



ISE 515 Fall 23

Term Project

Team #1

Expanding Oral-B's
Modular Product Line

Team Structure and Recap

Scope: Improve Oral-B's sustainability and customer base for modular manual toothbrushes by extending their product line to support additional oral healthcare accessories. Analyze the sales ratio of brush heads and brush bodies to innovate newer attachments to reduce plastic waste by more than 10%. We have access to a skilled team with Subject Matter Experts in Manufacturing and PLM, Business Administration, Logistics, Marketing, and Data Science. Oral-B expects a timed product development lifecycle for its design team and operations team to improve its sustainability and market share - upgrading an existing product line and leveraging the TPM skills of our team. The project will commence on 08/21/2023, and the consultation solution will be ready by 11/20/2023.

Recap: In the initiation phase, we outlined the project's foundation, setting clear goals, deliverables, and milestones in line with our strategic objectives. The planning phase saw us create detailed schedules, allocate resources, and establish risk management protocols to ensure project feasibility and alignment with stakeholder expectations.

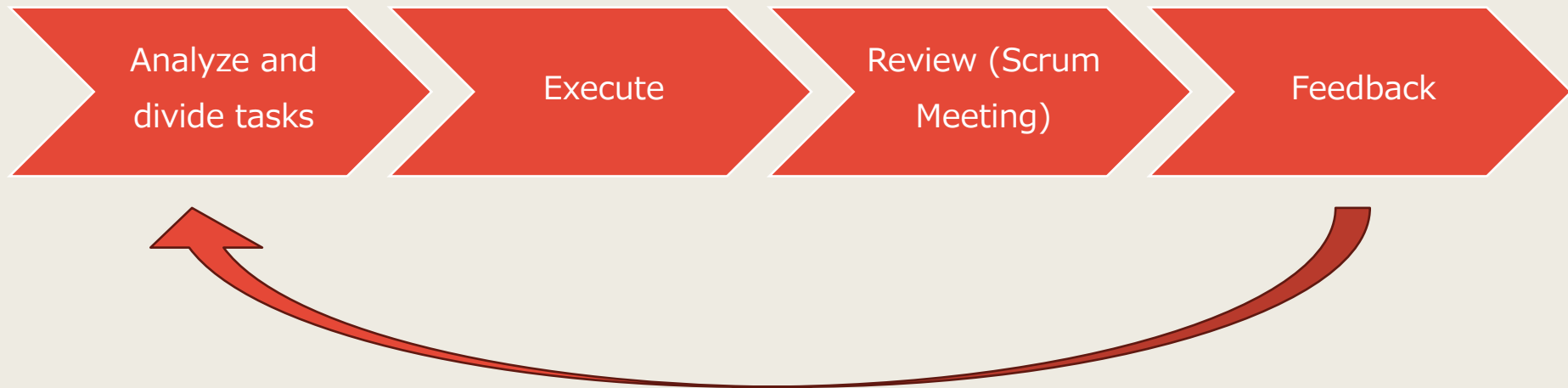
TEAM MEMBER	ROLE	MARKET RESEARCH	DESIGN/PRODUCT DEV	LOGISTICS AND SUPPLY CHAIN	MARKETING/GO TO MARKET
Anish Kulkarni	Project Lead	I	A/R	C	I
Brendan Fong	Business Lead	I	I	A/R	C
Daanyal Mirza	Operations Lead	C	I	A/R	I
Hanzheng Zhang	Strategy Lead	A	C	I	R
Niharika Prashanth	Marketing Lead	R	C	I	A



Project Selection


- Diverse background of team members
- Market research -> Product design -> Sales channels and strategy
- Core-Ideology: Oral-B is committed to responsible manufacturing, sustainable innovations, and ensuring transparency in our products/packaging. We strive to reshape the lifecycle of our products, reducing waste and environmental impact while promoting healthy smiles and lives for all.
- Sustainability
- Accessibility
- Innovation



More on Agile



USC Viterbi Scho...  

Threads  1

Mentions & reactions

Drafts & sent

Canvases

Slack Connect

Files

More

Channels

fall23-ise-515-project

fall23-ise-515-31515

fall23-ise-534-31734

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its-announcements

viterbi-announcements

hallway

trojansecure


Add channels

Direct messages



Slackbot

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We strongly recommend enabling desktop notifications if you'll be using Slack on this computer.
Enable notifications • Ask me later • Never ask again on this computer



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
Passcode: 81pEpP Monday, November 13th



 **Anish Kulkarni**  4:22 PM
MOM for ISE 515 Team #1 Term Project Update Feedback


Attendees - @Anish Kulkarni, @Hanzheng Zhang, Prof. @Ali Nowroozi.






1. Our M5 Project settings are all correct.
2. Our scheduling techniques are all correct and make sense. However, we will have to specifically mention how we managed to get our project back to schedule by changing delays while keeping the logic the same.
3. We have not yet added actual costs in the Project file. We have to add actual costs manually.
4. Professor also reviewed a few of our technical developments until now - namely our market research document and 3D renders.
5. Our way ahead is clear. We have until 11-19 11:59pm to submit our final deliverables on D2L. We have been allocated 30 minutes for our presentation.


 **Anish Kulkarni**  5:22 PM
@channel we have a meeting today at 17:30 PST (in 10 minutes) followed by our second last weekly meeting at 19:00.

 **Daanyal Mirza**  5:23 PM
Let's cancel the 17:30 meeting since the due date is tomorrow and I'll still be working on it tonight. Can give a brief update during the later scrum meeting

































 **Anish Kulkarni**  5:24 PM
Sure

Message  fall23-ise-515-project

Market Research&Analysis  Search (Alt + Q)

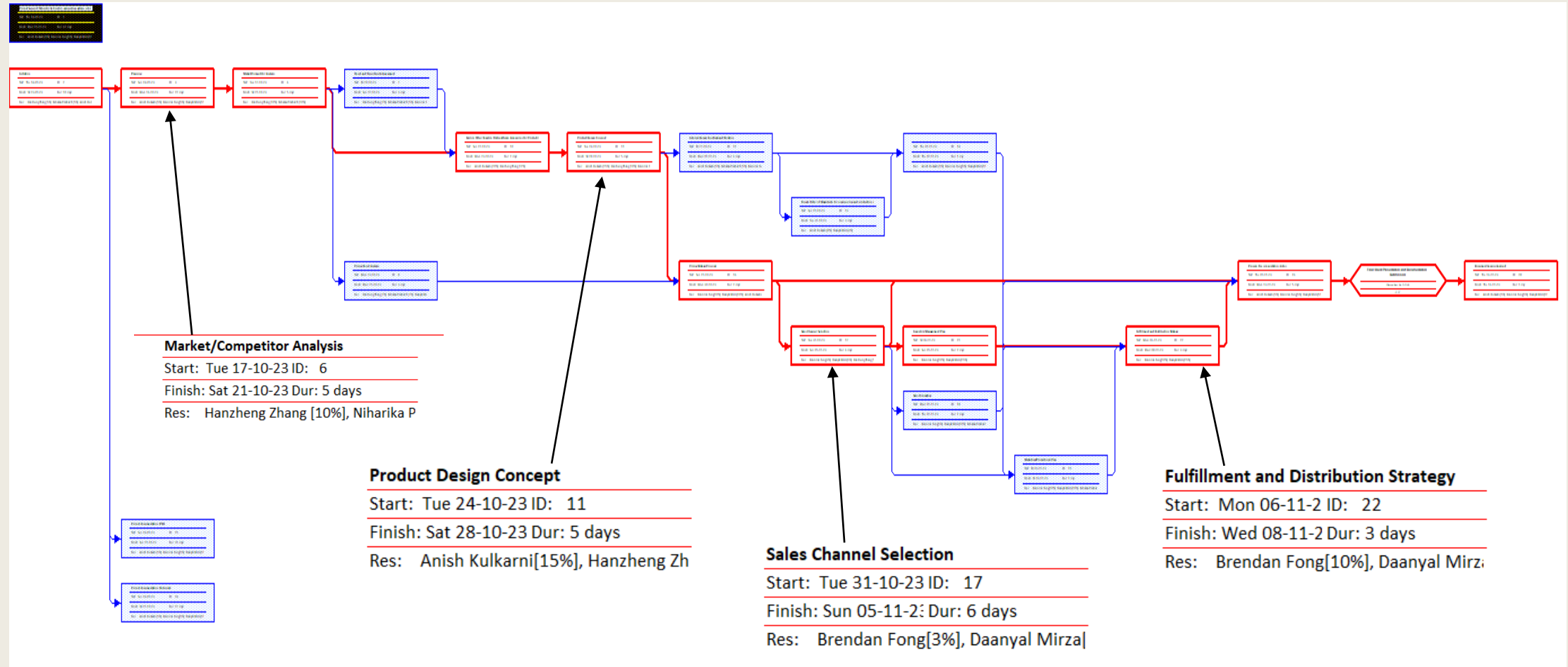
File Home Insert Layout References Review View Help

