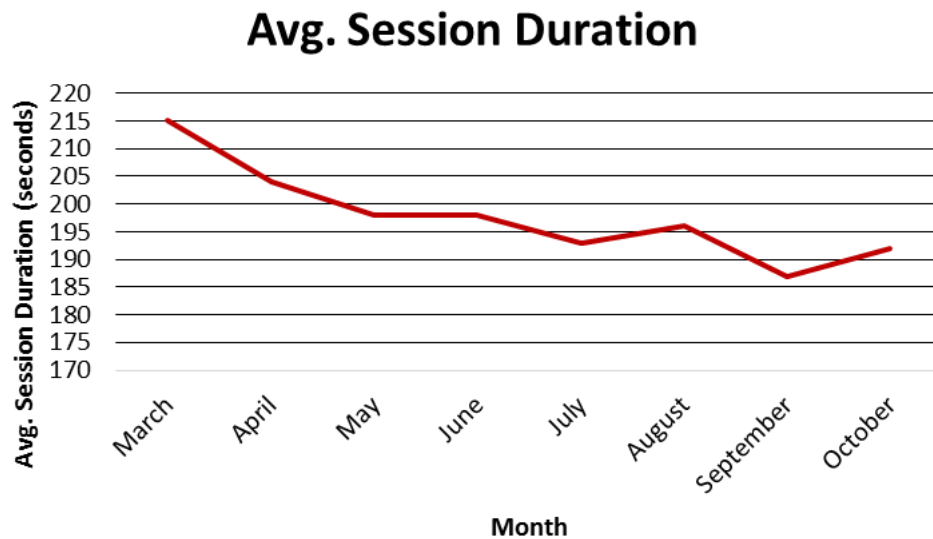


Figure 37 Google Analytics: Overview Duration



The results displayed in Figures 34-37 show that from March to October, the total number of sessions as well as the number of new sessions each month remained relatively stable, with a slight increase in May and a slight decrease throughout the summer. The number of users follow a similar pattern, with a peak in May and a lowest point in August. The ratio between the average number of sessions and the average number of users shows that one user had approximately 2 sessions each month.

The fluctuations in the numbers can result from a number of places, including the company policies. One possible explanation is that at the beginning of the summer EMC hired a number of new interns who needed new equipment and accounts. So they went through infinIT to acquire those things, which resulted in the increase in numbers of users and sessions in May. The results displayed in Figure 37 shows that on average session durations varied from 185 to 215 seconds in the tracked months (March-October 2014).

Next we looked at data that revealed information about user demographics and location. The results displayed in Figure 38 shows that 98% of the language used with the website was U.S. English. The top 5 locations that the website was used in, as shown in Figure 39, were the U.S. (67%), Ireland (17%), India (10%), Japan (4%), and Australia (2%). The major implication from this finding is that the website can use U.S. English as the default language setting or at least the first option if there is a drop-down menu. This change should also ease the process of filling out order forms for users, which aligns with the results obtained from the benchmarking user study. From observation notes and participants' comments, we noticed that some drop-down menus, such as the language selection, were not easy enough for users to make a quick decision.

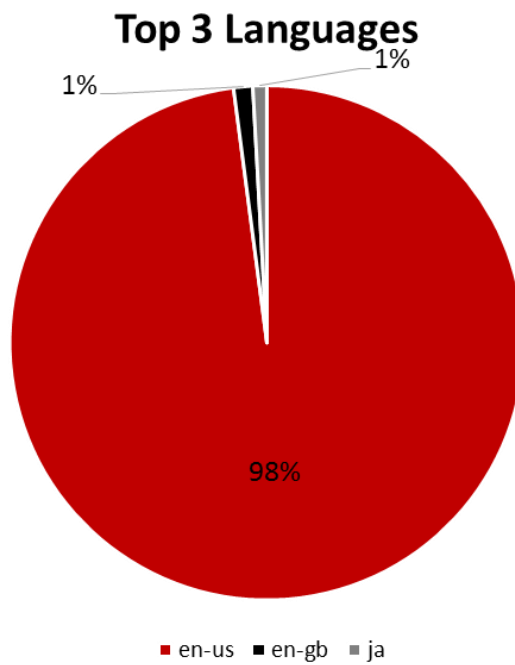


Figure 38 Google Analytics: Top Languages

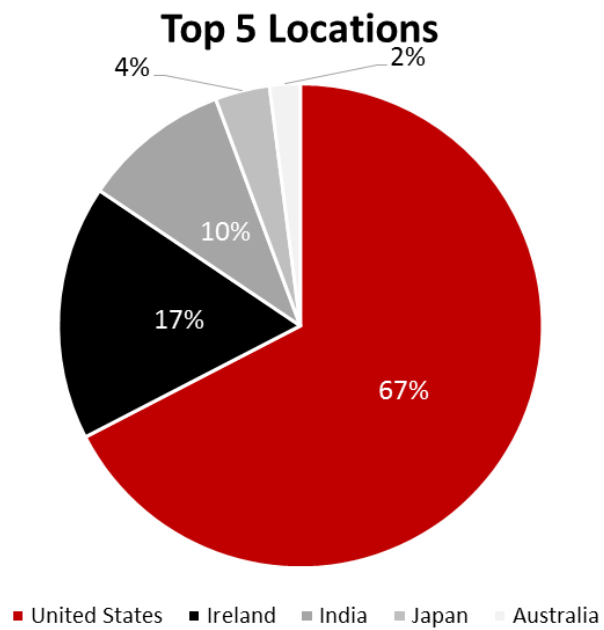
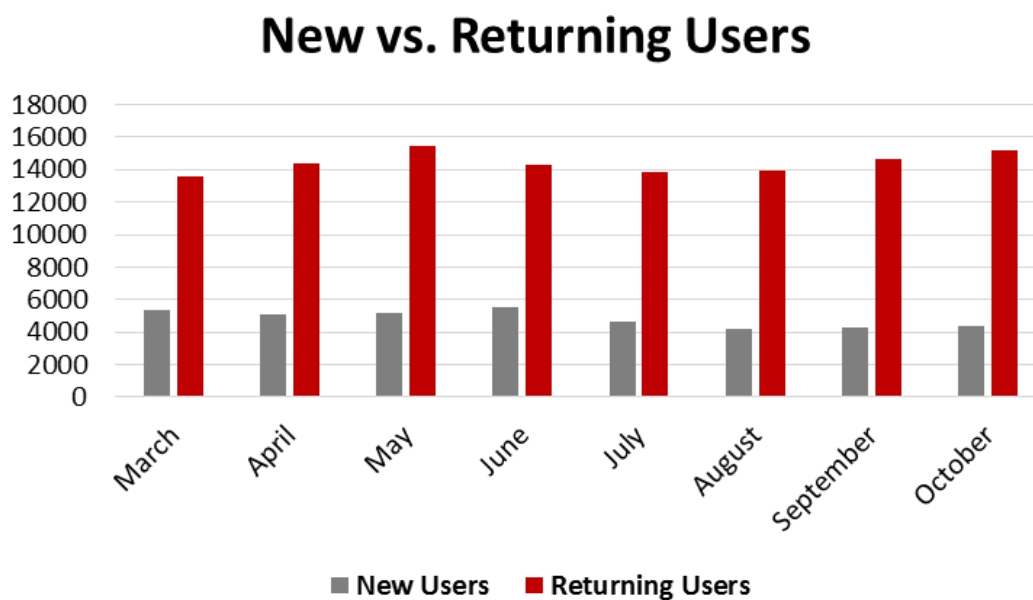


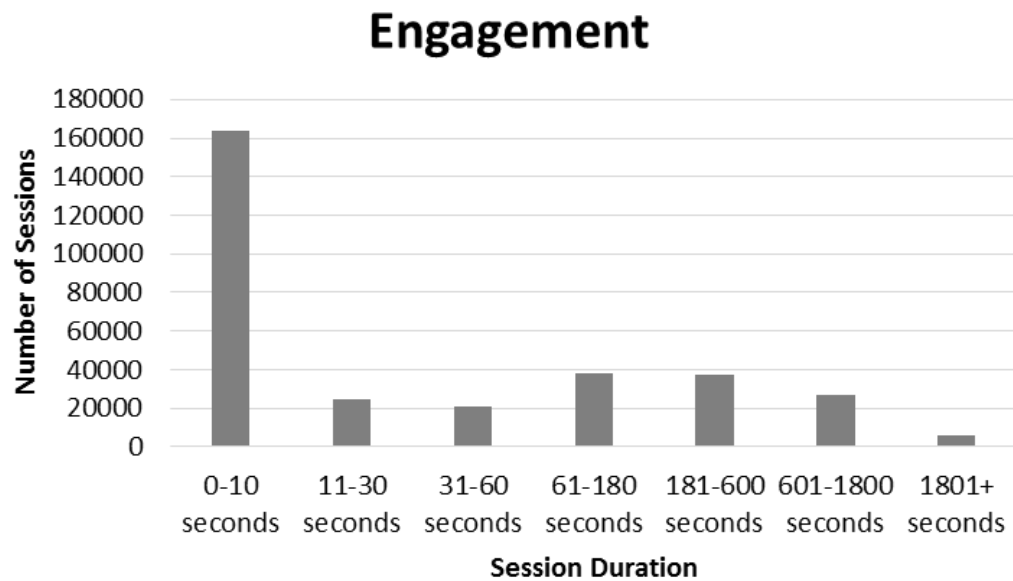
Figure 39 Google Analytics: Top Locations

Next the MQP team looked at the usage statistics of infinIT users. The data for new and returning users (Figure 40) shows that new users made up about 25% of the total user population. This shows that between March and October of 2014 a great number of users used infinIT for the first time.

A more detailed analysis of session durations (Figure 41), an important indicator of users' engagement level, shows interesting trends. Earlier, we reported that average session durations lasted between 185-215 seconds. The examination of this data with a frequency chart shows that 52% of the sessions lasted only 0-10 seconds. Thus, despite the average session durations being 185-215 seconds, this percentage indicates more than half of the sessions were likely only cursory glimpses. Possible explanations include users' false click-ins, fruitless searching efforts or frustration with their landing pages design. Nonetheless, it suggests that there is room for improvement in the website's ability to engage users.



*Figure 40 Google Analytics: New vs. Return*



*Figure 41 Google Analytics: Session Duration*

The analysis of data for device usage (Figure 42) reveals that desktops comprised almost all of (99.71%) the devices used to browse infinIT. Among the relatively few mobile devices used, 58% were iPhone, 23% were iPad, and 5% were Android devices. One of the goals for the development team was to equip the website with responsive design so that it could be used on mobile devices. These numbers suggests opportunity for increasing infinIT usage through mobile device uses. The data also points out which specific devices the users used for browsing, which can be important information for the design team.

# Mobile Devices

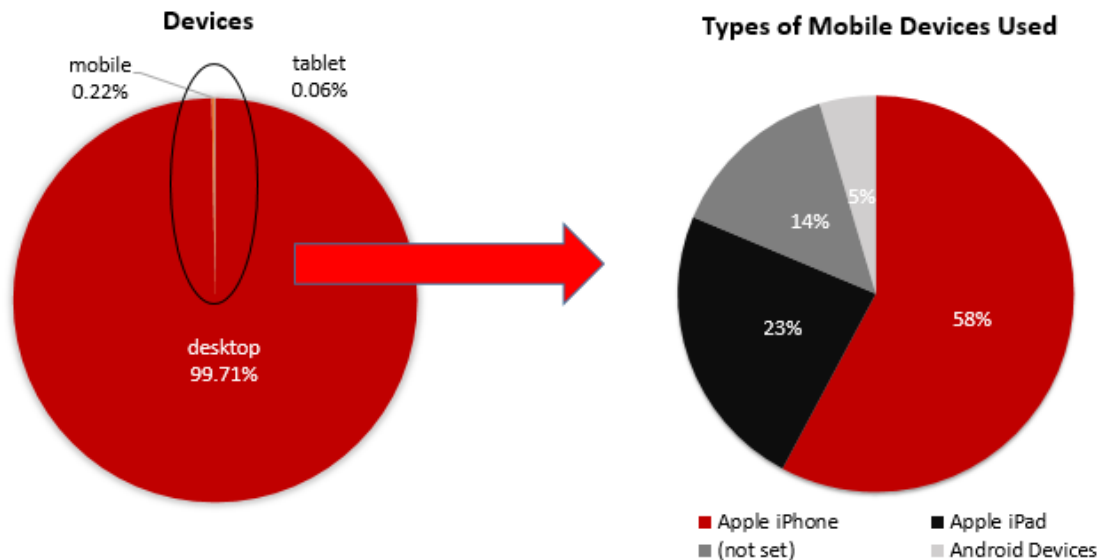


Figure 42 Google Analytics: Mobile Devices

## Acquisition

Google Analytics acquisition data mainly explains what the sources directed the users to the infinIT website. The analysis of acquisition data, displayed in Figure 43, shows that infinIT users during March-October 2014 came mainly from three different channels: Direct (90.76%), Referral (5.90%), and Organic Search (3.18%). As indicated by the results, using URL was by far the most popular way to reach infinIT.

As shown in Figure 44, within the Referral channel, we identified top 6 referral sources: channelemc.corp.emc.com (37%), emc.force.com (23%), support.emc.com (16%), emc.com (10%), channelemc.isus.emc.com (9%), and emc-c.na5.visual.force.com (5%). These were useful information for the EMC team to know where most referrals for infinIT came from and which sites were directing traffic to infinIT.

# Acquisition

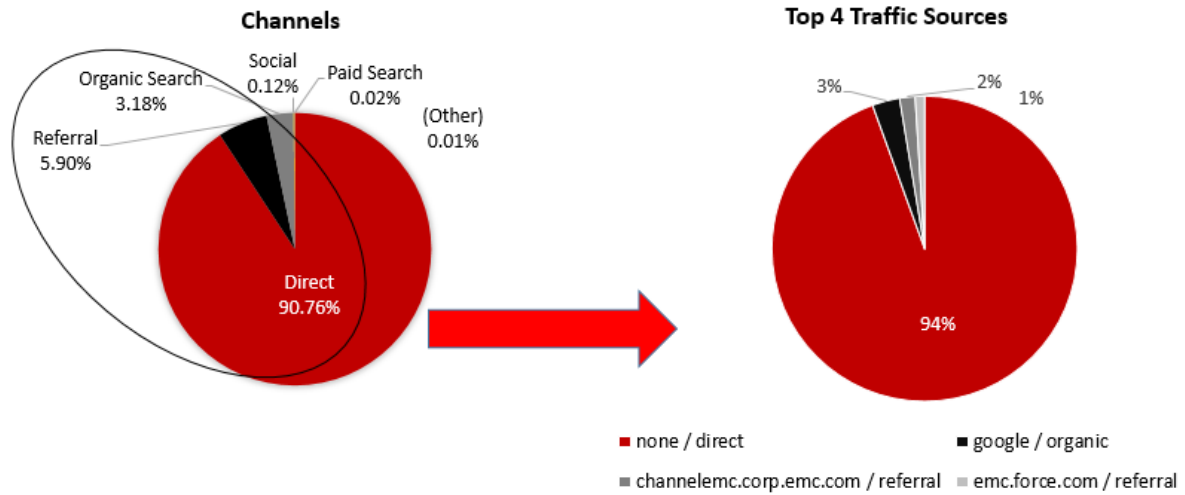


Figure 43 Google Analytics: Acquisition I

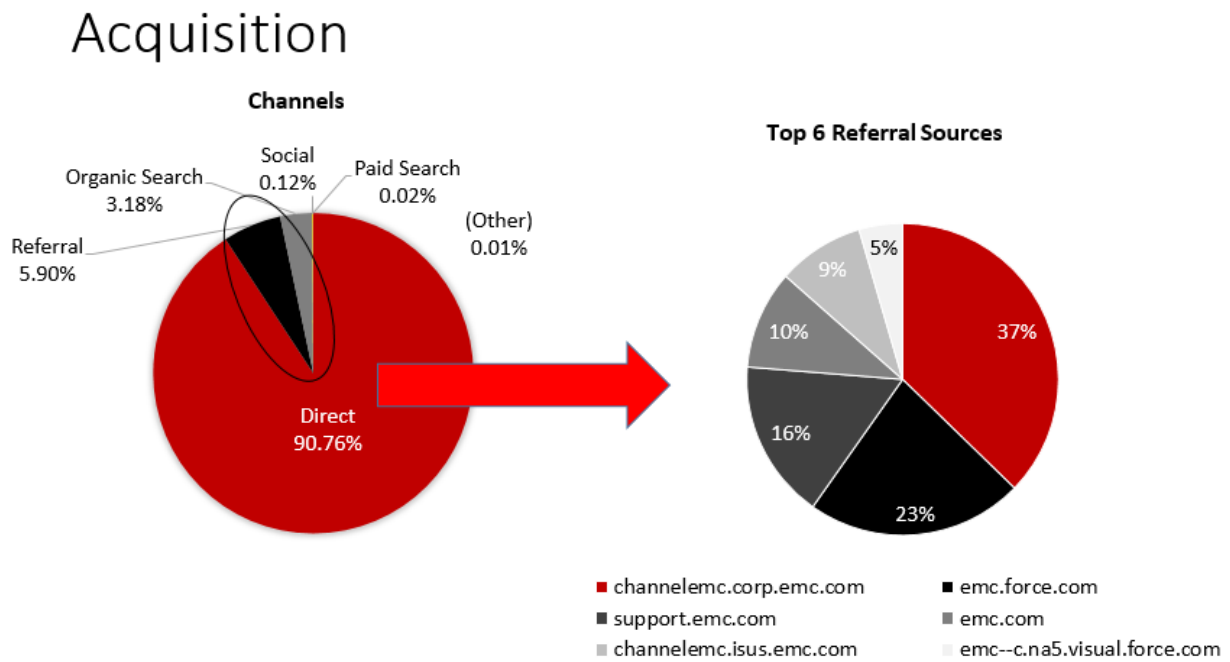


Figure 44 Google Analytics: Acquisition II

## Behavior

To better understand user behavior we examined data that indicated which pages were most important to users, in particular top pages that users viewed (Figure 45), landed on (Figure 46), and exited from (Figure 47).

