

Group Project Assignment – Spring 2023 - Mishler

Project Description - Narrative and Presentation

Each of the four stages includes a narrative and an in-class presentation.

- The narrative for each stage is a minimum 10 pages and builds (stage 2 is 20 pages, stage 3 is 30 pages, and stage 4 is 40 pages). In each stage, make sure to update the prior stages for consistency with the other stages. For example, you should have only one project plan, Gantt chart, etc. in each stage.
- Each presentation, using slides in PowerPoint, is limited to 10 minutes

The Group Project is a major course component which brings together all the course objectives for student learning and achievement. Each student team, consisting of 3-6 students, depending on class size, will select one of four project areas of focus to develop an IT solution to a problem, gap, opportunity, deficiency, or the like. The focus areas, described later, are:

- General Business Processes
- Education, Primary (K-8), Secondary, or Higher Ed
- Healthcare
- Social Impact

The IT solution, encompassing people-process-and-technology, may be a systems solution to a business problem, or it may be a new IT solution concept, often a new mobile app or web site. The Group Project provides an opportunity for student groups to function as a team to plan, design, and prototype their solution that can serve any purpose, real or imagined, in the present or the future. Students are encouraged to be creative and have some fun.

Learning Objectives

- Investigate the role of information systems in providing solutions for organizational information problems.
- Practice various management roles, design approaches, evaluation methods and use of analytical tools in relation to information systems in the application development and consulting research knowledge sharing processes.
- Apply basic project management and organizational communication techniques to design, research, develop and report on activities that simulate real-world scenarios.
- Gain hands-on experience collaborating in person and online with team members including learning how to become efficient and effective using collaboration, social media, and prototyping software.
- Develop writing communication and presentation skills.

Focus Area

The product or service will be designed as a solution to a problem in one of four areas of focus. Here are a few items to note:

- The solution will solve a problem within one of the four focus areas only.
 - The solution cannot be Rutgers-specific.
 - The solution cannot address a parking problem.
 - The solution cannot address bus scheduling and/or capacity problems.
 - The solution may use any form of information technology. Be creative.
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- The solution may be a web application, mobile application, and/or process improvement with supporting technology such as off-the-shelf software, a way to improve efficiency, or improve people's lives.
 - Produce a prototype using prototyping software (Adobe is preferred). A full, one-year license is available at no cost to Rutgers students. Training is provided asynchronously online outside of class time.
 - The solution is not required to be fully functional (i.e., a working, fully-coded, production solution). If a team delivers a working solution, that's great, but no extra credit will be earned.
 - The instructor must approve the concept and scope of the application.

The four focus areas and their descriptions follow.

1. General Business Processes

Definition: Organizations have a two-fold goal as they grow and mature – achieve competitive advantage and increase customer demand. Process innovation deals with finding new ways of doing things in a business environment that focus on increased production levels, decreased costs, increased revenues, and the like. This type of innovation may come in the form of tools, systems, processes, equipment, or software. Businesses need to improve effectiveness and increase efficiencies to achieve economies of scale, and innovation is the means to those ends.

Examples:

Determine the nature of your business and identify ways in which you can make your business run more smoothly using technology-inspired solutions. Consider your industry of choice and find ways to streamline the way in which you could do one or more of the following:

- deliver your products and services to customers
- maintain your inventory
- improve manufacturing efficiency
- process payments
- manage and distribute information for decision-making purposes,
- improve the customer experience (e.g., handle customer service inquiries, etc.)
- increase sales and sales force productivity
- support your people
- etc.

2. Education, Primary (K-8), Secondary, or Higher Ed

Definition: Education has the power to transform lives and societies and to maximize human potential. However, there are many challenges associated with designing and delivering proven educational programs and performance-based learning systems that prepare students of all ages and learning capabilities for challenges that await them when they apply their newly-acquired knowledge. Solutions need to be customizable, flexible, and cost-effective so they can meet the needs of a diverse learner population.

Examples: Innovations in education can be focused on instruction, feedback, learning theory and practice, and how new groundbreaking programs can be distributed to learners with maximum speed, efficiency, and effectiveness.

- Identify an idea that can provide learners of various ages and social circumstance with the optimal levels of flexibility, structure, support, and opportunities for enrichment they need to be successful in their chosen endeavors.
- Identify and solve a problem area in education delivery efficiencies.
- Etc.

