

Amazon Book Discoverability Project

Final Report

Team Synergy <no buzzwords>



HCDE 303
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Attack Fortress Headquarters
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Prof. Charlotte P. Lee
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Dear Professor Lee,

This document contains the vision, schedule, specifications, and work breakdown structure for the “Amazon Book Discoverability Project”. Collectively, these documents contain all the necessary information about the details of the project. As you will see from the documents, certain aspects of the design and execution of this project will not (or at least, should not) be finalized until the user research portion of the project is complete. If you have any questions about this document, please feel free to contact us, Team Synergy.

Regards,

Team Synergy <no buzzwords>

Matt MacAdam

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Executive Summary

This report explores solutions for a new online and Kindle bookstore, based on the assumptions

that customers often have difficulty determining their next read, that customers do not think of Amazon as the go-to resource for discovering new content, and that brick-and-mortar bookstores provide better opportunities for discoverability. Research methods for verifying the assumptions include, but are not limited to, contextual inquiry, focus groups, and surveys for book readers. Although no research was conducted as part of this report, the report's time and resource estimates are based on research mostly agreeing with the initial assumptions. The report advocates a design that gives readers the ability to easily browse for new books and to interact with fellow book readers. Amazon needs effective ways to attract customers who currently discover most of their books in brick-and-mortar bookstores. The report provides recommendations on how Amazon's online bookstore can be more appealing to consumers using solid user research and emotional design to replicate the best parts of the brick and mortar bookstore experience. Recommendations include:

- Incorporating the best aspects of brick-and-mortar bookstores, (e.g. it should be engaging, tactile, and visual)
- Replicating the experience of "thumbing through" a book (i.e. content preview)
- Book recommendations from book experts and monitoring the quality of human and automated recommendations
- Reader profile to help book experts and algorithms make recommendations
- Personalized interface and recommendations, as well as friend-to-friend recommendations

There are a few constraints to this project:

- Initial deployment only to Amazon's US website and Kindle tablets
- Expenses in the report do not include the thorough research and design this project will require
- The users targeted for this project are those who read for pleasure or read frequently and often search for their next read

Introduction

Following are the project documents for the Amazon Book Discoverability Project developed by Team Synergy. The team consists of Matt MacAdam, Rose Beede, Terrence Duenas, Jared

Boisseranc, and Soomin Chang. This project's goal is to improve online book discoverability such that it provides the same satisfying experience as in brick and mortar bookstores. Additionally, by establishing Amazon as the go-to resource for discovering new books, sales of books and Kindle tablets will increase. This report includes: A Work Breakdown Structure (WBS) listing the tasks that need to be accomplished to achieve the project goals, a schedule outlining the time delegated for each WBS task, a Vision Document including our vision statement and project requirements, and a Specifications Document containing features and technical needs. These documents will keep the project moving forward, maintain team structure, and maximize efficiency.

Milestones

Milestone 1 - Work Breakdown Structure (WBS)

Initiation

1. Evaluate problem and potential solutions
 - a. Research how customers find new books to read
 - i. Determine what kind of research is needed
 1. Contextual, interview, focus group, and survey
 - ii. Determine research questions and locations
 1. Determine the research questions
 - a. Do customers have difficulty finding their next read?
 - b. What methods provide the best opportunities for discoverability?
 2. Select research sites
 - iii. Write research proposal
 1. Prepare necessary documents
 - a. Research consent form
 - iv. Get research approval
 1. Approval from instructor
 2. Approval from research locations
 3. Approval from participants
 - v. Prepare for research.
 1. Prepare and pilot surveys
 2. Prepare incentives.
 - a. Determine what they will be for the different research types
 - b. Request funds
 - c. Determine how to distribute
 - vi. Conduct research.
 1. Prepare and distribute surveys
 2. Conduct contextual inquiry
 3. Conduct focus groups
 - vii. Write final report
 - b. Generate high-level ideas of what we could do to position Amazon as a prime resource for customers to find their next read, provided our assumptions work out the way we think they will
2. Develop Project Charter
 - a. Identify stakeholders
 - b. Determine or assign authority for requirements, design, project management, engineering, and budget
 - c. Document objectives and constraints of the project
 - d. Determine scope of project
 - i. State the problem this project addresses
 - ii. State how this project will solve that problem
 - e. Risk management