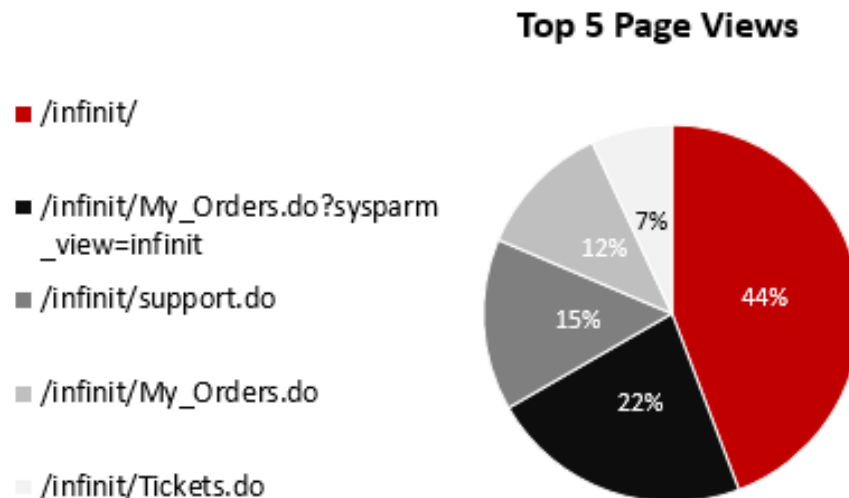


Figure 45 Google Analytics: Top Page Views

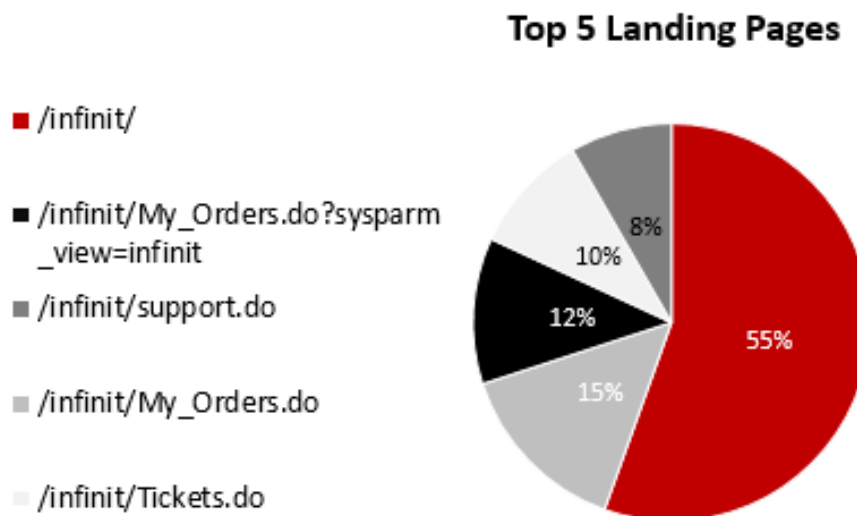
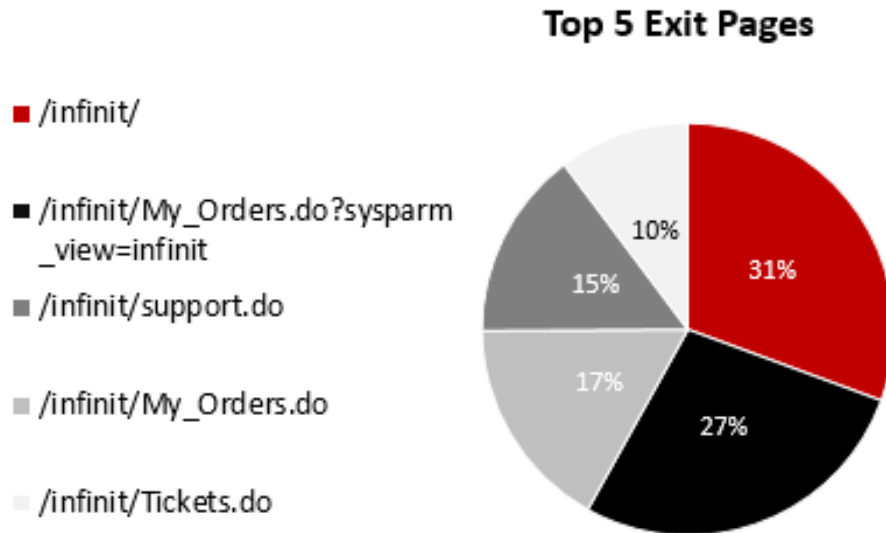


Figure 46 Google Analytics: Top Landing Pages



*Figure 47 Google Analytics: Top Exit Pages*

Our analysis showed that the top 5 pages that users viewed, landed on, and exited from were the same ones. They were the homepage, two orders pages, the support page, and the tickets page. This suggests that utilization of these pages was the most popular, and thus these pages should be given special attention to during the website re-design.

#### [Recommendations for Future Data Collection](#)

Based on the types of data available in the Google Analytics account for infinIT and the analysis of the available data, The MQP team had the following recommendation for future data collection. These recommendations are geared towards refining the analysis of user behavior and gaining deeper understanding of the website use:

- 1) In-page analytics can be set up for individual pages to track:
  - Page views, Unique Page views, Average Time on Page, Bounce Rate, % Exit;
  - Number of active visitors in real time;



- Click analysis (where users click on that page).

2) Goals can be set up under Conversions to measure how well the site fulfills targeted objectives. Conversions, or completion rates, can be measured for each Goal. Goals can be combined with Funnels to analyze user actions leading up to a Goal. If a monetary value is set up for a Goal, the value of conversions can also be captured.

## 5.2. Formative Studies

As the EMC team developed new designs for infinIT, the MQP team conducted formative user experience studies to consolidate the designs with users' feedback. Two studies were implemented, in December 2014 and February 2015 respectively:

- 1) Prototype Study I, testing a new prototype using two slightly different versions.
- 2) Prototype Study II, testing three different navigation bar designs.

Reports about the two studies follow:

### 5.2.1. Prototype Study I

After the benchmarking tests, the EMC development team created a new design incorporating the results and recommendations from the previous studies. Prototype Study I was conducted to test the navigational design of the new prototype. In order to do that, the MQP team enabled two slightly different versions of the prototype, one with the image of Lenovo ThinkPad W540 on the homepage (Figure 48) and one without (Figure 49). The intention was to see whether users could find this product without its image displayed on homepage, and thus test the usability of the available navigational channels.

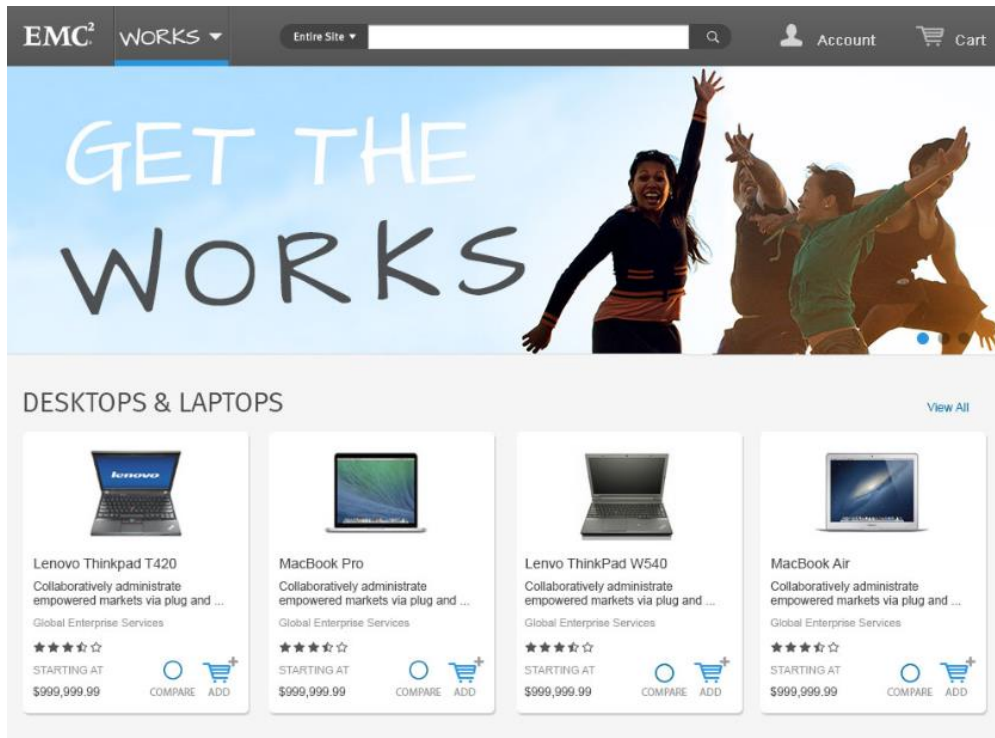


Figure 48 Prototype Study I: Prototype A

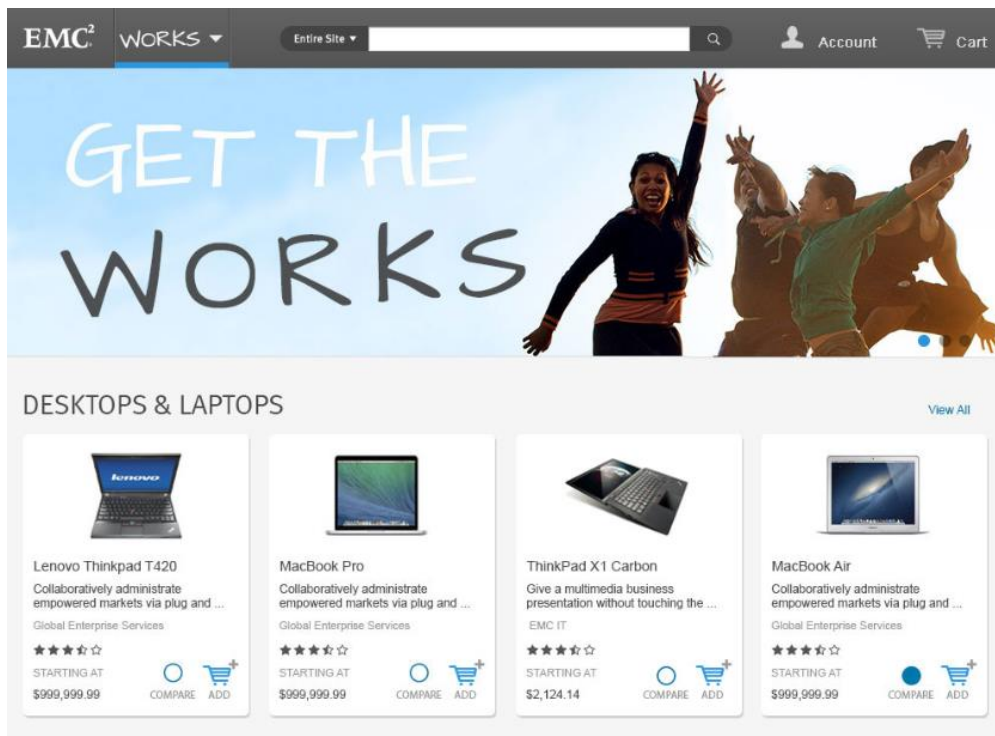


Figure 49 Prototype Study I: Prototype B

For Prototype A, there were three possible ways to find the desired product:

1) Click the laptop picture on the homepage, and see the product page below:

The screenshot shows the EMC2 WORKS website interface. The top navigation bar includes the EMC2 WORKS logo, a search bar with 'Entire Site' dropdown, and links for 'Account' and 'Cart'. Below the navigation bar, the breadcrumb trail reads 'HOME > DESKTOPS & LAPTOPS > THINKPAD W540'. The main product section features a large image of the Lenovo ThinkPad W540 laptop on the left. To its right, the product title 'THINKPAD W540' is displayed in bold, followed by 'EMC IT'. Below the title, a short description states: 'Light and powerful PC laptop. The Lenovo ThinkPad is the most popular PC at EMC, and with three different options, users have choices that suit their mobile needs with enough power to meet their everyday demands. Covered by 3 year Lenovo global onsite warranty.' Further down, it shows 'ESTIMATED DELIVERY 10 BUSINESS DAY (LEARN MORE)' and 'REVIEWS (18,000)' with a star rating of 4.5 out of 5. On the right side of the product section, there are three icons: 'FAVORITE', 'SUPPORT', and 'SAVE ORDER'. Below the product image, there is a 'Laptop Bundle' section with a dropdown menu currently set to '-None-'. To the right of this section, the price '\$1,099' is displayed, and a blue 'ADD TO CART' button is located below it. A dark navigation bar at the bottom of the product section contains links for 'OVERVIEW', 'TECHNICAL DETAILS', 'SLA', and 'Q&A'. To the right of these links, a small note states '\*Actual price may vary through checkout'. Below this navigation bar, the 'FEATURES' section is visible. It includes three sub-sections: 'Light & powerful' (describing the laptop's portability), 'Compatible with all EMC applications' (mentioning Windows 7 and compatibility with EMC apps), and 'Pricing & Delivery Times' (explaining that prices are rounded and shown for the US). To the right of the features text, there is a smaller image of the laptop's keyboard and trackpoint area.

Figure 50 Prototype Study I: Product

2) Click on “WORKS” on the navigation bar, and see a drop-down menu, from which users can select the product and enter the product page:

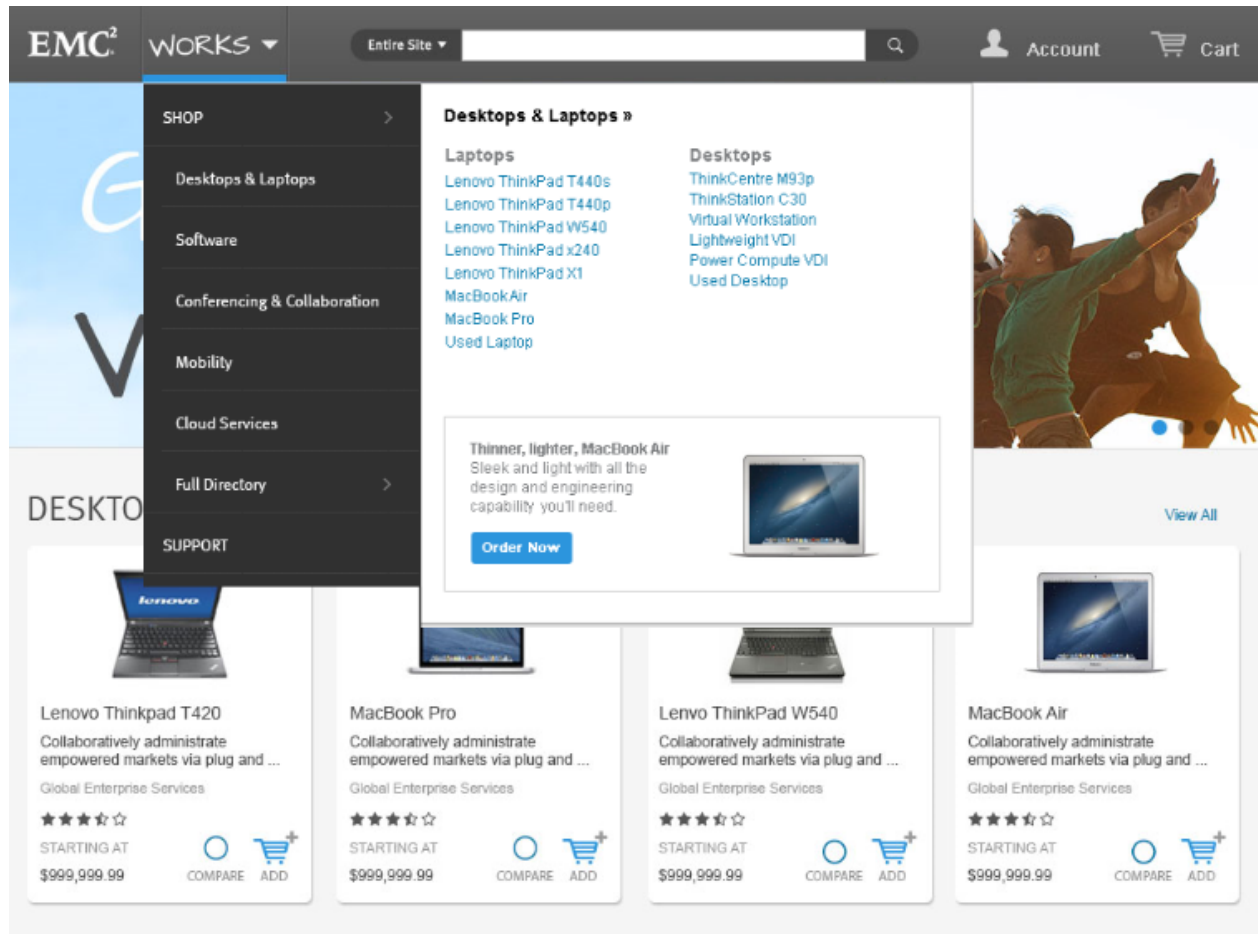


Figure 51 Prototype Study I: Navigation Panel

3) Type key words into the search bar, and users will be directed to the page below, from which users will be able to select the specified model:

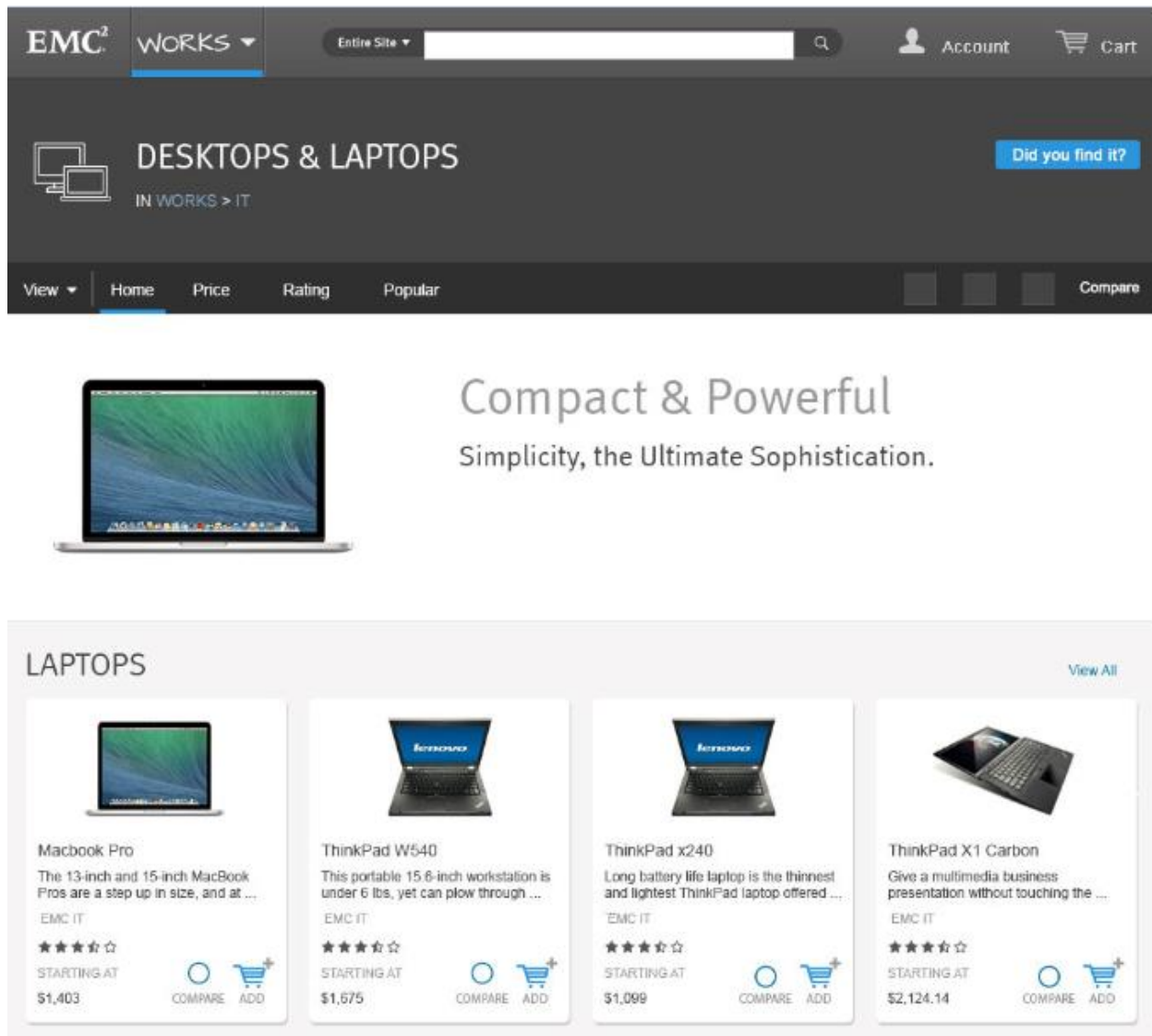


Figure 52 Prototype Study I: Desktops & Laptops

For Prototype B, there were only two ways to find the product, namely 2) and 3) listed above.

The measurement methods in this test included surveys, interviews and screen recording. The objective of this study was to evaluate the new design, especially in its navigation.