3. Healthcare

Description: Over the past several decades, the healthcare industry has exploded with innovations designed to improve life expectancy and overall quality of life of the general public. However, there is an ever-growing need to design and develop new ideas and solutions to battle new challenges in the space. Healthcare organizations face issues related to improving efficiency, quality, and access to services for those who need them most. In addition, making such services cost-effective is always a persistent obstacle that needs to be overcome. There are shortages of key providers to deal with the prevalence of chronic diseases, productivity is suffering, and demand continues to rise as the population ages. Privacy and security are of the utmost concern.

Examples: Develop a product or service geared toward significant change in such areas as:

- preventative and personalized care targeted to a patient's genetic profile
- technology-inspired care models and information access
- mobile delivery of information to patients
- disruptive technology-enabled options for more informative and meaningful health-care encounters – patient to provider, provider to provider, and patient to patient
- healthcare delivery operating efficiency
- payor/patient/provider process and efficiencies. Payors include healthcare insurance companies, Medicare, Medicaid, etc.
- etc.

4. Social Impact

Definition: Businesses are tasked with one primary objective - achieve profitability by satisfying customer demand and providing quality goods and services to people. However, there are some businesses and non-profits where the main goal is to benefit society instead of shareholders. This type of business is known as a social business, and these are companies and organizations driven by causes instead of profit. The impact on society as a whole or the environment is the main indicator of success or failure in this space. Profit, in these cases, is secondary. Social entrepreneurs only look to recoup invested capital and make a minimum profit to keep the

company operational. Non-profits need to raise funds both through fund-raising and grants to support their operations and achieve their stated mission.

Examples: Social businesses have transformed the lives of millions of people. Social impact is how the actions of businesses, organizations, or people affect the surrounding community.

- It can be local to the organization or its geographical location.
- It can have a much more far-reaching effect in people living in different cities, states, and/or countries.
- Consider an activity, project, program, or policy that may positively affect the quality of life in a specific area and thereby produce substantial social impact and value.
- Develop a supporting IT solution that either supports the organizational mission or improves operating efficiencies and processes of the organization itself either for staff operations and/or “boots on the ground.”
- Etc.

Project Teams and Roles

Each student team needs to ensure they have the right mix of needed skills for success. Following is the typical team structure and student roles. All functions/roles work collaboratively and in parallel throughout all stages of the project, not in a sequential, waterfall manner. Sub-teams have the lead on the functions listed, but all team members participate in and contribute to all of the work.

- Team Leadership and Management
 - Team Leader
 - Project Manager
 - Presentation/documentation manager
- Business Analysis Sub-Team and Functions
 - Market research
 - Business analysis and context modeling
 - Financial analysis
- Solution Design and Development Sub-Team and Functions
 - Cross-functional process model
 - UI/UX design
 - Prototype development

The teams develop their product/solution design and working prototype supported by primary and secondary market research and business and financial analysis.

The most successful teams each semester:

- start their work early by clearly defining team member roles and responsibilities.
- develop a detailed project plan to keep them on track for each stage of the project.
- dive into their market research and business and financial analysis early and often.
- meet regularly and often, both online and in person.
- communicate often.
- work collaboratively.
- have all team members engaged throughout all aspects and stages of the project.
- quickly move on to solution design and delivery once market research and scope are completed.

Grading: 40% of Course Grade

This Assignment is worth 40% of your course grade. The assignment consists of **both a written document narrative and a presentation** and is divided into the parts outlined in the chart below.

The grade for each of Stages 1, 2, 3, and 4 is a team grade. However, if after one or both peer reviews a team member is not carrying their weight, the instructor has the option to not award a team grade for a project stage to an individual but rather award a grade based on what the student's performance has earned.

Note that 25% of the 40% of your final grade for the course project will be calculated based on the score your teammates give you in their 360 Degree Assessment of your performance as a team member at the end of Stage 2 and again at the end of Stage 4. Each of these is an individual grade.

Assignment Part	Due	% of Assignment Grade	% of Course Grade
Stage 1 – The Pitch	Week 5	10%	4%
Stage 2 – The Supporting Details – High Level Framework & Beginning Details	Week 7	15%	6%
Initial Peer Review – Team Input, Individual Grade - due in class	Week 7	5%	2%
Stage 3 – Project Ethics/Privacy/Security, Final Supporting Details, & Solution Design and Prototype	Week 11	20%	8%
Stage 4 – Project Final Presentation: Putting it All Together	Week 13	30%	12%
Final Peer Review – Team Input, Individual Grade - due in class	Week 13	20%	8%
Total		100%	40%

ITI 210 – The Group Project Assignment – Stage 1 – Due Week 5

Stage 1 – The Pitch

Description: This is the initial stage of the Group Project assignment where you will define the problem you are solving or opportunity you are addressing, develop your pitch to clearly communicate what you are doing, and identify and define your stakeholders, customers, scope, and plans. The questions posed in each area below are offered to help you in your thinking and to guide you as to what is expected.