- i. Competition analysis
 - ii. Opportunity cost
 - iii. Budget and staff
 - f. Reasons for this project
 - g. Potential benefits of project
- 3. Submit project charter
- 4. Project charter reviewed
- 5. Project charter approved by stakeholders

Planning

1. Review research findings
 - a. Compare to initial assumptions
 - i. Meet with project team. How much does the research affect our initial plans from Initiant 1.b?
 - ii. Modify project charter in light of research
2. Submit modified project charter
 - a. Project may fundamentally change based on research
3. Modified charter approved (worst case: project cancelled)
4. Draft vision/scope document
 - a. Initial draft by project manager or designee
 - b. Initial review by project management team
5. Determine project roles
 - a. Project management team
 - b. Authority for Design/Requirements/Etc
 - c. Other roles (e.g. Engineers, Designers, etc)
6. Write Project Plan
 - a. Schedule
 - b. Deliverable: Vision/Scope document
 - c. Draft Requirements
 - i. Internal requirements
 - ii. Technical requirements
 - iii. Customer requirements
 - iv. Marketing requirements
7. Submit project plan for approval
8. Milestone: project plan approved

Execution

1. Meet to ensure all team members are aware of their planned roles
2. Requirements Verification
 - a. Review Requirements
 - b. Clarify any remaining issues

- c. Explain to engineers and get feedback
- 3. Deliverable: Requirements (marketing, internal, technical, and customer)
- 4. Design system
 - a. Meet with platform teams involved.
 - i. Review final research report
 - ii. Brainstorm designs
 - iii. Narrow designs to three options
 - 1. Develop prototypes
 - 2. User testing
 - 3. Review by a few engineers
 - iv. Narrow to two designs
 - 1. Additional testing
 - 2. Deeper prototypes
 - b. Share designs with platform teams for input
 - c. Select final design
 - i. Develop feature specification
 - ii. Develop technical specification
 - d. Deliverable: Specifications
- 5. Create System
 - a. Allocate resources
 - i. People
 - ii. Funding
 - iii. Equipment
 - b. Meet with all engineering teams to review specifications and roles
 - i. Revise design and specifications during meetings
 - c. Construction
 - i. By platform
 - ii. Ensure platforms work together
 - d. Testing/Revising
 - i. User testing
 - ii. Development tests
 - iii. Internal testing
 - e. Documentation
 - f. Get approval for new system
 - g. New system is approved
 - h. Deploy new system in development environment
 - i. Debug and stress test
 - i. Deploy new system in production environment

Team Management (ongoing)