#### 5.2.1.1. Participants

Unlike the benchmark testing where most participants were from the EMC IT Leadership Rotational Program, participants in this prototype testing came from a variety of backgrounds: there were one principal product manager, one program manager, one developer, and two product managers from two different departments. There were four female and one male participants. They were also, on average, older than those from benchmark testing. One participant was in the age range 50-59, three in the range 38-49, and one in the range 24-37. The chart below shows the age distribution of participants in this study:

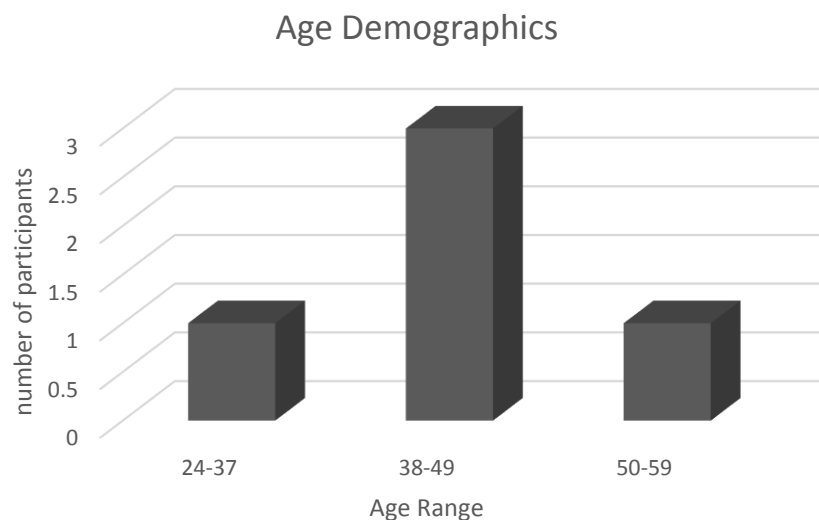


Figure 53 Prototype Study I: Age Distribution for Prototype Study I

#### 5.2.1.2. Tasks

The main purpose of this prototype study was to test the navigation of the new design. Therefore, the only task that the participants were asked to perform was to navigate through the site and order a specified product. Similar to one of the tasks in the benchmarking study, the task required participants to assume their current laptop (a Lenovo T420) was eligible for an upgrade and that

they decided to order a T440. They were then instructed to use one of the prototypes to complete the process.

#### *5.2.1.3. Software and Hardware*

The MQP team developed two prototypes for the new designs using Axure, a commercially available software for making mock-ups and wireframes of user interfaces. These two prototypes were used to test the navigational paths from the main page to the specified product, Lenovo Thinkpad W540 laptop. Refer to Figure 48 for prototype version A and to Figure 49 for prototype version B.

Other hardware and software used in this study included laptops, audio recorders, and Camtasia, a software used to record the screens as participants performed their tasks.

#### *5.2.1.4. Procedure*

Similar to the benchmark testing, upon arrival, the participants were informed about the purpose of the study and asked to sign the consent form. After that, the task description was read by the experimenter. Participants were randomly assigned to either Prototype A or Prototype B. When participants were performing the task, all of their activities on the prototypes were recorded using Camtasia. After the tasks, participants were asked to fill out an online survey in Qualtrics. At the end of the survey, the participants answered some interview questions. Participants' responses were recorded during the interviews. During the experiment, the participants were encouraged to think out loud while performing the tasks. Their comments, non-verbal expressions and behaviors were recorded by one of the MQP team members. The multi method

of data collection, such the one used in this project, is very informative and helpful in particular at the formative stages of the process.

#### 5.2.1.5. Measurements

##### Surveys

Similar to our benchmarking user study, in this test, participants' reactions to the prototypes were also measured by a set of validated surveys. Table 6 provides a brief summary of the constructs measured with the surveys. More details about the surveys can be found in Section 5.1.1.5. Measurements for the benchmarking study. The complete list of survey questions is presented in Appendix B (Page 129).

Constructs	Source
<b>Perceived Disorientation</b>	Webster, J., & Ahuja, J. S. (2006). Enhancing the Design of Web Navigation Systems: the Influence of User Disorientation on Engagement and Performance. <i>MIS Quarterly</i> , 30(3), 661-678.
<b>Engagement</b>	
<b>Future Intention to Use</b>	
<b>SUS</b>	Tullis, T. S., & Stetson, J. N. (2004). A Comparison of Questionnaires for Assessing Website Usability. <i>Usability Professional Association Conference</i> , (p. 12).
<b>Perceived Usefulness</b>	Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. <i>MIS Quarterly</i> , 13(3), 319-340.
<b>Perceived Ease of Use</b>	
<b>Usability</b>	Zhang, T., Agarwal, R., & Lucas, H. C. (2011). The Value of It-Enabled Retailer Learning: Personalized Product



	Recommendations and Customer Store Loyalty in Electrical Markets. <i>MIS Quarterly</i> , 35(4), 859-881.
<b>Trust</b>	Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. <i>MIS Quarterly</i> , 33(3), 530-566.
<b>Growth</b>	NPS, in Tullis, T., & Albert, B. (2013). <i>Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics</i> . Elsevier Inc.
<b>Appearance/Appeal</b>	Falk, T., Hammerschmidt, M., & Schepers, J. (2010). The Service Quality-Satisfaction Link Revisited: Exploring Asymmetries and Dynamics. <i>Journal of the Academy of Marketing Science</i> , 38(3), 288-302.

Table 6 Prototype Study I: Constructs and Sources

#### Screen Recording/Observation

We also recorded the screens to fully assess users' activities on the prototypes during their performance. These videos along with data gathered in the surveys and interviews were helpful in determining whether there was an improvement from the benchmarking data.

In addition to the above data collection methods, observation notes on participants' comments and non-verbal expressions were collected by one MQP team member. This descriptive data, served as one of the sources for multi method data collection in our study.

## Interview

In addition to capturing user behavior through screen recordings and observation notes, we also used interviews to gather another rich set of data for soliciting users' perceptions of and reactions to the prototypes. Interviews are a great source of information in formative studies because they provide a flexible and open-ended outlet for capturing users' insights. For example, during these interviews we received invaluable suggestions for improving the design of the prototypes. The complete list of interview questions can be found in Appendix A (Page 128).

### *5.2.1.6. Results and Recommendations*

## Results

The analysis of the data, collected through various methods as described in the previous section, is summarized in this section.

## Survey Results

As discussed in Benchmarking User Study, a SUS score indicates a system's usability. In this study, the average SUS score for the prototypes was 77. This was above both the average benchmarking study score (58) and the industry average score (68). Figure 54 shows the comparison among the three scores. Additionally, examining SUS through the Acceptability rating scale (Bangor, 2009) revealed that the SUS score in this study fell into the "Acceptable" range, showing noteworthy improvement compared to the SUS Score in the benchmarking study.

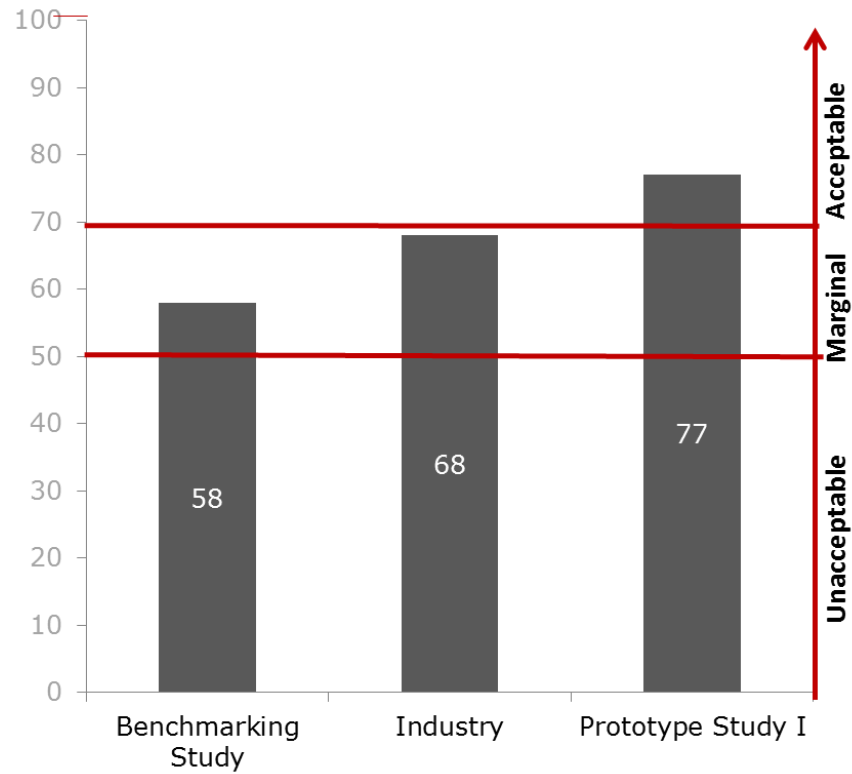


Figure 54 Prototype Study I: Comparing the Current, Past, and Industry Result

Figure 55 displays the distribution of SUS scores for the new prototypes along with acceptability rating scale. The majority of the participants rated the prototypes with an “Acceptable” score, while none rated them with a “Not Acceptable” score. This is also an improvement compared to the benchmarking study. In the benchmarking study, most participants rated infinIT in “Marginal” scale, and few of them rated the website as “Not Acceptable” or “Acceptable” (Figure 18).

## Distribution of SUS scores for the prototype along acceptability rating

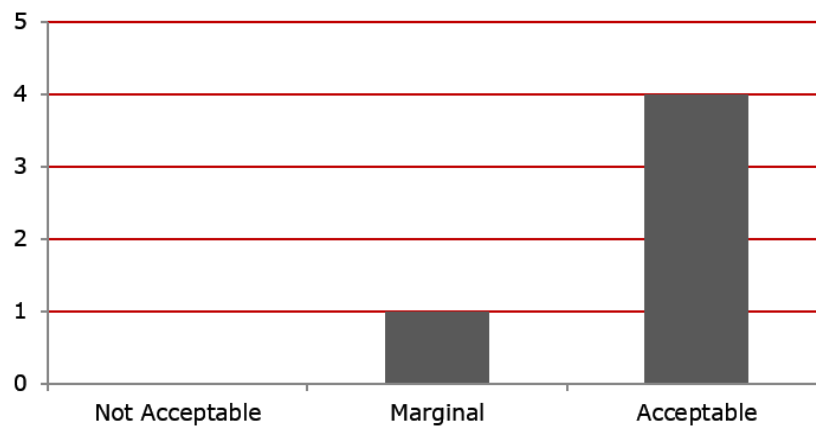


Figure 55 Prototype Study I: Distribution of SUS Scores for the Prototype along Acceptability Rating

Figure 56 shows the participants' SUS scores in relation to the industry average 68. Four out of the five participants rated the prototypes above the industry average. In the benchmarking study, most of the participants rated SUS scores below the industry average (Figure 17).

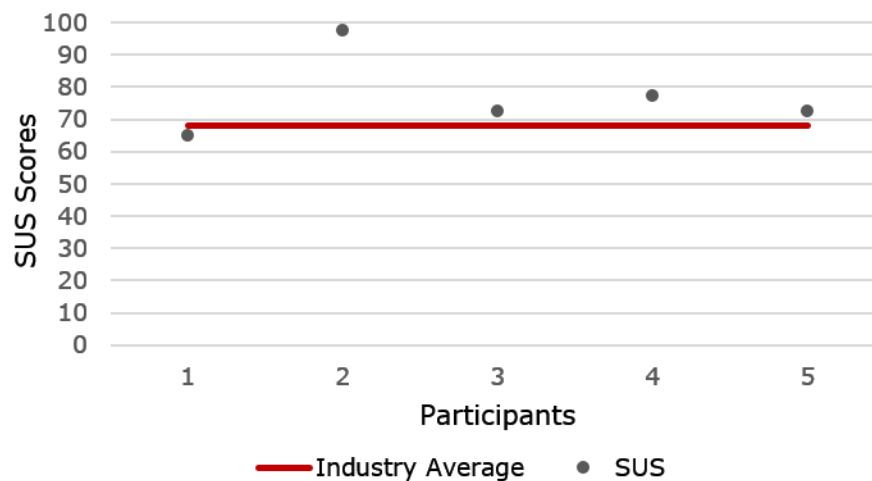


Figure 56 Prototype Study I: Distribution of infinIT SUS vs. Industry Average

Overall, although the sample size in this study was smaller than the first benchmarking study, there seemed to be a major improvement when comparing the SUS Scores of the two studies.

We also tested users expectations of the task difficulty compared to the actual task difficulty (Tullis & Albert, 2013). Prior to the study, we asked the participants to rate on a scale of 1 to 7 how difficult they thought it would be to order a laptop from a website, with 1 denoting very easy and 7 denoting very difficult. The ratings were then classified into three difficulty levels: “Very Easy” (1 to 3), “Fair” (3 to 5), and “Very Hard” (5 to 7). Figure 57 shows that with an average rating of 3.6, participants anticipated this task to be “Fair” in terms of difficulty. After completing the task with the prototypes, participants were asked to rate on the same scale how difficult the task actually was. The same graph shows an average rating of 1.8, indicating that participants found this task to be “Very Easy” using the prototypes.

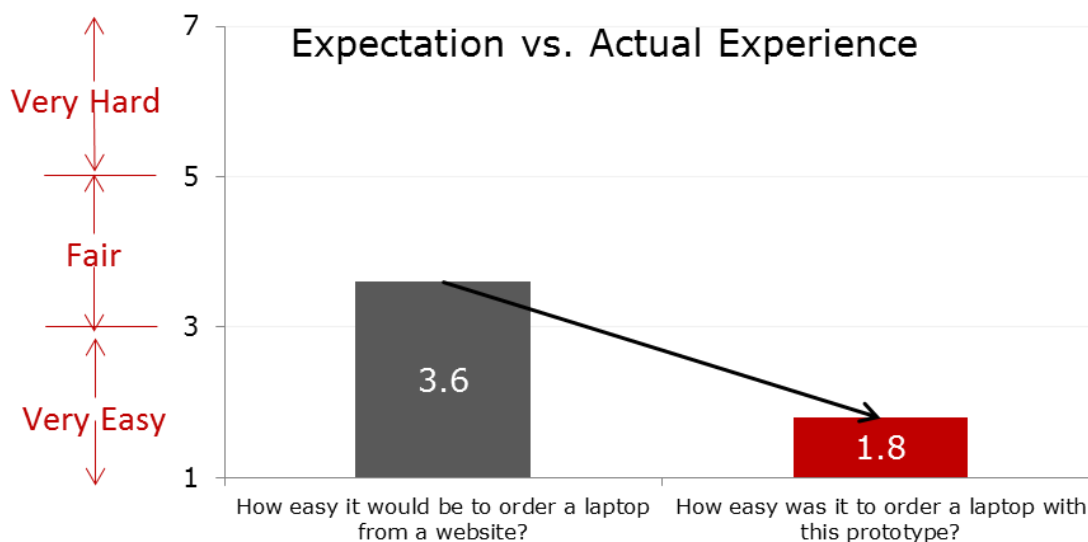
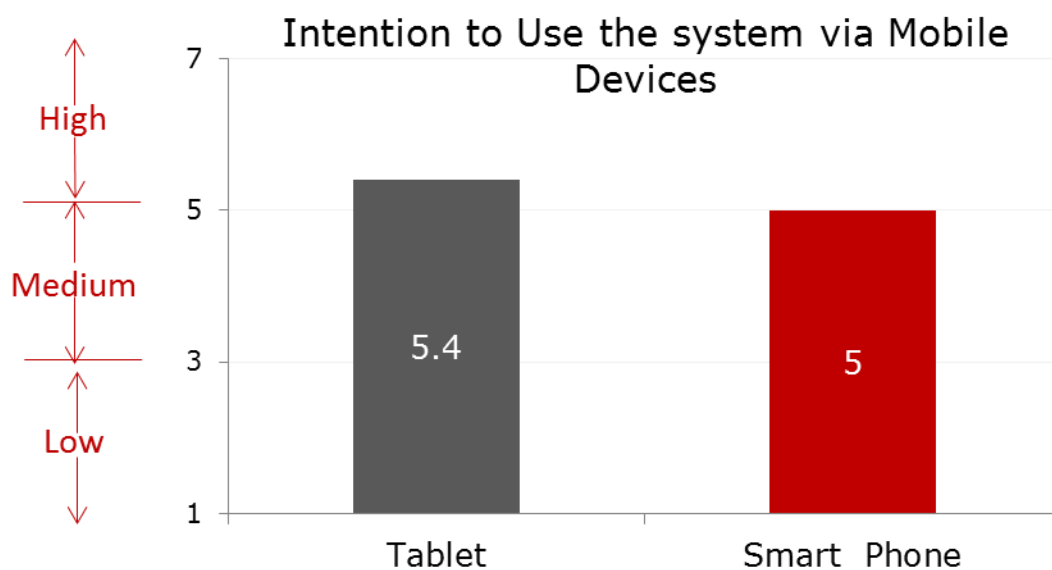


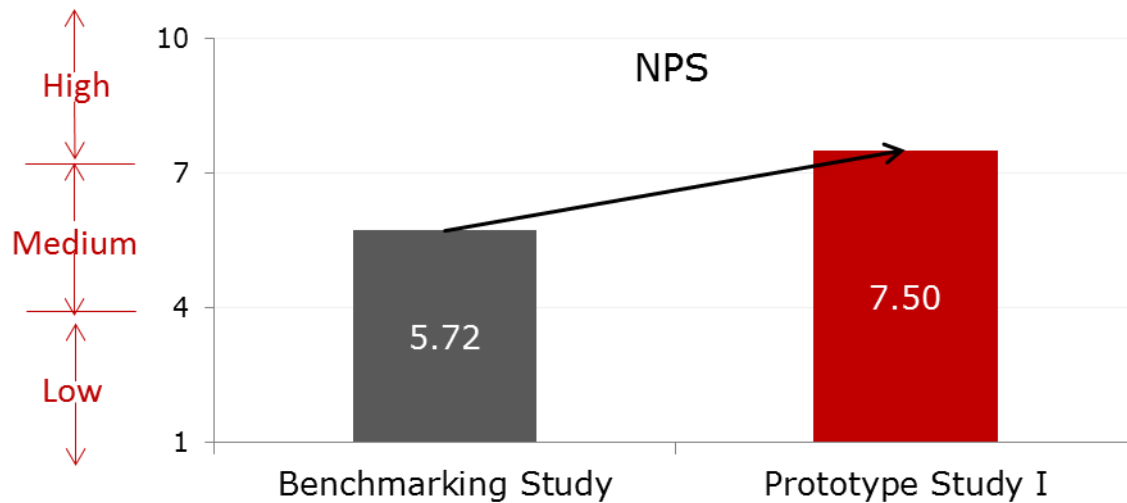
Figure 57 Prototype Study I: Expectation vs. Actual Experience

Participants were also asked to rate on a scale of 1 to 7 on how likely they were to use infinIT on a mobile device, with 1 denoting very unlikely and 7 denoting very likely. The ratings were categorized to be “Low” (1 to 3), “Medium” (3 to 5), and “High” (5 to 7). Figure 58 displays that on average, participants were more likely to access infinIT from a tablet than from a smart phone. Both the tablet and smartphone ratings indicated the users had high intention to use the system on portable devices.



*Figure 58 Prototype Study I: Intention to Use the System via Mobile Devices*

A Net Promoter Score (NPS) is an indicator of revenue growth and return on investment. Figure 59 displays that the prototype had a high NPS at 7.5. This is an increase from infinIT’s NPS during the benchmarking study at 5.72 (Figure 15.1).



*Figure 59 Prototype Study I: NPS Score*

Similar to the benchmarking test, the MQP team also examined NPS by calculating the percentage of promoters (people with NPS > 8) and detractors (people with NPS < 6) (Tullis & Albert, 2013). In Figure 60, the number of promoters increased from 0% to 80%, while detractors decreased from approximately 61% to only 20%. This indicates a significant improvement in potential for growth when compared to the benchmarking study's result.