- Introduce focus area, project name, group name, individual roles
- Problem Statement/Idea – The Elevator Pitch:
 - What is the problem we are solving?
 - What is the gap/need/want we are filling/meeting?
 - What is the “so what” of why we are doing what we are doing?
- Who are we?
 - An internal group of a larger company?
 - A consulting firm?
 - A start-up?
- Stakeholders:
 - Who do we need to make our project happen?
 - A stakeholder is NOT the same thing as a customer.
 - Who will care if our project doesn’t happen, succeeds, or fails?
 - Who is funding our project?
- Customers/Target Audience:
 - Who will benefit from our project? Who is this for?
 - Who wants to “buy” our project? Who needs it?
- What is the scope of our project?
 - Who’s in/out? (i.e., audience definition, size, global/regional/local, etc.)
 - What’s in/out? (i.e., technologies, software/hardware platforms, specs, etc.)
 - App, Website, or both?
 - iOS? Android? Both?
 - Part of an enterprise system for a larger company?
 - Business process improvement with supporting technology?
 - Etc.
- Preliminary Plan
 - Define your team and their roles including titles – who is doing what.
 - Develop a preliminary task list/work breakdown structure that defines the major work components and who is responsible for that work.
 - Work Breakdown Structure
 - Use <https://www.teamgantt.com/> (learned in Assignment 2) to develop a preliminary, high level Gantt chart that shows the flow of work through the end of the semester. You will update this Gantt chart each week as your project details and deliverables unfold.

Stage 1 Narrative and Presentation - Canvas Submission Table of Contents

Make sure you address each of the following in your narrative document and slide presentation:

1. Project name, group name, focus area, and team members and their roles
2. Team Description - Who we are
3. Project – The Elevator Pitch Delivery with supporting slides (1-3 slides). Content should include:
 - a. Problem/Need Statement
 - b. The “so what” – What is the pain/need?
 - c. All in business, NOT tech terms
 - d. Limited prose – use bullets to hit key points, and then “talk” to them. Let your voice fill in the blanks.
 - e. Visuals are always a plus
 - i. “A picture is worth a 1000 words!”
 - ii. [“Without realizing it, we're fluent in the language of pictures, says illustrator Christoph Niemann,”](#) in this 12:43 minute, very entertaining, TED2018 Talk. Be creative. Have some fun. However, be professional.
4. Supporting project research – preliminary secondary market research findings
 - a. What sources you researched to support your idea
 - b. What you learned
 - c. What data you found that supports your project
5. Stakeholders
6. Customers/Target Audience
7. Scope – in and out
8. Preliminary Plan
 - a. Team Assignments
 - b. High Level Project Plan, Gantt Chart, and Work Breakdown Structure
 - c. Long-term next steps
 - d. Short-term next steps by task, person, due date
9. Appendices
 - a. Sources – Cited, detailed sources
 - b. Other detailed, back-up slides that support your presentation slides

ITI 210 – The Group Project Assignment – Stage 2 – Due Week 7

Stage 2 – The Supporting Details

Description: Stage 2 requirements:

1. Conduct and document your secondary market research
 - Secondary Market Research – Conduct secondary market research (i.e., online and other source searches) to find data and information which answer the following questions in aggregate supporting your concept and the need:
 - What are the supporting data for the project idea?
 - Why does the business/market want this?
 - How many people/businesses of what type? How do we know?
 - What other solutions and technologies already exist?
 - What does the research tell us from quantifiable data?
 - Document your secondary market research findings:
 - Use bullets and graphics
 - In the Appendix, cite your sources in detail.
 - Summarize what and how your does secondary market research findings influences or changed your Stage 1:
 - Pitch
 - Stakeholders
 - Customers
 - Scope
2. Develop your primary market research plan
 - Primary Market Research Plan – Define your plan to conduct primary market research to be completed and presented in Stage 3. Your primary market research will further quantify and justify your project, as well as help you finalize your scope including features and functionality. Your primary market research plan should also be captured as tasks within your overall project plan. For your work and presentation, your plan should address:
 - Who are we surveying, and why?
 - What data do we need?
 - What questions do we need to ask? (You should only ask the questions that you need to get the data you need.)