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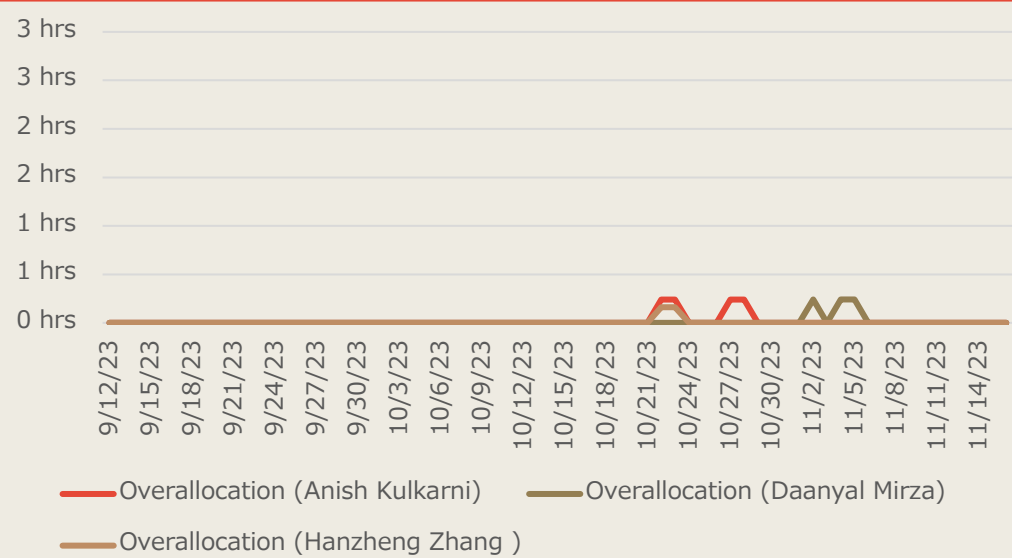
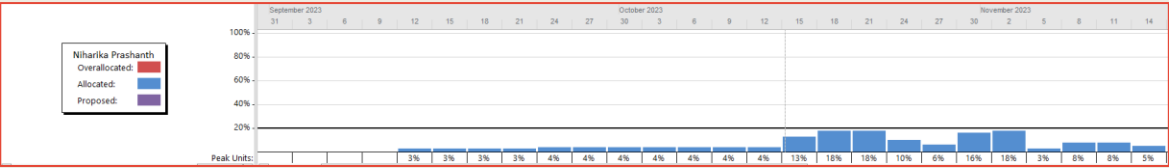
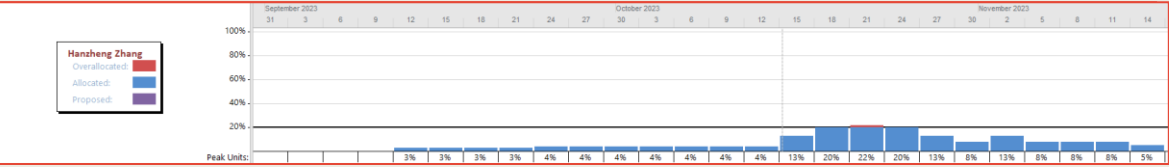
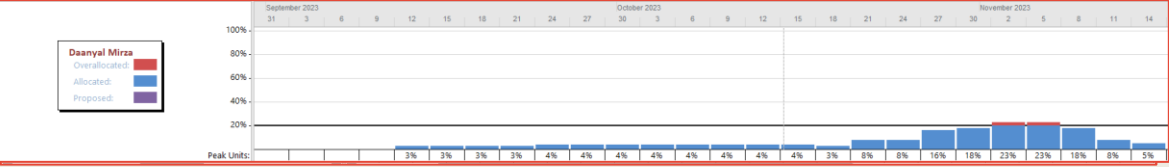
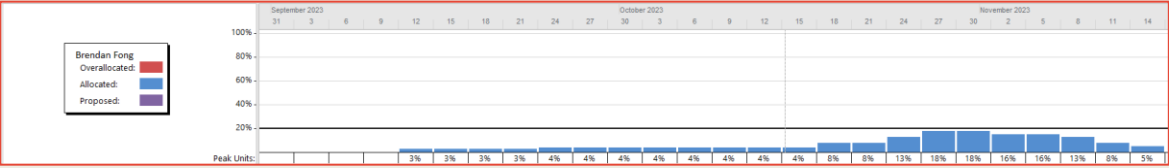
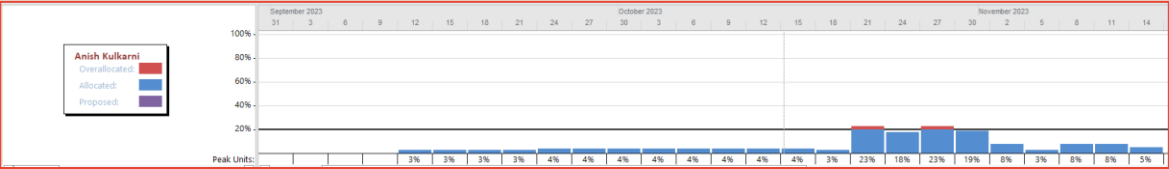
Risk Management Plan

Risk #	Description	Cause	Qualify	Quantify	Respond/Monitor/Control	Documentation
1	Lack of team member availability leading to scheduling challenges	Wide ranging geographies/modes of communication	Will continue to identify this risk when we anticipate delays in project tasks due to the entire team not being available to meet at the same time	Resource usage will account for delays that may occur in completing tasks due to the time it takes information to transfer amongst team members. During and after each project task, we will document the actual time allotment of each task	When certain team members are unavailable to attend meetings, we collaborate through our Slack group. We have a team agreement that those who attend the meeting have authorization to assign tasks	Utilize when2meet, where we can input weekly schedules to identify the optimal meeting times. After each team meeting, we send meeting minutes to the Slack channel along with expected deliverables by the next meeting.
2	Task delays due to need to learn Microsoft Project techniques	No team members with formal PM experience	Identify barriers under this category by being unable to proceed with tasks due to a lack of knowledge of the software	Resource usage will account for additional time required to learn the solutions within Microsoft Project when there is a lack of knowledge. During and after each project task, we will document the actual time allotment	Team members required to review the Professor's tutorial on MP posted to D2L. The team will raise awareness of any knowledge barriers in our Slack group to collaborate	Will document all barriers through Slack channel to have running communication threads and constant visibility on all solution methods for barriers.
3	Uncertainty for Logistics Planning	Variability of shipping	When conducting preliminary research on the logistics processes of Oral-B, as well as the oral health industry as a whole, the team will encounter vulnerable processes that can potentially cause significant delays	During the market research process, the team will identify areas of risk and calculate the expected minimum and maximum time delays for each stage to include in reporting.	Team will plan its logistics strategy extremely conservatively with time buffers and replacement processes in the case of every stage of the supply chain	The team will have a Logistics Risk Management file in our SharePoint page, which will include the different stages throughout the process, their anticipated risks, potential for failure, expected time and cost due to failure, and alternative solutions.
4	Inability to develop accurate market forecasts for demand	Lack of public data infrastructure available on client and industry	Inability to access data sources during process of market research, which can lengthen the execution timeline for identifying segmentation and sales criteria	Resource allocation for market research and demand planning will be allotted conservatively with a buffer to account for roadblocks in procuring data	Initially allocate time to researching public data and KPIs to develop a foundational database to draw quick insights. When roadblocks are encountered, team will focus on manually gathering marketing data through alternative sources	Team will have a shared Microsoft Excel file in our SharePoint page, which will store relevant statistics and databases to conduct market research. Additionally, any qualitative research data will be collected and documented in the file