## NPS (Benchmarking Study vs. Prototype Study I)

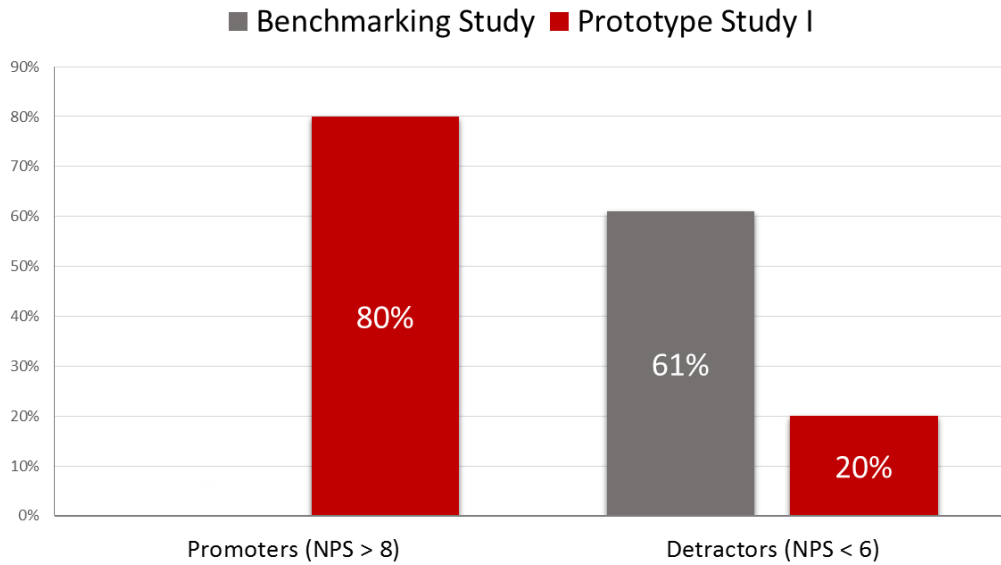


Figure 60 Prototype Study I: Net Promoter Score (Benchmarking Study vs. Prototype Study I)

The MQP team compared ratings for usability, trust, engagement, appearance, usefulness, ease of use, intention to use, visual appeal, and layout of the Benchmarking User Study and of Prototype Study I. The descriptions for the examined variables can be found in Table 7.

Variable	Description
<b>Usability</b>	Captures user's perception of the website usability.
<b>Visual Appeal</b>	Captures the users' aesthetic reactions toward the design of the website.
<b>Layout</b>	Captures users' reactions to the layout of the website.
<b>Appearance/Appeal</b>	Captures users' reactions in regard to the attractiveness of the website.



<b>Engagement</b>	Examines users' experiences as feelings of engagement with the website.
<b>Usefulness</b>	Measures how the users perceive the usefulness of the website.
<b>Ease of Use</b>	Assesses the users' opinion regarding the difficulty level of using the website.
<b>Trust</b>	Captures users' level of trust in a website.
<b>Intention to Use</b>	Captures the intentions of the users to revisit the website.

*Table 7 Prototype Study I: Variables Summary*

Figure 61 displays that the prototypes had higher ratings for each of these constructs than those infinIT received during the initial benchmarking study, with the exception of engagement, which can possibly be explained by the non-fully-functional nature of the prototypes. Additionally, the prototype's Intention to Use score remains at a medium level, possibly due to the same reason.

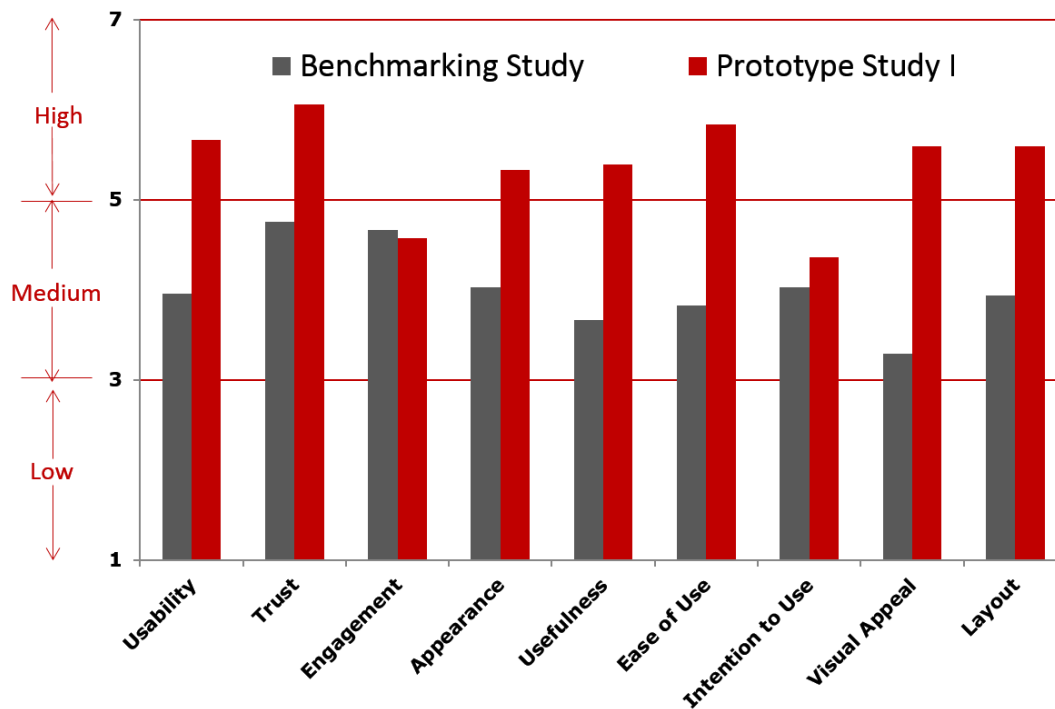
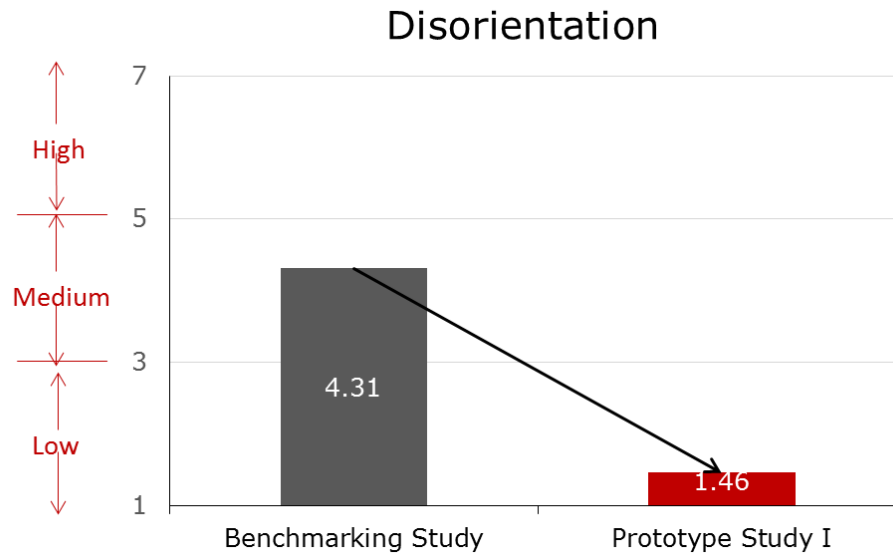


Figure 61 Prototype Study I: Ratings Comparison between Prototype Study I and Benchmarking User Study

Figure 62 displays the prototypes' average disorientation score in comparison with infinIT's disorientation score during the benchmarking study. Disorientation can be interpreted as losing one's sense of location. This construct focuses on the participants' perception of their orientation when browsing the website. The system's average disorientation score was initially at medium 4.31, while the prototypes' average disorientation score dropped to 1.46. This shows a significant improvement as users felt more confident of their sense of direction when using the new prototype compared with the old infinIT site.



*Figure 62 Prototype Study I: Disorientation Compared with Benchmarking Study*

#### Interview and Observation Result

The interview and observation analysis conducted by the MQP team indicates that users liked the prototypes' ease of navigation, visual appeal, clean user interface, homepage images, and search/save/support functionalities.

Users disliked the prototype's absence of order confirmation, disorganization of homepage pictures, two bundle menus, lack of engagement/product information/drop-down menus, and the "finish" confirmation button.

They also commented that they liked shopping and using WebEx on mobile phones, and were drawn to pictures first once they got to the website. One participant stated that he/she would prefer to use the support function, not the order function on mobile platforms. One said that he/she liked the reviews and technical specifics on the product page and suggested to have more

products available on the website. Although these comments might not be relevant to the scope of the study, they would be helpful to improving user experience in later iterations of the website.

Figure 63 shows the summary of the observations and user comments.

Users Liked	Functional, easy navigation, visually appealing and clean, easy to order, pictures on homepage, prototype search function, Q&A, "save order" and "support" functions
Users Disliked	No additional info on confirmation (shipping, delivery, approval), disorganized pictures, 2 bundle menus, not engaging (not enough feedback), lack product info, no dropdown for current system, "agree to SLA" & "info security policy" shouldn't be there, "finished" not a proper term
Other Comments	Liked shopping/using WebEx on mobile phones Gets challenging for non-physical assets Drawn to pictures first On mobile platforms: won't order but will use support functions Prototype search results didn't match with input Liked reviews & tech specifics The more product info the better

*Figure 63 Prototype Study I: Users' Comments Summary*

Participants suggested that the website should have easier technical support and easier customization. They preferred to have more pictures of the products, and some suggested to have an information panel on the order form. A more complete list of recommendations can be found in Figure 64 below.

## Wish List

"Similar models" function

Easy technical support (live chat/phone number/email)

Pre-populated fields (current system, preferred configuration)

Self-service/community support

Recommendations based on desired use/functions

Easy customization (on orders)

More pictures of the laptop

An info panel on the order form (to show config & price)

Important things in SLA listed

One-stop shop to get access to others (HR)

The system should recognize intangible products

"SLA" needs to be replaced with a common term

*Figure 64 Prototype Study I: Users' Wish List*

### Screen Recording Result

As previously discussed, there should be three ways to navigate on Prototype A and two on Prototype B. However, the results showed that no participant completed the task via the "Works" button. Feedback indicated that the name "Works" is confusing because it not clear that it refers to the navigation menu for the website.

All three participants who used Prototype B completed the task using the search field. Feedback indicated that this was because the "View All" and "Lenovo" links were not enabled in the

prototype. This indicated that the “View All” button is likely to be a popular way to view items for ordering.

Both participants who used Prototype A completed the task using the laptop picture on the homepage. Feedback indicated that participants were drawn to the laptop picture first. This is consistent with prior research that indicates images can provide a suitable entry point to the page (Djamasbi, Siegel, Skorinko, & Tullis, 2011). Figure 65 provides a summary of navigation methods, how many people used them, and why.

Navigation Method	Who Used It?	Why?
“Works”	No one	“I really didn’t see a button says ‘order’ on top.”
Search	All 3 participants for Version B (no laptop picture)	“So I was trying to click on ‘View All’ to find the product that way, but the ‘View All’ wasn’t working, and then I clicked on the Lenovo one, and that didn’t work either, so – then I went to the search functionality.”
Laptop picture on homepage	Both participants for Version A (laptop picture)	“I was drawn to the picture first.”

*Figure 65 Prototype Study I: Navigation Summary*

## Recommendations

As part of Prototype study I, the MQP team analyzed the survey results, navigation results, and participant interviews to determine opportunities for improvement. Although the majority of construct ratings during Prototype Study I improved from those of the initial benchmarking study, opportunities for improvement still existed. Based on the results obtained from interviews,

observations and screen recordings, the MQP team made the following recommendations to further enhance the overall user experience:

- Change “Works” to a more generic name;
- Include an order confirmation message and information on shipping;
- Include more drop-down menus and pre-populated fields;
- Make product recommendations based on users’ desired functions;
- Include additional product information;
- Include an information panel on the order form to include configuration and price;
- Enable easy technical support, such as live chat;
- Change “finish” confirmation to “submit” confirmation;
- For technical staff, enable easy customization on products; for HR staff, have a one-stop shop to give access to other employees.

These recommendations are aligned with the team’s initial research for best practices for website usability, and should improve desired outcomes such as overall experience and intention to use the website.

#### 5.2.2. Prototype Study II

The second prototype study focused on exploring the design of the navigation bar, which based on the benchmarking study was a priority for improving user experience of the website. This prototype study also provided the opportunity to examine the best way to incorporate the Inside EMC link into the new user portal. Inside EMC is the EMC social network for its employees. Incorporating a link to EMC’s social networking site on the navigation bar is important because it

affords an easy access to the community site, which in turn promotes the traffic flow between the two sites.

To test users' preferences, three different prototypes were developed. These prototypes had identical designs except for the layout of their navigation bars. On these prototypes, the placement of the Inside EMC link, the naming of menus, and the layout of the navigation bars were different.

As shown in Figure 66 and 67, on the first prototype "Inside EMC" was placed on the left of the navigation bar and "Store", which implicitly served as the name of the website and explicitly as the name of the drop-down menu. When users clicked on "Store", a drop-down menu would show up with "Shop" and "Support" displayed separately (Figure 67).



*Figure 66 Prototype Study II: Prototype 1*



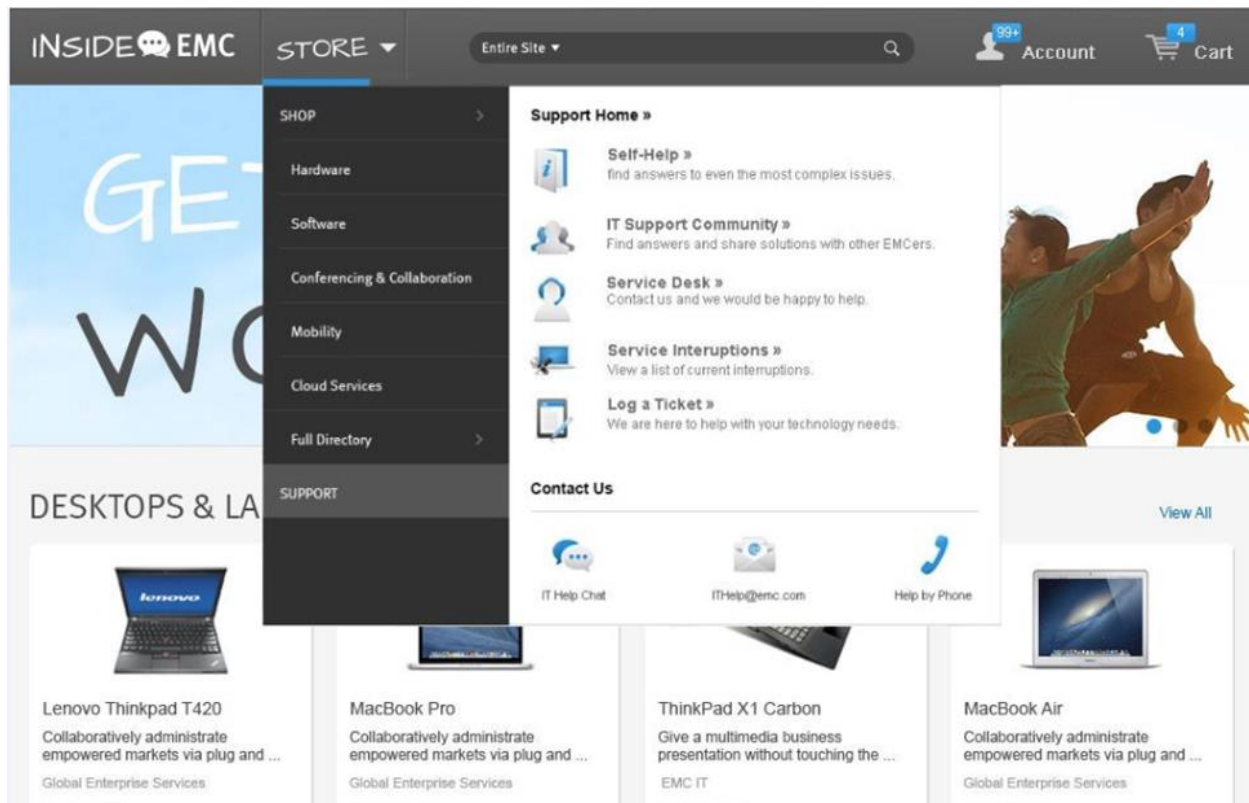


Figure 67 Prototype Study II: Prototype 1 Drop-Down Menu

Prototype 2 was slightly different (Figure 68). In this prototype, the link to the social networking site was coined as “Inside EMC Visit Community”. The “>” symbol was added to this link to highlight that this was a link and it was placed on the right. The font size of the link was made smaller than the font size of the “Store” to give the name of the website more prominence. Additionally, “Store” no longer played a double role, it served as the website name. The name of the drop-down menu was changed from “Store” to “Menu”. When users clicked on “Menu”, a similar drop-down menu to the one in Prototype 1 would appear (Figure 69).

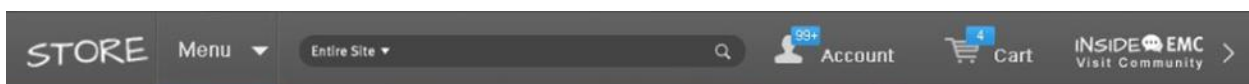


Figure 68 Prototype Study II: Prototype 2

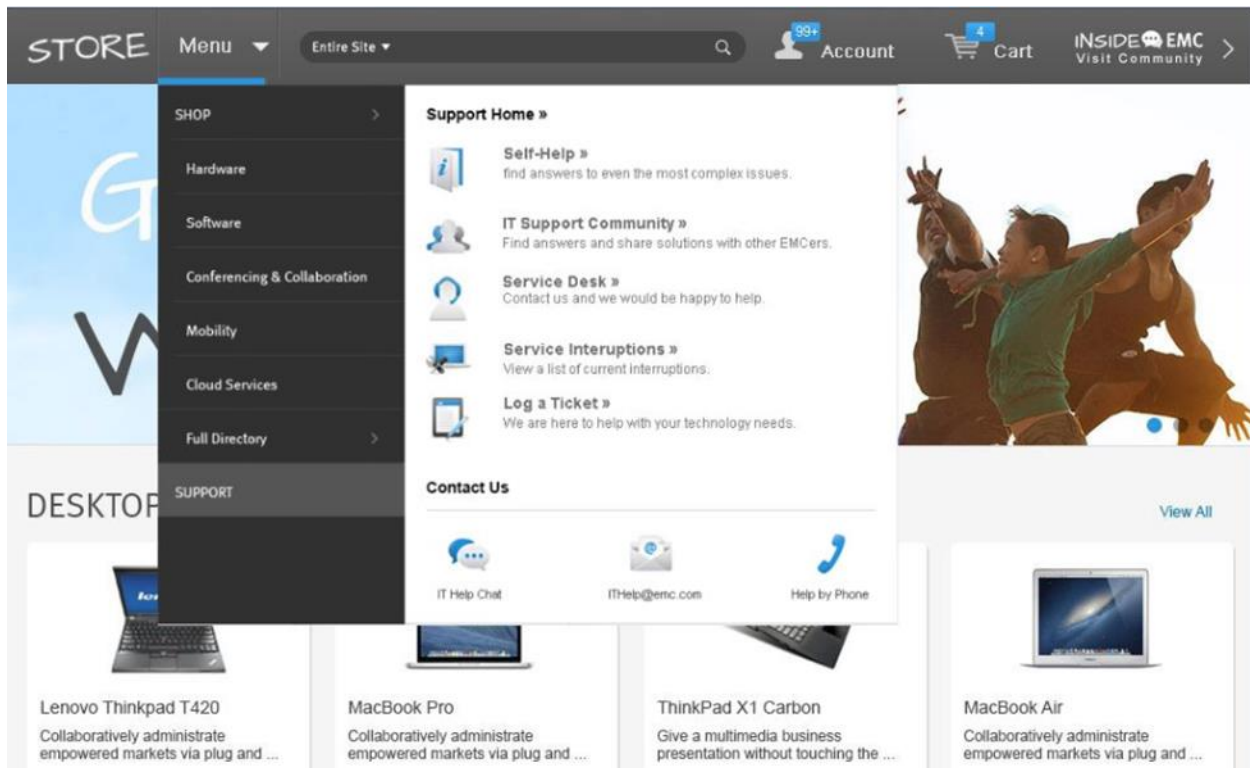


Figure 69 Prototype Study II: Prototype 2 Drop-Down Menu

In Prototype 3 (Figure 70) the name of the website “Store” was displayed on a blue background on the top right of the page above the gray navigations bar. “Inside EMC Visit Community” was placed on the same separate blue bar on top, but this link was placed on the right side. The drop-down menu was divided into two drop-downs with names “SHOP” and “SUPPORT” giving immediate access to these two main functionalities of the website. However, these two menus did not have the drop-down symbol “▼”. When users clicked on them, they would get two separate drop-downs (Figure 71).