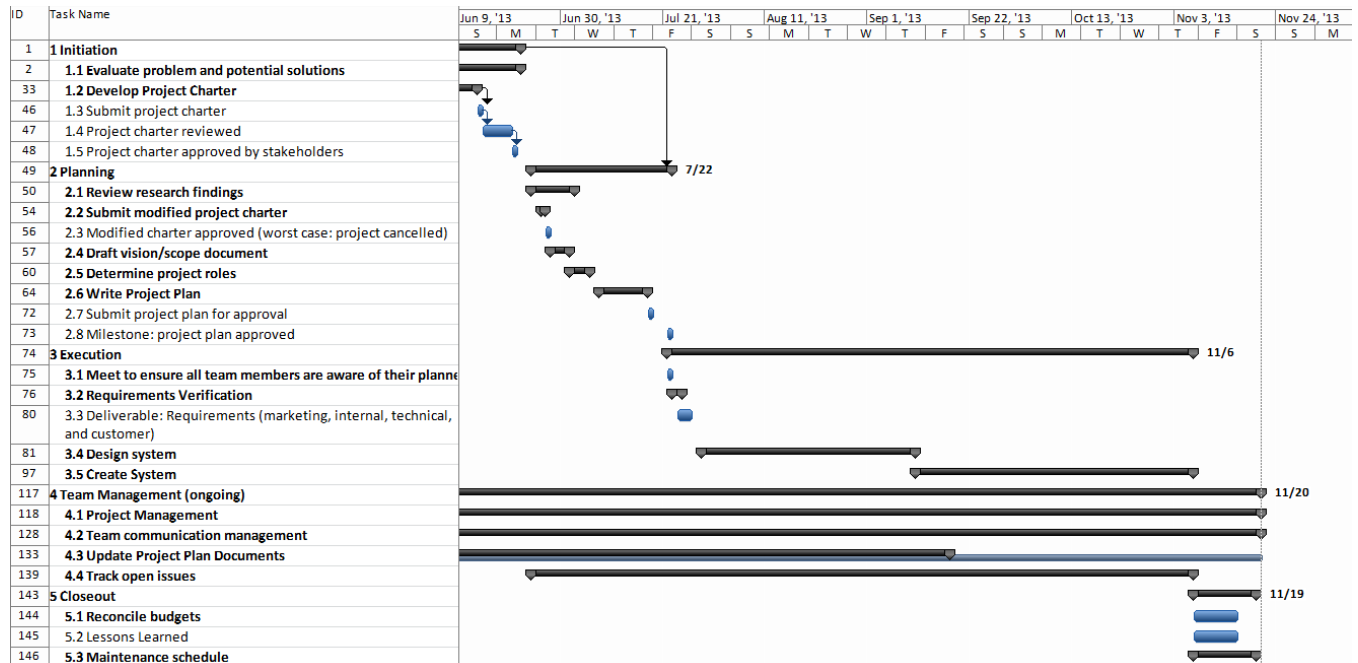
- 1. Project Management
 - a. Research

- i. Obtain research approvals and funding from management
 - ii. Secure resources for research
 - b. Draft vision/scope statement
 - c. Obtain requirements from stakeholders
 - d. Bring requirements clarifications from team to stakeholders
 - e. Maintain contact with stakeholders
 - f. Budget tracking
 - g. Track dependencies within the project and within the company
- 2. Team communication management
 - a. Progress checks on teams
 - i. Be involved with individual team members
 - ii. Facilitate communications between teams
 - iii. Meetings when necessary
- 3. Update Project Plan Documents
 - a. Work Breakdown Structure
 - b. Schedule
 - c. Vision Statement
 - d. Requirements
 - e. Specifications
- 4. Track open issues
 - a. Planning
 - b. Design
 - c. Construction

Closeout:

- 1. Reconcile budgets
- 2. Lessons Learned
- 3. Maintenance schedule
 - a. Updates
 - b. Responsibility for undiscovered bugs

Milestone 2 - Schedule



- For a more detailed schedule, see Appendix C

Milestone 3 - Vision Document

Introduction

Document Purpose and Scope

This document ensures that all team members are united under common goals. It is a guide to the following:

- Determining needs and requirements to solve the problem
- Identifying stakeholders and users
- Performing user research identifying whether or not book discoverability is easier in physical bookstores
- Gathering user input on how to incorporate Amazon technology into the book discoverability market
- Constraints on solutions
- Developing solutions
- Reviewing, selecting, and finalizing proposed solutions

Barring market changes or revelations from user research, the scope of this document will be limited to Amazon and the team assigned to research and develop a new book discovery solution.

Vision

This project immerses customers in Amazon's book discovery experience. We will provide customers with the emotional experience and discovery opportunities that mimic a physical bookstore. Ease of discovery and positive experience will take precedence over complex features and customizability.

Overview

This document is a comprehensive overview of the Amazon Book Discoverability project, broken up into the following sections:

1. *Business Needs*
 - a. Competition
 - b. Opportunity
 - c. New Solutions Needed
2. *Solutions Overview*
 - a. Project Timeline
3. *Objective*
4. *Scope and Limitations*
 - a. Scope
 - b. Cost
 - c. Targeted Users High Level Personas
5. *Conclusion*

1. Business Needs

1a. Competition

Amazon competes with brick and mortar bookstores (new and used), and other tablet manufacturers, for book sales. We think brick and mortar bookstores have a strong advantage in the area of discovering new books to read. Brick and mortar bookstores have the following advantages over online bookstores:

- Appeal to readers who prefer the bookstore environment and traditional books
- Appeal to readers who want to browse through a shelf, or interact with other people (there is something about the bookstore coffee shop experience).