Primary and Secondary Market Research information can be found using the [Rutgers LinkedIn Learning portal](#). There is a Week 4 LinkedIn Learning Lesson, “Primary vs. Secondary Research,” to help you in your understanding of this work.

3. Develop the framework and details of your market and competitive analysis.
 - SWOT Analysis & Conclusion – Strengths, Opportunities, Weaknesses, Threats. Use [WhatIs.com](#) to get started. Additional examples will be provided in class.
 - What are our project’s strengths?
 - What are the opportunities our project creates? Takes advantage of? Etc.?
 - Where is idea/solution weak?
 - What market and competitive threats exist today or in the future?

- Magic Quadrant & Conclusion - Use [Whatls.com](https://www.whatls.com) to get started. Additional examples will be provided in class.
 - How is our project positioned versus other solutions/products/vendors?
 - Who are they?
 - Why do we place our project on the quadrant where we do?

SWOT Analysis and Magic Quadrant information can be found on the website [Whatls.com](https://www.whatls.com) and typing in the term. This will give you a basic definition and direction for using the tool.

4. Develop your financial spreadsheet showing project viability and sustainability

- Project Financials
 - Benefits: identify the project cash inflows from revenues or grants, and the source of these cash inflows.
 - Investment & Costs: What are the costs to make the project happen? How much of who and what do we need, and what costs do they bring along?
 - Labor: Specific labor categories, with costs pro-rated for each over time
 - IT services and equipment: One-time and Recurring
 - Rollout & delivery: Sales and marketing, shipping, etc.
 - Management and other administrative overhead: General management, shared services (Finance, HR, IT, legal, etc.)
 - Financial statement showing 10 years with return on investment (DCF and IRR) and trend graphs

5. Update your project plan

- Detailed Plan
 - Short-term: Individual team roles, responsibilities, and tasks with due dates for the next Stage.
 - Long-term: due dates for each Stage.
 - Work Breakdown Structure that defines the major work components and who is responsible for that work.
 - Updated Gantt chart.

Stage 2 Narrative and Presentation - Canvas Submission Table of Contents

Make sure you address each of the following in your narrative document and slide presentation:

1. Project name, group name, focus area, and team members and their roles
2. Project description (10-20 words) and elevator pitch (full text)
3. Market Research and support – provide detailed sources cited in the appendix.
 - a. Secondary Market Research Findings
 - b. Primary Market Research Plan
4. SWOT Analysis – grid and conclusion
 - a. Grid
 - b. Conclusion – analyze and discuss why you identified the items in each part, state your conclusion, and state what actions you will take based on your analysis and conclusion
5. Magic Quadrant
 - a. Chart – highlight your project on the chart so it is easy for the audience to see where it is.
 - b. Conclusion - discuss the competition/other-solutions-options, why you have placed your project where you have on the Magic Quadrant chart, and what action you will take.
6. Project Financial Spreadsheet (2-5 slides) – detailed using the professor's Excel spreadsheet
 - a. Benefits – Identify potential revenue sources and other solution benefits. This is a first draft that will be refined in Stage 3.
 - b. Costs – Identify all investment and cost components of your project. This is a first draft that will be refined in Stage 3.
 - c. Show the return on investment and year your project breaks even by becoming cash positive on a cumulative basis.
 - d. Show ten years of data in Excel spreadsheet.
 - e. Show ten-year graphs.
7. Summary Impact: What and how has Stage 2 work influenced or changed Stage 1
 - a. Pitch, Stakeholders, Customers, Scope, etc.
 - b. Include any updated slides from Stage 1 in the appendix.
8. Project Plan
 - a. Short-term next steps for next Stage – assign responsibility by task, person, due date
 - b. Updated Work Breakdown Structure.
 - c. Updated Gantt Chart.
 - d. Long-term next steps
9. Appendices
 - a. Sources: Cite, in detail, information sources for secondary market research and other supporting research.
 - b. Detailed back-up supporting your narrative and presentation.
 - c. Updated Stage 1 slides from changes made in Stage 2.

ITI 210 – The Group Project Assignment – Stage 3 – Due Week 11

Stage 3 – Project Ethics/Privacy/Security, and The Solution Design and Prototype

Description: In the Group Project Stage 3 Assignment, identify the project's ethical, privacy, and security issues along with the proposed solution(s) and associated costs to address them. You will also develop the solution design including the flow diagram(s) of the technical solution (and, if appropriate, any associated business process change flow diagrams), the draft UX/UI designs, and the low fidelity prototype. Begin, and in some cases complete, your prototype development. Complete and present your primary market research, market and competitive analysis, and financial analysis.