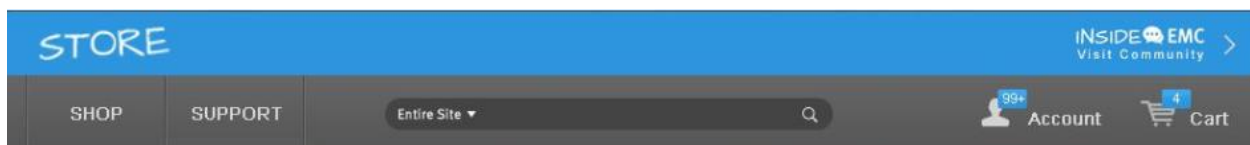


Figure 70 Prototype Study II: Prototype 3

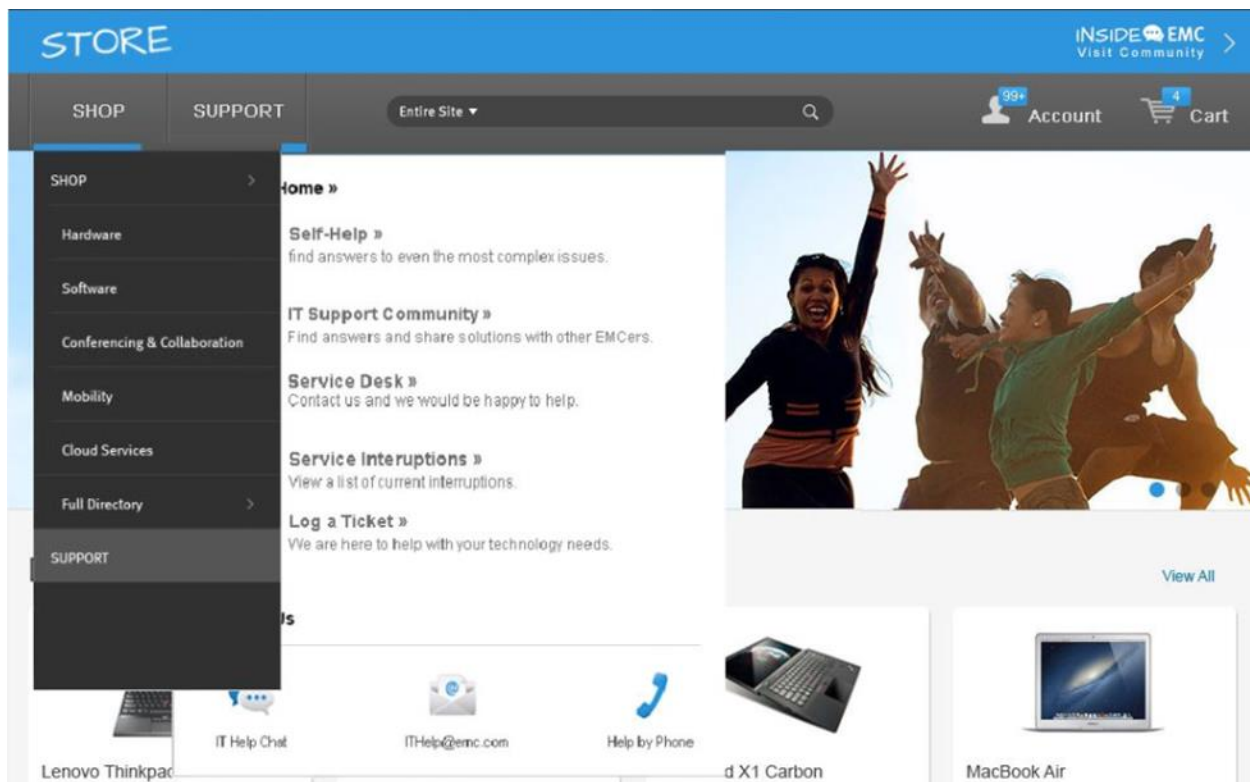


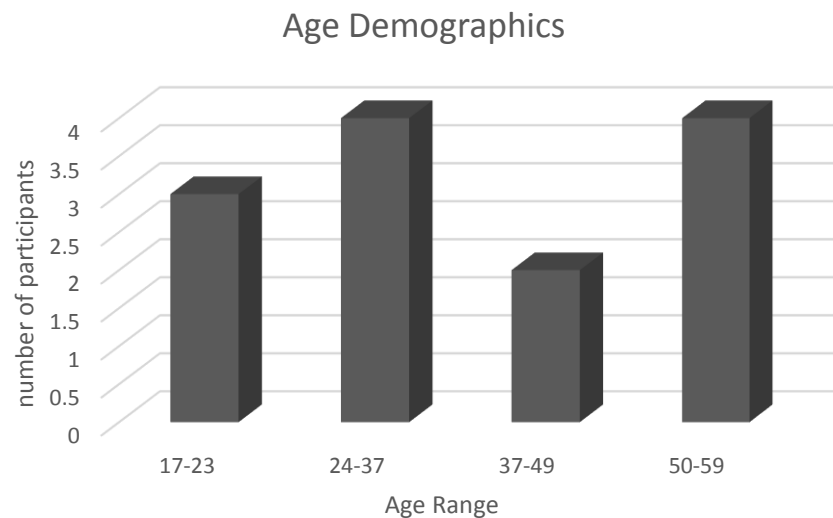
Figure 71 Prototype Study II: Prototype 3 Drop-Down Menu

The MQP team designed the testing protocol and conducted the experiment that focused on testing users' rankings, ratings, and their comments of the three prototypes. Then, the MQP team conducted analysis to compare the data for the three different designs, and made recommendations for a new design based on this analysis.

#### 5.2.2.1. Participants

There were in total 13 participants engaged in this testing, 11 females and 2 males. Participants were from a variety of departments and positions, including Business Consultant, IT Leadership Program, Senior Executive Assistant, Senior Administrative Assistant, Onboarding Case Manager, HR Generalist, and HR Solutions Specialist. In terms of age, three of the participants were in the age range from 17 to 23 years old, four in the range from 24 to 37, two in the range from 37 to

49, and four in the range from 50 to 59. Unlike the previous two studies in which one certain age group was dominant, the chart below indicates that in this study, each of the age groups involved a similar number of participants.



*Figure 72 Prototype Study II: Age Distribution for Prototype Study II*

#### *5.2.2.2. Tasks*

This test was designed to compare the visual layout and usability of the three navigation bar designs and to explore the best way to incorporate “Inside EMC” link to the newly-designed infinIT navigation bar. During the experiment, before completing any task, participants were asked to rank and rate the layout of the three prototypes. They were then asked to perform three tasks on all three prototypes. The order of the tasks and prototypes were counter balanced to minimize the possibility of order effect. After completing the tasks, participants were asked to rank and rate the prototypes again based on the interactions they just had with them.

Participants completed three tasks in this study. Task 1 was designed to test the website for its “shop” functionality. Participants were told to assume that they would like to purchase a product from this website, so how they would go about completing the task on each of the three prototypes. Task 2 was designed to see how participants would go about finding support on each prototype, thus this task was designed to test the website for “support” functionality. Task 3 was designed to test the best way to incorporate the “Inside EMC” link to the homepage. Thus, this task required participants to access EMC’s social networking site to see where on the page they would go to access the “EMC social network”.

#### *5.2.2.3. Devices*

The devices that the MQP team used in this study were the same as those used in Prototype Study I. Axure was chosen as the software to make the mock-ups. Camtasia was used to record the screen as the participants performed the tasks. Laptops and audio recorders were also used in this study.

#### *5.2.2.4. Procedure*

At the beginning of the test, participants were informed about the purpose of the study. Each participant was then presented with all three prototypes and was asked to rank and rate the three prototypes based on their layouts. After that, the task descriptions were read by the experimenter. Participants performed tasks using all three prototypes; both the tasks and the prototypes were in randomized orders. All of participants’ activities on the prototypes were recorded using Camtasia during the performance of the tasks.

After the tasks, the participants were asked to rank and rate the prototypes again – this time based on their experience with them in the tasks. Next, they were asked to give any comment and/or feedback they had. Like previous tests, participants' responses were also recorded during the interviews with their permissions.

During the process, the participants were encouraged to think out loud. One MQP team member took notes of the participants' comments, expressions and behaviors. Similar to the first prototype testing, their think-out-loud process and responses in the interviews provided a rich set of data for analysis.

#### *5.2.2.5. Measurements*

Unlike the first two user experience studies, the MQP team didn't use surveys measurement in this study because of a different focus in this study. Thus, data analysis relied heavily on both interviews and screen recording/observation notes.

#### *Interview*

Like the previous tests, interviews were conducted to obtain detail information regarding the participants' reactions to the prototypes. Before the task, interviews were used to gauge the participants' first impressions. Research indicates that first impressions can play a significant role in shaping users reactions to a website (Djamasbi, Siegel, Skorinko, & Tullis, 2011; Lindgaard, Fernandes, Dudek, & Brown, 2006) as well as to get them talk about what they liked and disliked about three prototypes. After ranking them, the participants rated the layout of each prototype on a Likert scale from 1 to 7 (with denoting the least and 7 denoting the most).

Following the completion of three tasks, the participants were again asked to rank and rate the prototypes based on how much they liked them. Participants were also asked to give comments regarding the headers and layout. Like the first prototype testing, users' recommendations for improvement were very helpful as they reflected the users experience with the prototypes and should be taken into account in future phases. The complete list of interview questions can be found in Appendix A (Page 128).

#### [Screen Recording/Observation](#)

Recorded videos along with data gathered in interviews, were helpful in determining what users liked and disliked, and also what they wanted to see in terms of both the layout and usability in each prototype. In order to enhance the conclusions obtained from these videos, observation notes on participants' comments and non-verbal expressions were collected by one MQP team member. The purpose of screen recording and observation was to help the team fully evaluate the participants' activities on the prototypes during their performance.

#### *5.2.2.6. Results and Recommendations*

##### [Results](#)

The analysis of the data, collected through various methods as described in the previous section, is summarized in this section.

##### [Ranking and Rating Results](#)

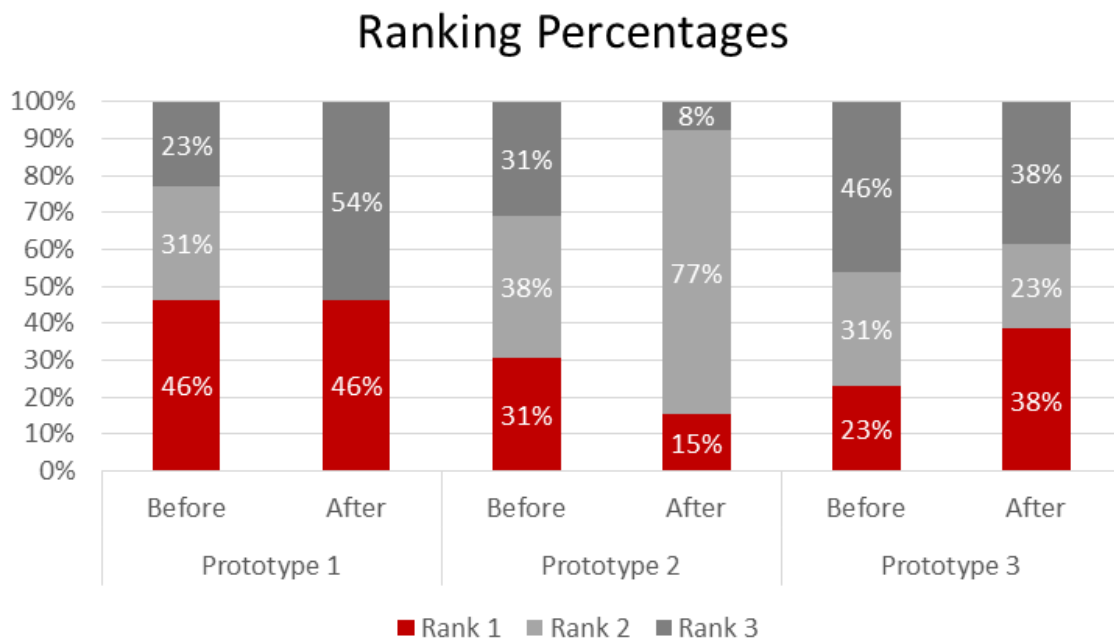
In order to assess first impressions, prior to the tasks, each participant was asked to rank the three prototypes in their orders of preference based on their first impression with the layout only. In order to assess usability, after completing the tasks, once again each user was asked to rank the three prototypes. The ranking percentages before and after the tasks are shown in

Figure 73. The results showed that more participants chose Prototype 1 as their most favorite for layout (46%). About 31% of the participants ranked Prototype 2 and 23% ranked Prototype 3 as their favorite.

The results also showed that after the tasks, Prototype 1 was still ranked as number 1 by 46% of the users. Prototype 3 gained considerable popularity after the tasks (increased from 23% to 31%), while Prototype 2 lost its appeal (decreased from 31% to 15%) (Figure 73).

After the tasks, 54% of the participants ranked Prototype 1 as their least favorite – 31% decrease in ranking compared to the result from before the tasks. Notably, no participant ranked Prototype 1 as their second favorite after the tasks. Many participants chose Prototype 2 as their second favorite both before and after the tasks; with a notable increase (from 38% to 77%) in ranking this prototype as the second choice after the tasks. Prototype 3 was chosen as the least favorite by 46% of the participants before the tasks. This percentage decreased to 38% after the tasks.





*Figure 73 Prototype Study II: Ranking Percentages Before and After the Tasks*

In addition to ranking, before and after completing tasks, participants were also asked to rate each prototype on a scale of 1 to 7, with 1 denoting the worst possible and 7 denoting the best possible score. These results are displayed in Figure 74 showing that before the tasks, Prototypes 1 and 2 were on average rated in the high range (ratings > 5), but Prototype 3 was on average rated in the high end of the mid-range (4.38). While the ratings indicate that none of the prototypes were poorly designed, they show that Prototype 3 was rated less favorably.

After the tasks, the average ratings for the prototypes were all in the high range (all were above 5). Prototype 2 had the highest average rating (5.23). Prototype 1 and 3 had the same average rating (5.07). The results show an increase in average ratings for Prototypes 3 but a decrease in average ratings for Prototype 1. The ratings for Prototype 2 stayed almost the same before and after the tasks.

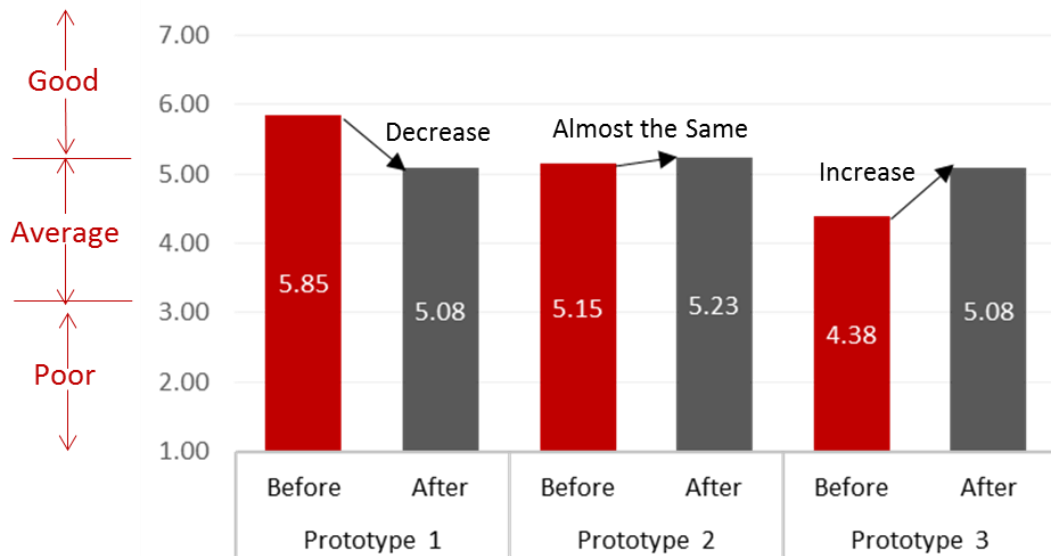
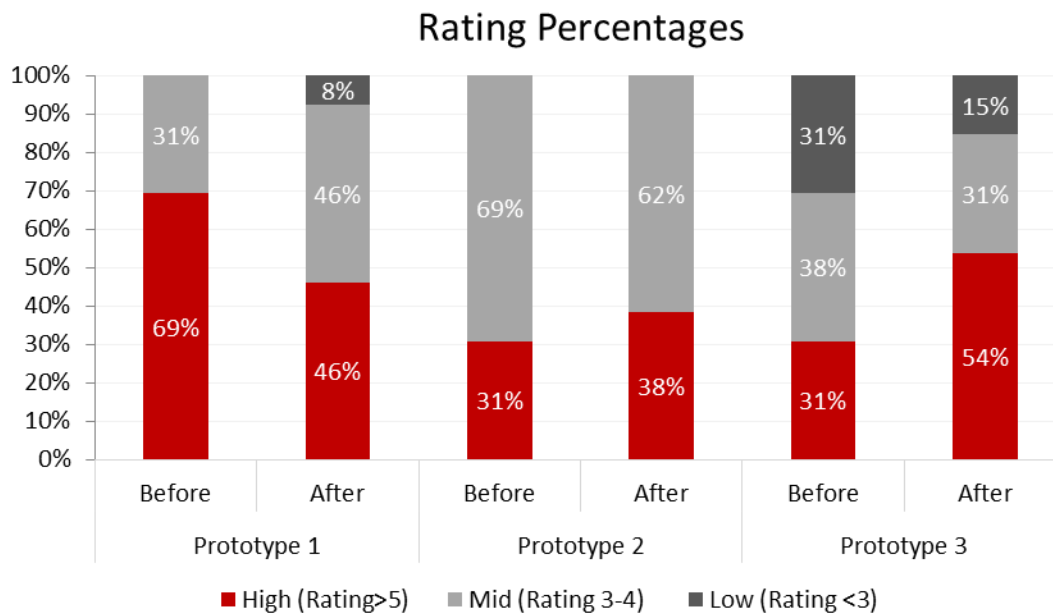


Figure 74 Prototype Study II: Average Ratings Before and After the Tasks

Next, the ratings of each participant for prototypes were grouped into Low (Ratings 1 and 2), Mid (Ratings 3 and 4), and High (Ratings 6 and 7). The percentages of these ratings before and after the tasks, are displayed in (Figure 75). As customary in industry research (Tullis & Albert, 2013), we compared scores for Low and High ranges. This comparison showed that there was 31% decrease in high ratings for Prototype 1 and 31% increase in high ratings for Prototype 3. While there was also an increase in high ratings for Prototype 2 after the tasks, this increase was relatively small (8%).

The results also showed a relatively small increase in low ratings after the task (8%) for Prototype 1. Low ratings after the tasks, however, were decreased by about 15% for Prototype 3. Interestingly enough, Prototype 2 did not have low ratings before or after the tasks.



*Figure 75 Prototype Study II: Ratings Percentages for Low, Mid, and High ranges Before and After the Tasks*

Finally, we developed a composite ranking-rating score by dividing the rating (ranging from 1 to 7) score by ranking score (ranging from 1 to 3) for each participant (Composite score = Rating/Ranking). This score was developed in a way so that higher scores could represent more favorable reactions. The results for these composite scores are displayed in Figure 76. As shown in the figure, there was a considerable increase in composite score after the tasks for Prototype 3 (from 2.69 to 3.62). The composite scores for Prototype 1, however, decreased after the tasks (from 4.15 to 3.74). The decrease in composite score for Prototype 2 was negligible (from 3.13 to 3.09). These composite scores suggest that while Prototype 3 was not the most popular option at the beginning, after the tasks, due to its usability, it was rated and ranked more favorably, better than Prototype 2 and very close to Prototype 1. Prototype 1, on the other hand, lost some of its appeal after the tasks.