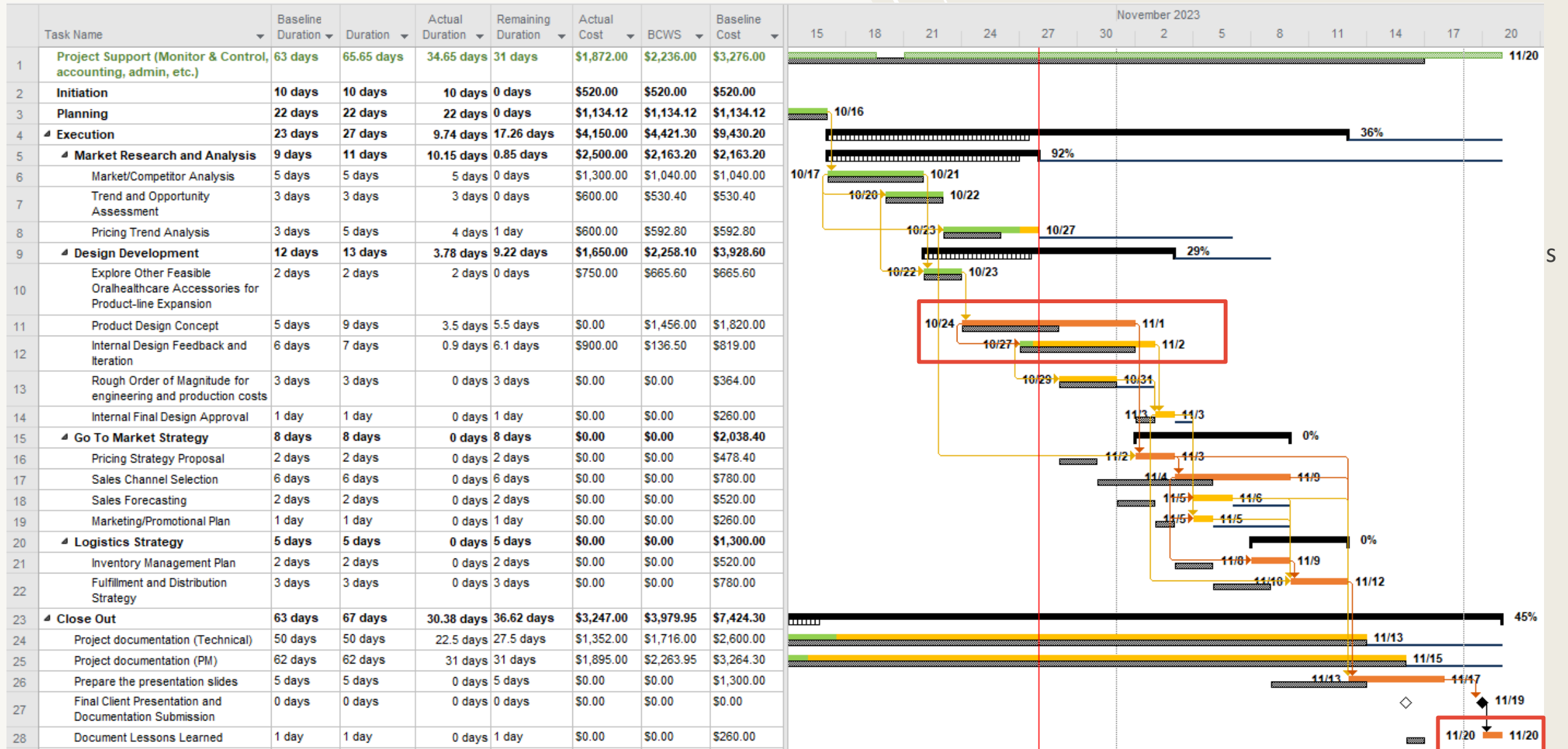
Baseline CPM Network Diagram



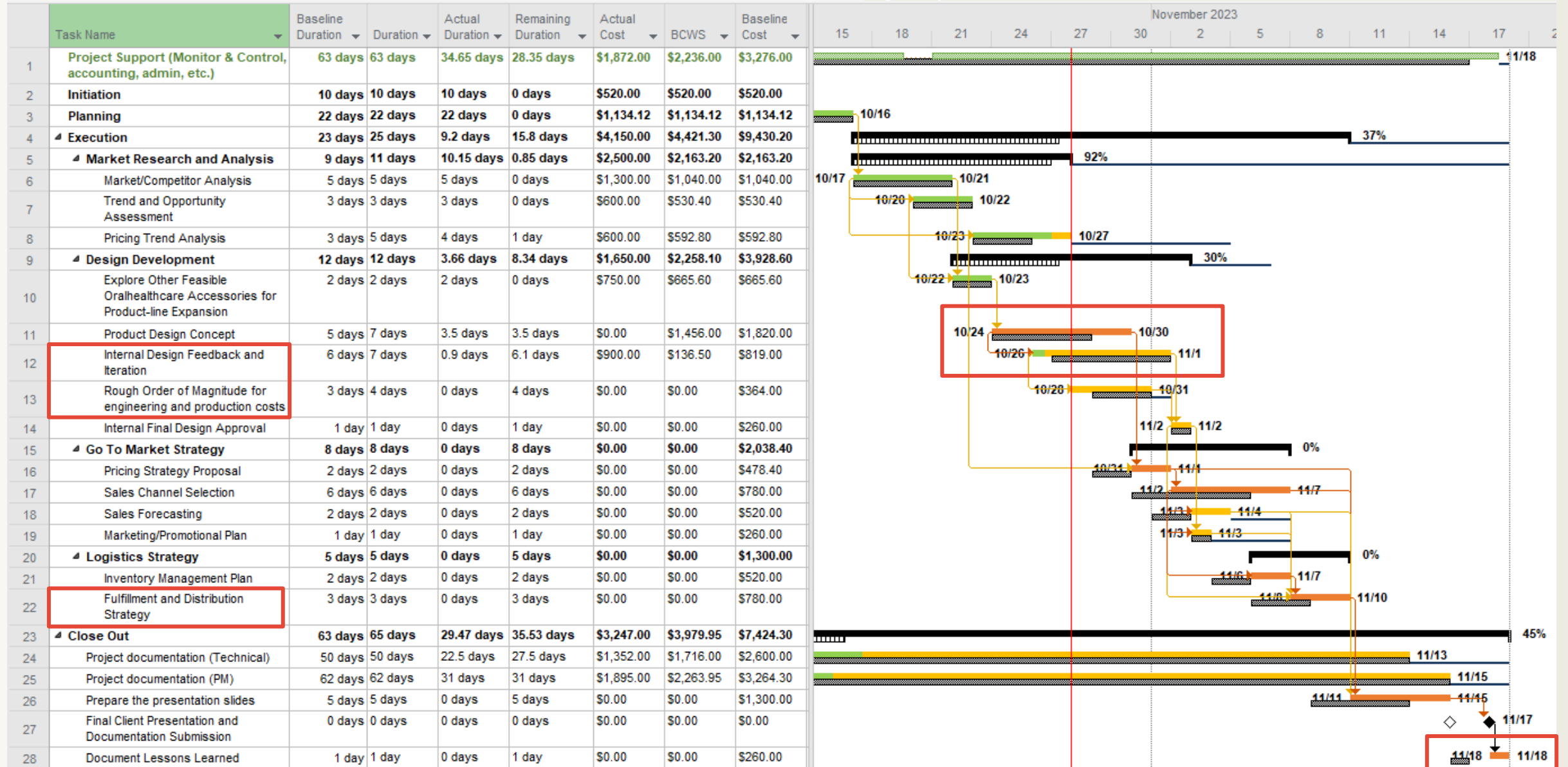
Baseline Planned Usage Graph



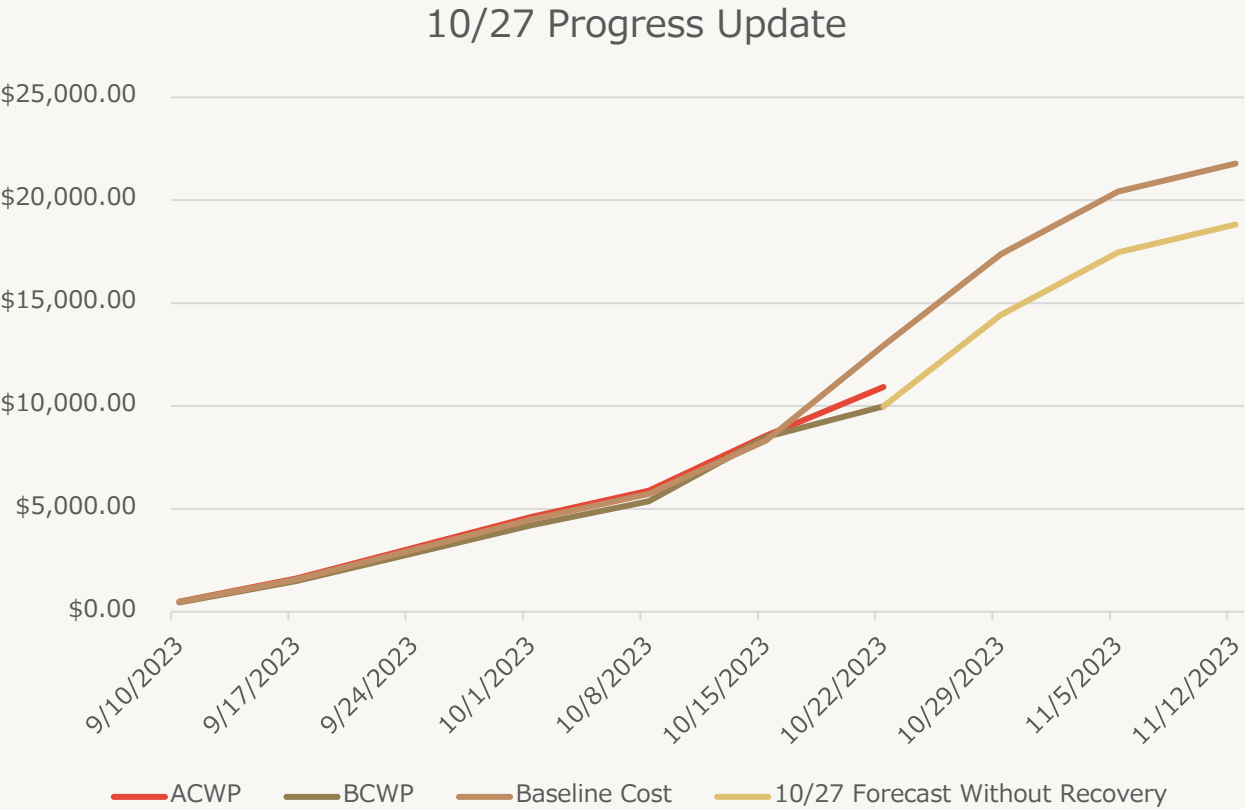
10/27 Progress Update Without Recovery