Bookstores from other tablet manufacturers are similar to Amazon's own offering, so the need for better discoverability online presents an opportunity to stand out from the crowd.

1b. Opportunity

Amazon's new online bookstore will be a unique offering among online bookstores, and offer the positive experiences of a brick and mortar bookstore. Our high quality book discovery

process will help readers find new and interesting things to read, and they will buy more books. As we increase the quality of recommendations (i.e. avoid the situation where the back cover sounds great but the book isn't very good), customers will return to us for recommendations and purchases whenever they need another book.

1c. New Solutions Needed

Current discovery models use “past purchases” and “other people that bought X also bought Y” algorithms to recommend books. This loses the “personal touch” of interacting with a bookseller in a physical bookstore (“what do you like?” “what did you like about it” “ok...you should check out author X’s sci-fi trilogy”). This is also not helpful for readers that want to broaden their horizons by exploring new genres. We need to use data, from expert knowledge or from purchasing habits, along with a conversation with the reader to determine likely candidates for their next read.

For customers who are browsing, the eye-catching displays in physical bookstores influence their purchasing decisions. The dimensions (thickness, especially), paper texture, cover art, and the way the light reflects off it, all influence the presentation of the book to a potential reader. Maybe they won't judge the book by its cover, but the cover may at least coax them into thumbing through the book. Furthermore, the displays in physical bookstores are arranged by booksellers; people who have deep connections with books and readers.

The new bookstore will help readers find and purchase new books they will enjoy. The quality of recommendations and the browsing experience will be top-tier, and the experience will stand out from other online bookstores, rivaling the experience of a physical bookstore. Customer satisfaction and repeat sales will be significantly increased.

2. Solutions Overview

2a. Project Timeline

I. Initiation: The research methods for this project, contextual inquiry, interviews, using focus group, and surveys, will be determined during the initiation phase. Our research will help answer the following questions:

- Do customers often have difficulty determining their next read?
- What methods can Amazon use to provide the best opportunities for discoverability?

Once the questions and methods of research are determined, research will commence upon management and stakeholder approval. Preparation is needed beforehand, such as using pilot surveys and preparing incentives for participants. Once preparation is completed, the research will be conducted through the distribution and collection of surveys from participants, contextual inquiries, and focus groups. The amount of time needed to initiate project and attain accurate and unbiased results from research is estimated at: **4 weeks.**

II. Planning: Once we complete and review the research, schedules, tasks, and other project documents will be adjusted accordingly. Project roles will be determined in terms of management, engineers, designers, marketers, and customer department. Requirements for each role will be created in accordance with the research findings. Once the team is assembled

and prepared and all requirements are verified to ensure everyone is on the right track of what they are supposed to do, the project will enter the development stage. The estimated time for planning is: **3 weeks**.

III. Development: Once in development, the system will need to be designed through use of numerous prototypes and user testing and fine tuning all designs for use to develop specifications for the engineering team. The system will require allocated resources and then construction based on specifications and prototypes will begin. Numerous testing and constant revising and most likely much iterations will be needed to ensure the project is on track and the engineers are in complete understanding of what the design team wants. After all possible testing and debugging is completed, the final model and design will be presented for approval. As the development is a long process, the estimated time of completion is: **10 weeks**.

IV. Release: After development, the necessary documents and system will be submitted for approval. Once the system is approved, it will be deployed into production. Estimated time of release is: **4 weeks**.

3. Requirements

3.a Objectives

The following are the high-level goals the book discoverability project *must meet* to be successful:

- Make the process of discovering and purchasing new books easier than any existing process. As determined by focus groups and usability testing.
- Capture the positive experiences of a brick and mortar bookstore.
- Product must be usable on the Kindle or provide a seamless way to load discovered books onto the Kindle (if the user has to think about it--it's too complicated)
- Establish Amazon as the go-to place to find new books
- Compete with physical bookstores in areas they have traditionally dominated
- Increase market share of online book sales (e-book and paper) from 27% to 35% in the first 18 months.
- Ensure that we are providing recommendations customers are satisfied with, as determined by internal metrics and user ratings.
- Ease of use over complex behavior (if the user has to think about it--it's too complicated)
- Provide a pleasant experience/emotional appeal. Our product will offer more satisfaction and less frustration than any existing products, as determined by focus groups and usability testing.