Make sure to revise your Stage 1 and Stage 2 narrative to be consistent with Stage 3.

Stage 3 Narrative and Presentation and Canvas Submission Table of Contents

Make sure you address each of the following in your narrative document and slide presentation:

1. Project name, group name, focus area, and team members and their roles
2. Project description (10-20 words) and elevator pitch (full text)
3. Project ethics, security, and privacy
 - What are the ethical, security, and privacy issues? Identify them.
 - How will you address them? Describe how you will address them with potential solutions. How will you approach this?
 - What are the costs associated with managing these issues and implementing your proposed solutions?
4. Summary secondary and completed primary market research.
5. Flow Diagram (i.e., solution flow chart)
6. Draft UI/UX design(s)
7. Low fidelity (i.e., hand or graphically drawn) prototype design and preliminary demo if prototype development started
8. High fidelity prototype if completed (If you can get this far to insure on-time completion, and opportunity for feedback. Not required until Stage 4.)
 - Completed project costs and benefits in financial statement showing 10 years with return on investment (DCF and IRR) and trend graphs
9. Completed financial spreadsheet and graphs
10. Summary Impact: What, and how, has your Stage 3 work influenced or changed any/all of our Stage 1 and Stage 2 work. Use bullet-points showing any key impacts.
11. Project Management
 - Gantt chart
 - Work Breakdown Structure
 - Long-term next steps
 - Short-term next steps by task, person, due date
12. Appendices:
 - Sources
 - Supporting detailed back-up slides for all market research, financials, other.
 - Revised/updated Stage 1 and Stage 2 slides

ITI 210 – The Group Project – Stage 4 Assignment – Due Week 13

Stage 4 – Final Narrative and Presentation and Canvas Submission – Putting it all Together

Description: Stage 4 is the culmination of your Group Project work; Your completed project “story”

Make sure to revise your Stage 1, Stage 2, and Stage 3 narrative to be consistent with Stage 4.

Stage 4 Narrative and Presentation and Canvas Submission Table of Contents

Make sure you address each of the following in your narrative document and slide presentation:

1. Project name, group name, focus area, and team members and their roles
2. Project description (10-20 words) and elevator pitch (full text)
3. High fidelity prototype – the final working prototype of the user experience. This should:
 - a. include attractive design and prototyping of a significant number of actions and interactions
 - b. provide the user with easy navigation and transitions
 - c. produce the expected information outcomes and control the display of information.
 - d. Can be a demonstration linking to your online saved prototype
4. “Lessons Learned” – bullet points about what did you, as a team, learn and take-away from this experience
5. Stakeholders
6. Customers
7. Scope In and Out
8. Flow Diagrams:
 - a. Context diagram
 - b. Cross Functional Flow diagram
9. Market Research (1-2 summary slides)
10. SWOT Analysis & conclusion
11. Magic Quadrant & conclusion
12. Ethics/Privacy/Security summary slide(s)
13. Project Financials (2-4 slides) - your Stage 3 slides with any updates based on my feedback. Completed project costs and benefits in financial statement showing 10 years with return on investment (DCF and IRR) and trend graphs
14. Summary Impact: What, and how, has your Stage 4 work influenced or changed any/all of our Stage 1, Stage 2, and Stage 3 work. Use bullet-points showing any key impacts.
15. Project management – Gantt & Work Breakdown Structure
16. Detailed Appendices (*not presented*) with cited sources and **comprehensive** detailed back-up slides including financials details & research, all market research, etc.

Narrative and Presentation Instructions:

- Produce a high quality, professional-level presentation following the presentation table of contents outlined above.
- You are to evolve your own presentation design format to reflect your team's "brand."
- Present their project to the class and to answer questions.
 - You are timed to the 10 minutes.
 - It is imperative that you practice your presentation to finish in the allotted time.
 - You will be cut off at the 10-minute mark!
- Make sure:
 - There are NO spelling errors
 - There are NO grammatical errors
 - All your slides are clear, concise (e.g., bullets where appropriate vs. paragraphs), and make sense. Read them out loud to help you make sure they are correct.
 - Your narrative reads smoothly by integrating all four stages (no duplicate or repeat parts and updating prior stages for all changes)