10/27 Progress Update With Recovery



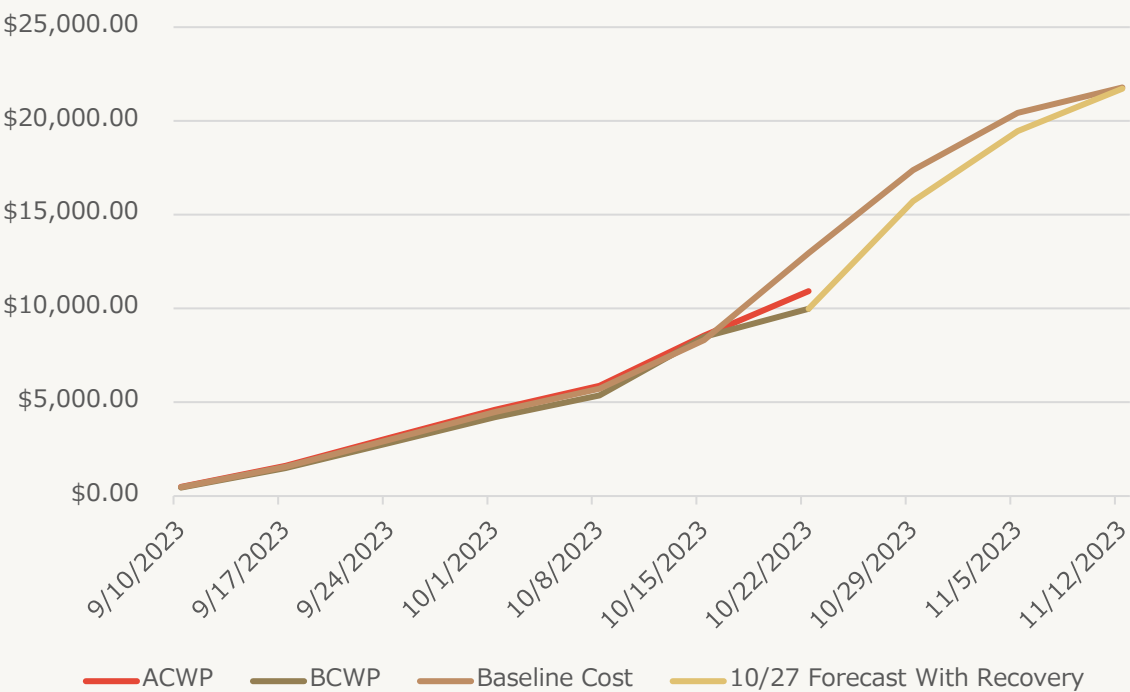
10/27 Progress Update – Without Recovery Resource/S Curve



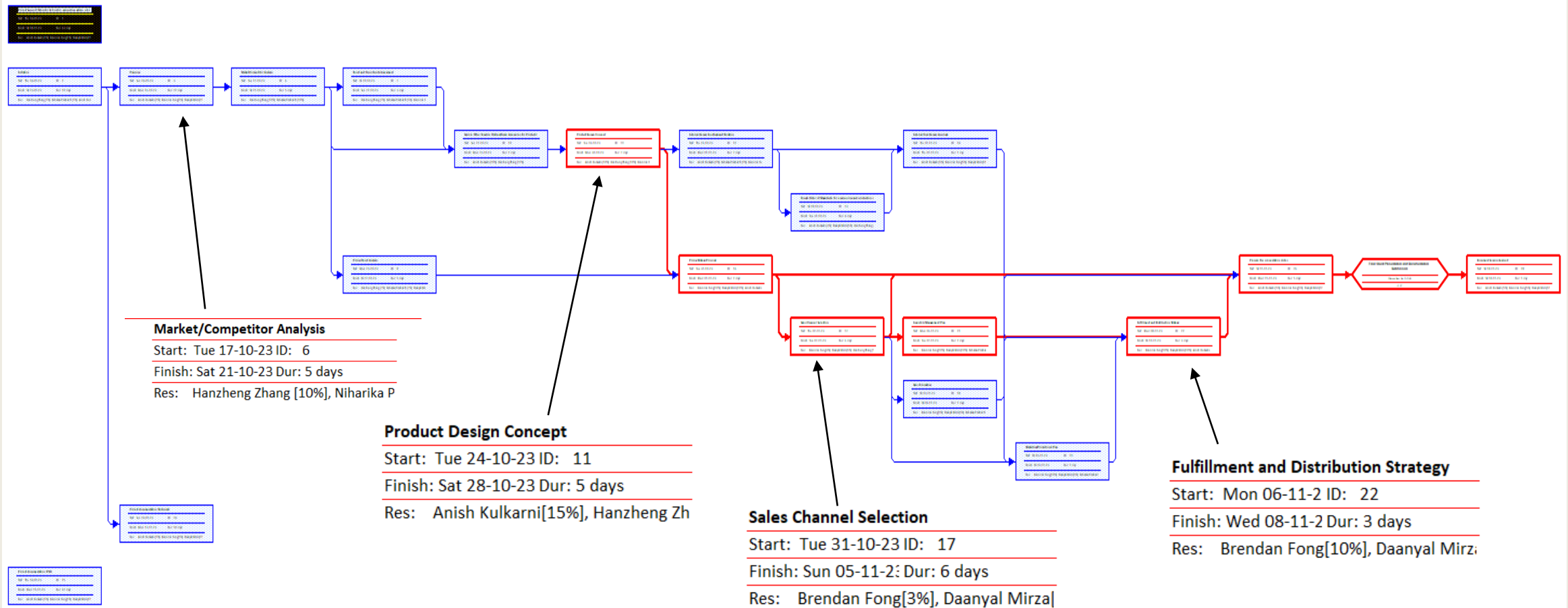
10/27 Progress Update – With Recovery Resource/S Curve