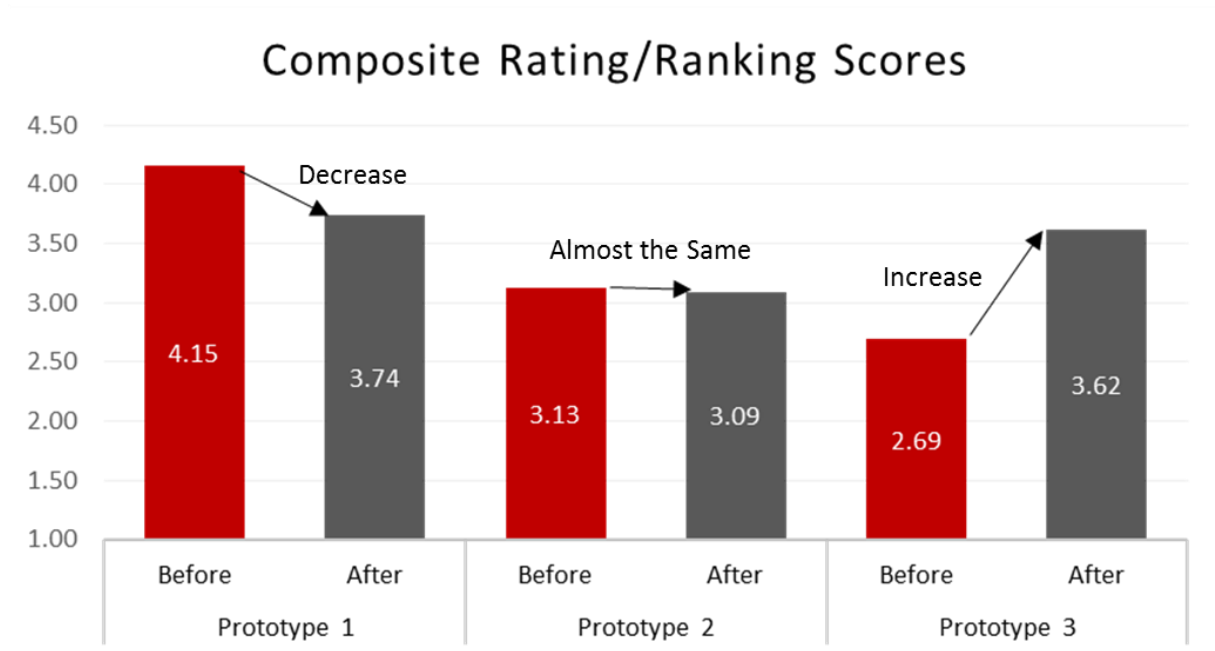


Figure 76 Prototype Study II: Composite Rating/Ranking Scores

#### Interview and Screen Recording/Observation Results

The results obtained from rankings and ratings provided information about the popularity of the prototypes. To better understand the reasons behind the ratings, we looked at the data obtained from interviews, screen recordings, and general observations.

First, we looked at the interview data. We asked users to give comments about the prototypes. Because of the open-ended nature of this question, responses varied. We also cross-referenced these comments with users' data from the think-out-loud part of the experiment.

We then grouped participants' comments into three broad categories (what users liked, what they disliked, and other important comments). A summary of this data is provided in Table 8, which also displays the frequency of similar comments in each group. For example, the data in the table shows that, two participants (16%) explicitly stated that they liked Prototype 1 for its

all-inclusive banner design. Two participants (16%) stated that they liked Prototype 2 for its crisp banner design, and five participants (38%) said they liked Prototype 3 for its good functionality.

Interestingly enough an equal number of participants explicitly stated the exact opposite preferences for the place of “Inside EMC” logo on the navigation bar. Two participants (16%) indicated that they would prefer to place it on the right side of the bar, while two participants (16%) argued that it should be on the left side where eyes are usually drawn to first. Under dislikes, 2 participants (16%) stated that the left side of the navigation bar should be kept for the website name and placing “Inside EMC” there confuses the user.

The preference for naming of the main menu was also interesting. In Prototype 1, the main menu was named “Store”, and “Support” was listed as a sub-menu under it. Four participants (31%) indicated that “Support” and “Store” were not highly-related names so they would not expect to find “Support” under “Store”. In Prototype 2, however, the menu was named just as “Menu”, and “Store” was designed to be a logo placed left to “Menu”. Two participants (16%) clicked on the “Store” logo while looking for the dropdown menu, and they commented that they would prefer “Store” to “Menu” as the name of the menu because it indicates shopping a main objective of the website.

A relatively popular design was the idea of having “Shop” and “Support” as separate menus on the banner instead of having only one main menu. Five users (38%) said that they liked the way “Shop” and “Support” were listed as separate menus in Prototype 3. Note that this design reduced the number of clicks because in this design “Shop” and “Support” were explicitly

displayed as top categories. Someone commented that “it stands out better, right in front of you”, indicating an obvious preference for such design.

In addition, the design of the banner on top of the page was frequently discussed. Aesthetically speaking, eight participants (62%) commented before the tasks that the two-bar design in Prototype 3 was too clunky and a waste of space. Moreover, one participant (8%) was at first unable to find the “Inside EMC” link on Prototype 3 because the blue bar was hidden after he/she scrolled down a little bit. This implied the potential inconvenience that the two-bar design could bring to the functionality of the website. However, note that the results of rating/ranking, discussed earlier in this paper, indicates that user rated much better ratings to this prototype after the completed the task.

The participants also made other comments and suggestions. Four of them (31%) said that in terms of the support function, they would like to see some visual hints such as a “?” or “contact us”. One participant (8%) suggested that arrows should be added to the “Shop” and “Support” buttons in Prototype 3 in order to make them stand out better as clickable items. Two participants (16%) mentioned that for Prototype 1, it was hard to tell one could access “Inside EMC” without “visit community” or arrow as a hint. It is also noteworthy that four participants (31%) commented that when trying to locate a certain product, they would prefer using search bar or “view all” at the center of the page to using the dropdown menu.

The below table is a summary of the user comments. Numbers in parenthesis indicate the number of people who stated the particular opinion:

Users Liked	Users Disliked	Other Comments
<ul style="list-style-type: none"> <li>• Prototype 1 (all-inclusive). (2)</li> <li>• Prototype 2 (Crisp). (2)</li> <li>• Prototype 3 (functional). (6)</li> <li>• Having Support as a separate button (5).</li> <li>• Inside EMC logo on the right (2).</li> <li>• Inside EMC logo on the left (3) → where eyes are drawn to first.</li> <li>• The condensed banner (big icons, centralized searches) (2).</li> <li>• Architect's Daughter font of 'Inside EMC' (2).</li> <li>• "Menu" instead of "Store" (2).</li> <li>• "Store" instead of "Menu" (2).</li> <li>• Two bars on Prototype 3. (5)</li> </ul>	<ul style="list-style-type: none"> <li>• Two bars on banner (3) → a waste of space, blue banner too wide.</li> <li>• The blue bar (5) → too clunky and not uniform.</li> <li>• Store and Support as separate buttons on Prototype 3 (1) → doesn't look like an obvious drop-down menu, expects to direct to a different page.</li> <li>• Inside EMC logo on the left (2) → confusing, appears to be a part of Inside EMC.</li> </ul>	<ul style="list-style-type: none"> <li>• Support and Store/Menu not highly correlated (4) → Support is not expected under Store/Menu.</li> <li>• Hard to tell one can access Inside EMC without "visit community" hint and arrow (2).</li> <li>• New hires may not know 'Inside EMC' (2).</li> <li>• The blue bar can be hidden if users scroll down a little bit (1).</li> <li>• Prefer search/view all to dropdown menu (4).</li> </ul>

Table 8 Prototype Study II: Comments Summary

The analysis of user comments suggested that in general participants liked the more compact design of prototypes 1 and 2. However, they liked having "SHOP" and "SUPPORT" drop down

menus on the third prototype. Participants also liked the “>” and “visit community” as hints for indicating that “Inside EMC” is a link to the social network.

#### Objective Performance Results

Task success rates are important indicators for assessing the usability of a website. The table below displays the task completion rate for each task using each prototype:

	Prototype 1	Prototype 2	Prototype 3
<b>Task 1 (shop)</b>	13/13 = 100%	13/13 = 100%	13/13 = 100%
<b>Task 2 (support)</b>	12/13 = 92%	12/13 = 92%	13/13 = 100%
<b>Task 3 (Inside EMC)</b>	11/13 = 85%	12/13 = 92%	12/13 = 92%

*Table 8 Prototype Study II: Task Completion Summary*

The data displayed in the Table 9, shows that all participants were able to complete Task 1 on all three prototypes. This indicates that the shop function was well-embedded into the navigation bar and it was easy to find.

Table 9 shows that one participant was unable to complete Task 2 (trying to find help from EMC store) on Prototype 1 and Prototype 2, where “Support” was displayed as a sub-menu under the main menu named “Store” in Prototype 1 and under “Menu” in Prototype 2. However, the same person managed to complete the same task on Prototype 3, where “Support” was listed as a separate button. In addition and as discussed in the previous section, five participants explicitly stated that they would prefer “Support” to be displayed separately.

The fourth row in Table 9 shows that two participants were unable to complete Task 3 (finding the link to EMC’s social network) on Prototype 1. However, one of them was able to complete



the task on Prototype 2 and 3. User comments and observation notes revealed that this participant was unable to locate “Inside EMC” on Prototype 1 because there was no navigation arrow (“>”) on the logo. The other participant was unable to complete this task on all three prototypes because she had never heard about Inside EMC before and thus did not know that the term “Inside EMC” referred to the social network of the company. The fact that “Inside EMC” may not be clear to new employees was also explicitly stated by one of the participants.

### Recommendations

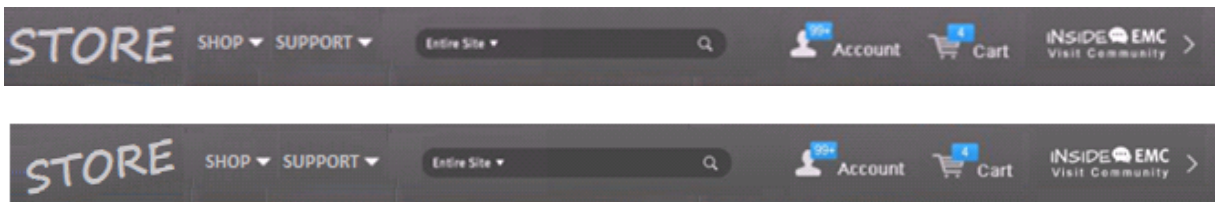
The results show that participants liked the clear layout of Prototype 1 and the easy functionality of Prototype 3. Hence combining the strengths of these two navigations bars is likely to yield a better design.

It was obvious that most participants liked “Support” to be listed as a separate button, and that most participants preferred having only one navigation bar (Table 8). Because placing a logo on the top right of a page has become a convention to help users orient themselves (this was also supported by the explicit comments from two users who stated that it would be confusing to place the “Inside EMC” link on the left), placing the “Inside EMC” link on the familiar top right location on the website may help improve the experience of the website.

Using visual hierarchy is yet another possible way to guide users’ viewing toward a more pleasant experience. For example, increasing the size and/or the orientation of the text can help users to notice that items placed next to each other are different (e.g., Store, Shop, and Support in the bottom design in Figure 77). Implicit and explicit visual hints can also guide viewing. For example

visual signs such as “>” and “▼” can help signal the that “Inside EMC” is a link and that “Shop” and “Support” are menus whereas “Store” is not (both design examples in Figure 77).

A visual representation of such a design is displayed in Figure 77. In this example, the name of the website “Store” is distinguished from the rest of the items by font and enlarged size. Alternatively as shown in the bottom example, orientation can be used to further distinguish the name of the website from other items (in this example, “Store” is slightly slanted to further emphasize its difference with the rest of the items on the navigation bar). “Shop” and “Support” are emphasized as dropdown menus via the symbol “▼” placed right next to them. Similarly the navigation arrow (“>”) is used for “Inside EMC Visit Community” to highlight that this is a link to a different site. As with any design idea, however, user tests are needed to examine whether such a navigation bar provides a better experience for the users.



*Figure 77 Prototype Study II: Possible Solutions*

## 6. Summary, Discussions and Future Steps

Websites are increasingly important communication media that are widely used today. User-centered design gives companies a competitive edge in their products. Traditional market research, where only rough opinions are collected limits the improvement of products and therefore the growth of the company. In order to enhance the product's user experience, it is crucial to understand how users use and feel about the product, and to ultimately integrate user feedback into the design. In this process, data provides solid evidence as to why and how certain improvements should be implemented. User testing offers a direct approach to understanding users' perception and preferences, as well as data needed to back up those statements. By conducting user testing, user experience researchers are able to provide product developers with valuable information and optimization suggestions.

User experience projects have intrinsic value in helping with positive human emotions. However, their value can also be shown through numbers in business contexts. This MQP, for example, assisted EMC in developing a more user-friendly portal for its own employees. Once the website is fully implemented, its benefits can be measured by the reduced number of employee phone calls to the IT support. Additionally, by comparing experience and behavioral data from the newly developed website to the results of benchmarking studies conducted as the first two studies in this MQP, it is possible to calculate metrics that can assess the business value of the improvements. For example, improved performance can be linked to the amount of time employees can save using the new system as well as how much IT support labor is saved. This data can then be used to estimate the return on investment for this project, which set out to

develop a powerful integrated service portal supporting EMC employees' IT needs in different departments and offices around the world.

It is necessary to note the limitations of this project. First, the time limit of the MQP determined the number of studies that we were able to conduct. Second, the organizational settings and conditions, such as the location of the study, the availability of employees and their time schedules to participate in our study, effectively shaped the scale of our project.

As the results of this project show, improving user experience should be an integral part of Software Development Life Cycle and ongoing effort in general agile development. EMC's commitment to user-centered design, as is evident from this project, will result in other user studies for this website, similar to the ones conducted by the MQP team. As the website design for infinIT becomes more complete, it will be beneficial to run iterative tests with larger sample sizes and more diversified participant groups to gain insights from a more diversified user profile.

In order to maintain its competitiveness, user studies should not be limited to a website's development life cycle (Djamasbi, 2014). Maintaining high quality web experience requires companies to routinely run user tests comparing their web experience to those of their competitors. Additionally, advances in technology typically raise users' expectation of a website (Djamasbi, 2014). Thus, after the infinIT website is launched, routine user tests as well as routine website SWOT analysis will be needed to maintain the competitive design of the website.

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## Appendix

### Appendix A: Interview Questions

1. What did you like and dislike about the website? Please explain.
2. What would you like to see on a website like this?
3. Do you have any other comments or recommendations for improvement?
4. Earlier we asked you if you would use this website on a mobile platform. What do you think you would use most with a mobile version of this website? Would you use it for browsing, ordering, or something else? Please explain.
5. Now that you have used the three prototypes, which one was your favorite? Which one was your least favorite? Why?
6. On a scale from 1 to 7, please rate each prototype (with 1 being the lowest score, and 7 being the highest).
7. Do you have any other comments about the prototypes' header/layout, etc.?

**Note:** Items 1, 2 and 3 were used in Benchmarking Study.

Items 1, 2, 3 and 4 were used in Prototype Study I.

Item 5, 6, 7 were used in Prototype Study II.

## Appendix B: Surveys

### Perceived Disorientation & Engagement & Future Intention to Use

Webster, J., & Ahuja, J. S. (2006). Enhancing the Design of Web Navigation Systems: the Influence of User Disorientation on Engagement and Performance. *MIS Quarterly*, 30(3), 661-678.

#### *Perceived Disorientation*

	Never 1	2	3	4	5	6	Always 7
1. I felt lost.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I felt like I was going around in circles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. It was difficult to find a page that I had previously viewed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Navigating between pages was a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I didn't know how to get to my desired location.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I felt disoriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. After browsing for a while, I had no idea where to go next.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Engagement

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. The system kept me totally absorbed in the browsing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The system held my attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The system excited my curiosity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The system arouse my imagination.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The system was fun.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The system was intrinsically interesting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The system was engaging.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Future Intention to Use*

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. Using the system for IT support needs would be a good idea.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I would intend to use the system for my IT support needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Using the system for IT support needs would be a foolish idea.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I would like the idea of using the system for my IT support needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Using the system for IT support needs would be unpleasant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I would intend to use the system for my IT support needs very frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## System Usability Scale (SUS)

Tullis, T. S., & Stetson, J. N. (2004). A Comparison of Questionnaires for Assessing Website Usability. *Usability Professional Association Conference*, (p. 12).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I think I would like to use the system frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I found the system to be unnecessarily complex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I thought the system was easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I think I would need Tech Support to be able to use the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I found that the various functions in the system were well integrated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I thought there was too much inconsistency in the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I would imagine that most people would learn to use the system very quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I found the system very cumbersome to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I felt very confident using the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I would need to learn a lot about the system before I could effectively use it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Technology Acceptance Model (TAM)

Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319-340.

### *Perceived Usefulness*

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. Using the system in my job would enable me to accomplish tasks more quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Using the system would improve my job performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Using the system would enhance my productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Using the system would enhance my effectiveness on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Using the system would make it easier to do my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I would find the system useful in my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Perceived Ease of Use*

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. Learning to operate the system would be easy for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I would find it easy to get the system to do what I want it to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My interaction with the system would be clear and understandable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I would find the system to be flexible to interact with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. It is easy for me to become skillful at using the system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I would find the system easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Usability & Trust & Appearance/Appeal & Growth

### Usability

Zhang, T., Agarwal, R., & Lucas, H. C. (2011). The Value of It-Enabled Retailer Learning: Personalized Product Recommendations and Customer Store Loyalty in Electrical Markets. *MIS Quarterly*, 35(4), 859-881.

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. The system was very user-friendly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The system was easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The system was well-organized.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Trust

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), 530-566.

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. I can trust this website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I trust the information presented on this website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I trust the transaction process on this website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



### Appearance/Appeal

Falk, T., Hammerschmidt, M., & Schepers, J. (2010). The Service Quality-Satisfaction Link Revisited: Exploring Asymmetries and Dynamics. *Journal of the Academy of Marketing Science*, 38(3), 288-302.

	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
1. The system was visually appealing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The system's appearance was professional.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The system had innovation features.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Growth

Tullis, T., & Albert, B. (2013). *Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics*. Elsevier Inc.

Net Promoter Score (NPS): On the scale from 1 to 10, how likely are you to recommend this website to a friend or colleague?

Not at all Likely 0	1	2	3	4	5	6	7	8	9	Extremely Likely 10
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix C: Additional Questions

1. On the scale from 1 to 7, how would you rate your overall experience with infinIT?

Poor							Excellent
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. On the scale from 1 to 7, how would you rate the infinIT/system's visual appeal?

Poor							Excellent
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. On the scale from 1 to 7, how would you rate the infinIT/system's layout?

Poor							Excellent
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. On the scale from 1 to 7 (with 1 denoting Very Easy and 7 denoting Very Difficult), how easy or difficult that you anticipate it to be to order a laptop from a website?

Very Easy							Very Difficult
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. On a scale of 1-7 (with 1 being very easy and 7 very difficult), how difficult do you think to order a new laptop using the system?

Very Easy							Very Difficult
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. On the scale from 1 to 7, how likely are you to use this system on a tablet?

Not at all Likely							Extremely Likely
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. On the scale from 1 to 7, how likely are you to use this system on a phone?

Not at all Likely							Extremely Likely
0	1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Note:** Items 1, 2, and 3 were used in the Benchmarking Study.

Items 2, 3, 4, 5, 6 and 7 were used in Prototype Study I.

#### Appendix D: Background Survey

1. What is your job title? What do you mostly do in this role?

2. Gender: Male or Female?

☐ Male ☐ Female

3. What is your age?

☐ 18 to 23 ☐ 24 to 37 ☐ 38 to 49 ☐ 50 to 59 ☐ 60 to 68 ☐ 68 or older

4. What websites would you go to for online shopping for electronic devices?

☐ Amazon

☐ EBay

☐ NewEgg

☐ Vendor's Website

☐ Other – Please Specify:

5. Have you ever used infinIT before?

☐ Yes    ☐ No

6. How often do you use infinIT?

☐ Never

☐ Yearly

☐ Monthly

☐ Weekly

☐ Daily

7. What functions do you want to use on mobile devices?

☐ Browsing

☐ Ordering

☐ Approval

☐ Getting Support

## Appendix E: Benchmarking Study – Task 1 Pages

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Welcome JOHN!

CART 0 REQUESTS & ORDERS 7 APPROVALS 0 INCIDENTS 0

EMC<sup>2</sup>

WELCOME TO THE NEW infinIT


IT Support »

The IT Support page is your starting point for Answers, FAQ's, Community, chat and much more...