3.b Technology Needs

Development Technology Needs:

Our product will be programed on a platform suitable to be implemented in Kindle products and on the Amazon website. Further research is necessary to determine the low level details of technology needs for development.

Technology used by Customers:

Customers will use our product on Kindle devices. Only if the product is successful on Kindle devices, or research shows that another scope would be more profitable will it be expanded to other technologies.

4. Scope and Limitations

4a. Scope

Initially we will develop the bookstore for Amazon's US website and US Kindle. Subsequent releases may include international markets depending on US success and user research in those locales.

4b. Cost

Since the technology and development platforms for this project are already well established, hardware and certain software costs are negligible. The main expenses will be executing solid research and design. We are planning for about one month of research, and three months of analysis and development time.

4c. Targeted Users High Level Personas

The intended users of this product are people who read or purchase books on the Kindle. Even though these users may read for many different reasons (e.g. work or school), this project focuses on users who read for pleasure. We assume that these users read books fairly frequently, and are often looking for new books. Our research will investigate and refine the assumptions above, and determine how often these users look for new books.

5. Conclusion

This project will verify the assumption that book discovery is easier in physical bookstores. Our updated bookstore will position Amazon in readers' minds as the leader in book discoverability. Based on the research and development work breakdowns we have for this project, our estimated time of completion is: **21 weeks**.

Milestone 4 - Specifications

High-level Requirements:

1. Product must be usable on the Kindle or provide a seamless way to load discovered

- books onto the Kindle (if the user has to think about it--it's too complicated)
2. Ease of use over complex behavior (if the user has to think about it--it's too complicated)
 3. Establish Amazon as the go-to place to find new books
 4. Provide a pleasant experience/emotional appeal. Our product will offer more satisfaction and less frustration than any existing products, as determined by focus groups and usability testing.
 5. Ensure that we are providing recommendations customers are satisfied with, as determined by internal metrics and user ratings.
 6. Make the process of discovering and purchasing new books easier than any existing process. As determined by focus groups and usability testing.
 7. Compete with physical bookstores in areas they have traditionally dominated
 8. Increase market share of online book sales (e-book and paper) from 27% to 35% in the first 18 months.
 9. Increase market share in the tablet sector
 10. Support major languages
 11. Easily used by people with disabilities
 12. Capture positive experiences of physical bookstore

Feature Specifications:

1. Implement existing Amazon product search
2. Ability to sort search results using book discovery recommendations and algorithms, or using data from the physical properties and language database (e.g. sort by size)
3. Ability to search for books similar to the one you are currently viewing by genre, other, or other criteria.
4. Engaging UI to make book discovery easier than with any existing methods or products.
5. Reader profile to help algorithms and live bookselling experts make recommendations.
6. Targeted questions readers can answer to help algorithms and live bookselling experts make recommendations (Examples in Appendix A).
7. Request recommendations service. Users can request a recommendation from one of our bookselling experts--the expert will look at their ratings of previous reads, answers to a few targeted questions, and make recommendations.
8. Reuse recommendations from the request recommendations service as automated recommendations for customers with similar interests and answers to questions.
9. (Internal feature) Do metrics on the success of recommendations from the recommendations service--did customers like the books we recommended? Use this info to increase recommendation quality (expert and automated)
10. Give an estimated "time to read" based on number of words in book and sophistication of writing. Allow users to filter results based on this property.
11. (Internal feature) UI for hired book experts to "arrange" books on virtual bookshelves and feature titles on certain pages

12. (Internal feature) UI for hired book experts to recommend books to customers based on their ratings of books they've read before, targeted questions, and reader profile.
13. (Internal feature) UI for hired book experts to create new targeted questions for readers to answer. Includes an approval process where the new question is vetted by management before being available to customers.
14. Users can input feedback on books
15. Replicate "thumb through" experience of a physical bookstore
16. Able to drop book on temporary stand or saved space (on their account) and if not looked at in a given time (when on the stand), automatically placed back on shelf

Technical Specifications:

(all pending review by engineering)