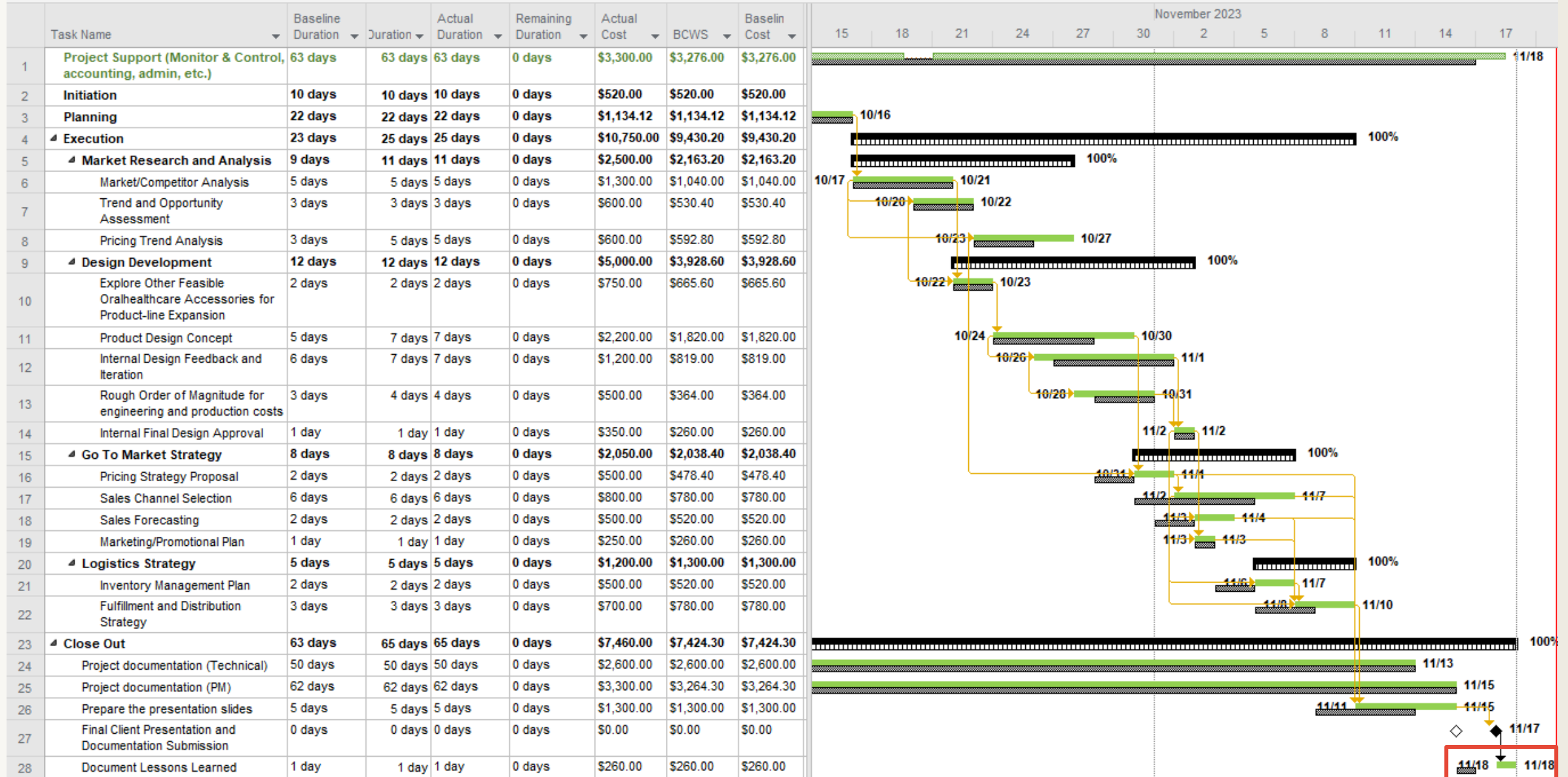
10/27 Progress Update



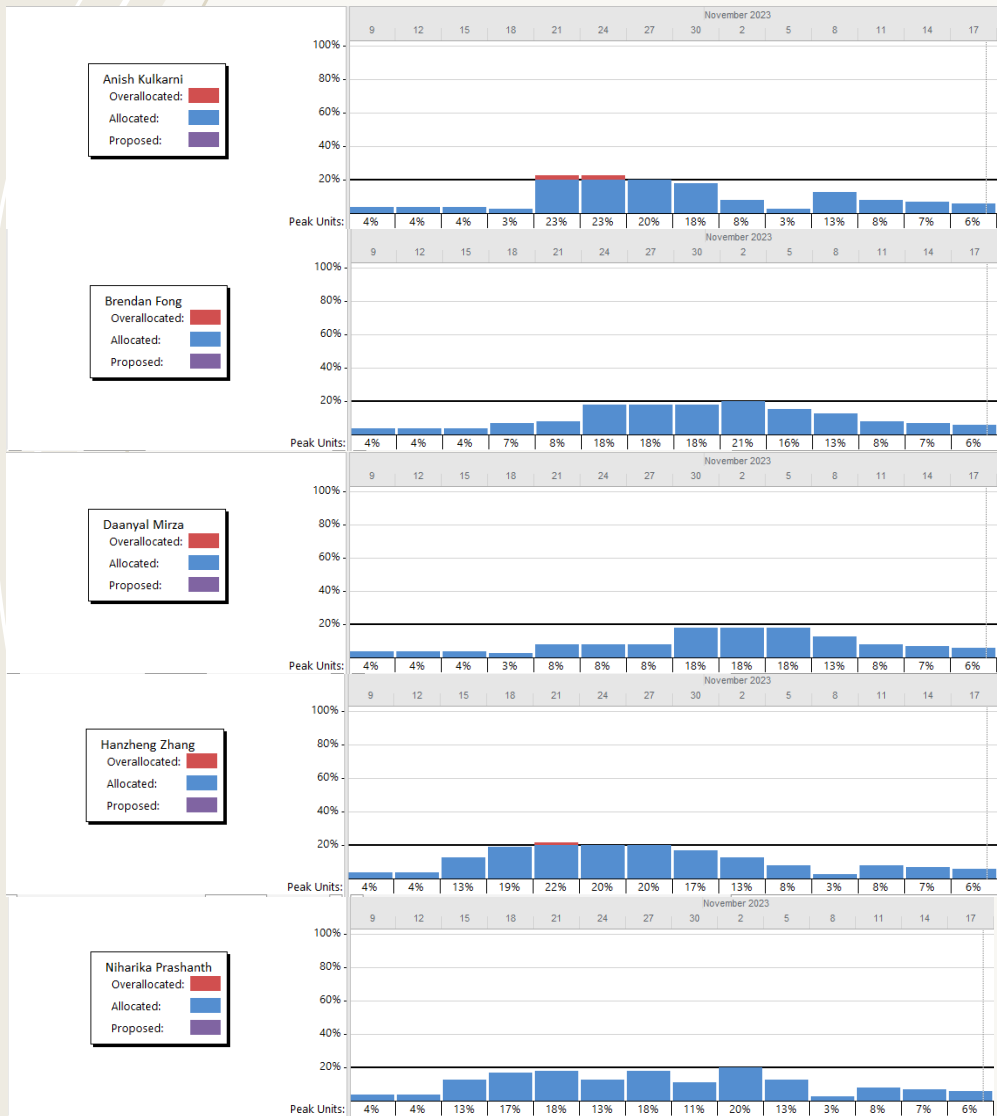
Recovery CPM Network Diagram



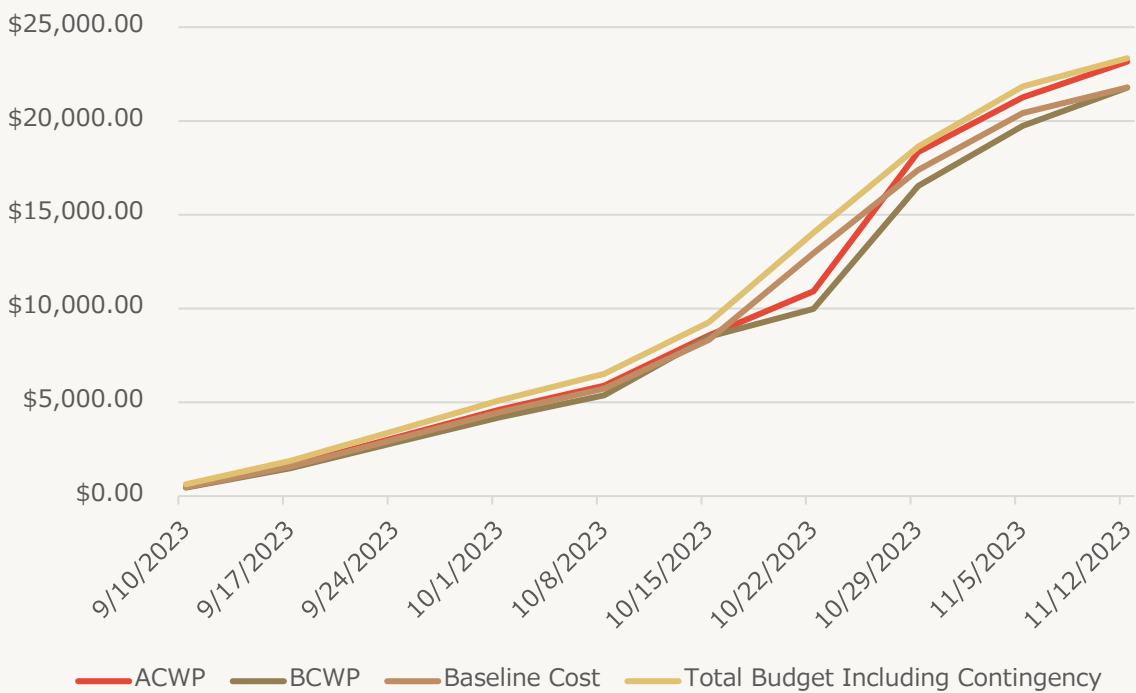
11/18 Final Update



11/9 Final Update – Resource/S Curve



11/18 Final Update



Baseline Cost	\$21,784.62
Contingency	\$1,560.00
Total Budget	\$23,344.62
Actual Cost	\$23,164.12

Risk Register

Risk #	Description	Cause	Likelihood	Potential Impact	Owner	Mitigation Plan	Risk Level	Review Date	Notes
1	Lack of team member availability leading to scheduling challenges	Wide ranging geographies/modes of communication	75-100%	Increased completion time for tasks - delays	Anish / Brendan	Google Calendar invites to input availability, reduction of scope to recover lost time	Medium	10/29/2023	Risk was valid, impact underestimated. Task times lengthened due to Accountable task owners needing to take on a larger bulk of each task. ACWP surpassed BC by \$956.83 in 10/29 update
2	Difficulty in prioritizing responsibilities outside of the project	High variability amongst team members in school/career responsibilities	50-75%	Increased completion time for tasks - delays	Anish	Accountable task owners to hold sub-meetings with R/C members to ensure commitments to tasks	High	10/25/2023	Significant impact during the second week of execution as team underestimated ability to complete both project tasks, midterm, and outside responsibilities. BCWP < BC by \$2964.93 in 10/29 update
3	Task delays due to need to learn Microsoft Project techniques	No team members with formal PM experience	0-25%	Limited potential due to increased resource allocation	Brendan / Hanzheng	Establish deadline of 10/25 for team to review MP tutorial. Document barriers/solutions in Slack. Conservative resource allocation.	Low	11/17/2023	Although project was behind schedule, this risk was successfully mitigated and not the root cause. Team members sufficiently learned/documented MP concerns and were prepared by reviewing tutorial
4	Uncertainty for Logistics Planning	Variability of shipping	25-50%	Creation of unreliable logistics plan for client	Daanyal	Plan logistics plan conservatively with time buffers and alternatives	Medium	11/15/2023	Mitigation plan was successful, as the Logistics Plan process was able to identify time ranges and replacement processes for each supply chain phase
5	Inability to develop accurate market forecasts for demand	Lack of public data infrastructure available on client and industry	75-100%	Unreliable inventory management plan based on market research	Daanyal / Niharika	Conservative resource allocation. Reduction of scope by developing placeholder inventory plan for client	Medium	11/7/2023	Risk was valid, but mitigation successfully prevented delays. Reduced scope of IMP to create a recommended model template for client to input sensitive data

Close out and Concluding Remarks

Challenges:

- Different geographies/schedules/time zones
- Predicting the duration needed for some tasks was difficult, led to under-resourced and/or delayed tasks

Opportunities:

- Better use the RSVP functionality of Google Calendar to ensure all required stakeholders can attend.
- Better planning for time required to complete Microsoft Project file updates and documentation.
- Share more Project Management responsibilities across all team members so that more team members are involved with updating the project file and maintaining project documentation.