News »

Internet Explorer Compatibility View issues with infinIT  
infinIT issue with Internet Explorer Compatibility View If the n...  
Published: 2014-07-14


Popular New




Headset



Lenovo Thinkpad



Desktop Video Conferencing



Monitor

>>

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Service Interruptions »

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updated 2014-08-29

How To: Install Desktop Video Conferencing  
updated 2014-08-29

Highest Rated »

How To: Reset Forgotten Network-Windows Password  
updated 2014-08-29

How To: Enroll iPhone or iPad (Have E-mail)  
updated 2014-08-29

How To: Order a Wireless Device (US)  
updated 2014-08-29

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Task 1 Homepage

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Welcome JOHN!

CART 0REQUESTS & ORDERS 13APPROVALS 0INCIDENTS 0

Shopping Cart

Are the contents of your cart correct? Please double check the items and remove and edit where appropriate

	Item	Delivery Time	Price (ea.)	Quantity	Total
Delete	▶ Lenovo Thinkpad - Lenovo Thinkpad	10 Days	\$1,250.00	1	\$1,250.00
Total:					\$1,250.00

If this request is for someone other than yourself please provide detailed information in the fields provided below.

Requested for:

Deliver to:

JOHN WYATT JR

Where should we send these item(s)? \*

EMC Office


EMC Remote/Home Office

32 Coslin Street,  
Southboro, MA, 01772  
Country: USA  
Business Phone: 15088986178

Special instructions

Submit Order

Task 1 Destination Page



PRODUCTS & SERVICES


SUPPORT


InfinIT > Product & Services > Desktop & Laptop

## Lenovo Thinkpad

★ ★ ★ ★ ★

Rate Me...





### Light and powerful PC laptop.

The Lenovo ThinkPad is the most popular PC at EMC, and with three different options, users have choices that suit their mobile needs with enough power to meet their everyday demands. Covered by 3 year Lenovo global onsite warranty.


From: \$1,099.00 USD

Commitment: 2 years

Estimated Delivery: 10 Business Days<sup>a</sup>

Order

#### IT Support



[All IT Support Options](#)  
 View all your support options.

Features

Models

Intended Use

#### Light & powerful

The Lenovo ThinkPad does not sacrifice power for size. It is small enough for comfortable use away from the desk and while traveling.

#### Compatible with all EMC applications

Arrives with Windows 7 and is compatible with all EMC applications, giving the user all the tools needed to work in or out of the office.

#### Pricing & Delivery Times

\*Prices are rounded and shown for the US unless a local pricing is available. Local pricing shown is averaged across countries that share the same currency. Estimated Delivery times shown are for the US and may vary based on your country.



### Light and powerful PC laptop.

The Lenovo ThinkPad is the most popular PC at EMC, and with three different options, users have choices that suit their mobile needs with enough power to meet their everyday demands. Covered by 3 year Lenovo global onsite warranty.

From: \$1,099.00 USD

Commitment: 2 years

Estimated Delivery: 10 Business Days\*




[Order](#)

### IT Support




[All IT Support Options](#)  
View all your support options.

### Features Models Intended Use

Model:	 ThinkPad W540 (15-inch)	 ThinkPad x240 (12-inch)	 ThinkPad T440s (14-inch)
Nickname:	Mobile Workstation	Ultra-Compact	Power Compute
Weight:	6lb (2.7kg)	2.9lb (1.3kg)	3.5lb (1.6kg)
CPU:	2.7GHz Intel Quad-Core i7	2.9GHz Intel Dual-Core i5	2.9GHz Intel Dual-Core i5
Memory:	16 GB	8 GB	8 GB
Storage:	240GB SSD SATA III	128 GB SSD	180GB SSD
Optical Drive:	DVD RW Recordable Drive	N/A	None






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CART

REQUESTS & ORDERS

APPROVALS

INCIDENTS


Search

←

Catalog Item - Lenovo Thinkpad

→

Lenovo Thinkpad



Model

-- None --

Bundle

Lenovo ThinkPad Only

Model Change

-- None --

Bundle Change

-- None --

Reason for Request

Replace Aging System

Start Date

Requisition Number

New Hire Name

Language

-- None --

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Task 1 Page 3

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infiniT

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Welcome Guest!

CART 0REQUESTS & ORDERS 0APPROVALS 0INCIDENTS 0

My Orders

View and manage your orders. Click the icon in the list to view the order details.

Can't find an order?  
All orders placed before March 1st and certain services are temporarily processed through the legacy site.

My Requested Items

My Requests

Requested Items for Others

Requests for Others

Requested Items

Number

Item

Price

Quantity

Estimated Delivery

Opened

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Task 1 Page 4

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CART

REQUESTS & ORDERS

APPROVALS

INCIDENTS

Shopping Cart

Add multiple items to your cart and check out all at once.

Shopping Cart

Are the contents of your cart correct? Please double check the items and remove and edit where appropriate

Item	Delivery Time	(ea.)	Quantity	Total
Total:				\$0.00

Cart is empty

If this request is for someone other than yourself please provide detailed information in the fields provided below.

Requested for:

Deliver to:

Where should we send these item(s)? \*

☒ EMC Office
 ☐ EMC Remote/Home Office

Special instructions

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SUPPORT

## Desktops & Laptops

The best of Lenovo and Apple. Find the latest equipment, accessories and software here

View

- ☐ Laptops(4)
- ☐ Accessories(13)
- ☐ Desktops(2)
- ☐ Software(1)

Sort By

Sub-Category

Price

Rating

Popular

Compare

☐

☐

☐

Up to 3

Unable to view Category for sys\_id:c7109fe5a07101002283d261d73ab096

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Task 1 Page 6

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Not Authorized

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Welcome JOHN!

CART 0

REQUESTS & ORDERS 7

APPROVALS 0

INCIDENTS 0

My Orders

View and manage your orders. Click the icon in the list to view the order details.

Can't find an order?

All orders placed before March 1st and certain services are temporarily processed through the legacy site.

My Requested Items

My Requests

Requested Items for Others

Requests for Others

Requested Items

Go to  Number

All > Request Requested for = JOHN WYATT JR

Number	Stage	Item	Price	Quantity	Estimated Delivery	Opened
RITM0065826		Password Reset	\$0.00	1	2013-09-10 10:23:08	2013-09-09 16:23:07
RITM0078804		OS - Install and Configuration	\$0.00	1	2013-10-05 07:54:12	2013-10-04 13:54:11
RITM0108806		Operation	\$0.00	1	2013-12-04 10:12:49	2013-12-03 16:12:48
RITM0282983		Lenovo Thinkpad	\$2,045.00	1	2014-09-10 09:41:43	2014-09-10 09:41:34
RITM0282984		Lenovo Thinkpad	\$2,045.00	1	2014-09-10 09:41:43	2014-09-10 09:41:36
RITM0282985		Virtual Server Modification/Decomission ...	\$0.00	1	2014-09-10 09:41:41	2014-09-10 09:41:38
RITM0284785		Lenovo Thinkpad	\$1,250.00	1	2014-09-24 09:19:28	2014-09-24 09:19:24
RITM0284788		Lenovo Thinkpad	\$1,250.00	1	2014-09-24 13:03:44	2014-09-24 13:03:34
RITM0284789		Lenovo Thinkpad	\$1,250.00	1	2014-09-24 14:16:22	2014-09-24 14:16:18
RITM0284790		Lenovo Thinkpad	\$1,250.00	1	2014-09-24 15:07:20	2014-09-24 15:07:17

Actions on selected rows...

1 to 10 of 10

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You searched for:

Q

Self Help Articles And Catalog Items (8)


Self Help Articles(1)

How To: Install Lync

-based laptop or desktop machine. Wait for the "Welcome to Lync" notification.... will be installed on your Mac laptop or desktop machine. Wait for the "Welcome to Lync&rdquo

Services > Communication > KB0912859


Published: 2014-08-12 Last modified: 2014-08-29 19:05:42



Laptop Battery

Choose from a range of standard and longer life batteries for all ThinkPad Models. ...


[inFinIT > Products and Services > Desktops & Laptops](#)



Virtual Desktop

Virtual Desktops are desktops in the Cloud. In other words, enterprise desktop computers are virtualized, moved to the data center, and then presented over the network to be used just like a standard desktop or laptop. There are many benefits to Virtual Desktops, including fast boot time, access to your personalized desktop and files from anywhere ...


[inFinIT > Products and Services > Desktops & Laptops](#)



Power Supply

Replacement powersupplies for Mac & PC laptops. International options available....


[inFinIT > Products and Services > Desktops & Laptops](#)



Mouse

Wireless and wired mice and trackpads compatible with Macs & PCs, with options to suit all budgets....


[inFinIT > Products and Services > Desktops & Laptops](#)



Keyboard

Choose from a range of both wired and wireless keyboards, with options to suit all budgets. International language options available....

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You searched for:

Self Help Articles And Catalog Items (25)

Self Help Articles(17)

FAQ: MAC 10.9 Mavericks In-place Upgrade

FAQ: MAC 10.9 Mavericks In-place Upgrade # Question Answer 1 What is 10.9 Mavericks In-place Upgrade? The name says it all. This process will upgrade EMC-owned Macs to OS X 10.9

Desktop/Laptop > MAC > KB0912637

Published: 2014-06-13 Last modified: 2014-08-29 19:06:58

How To: Perform Self Install of 10.9 Mavericks In-place Upgrade

How To: Perform Self Install of 10.9 Mavericks In-place Upgrade Once the OS Upgrade process is at the self-install stage, the following... are ready to upgrade. Your Mac will be down and unusable for about 1 to 2 hours. Please save your work

Desktop/Laptop > MAC > KB0912639

Published: 2014-06-13 Last modified: 2014-08-29 19:06:56

How To: Enroll in MAC 10.9 Mavericks In-Place Upgrade

How To: Enroll in MAC 10.9 Mavericks In-Place Upgrade ...; 2. Open "Self Service" and look for "OS Upgrade – Enrollment for Mac..."; 4. The policy will download and run the OS Upgrade Enrollment script. 5. The OS

Desktop/Laptop > MAC > KB0912638

Published: 2014-06-13 Last modified: 2014-08-29 19:07:01

How To: Order VMware EPP Licenses

85.33 Storage Upgrade: VMware vSphere Storage Appliance to VMware... VSS Upgrade: VMware vSphere 5 Enterprise to vSphere with Operations Management...; 28.22 VSS Upgrade: VMware vSphere 5 Enterprise

General > KB0911468

Published: 2014-08-06 Last modified: 2014-08-29 19:06:55

How To: Install or Upgrade EAS

How To: Install or Upgrade EAS ... for the first time or install a ThinApp upgrade for EAS. Directions Installing EAS.... Once installed, launch the application and log in. NOTE: If this is an upgrade

Applications > EAS > KB0912148

Published: 2014-04-02 Last modified: 2014-08-29 19:06:59

How To: Order a Non-Standard Desktop/Laptop or Non-Standard Upgrades

How To: Order a Non-Standard Desktop/Laptop or Non-Standard Upgrades Overview Any selection outside of or modifications to the standard choices presented in the service order catalog is considered non-standard equipment. Review and Approvals Typically these requests will require approval from your Senior Vice Pr...

Desktop/Laptop > PC > KB0911663

Published: 2014-08-11 Last modified: 2014-08-29 19:07:00

How To: Order Software

and can register, support, and upgrade such software accordingly. Such restrictions also ensures... proof of purchase for your existing license, you may not be eligible for the upgrade, and you

General > KB0911558

Published: 2014-08-20 Last modified: 2014-08-29 19:06:53

How To: Request a TelePresence or Video Conferencing System

How To: Request a TelePresence or Video Conferencing System To initiate a request for an Immersive TelePresence system or HD Video Conferencing system, download and complete the TelePresence / Video Conference System Request Form Send an email with the completed form to Real Time Collaborati...




## Appendix F: Benchmarking Study - Task 2 Pages

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CART **0** REQUESTS & ORDERS **7** APPROVALS **0** INCIDENTS **0**





Popular

New

  
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Lenovo Thinkpad

  
Desktop Video Conferencing

  
Monitor

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View a list of current interruptions

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updated 2014-08-29  
[How To: Install Desktop Video Conferencing](#)  
updated 2014-08-29

**Highest Rated »**  
[How To: Reset Forgotten Network-Windows Password](#)  
updated 2014-08-29  
[How To: Enroll iPhone or iPad \(Have E-mail\)](#)  
updated 2014-08-29  
[How To: Order a Wireless Device \(US\)](#)  
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- InsideEMC
- PropeI

Task 2 Homepage

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countdown
Advanced search
Inside EMC | Knowledge Home | Print | Feedback

Mobile > Android > How To: Enroll your Android Device (Have E-mail)
Article: 030914028 Published: 2014-08-29 Last modified: 2014-08-29

## How To: Enroll your Android Device (Have E-mail)


### Prerequisites

- Devices must be connected to a non-EMC wireless network or utilize 3G/4G data connection prior to beginning the enrollment process.
- Please identify and take note of your device's Android operating system version before continuing. To find your version, on your device, please go to "Settings" and select "About".
- Device must be plugged into a power source. Device battery must be at least 80% charged. Must have a 6 character device password with at least 1 number; (If you do not have a 6 character device password the process will give you an opportunity to change it.)



### Device enrollment

If you already have Touchdown on your device, please proceed to Step 3.

- On your Android device, Go to "Settings", then "Accounts".
- Look for and delete either "EMC account" or "Corp Sync".
- On your Android device, Tap -- "Settings" then select -- "Security".


1.jpg

- Check the box to allow "Unknown sources" (this will allow Touchdown to install without interaction) To save time you can install Touchdown on your own from the Google Play Store
- Proceed to the Google Play Store and search for the "Citrix Work Home" application.
- Download and install the free app.


5a.jpg

5b.jpg

- The "Access" to enroll the new authenticating capabilities and allow the app to be downloaded and installed.

## Task 2 Destination Page

Self-Help Article


## How To: Get Started with Mobile Device Enrollment

### Select Your Mobile Device


If you would like access to EMC email, internal WiFi or mobile applications, your device must be enrolled. To enroll, please select one of the options below.

If you currently receive EMC corporate e-mail on your device choose Have E-mail, otherwise choose Need E-mail.


For help with using the EMC AppStore choose Use the EMC AppStore.



Have E-mail  
Need E-mail



Have E-mail  
Need E-mail



Use the EMC AppStore

(If you are a BlackBerry user, you do not have to do anything as your device is already under management.)

### Regional Considerations

Please note that in some countries employees may not enroll (iOS & Android only):

Region	Personally Owned	EMC Owned
Argentina	Yes	Yes
Brazil	Yes	Yes
Chile	Yes	Yes
Other Americas	Yes	Yes
APJ	Yes	Yes
France	No	Yes

Service Interruptions »

View a list of current interruptions

My Incidents »

No Active Incidents

Create Incident

Most Helpful »

How To: Reset Forgotten Network-Windows Password  
updated 2014-08-29

Highest Rated »

How To: Reset Forgotten Network-Windows Password  
updated 2014-08-29

How To: Enroll iPhone or iPad (Have E-mail)  
updated 2014-08-29

How To: Order a Wireless Device (US)  
updated 2014-08-29

## Task 2 Page 1

## Phone and Email Contacts

We're here to help. A global Listing of phone numbers and emails are listed below.

### Overview:

This article contains all the Service Desk contact numbers for people calling from different parts of world speaking different language.

Language	Email and Phone	Hours of Operation
English	<a href="mailto:IThelp@emc.com">IThelp@emc.com</a>	Local Hours
US Campus	x58126	24 x7 x365
US Field	1 877 800 8126	copy on 24 x 7 x 365
International Direct	+1 508 898 5812	24 x 7 x 365
International	+353 21 493 8126	24 x 7 x 365
German	<a href="mailto:helpgerman@emc.com">helpgerman@emc.com</a>	Local Hours
Austria	+43 159952399	8:30AM–5:00PM M-F
Germany	+49 6951709027	8:30AM–5:00PM M-F
Italian	<a href="mailto:helpitalian@emc.com">helpitalian@emc.com</a>	Local Hours word docu
Italy	+39 0240908200	9:00AM–6:00PM M-F
French	<a href="mailto:helpfrench@emc.com">helpfrench@emc.com</a>	Local Hours
France	+01 39 96 96 96 (toll free 0805 54 03 68)	9:00AM–6:00PM M-F
Spanish	<a href="mailto:helpspanish@emc.com">helpspanish@emc.com</a>	Warsaw Poland Time
Spain	+34 914103535 900811848	8:30AM–11:00PM M-F
Puerto Rico	+1 877 783 0155 x3096	8:30AM–11:00PM M-F

### Service Interruptions »

[View a list of current interruptions](#)

### My Incidents »

No Active Incidents

[Create Incident](#)

### Most Helpful »


[How To: Reset Forgotten Network-Windows Password](#)  
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### Highest Rated »

[How To: Reset Forgotten Network-Windows Password](#)  
updated 2014-08-29

[How To: Enroll iPhone or iPad \(Have E-mail\)](#)  
updated 2014-08-29

[How To: Order a Wireless Device \(US\)](#)  
updated 2014-08-29




SUPPORT

## Mobility

Find the Tablets, Mobile Apps and other Mobility items here.

View

☐ Mobile Apps(2)

Sort By	Sub-Category	Price	Rating	Popular	Compare	Up to 3
<div>            Unable to view Category for sys_id:7e001e3725cfc5002283ff7d5ecba569         </div>						

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- Chat
- Email
- Phone
- Create an Incident or Request

### EMC QUICK LINKS


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- InsideEMC
- Proptel

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Task 2 Page 3



SUPPORT

## Self-Help Article

### How To: Order a Wireless Device (US)

#### Overview

All US wireless requests are handled through a self-service Web Portal.

#### Directions

Order through the [EMC Wireless Ordering Portal](#).

NOTE:

- This the only method to login to the Portal.
- You must be on the EMC network to use the Portal.

#### When to use the Portal

Use the Portal for the following:

- Transitioning wireless devices to the corporate plan
- Requesting new/upgrade devices
- Changing wireless carriers
- Obtaining updates for features for those who travel
- Technical support
- Warranty Device replacement
- Terminating Employee requests to assume liability back to personal use

#### Eligibility

- Mobile workers (employees who spend 25% or more time away from their primary workplace)
- Other workers according to job function or special assignment with manager and controller approval
- Contractors are not eligible to have an EMC issued device. If required, it must be established under the reporting manager's name.

#### Wireless policies

- Individuals must be eligible for upgrade (standard 2 year agreement) to request new device or change carriers
- There is a \$199 limit on devices
- Exception requests require controller approval

#### Support

**Wireless Help Desk:**  
For help with damaged devices please contact the Wireless Help Desk.

- Open 8am to 8pm ET, Monday to Friday
- Email: [emcsupport@tanger.com](mailto:emcsupport@tanger.com)
- Phone: (877) 892-4743

**IT Service Desk:**  
For 24x7 help with Exchange/Email on smart devices please contact the IT Service Desk.

#### Service Interruptions »

[View a list of current interruptions](#)

#### My Incidents »

No Active Incidents

[Create Incident](#)

#### Most Helpful »

[How To: Reset Forgotten Network-Windows Password](#)  
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[How To: Reset Forgotten Network-Windows Password](#)  
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[How To: Enroll iPhone or iPad \(Have E-mail\)](#)  
updated 2014-08-29

[How To: Onboard an Employee](#)  
updated 2014-08-29

Task 2 Page 4

## Self-Help Article

## How To: Enroll iPhone or iPad (Have E-mail)

## Overview

In order for an iPhone or iPad to access EMC email or mobile applications, it must be properly registered to the EMC Mobile Device Management (MDM) server. Once registered, the device will be provisioned with EMC specific profiles that will allow it access to EMC email services, wireless services in an EMC office, and the Enterprise App Store.

## Before You Start

To enroll your iPhone or iPad please ensure that you meet the following prerequisites:

## Devices

One of the following:

- iPhone running the latest version of iOS, connected to 3G service
- iPad running the latest version of iOS, connected to 3G service
- iPad WiFi only, running the latest version of iOS, connected to home or public WiFi service

## Access

- Active Sync access (your manager must request this in Account Request Tool [ART])
- Connection to a non-EMC wireless network or 3G/4G data connection before beginning the enrollment process

NOTE: As part of the enrollment process, you will need to acknowledge and accept the Terms & Conditions. These Terms & Conditions are laid out in the Acknowledgement Form that you must read carefully. After reading this, accept the Terms & Conditions, including your acknowledgement that you understand that EMC will have certain management rights over your entire device, including any personal or other non-EMC related data on your device.