1. Built on a platform compatible with Kindle software
2. Developed in a language compatible with Kindle hardware and software
3. Contain a database that saves past recommendations, purchases, etc.
4. Not have a tendency to crash - stability
5. Update to include latest books / be up to date
6. Ties in to regular Amazon account
7. Usable by people with disabilities, ie impaired movement (but not main focus)
(compatibility with screen reader software and other accessibility technologies)
 - a. Construct UI in such a way that it "plays nice" with accessibility software
8. Usable for people who speak languages other than english (localization support)(right to left languages)
 - a. Consult with localization teams
 - b. Construct UI and other features such that the localization teams don't hate us
9. New database (or leverage existing) to track properties of books (physical: book size, print size, margin space, easy to carry, etc. language: approx. grade level, etc.)
10. New database to track reader profiles, targeted questions, and reviews of books. Also used to track recommendations.

Milestone Test Conditions:

Feature Specification Conditions:

- Amazon search API returns results as it does in other Amazon software.
- Search results return results that match sort criteria (i.e. searching for "small" books should not return Encyclopedia Britannica)
- "Find similar books" function returns books that are similar based on selection (i.e. searching for more books from Frank Herbert should not return any results for Robert

Heinlein).

- Usability of the bookstore should be better than competitors' offerings, based on user surveys.
- Usability for the booksellers' recommendation tool should be good enough that the relationship between the booksellers and the dev. team should be at least "cordial".
- Request recommendations service clears legal.
- Automated recommendations by the algorithm are 90% synonymous with real-person recommendations - they very close to what a real person would have recommended.
- Time to read estimator produces reasonable estimates based on inputs (ask the booksellers).
- Usability for booksellers tool should be good enough that the relationship between the booksellers and the dev. team should be at least "cordial".
- Usability index for booksellers tool to create targeted questions should be good enough that the relationship between the booksellers and the dev. team should be at least "cordial".
- The tool will also do reliable CRUD operations on the questions DB.
- Content preview ("look inside") feature will contain previews for all titles
- Content preview will behave as well as or better than in other Amazon software
- Recommendation quality reports will produce high quality data (i.e the numbers will match up) based on user feedback and bookstore recommendations
- "Temporary book space" holds books for the specified amount of time and reliably clears the space.

Technical Specification Conditions:

- Development facilitates localization and accessibility, as outlined in Feature Specifications.
- Bookstore runs on all Kindle devices and apps (android, iphone, etc.)
- 99.99% no crash rate on Kindle interface
- Contains the latest books compared to other sources (competitors, internet)
- All code has proper style, variables should be localized as much as possible, and all objects properly encapsulated.
- Software is flexible enough to be easily updated.
- Confirm Amazon account API has been implemented correctly.
- Reader profile section of Amazon account API stores and retrieves all information correctly.
- Targeted questions database stores and retrieves questions and answers correctly.
- Request recommendations service retrieves data from targeted questions and reader profile databases correctly.

Work Item List

See table in Appendix B.

Conclusion

This Amazon Book Discoverability project, proposed by Team Synergy, will create an online book discoverability experience that provides same satisfying experience as brick and mortar bookstores for customers. The user experience will will give the same amount of user satisfaction as a physical bookstore. This project will also increase sales revenue through establishing Amazon as the go-to resource for discovering new books. Any questions about this report and the documents contained in it may be addressed to us, Team Synergy.

Appendix A

“Targeted Questions” feature

This feature will present the user with a number of multiple choice questions, and their answers will be used to help the expert booksellers and algorithms provide recommendations. Users may answer as many or as few questions as they like. Questions will look something like this:

Q: I find thick books with small print intimidating.

A: True

A: False

Q: I prefer to read memoirs:

A: When they are first released

A: within 5 years of release

A: 5-10 years later

A: 15-20 years later

Q: If a book "starts out slow" I'm not likely to finish it.

A: True

A: False

Appendix B

Link to Work Item List:

<https://docs.google.com/a/uw.edu/spreadsheet/ccc?key=0AkYtrb0Hxp7odDEyNGZKQjAtYVdpLVpCbE9nbmxRS3c#gid=0>

Appendix C

Link to Visual Schedule:

<https://drive.google.com/a/uw.edu/?tab=wo#folders/0B9LWDb2mFtfPQXF0emtSNUNILWM>

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