Deviation from the imposed structure and reasons

- Initially tasks were assigned based on role, but once we started execution people worked on tasks that were not as related to their assigned role.

As-Built documents showing Out-of-sequence progress (if any) and reasons and Changes to Critical Path (if any) and reasons

- Soft logic and resource allocation were updated but no changes were made to the critical path

Amount of hard-logic versus soft-logic

- The initial plan incorporated both hard and soft logic, and the soft logic helped give us the flexibility to start tasks earlier or later due to changes in the schedule.

Close out and Concluding Remarks

Reasons for deviating from primary objectives (cost, schedule, scope) and how you can achieve them in the next similar project

- Costs: did deviate from the initial baseline, but were within our planned contingency
- Scope: we completed the scope of the project, however, could have elaborated on some of the proposals presented by providing more data-driven supporting documents.

How well did this project help you set the platform to achieve your long-term goals, i.e. what KPIs can be monitored from this point on to track the achievement of your long-term goals?

- This project was a good milestone in terms of expanding our portfolio of companies that want to expand their sustainable product lines.

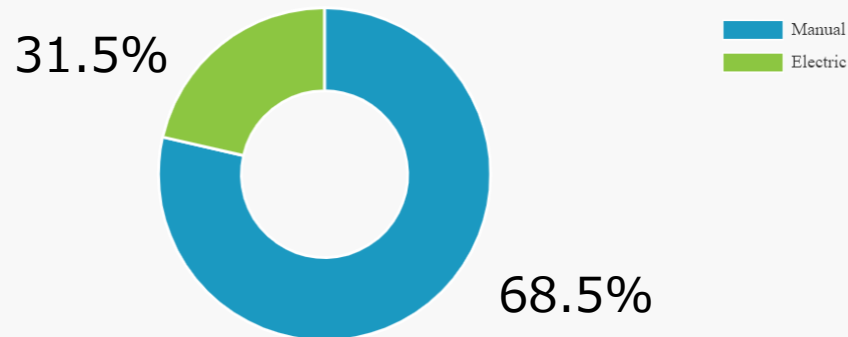
Where do you think your project falls on the APM <->TPM continuum, how will you change the combination of the techniques to deliver the project better, next time?

- TPM approach since we could not interact with customers, but still some APM elements because of our inexperience.
- Next time would be ideal to communicate directly with the customer, which would make the project fall more under the APM approach.

Market Research and Analysis

Market Growth:

Global Toothbrush Market Share, By Product Type, 2022



Consumer Trends: Key trends include a shift towards sustainability with products like bamboo toothbrushes and recyclable brush heads, demand for customization and personalization in products, and the rise of subscription models for ongoing purchases of toothbrush heads.

Innovation Opportunities: Opportunities lie in the development of biodegradable brush heads, educational collaborations with dental professionals, and digital integrations like QR codes and apps to enhance consumer education on oral hygiene.

Pricing Analysis: The pricing trend analysis indicates a range of prices from budget to premium, with standard manual toothbrushes costing \$1-\$5, premium models up to \$10, and subscription services offering different pricing models.

Customer Segmentation: Ranges across different age groups—children to seniors, gender, and usage scenarios like individual, family packs, hotels, and travel packs, catering to a broad spectrum of lifestyles, from professionals to eco-conscious consumers.

Competitive Landscape



Colgate: Broad range of manual brushes.

A series of manual toothbrushes with replaceable heads (Charcoal, Optic White, Keep Deep Clean)

Market with their toothpaste

Replacement Head is only limited to brushes and does not offer much variation.

Priced around \$10 (1 body 2 heads)



Philips Sonicare: Dominant in the electric segment

Known for advanced technology.