## Instructions

## Remove Previous EMC Email Profiles and EMC Wireless Configurations

1. Remove previous EMC email account information:
  - a. On your iPhone or iPad, tap "Settings".
  - b. At the "SETTINGS" window, tap "Mail, Contacts, Calendars".

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[How To: Enroll iPhone or iPad \(Have E-mail\)](#)  
updated 2014-08-29

[How To: Order a Wireless Device \(US\)](#)  
updated 2014-08-29



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## Self-Help

Listed below are the Self Help articles under your selected topic. Can't find what you are looking for? Visit [Self-Help](#) to see all articles.

### Topic - Mobile

#### Android

- How To: Install a Soft Token on your Android
- How To: Change your Password in Touchdown for Android
- How to: Ensure the latest version SecurID Token installed on Android

#### iPad

- How To: Resolve Playbook Mag+ App Start Up Failure on iPad

#### iPhone

- How To: iPhone Battery Life - Best Practices
- How To: Configure Folder Synchronization on iPhone

#### Others

- How To: Update Password on A Mobile Device
- How To: Get a Mobile App Developed
- How To: Get Started with Mobile Device Enrollment
- How To: Order a Wireless Device (US)
- How To: Enroll iPhone or iPad (Have E-mail)
- How To: Resolve Issue with Enrolling in XenMobile
- FAQ: SecureMail Mobile Device
- How To: Configure Folder Synchronization for Windows Mobile Devices

#### Service Interruptions »

View a list of current interruptions

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[How To: Reset Forgotten Network-Windows Password](#)  
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[How To: Enroll iPhone or iPad \(Have E-mail\)](#)  
updated 2014-08-29

[How To: Order a Wireless Device \(US\)](#)  
updated 2014-08-29

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- ChannelEMC
- InsideEMC
- Propel

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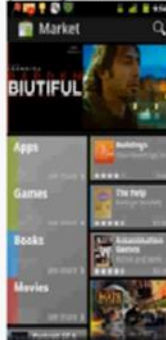
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## Self-Help Article

## How to: Ensure the latest version SecurID Token is installed on Android

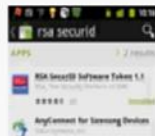
Open up the Android Market application by opening up your Application Drawer and selecting the "Market" Icon. You should see a screen similar to the one below (depending on the version of the Market you have installed)



Tap the "Search" icon at the top right-hand side of the screen



Search for "rsa securid". You should get the "RSA SecurID Software Token 1.1" listed, as shown below. Tap that application.



## Service Interruptions »

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How To: Reset Forgotten Network-Windows Password

Identity & Access > Password Management | Published 2014-08-19

★★★★★

How To: Register a Profile in EMC PasswordPortal

Identity & Access > Password Management | Published 2014-06-09

★★★★★

How To: Onboard an Employee

Identity & Access > Getting Access | Published 2014-07-02

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How To: Get Started with Mobile Device Enrollment

(iOS & Android only): For No, we will keep you posted, via email... iOS devices and Rooted Android devices are prohibited. These devices are not allowed to enroll until...; Select Your Mobile Device if you would like access to EMC email, internal WiFi or mobile

Mobile > KB0911609  
Published: 2014-07-09 Last modified: 2014-08-29 19:06:56

How To: Install Syncplicity on your Mobile Device

email, see KB0911743 - How To: Enroll iPhone or iPad (Need Email) . If you have an Android, see KB0911620 - How To: Enroll your Android Device (Have Email) or KB0911621 - How To: Enroll your Android Device (Need Email) . Directions Once your mobile device is managed, You

Applications > Syncplicity > KB0911780  
Published: 2014-05-13 Last modified: 2014-08-29 19:06:56

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## Task 2 Page 10


HOW TO: Enroll your Android Device (Need E-mail)

Prerequisites:

- Your manager will first need to request Active sync access for you to access EMC email from your mobile device. Ask your manager for the email address and password.
- Devices must be connected to a non-EMC wireless network or utilize 3G/4G data connection prior to beginning the enrollment process.
- Please identify and take note of your device's Android operating system version before continuing. To find your version go to Settings > About > Version.
- Device must be plugged into a power source. Device battery must be at least 80% charged. Must have a 6 character or longer alphanumeric password.

Device enrollment

- On your Android device, Tap -- "Settings" then select -- "Security".
- Check the box to allow "Unknown sources". (this will allow Touchdown to install without interaction) You may install applications from sources other than the Google Play Store.
- Proceed to the Google Play Market and search for the "Citrix Worx Home" application.
- Download and install the free app.
- Tap "Accept" to accept the new application permissions and allow the app to be downloaded and installed.
- Open the Worx Home app, enter the servername "Mydevice.emc.com" Hit next. When prompted on the next screen tap "Activate".




Step4a.jpg

step5.jpg

step6.jpg

## Task 2 Page 11

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Self Help Articles(37)

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### How To: Make Better Use of Outlook on Your Mobile Device

; Directions Mobile Devices - Folder Redirection/Synchronization Blackberry - Configure Folder

Email > Outlook > KB0911144  
Published: 2014-07-07 Last modified: 2014-08-29 19:06:54

---

### How To: Get Started with Mobile Device Enrollment

How To: Get Started with Mobile Device Enrollment    Select Your Mobile Device If you would like access to EMC email, internal WiFi or mobile applications, your device must be enrolled. To enroll, please select one of the options below

Mobile > KB0911609  
Published: 2014-07-09 Last modified: 2014-08-29 19:06:56

---

### How To: Update Password on A Mobile Device

How To: Update Password on A Mobile Device    Overview: If you receive EMC email on your mobile device (excluding Blackberry), follow... could result in your mobile device and Outlook to stop synchronizing for 1 to 4 hours (please

Mobile > KB0911608  
Published: 2014-07-07 Last modified: 2014-08-29 19:06:54

---

### How To: Order a Wireless Device (US)

Eligibility Mobile workers (employees who spend 25% or more time away from

Mobile > KB0911688  
Published: 2014-04-21 Last modified: 2014-08-29 19:06:56

---

### How To: Install Syncplicity on your Mobile Device

How To: Install Syncplicity on your Mobile Device    Overview This article describes how to install Syncplicity on your mobile device. Unmanaged... Syncplicity account. To review how to do so, see KB0911675 - FAQ: Mobile Apps . If you need

Applications > Syncplicity > KB0911780  
Published: 2014-05-13 Last modified: 2014-08-29 19:06:56

---

### How To: Get a Mobile App Developed

How To: Get a Mobile App Developed Overview: Getting a mobile app developed is an easy process. Here are the steps to go through as a requestor: Complete... you're never in the dark. If you wish to discuss a Mobile App Development proposal prior


Mobile > KB0911677  
Published: 2014-08-20 Last modified: 2014-08-29 19:06:55

---

### How To: Install Lync

; Instructions for Mac Users Instructions for Mobile Users... of your issue and request assistance. Optional Instructions - For Mobile Users... Installing on your mobile device, as there are configuration options not available through the mobile

Services > Communication > KB0912859  
Published: 2014-08-12 Last modified: 2014-08-29 19:05:42




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Mobile | Published 2014-07-09


[How To: Reset Forgotten Network-Windows Password](#)  
Identity & Access > Password Management | Published 2014-08-19

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[How To: Register a Profile in EMC PasswordPortal](#)  
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\* Windows users only. Mac users: please click IT Help on your desktop.



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## Self Help Articles (21)

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### How To: Use the Delegate Feature in Microsoft Lync

) How to set up a delegate in Lync, click the Options button (the gear icon... the appropriate calling option. Directions (Mac Client) How to set up a delegate in Lync... to set me up. Can I make myself a delegate for that person? A: Microsoft Lync requires

Services > Communication > KB0912724  
Published: 2014-07-07 Last modified: 2014-08-29 19:06:57

---

### How to: Use Voicemail (Former Documentum Sites)

will lead you through the rest of the set-up for your voicemail box and it will also provide you... to be notified of and at what intervals. Once you have set up your Outcall notification schedule... are calling (3) or to send a copy to a non-subscriber (4). If you have not set up your primary fax

Account Admin > KB0912601  
Published: 2014-07-01 Last modified: 2014-09-08 11:46:19

---

### How To: Use Meridian Voicemail (International)

, enter your mailbox number and password on the telephone keypad. (Your password is initially set up... listening to your messages. Make sure you change it after you set up your mailbox! To change your password... How To: Use Meridian Voicemail (International) Overview

Services > Communication > KB0911958  
Published: 2014-07-01 Last modified: 2014-08-29 19:04:54

---

### How To: Onboard a Non-Employee

Accounts/Access. For a complete list of all EMC applications and how to request them, see the ... thirdpartyaccess@emc.com . ~ 3 weeks to set up a RAMP project ~1 day to add users... How To: Onboard a Non-Employee Overview

Identity & Access > Getting Access > KB0911878  
Published: 2014-07-02 Last modified: 2014-08-29 19:07:01

---

### How To: Carry Out First Day Activities

How To: Carry Out First Day Activities New EMC Employee ... questions. For more information, please refer to How To: Register a Profile in EMC PasswordPortal . Set up your voice print in order to use your voice to authenticate when calling

Identity & Access > Account Portal > KB0911874  
Published: 2014-07-02 Last modified: 2014-08-29 19:06:56

---

### How To: Reset Password using IT Service Desk

to have the IT Service Desk change a password, you must at a minimum have challenge questions set up... of the challenge questions you set up on the PasswordPortal. If the system cannot match your voice... How To: Reset Password using IT Service Desk

Identity & Access > Password Management > KB0911553  
Published: 2014-06-19 Last modified: 2014-08-29 19:06:58

---

### FAQ: Register Your Profile in PasswordPortal


register your profile and set challenge questions and answers to be able to use the EMC PasswordPortal... resets. How can I set (or change) my challenge questions and answers? Follow these steps to set up or change your challenge questions and answers: Go to the PasswordPortal

Identity & Access > Password Management > KB0911974  
Published: 2014-07-30 Last modified: 2014-08-29 19:06:59

---

### FAQ: Password Managememt

to authenticate user on phone for password resets. How can I set (or change) my challenge questions and answers? Follow these steps to set up or change your challenge questions and answers... and answers required? You must register your profile and set challenge questions and answers



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Contents: ... I browse/search for products? How do I cancel or modify an order? How do I compare products

General > FAQs > KB0911025
Published: 2013-08-13 Last modified: 2014-08-29 19:06:58

(IT as a Service) program. For more information on InfinIT, EMC's IT as a Service catalog, see GA3105802 - InfinIT - IT Service Catalog (KB0910774) . Overview: ... InfinIT ( https://infinIT.corp.emc.com ). Order on behalf of user: If user is not proficient

General > KB0912988
Published: 2014-09-19 Last modified: 2014-09-19 15:41:51

How To: Understand and Order VMware Licenses

://unity.emc.com/infinIT/kb\_results.do?sysparm\_article=KB0911706 Order VMware Unlimited Software: https://unity.emc.com/infinIT/kb\_results.do?sysparm\_article=KB0911705 Order VMware EPP licenses: https://unity.emc.com/infinIT/kb\_results.do?sysparm\_article=KB0911468

General > KB0910764
Published: 2014-08-01 Last modified: 2014-08-29 19:07:01

How To: Maintain your Distribution List (Exchange 2010)

a Distribution List no longer required, go to the Create an Incident or Request form on infinIT... in the search box and click on the search icon. If it is a common name, you may want to type part or all of their first name to narrow the search results. Once the name is displayed, select

Email > Outlook > KB0912090
Published: 2014-06-11 Last modified: 2014-08-29 19:06:57

How To: Get a Mobile App Developed

the EMC infinIT request form and hit submit, just as you would any other infinIT request... Responsibilities Timeline Price You will receive a copy of the SoW through EMC infinIT... on the status of your order in EMC infinIT. EMC infinIT will also mail you at key points in the process so

Mobile > KB0911677
Published: 2014-08-20 Last modified: 2014-08-29 19:06:55

How To: Onboard a Non-Employee

a search. They will work with you and approved contracting Vendors to interview and select... etc.) in InfinIT. ~ 14 days 2 Manager Order Software

Identity & Access > Getting Access > KB0911878
Published: 2014-07-02 Last modified: 2014-08-29 19:07:01

How To: Maintain Your Distribution List (Exchange 2007)

the Global Address List. In the Global Address List, search for the Distribution List name. You can also search from your Distribution List by opening a new email message and clicking.... Click Modify Members. To add members: Click Add... Search

Email > Outlook > KB0911572
Published: 2014-06-17 Last modified: 2014-08-29 19:06:56

How To: Schedule a Multipoint Video Conferencing Meeting


Assistant". Click on "Add Attendees" Search for "VC-Multipoint Bridge." You can type "VC-Multipoint Bridge" in the search box or Go

Services > Communication > KB0911651
Published: 2014-06-26 Last modified: 2014-08-29 19:07:01

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How To: Reset Password using IT Service Desk

EMC email on an iOS, Android, or Windows Mobile Device Follow the below instructions so Outlook synchronization is not interrupted. Failure to follow these steps could result in your mobile device...). Reboot the mobile device. When the mobile device comes back up, take it out of airplane

Identity & Access > Password Management > KB0911553

Published: 2014-06-19 Last modified: 2014-08-29 19:06:58

How To: Carry Out First Day Activities

; Order Mobile Devices (iPhone, Blackberry, Windows Mobile, Cell Phone, Air Card, Mi-Fi, Paging devices, etc.) Order the device; follow the directions here . Have your manager activate the EMC email synchronization with the mobile device: iOS or Windows device: Request Active

Identity & Access > Account Portal > KB0911874

Published: 2014-07-02 Last modified: 2014-08-29 19:06:58

When to Use Voltage SecureMail vs. When to Use SMIME

SecureMail Works You must have SecureMail installed on your device (PC and Mobile are supported) in order to register your EMC mailbox (email) in the Voltage system. The network account... and private keys. You will receive a certificate with the private key on your PC/laptop/mobile

Email > Tips and Tricks > KB0912606

Published: 2014-06-06 Last modified: 2014-08-29 19:06:58

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Self Help Articles(25)

How To: Update Password on A Mobile Device

How To: Update Password on A Mobile Device

Overview: If you receive EMC email on your mobile device (excluding Blackberry), follow... could result in your mobile device and Outlook to stop synchronizing for 1 to 4 hours (please

Mobile > KB0911608

Published: 2014-07-07 Last modified: 2014-08-29 19:06:54

How To: Install Syncplicity on your Mobile Device

How To: Install Syncplicity on your Mobile Device

Overview This article describes how to install Syncplicity on your mobile device. Unmanaged... Android Device (Need Email) .

Applications > Syncplicity > KB0911780

Published: 2014-05-13 Last modified: 2014-08-29 19:06:56

How To: Get Started with Mobile Device Enrollment

How To: Get Started with Mobile Device Enrollment

Select Your Mobile Device If you would like access to EMC email, internal WiFi or mobile applications, your device must be enrolled. To enroll, please select one of the options below

Mobile > KB0911609

Published: 2014-07-09 Last modified: 2014-08-29 19:06:56

How To: Order a Wireless Device (US)

How To: Order a Wireless Device (US)

Overview All US wireless requests... Warranty Device replacement Terminating Employee requests to assume liability back to personal use Eligibility Mobile workers (employees who spend 25% or more time away from

Mobile > KB0911683

Published: 2014-04-21 Last modified: 2014-08-29 19:06:56

How To: Make Better Use of Outlook on Your Mobile Device

How To: Make Better Use of Outlook on Your Blackberry Device

Overview Making the most of Outlook's functionality saves time and money by increasing efficiency...; Directions Mobile Devices - Folder Redirection/Synchronization Blackberry - Configure Folder

Email > Outlook > KB0911144

Published: 2014-07-07 Last modified: 2014-08-29 19:06:54

How To: Update Network-Windows Password

Special instructions if you receive EMC email on an IOS, Android, or Windows Mobile Device

If you receive EMC email on your mobile device (excluding Blackberry), then follow the below instructions... mobile device / Outlook to stop synchronizing for 1 to 4 hours. Put your phone in airplane mode

Identity & Access > Password Management > KB0911586

Published: 2014-04-30 Last modified: 2014-08-29 19:06:56

How To: Install Lync

installing on your mobile device, as there are configuration options not available through the mobile... you Lync 2010, don't use it.)

The first time you launch Lync on your mobile device... computer(s) and device(s) after you are approved for migration from OCS to Lync. Important &mdash

Services > Communication > KB0912859

Published: 2014-05-12 Last modified: 2014-08-29 19:05:42


How To: Reset Password using IT Service Desk

EMC email on an IOS, Android, or Windows Mobile Device

Follow the below instructions so Outlook synchronization is not interrupted. Failure to follow these steps could result in your mobile device...). Reboot the mobile device. When the mobile device comes back up, take it out of airplane

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Catalog Item - Work Request

Request enhancements or new functionality within Unity/infinIT. Enhance existing processes or functionality, stand up new services, etc. This form will create a story in the Scrum module for review and intake into a release. For administrative changes, like text edits to infinIT product pages, please use the "Request Changes, Inquiries, etc. for Unity Tool". For changes to assignment groups, please use the "Unity Access Request" form.

Select the Project, Product or Service

Cost Center

More information

Initiative

More information

When do you need this by?

More information

Short Description

More information

Detailed Description

More information

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### How To: Enroll in MAC 10.9 Mavericks In-Place Upgrade

How To: Enroll in MAC 10.9 Mavericks In-Place Upgrade 1. Locate your "Self Service" application on your Mac. The default location is under your Applications folder. Note: If application is missing from Mac please refer to FAQ.

Desktop/Laptop > MAC > KB0912638

Published: 2014-06-13 Last modified: 2014-08-29 19:07:01

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### How To: Get Started with Mobile Device Enrollment

applications, your device must be enrolled. To enroll, please select one of the options below... Regional Considerations Please note that in some countries employees may not enroll... iOS devices and Rooted Android devices are prohibited. These devices are not allowed to enroll until

Mobile > KB0911609

Published: 2014-07-09 Last modified: 2014-08-29 19:06:56

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### PeopleLink - New Benefits Enrollment System

Announcement: PeopleLink - The New Benefits Enrollment System is Here! In early August 2013, we shared the great news with you about the new PeopleLink Benefits website. We're pleased to let you know that Phase 1 is complete and the new enrollment system is available! Since this is a new system you will ne...

General > KB0911160

Published: 2014-06-24 Last modified: 2014-08-29 19:06:59

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### How To: Instructions for VCE SecureMail Externally

Message\* The following message will appear and prompt you to enroll: Select your... to enroll. The email comes from "Do\_Not\_Reply@vce.com". You will see a link... within that time, you will have to enroll your email address again using the original encrypted email

Email > KB0911854

Published: 2014-07-07 Last modified: 2014-08-29 19:06:55

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### How To: Use RSA SecureMail Externally

; The following message will appear and prompt you to enroll: Select your... you that an email has been sent to the email address you used to enroll. The email comes from... that time, you will have to enroll your email address again using the original encrypted email you

Email > KB0911908

Published: 2014-07-14 Last modified: 2014-08-29 19:06:58

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### FAQ: MAC 10.9 Mavericks In-place Upgrade

FAQ: MAC 10.9 Mavericks In-place Upgrade # Question Answer 1 What is 10.9 Mavericks In-place Upgrade? The name says it all. This process will upgrade EMC-owned Macs to OS X 10.9 Mavericks via a series of background processes through our...

Desktop/Laptop > MAC > KB0912637

Published: 2014-06-13 Last modified: 2014-08-29 19:06:58

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### How To: Install Syncplicity on your Mobile Device

email, see KB0911743 - How To: Enroll iPhone or iPad (Need Email) . If you have an Android, see KB0911620 - How To: Enroll your Android Device (Have Email) or KB0911621 - How To: Enroll your

Applications > Syncplicity > KB0911780