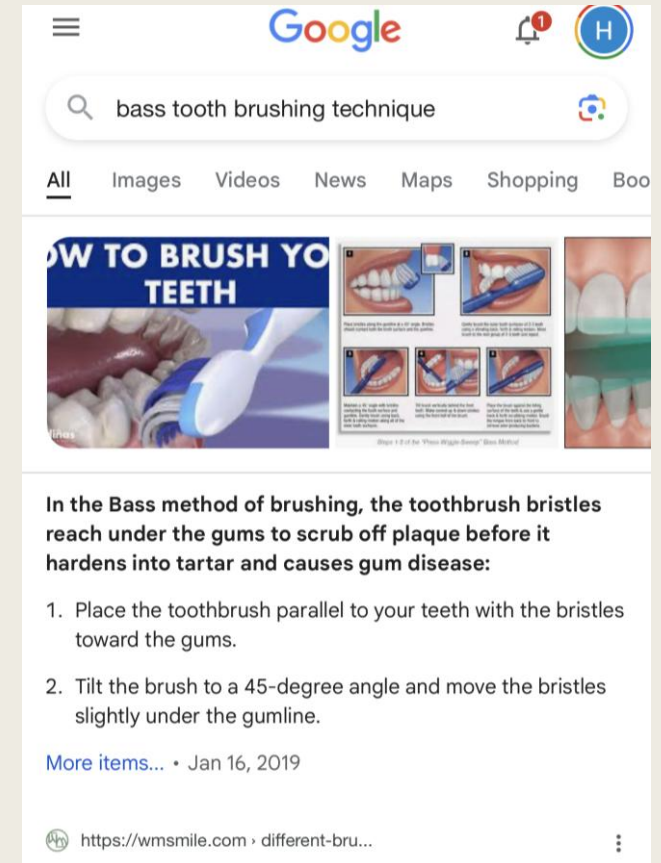
All electronic toothbrush

Variety of replacement heads: Plaque control, Whitening, Gum care, All-in-one, Kids brush heads, Philips One, Variety packs, E-series

Premium Pricing: \$10+ for a single head. \$100 - \$300+ for the body (some with a smartphone connectivity); Philips One is their low-end product \$25 for battery power, \$40 for rechargeable.

Interview with USC dental students

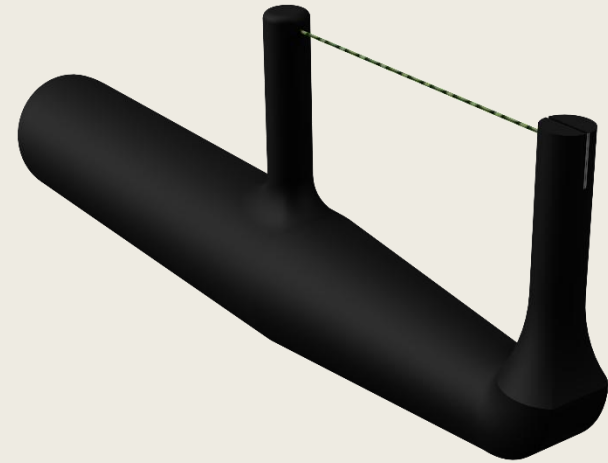
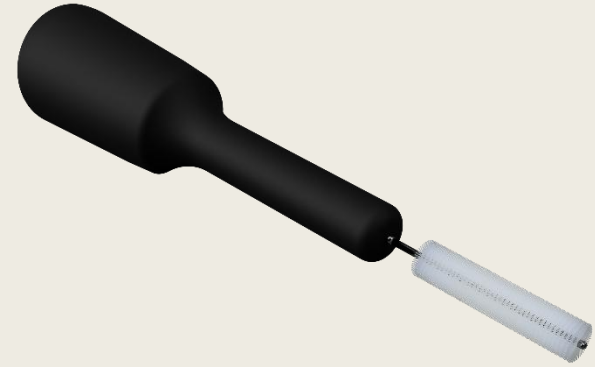
1. Variations of the softness of the bristles for different needs
2. Design with the bass tooth-brushing technique in mind
3. Flossing can be a good concept since people neglect the importance of flossing
4. Tongue cleaner/scrapper
5. Interdental brush
6. Accessory box/pack/travel holder





Design Concept

Accessories



Sales Strategy

Current State:

- 180 countries and territories
- mass merchandisers, e-commerce (including social commerce) channels, grocery stores, membership club stores, drug stores, department stores, distributors, wholesalers, speciality beauty stores, high-frequency stores, pharmacies, electronics stores and professional channels. (1)

Proposal:

1. Expand Direct to Consumer revenue stream
2. Embrace Long Tail Theory for Channel selection/Product Expansion
3. Online Channel Optimization.

Expand Direct To Consumer

- "Continued concentration among our retail customers could create significant cost and margin pressure on our business, and our business performance could suffer if we cannot reach agreement with a key customer on trade terms and principles."(1)
- Self/Health Care Companies with Subscription Product: Dollar Shave Club, Dr Squash
- Business Rational: Competing Necessity
- Customer Benefits: Pricing, Personalization, Accessibility



Expand Direct To Consumer

- Replenishment Subscription Models make up a large percentage of the subscription market (Curation, Access, Replenishment)
- Oral B products lend itself well to why consumers would want to start and continue the subscription

E-commerce subscriptions generally fall into one of three categories.

E-commerce subscriptions, %	Key consumer value	Description	Example companies
Subscribe for replenishment	32 Save time and money	Replenish the same or similar items Primary categories are commodity items such as razors, vitamins	Amazon Subscribe & Save, Dollar Shave Club, and Ritual

Most important driver of cancellation of the subscription,³ % of responses



Most important trigger when initiating the subscription,¹ % of responses

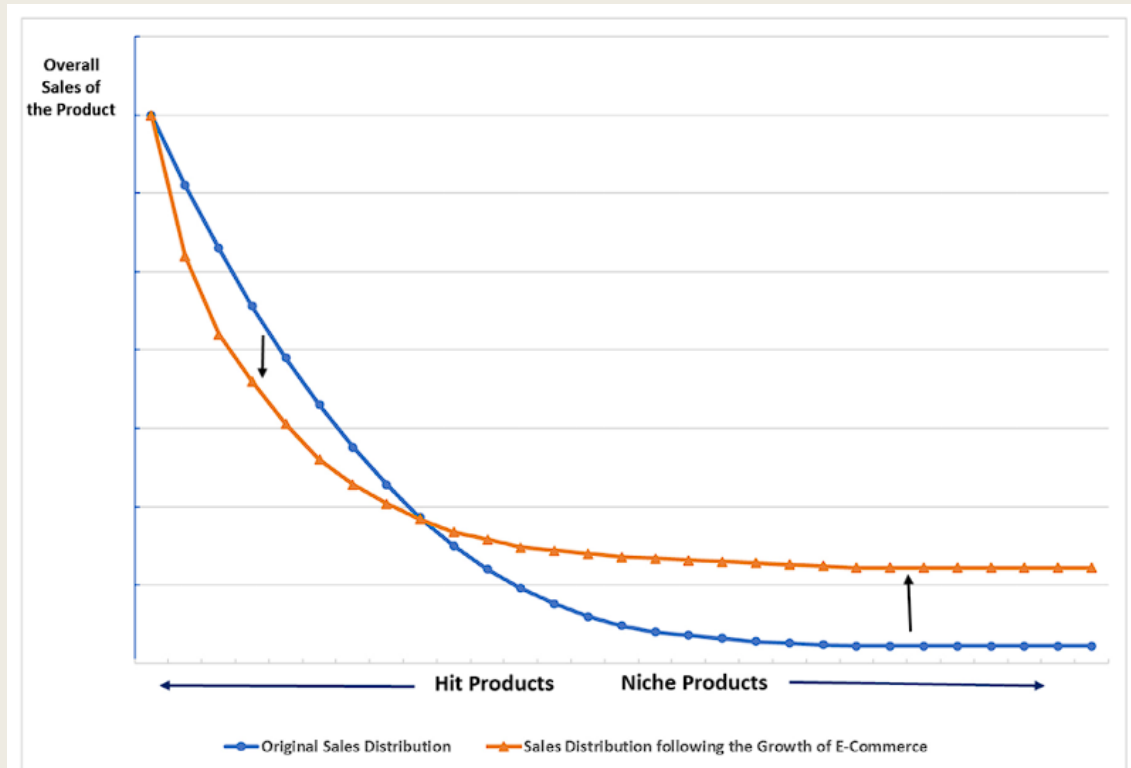


Most important reason to continue the subscription,² % of responses



Long Tail Theory

Channel/Product Expansion



- Long Tail Theory
 - significant profits in selling lower quantities of niche products compared to high quantities of popular items
 - Search functionality + infinite shelf space = increased sales of niche products
 - "Goodbye Pareto Principle, Hello Long Tail"
- Additional Niche Sales Channels
 - Luxury Hotels
 - Airlines – First Class Oral Kit
 - Corporate Branded Merchandise

Online Platforms Strategy



Optimize product listings for better visibility and conversion
Amazon's advertising options



Personalization and exclusivity offer

Integrating Oral health related content marketing and SEO strategies

Online Sales Channel Holiday Promotion

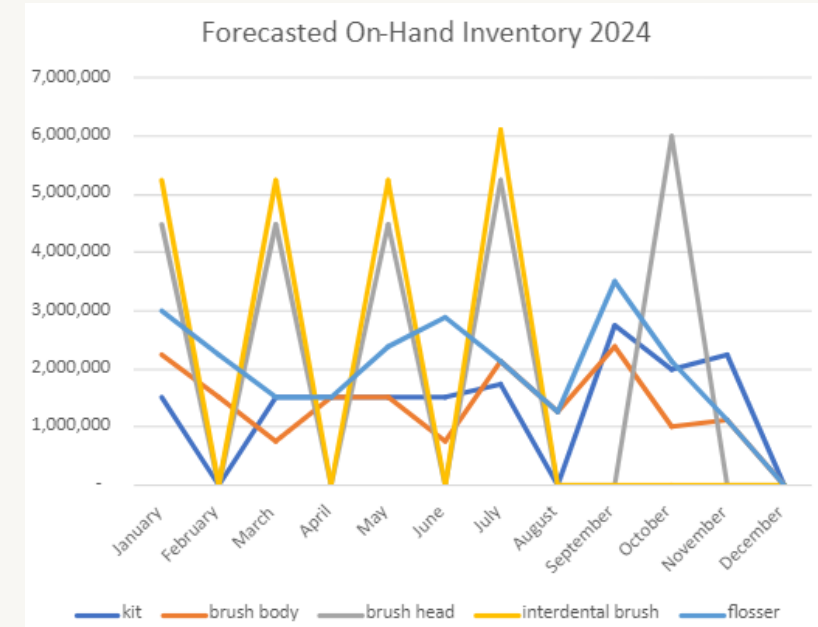
Cross platform holiday-specific deals

Participating in Amazon's major sales events

Holiday-themed landing pages on Oral-B website

Logistics Plan

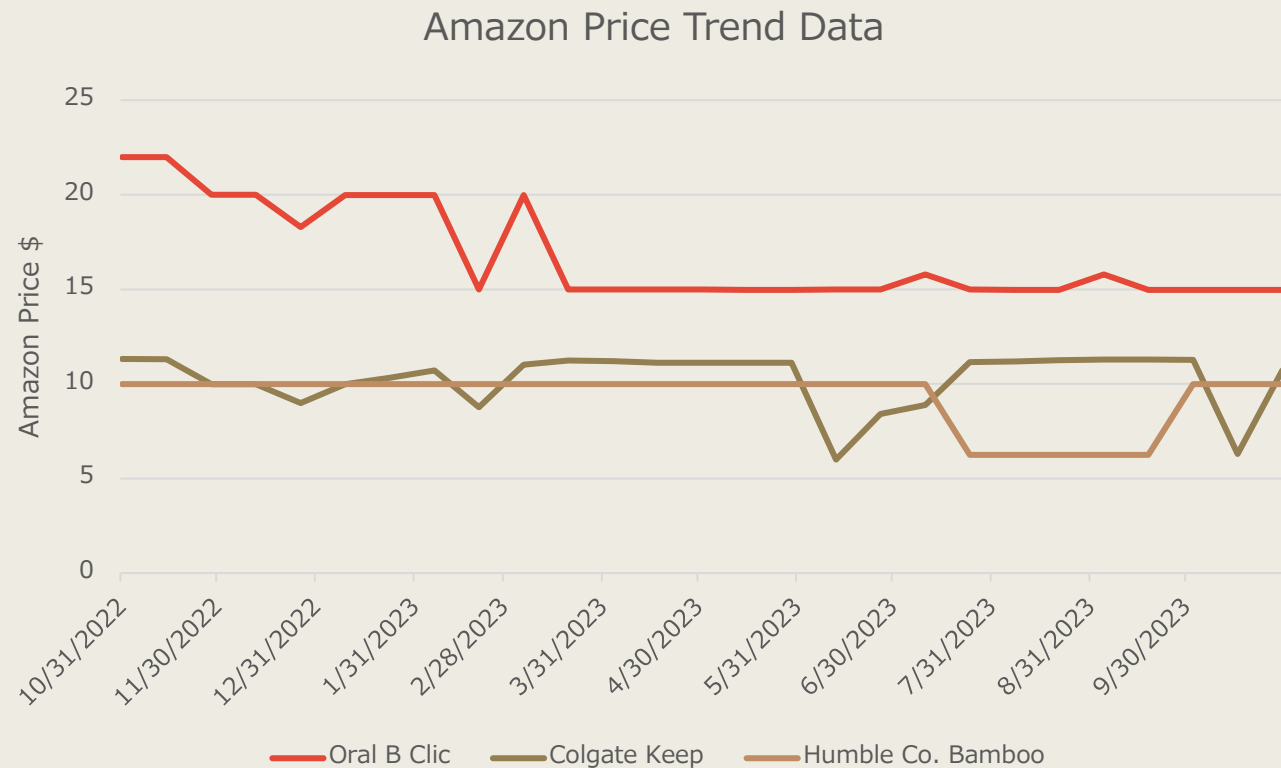
- Developed inventory/logistics management plan for the new product introduction
- Plan recommends various client solutions:
- Operate production at 90% capacity to prepare for initial demand uncertainty
- Conduct weekly continuous planning until demand stabilizes
- Transition to a monthly continuous planning strategy as demand stabilizes
- Maintain 1-year outlook in addition to continuous review strategy
- Created monthly inventory algorithm tool for recommended ordering schedule
- Considers monthly forecasted demand, HC, and COGS to minimize the overall cost
- Allows client to prepare for peaks/troughs in long-term view, allocate resources
- Client must update true demand forecasts regularly



Appendix 1: Project Idea Whiteboard Session

A	B	C	D	E	F	G
Company Name	Project	Domain				
	Educational Robotics Kits (Ecosystem)	Robotics (Electronics + Mechanical + Coding)				
	Retrofitted IoT switchboard	Electrical + Coding				
	E-commerce website creation	Coding				
	Product launch website	Domain knowledge + Coding	iPhone 15?			
	Electric longboard (skateboard)	Electrical + Mechanical				
	Goodwill Popup Sale					
	Healthcare Product website	Domain knowledge (Mechanical + Coding + Legal)				
Red Cross	Blood donation drive management	Execution, planning, data organisation				
Problem Statement	B2C customer we are familiar with, want us to analyse the manufacutring/Go to market strategy for a new product they want to launch					
	Manufacutring process					
	Operational/Logistics Process					
	Marketing/Ecommerce Strategy					
	Oura Ring					
	3M command strips - but					
	too good to go App - marketing plan to how we can get more businesses to sign up					
	Oral B, a regular manual toothbrush, which has detachable heads. reuse the handle, and jsut change out the brush as it gets old.					
	Modular oral kit? Toothbrush, tongue scrapper					
	Blood Drive Startup Kit - we create a website template, questionaires , planning tools for donor/volunteer scheduling, ready to go media materials for social media					
	Industrial Engineering)	Anish		toothbrush		
	Social/ecommerce	Hanzheng/ Niharika		scrap scrapepr		
	Operations/Logistical/Business	Me / Daanyal				
	Client	Oral B				

Appendix 2: Pricing Trend Data



Appendix 3: Example Meeting Minutes



Anish Kulkarni 1:05 PM

@channel MOMs for Pricing Strategy Proposal Close-out

Attendees - @Daanyal Mirza, @Anish Kulkarni, @Brendan Fong

1. Discussed why the task has been delayed.
2. @Anish Kulkarni discussed with Professor after class about changing soft-logic (SS+__days) to smoothen resource allocation despite having delays in a predecessor.
3. Addressed some soft logic in our project plan and decided to shift all tasks dependent on "Product Design Concept" beyond 11-02 as @Anish Kulkarni is committed to completing the task by 11-02.
4. According to the change of dates, the MSP file will be updated on Wednesday's Scrum meeting with execution progress and earned values. This file will then be sent to the Professor for review.
5. As per the change in execution dates, the Trello board shall be updated and thus, some meetings will be rescheduled. @Anish Kulkarni is committed to performing this activity by EOD today.
6. An observation was put forward that the participation in Scrum meetings has been low. Please try to attend Scrum meetings as this is the only time when we all will understand our project's progress.

@Brendan Fong, @Daanyal Mirza let me know if I have missed any point. (edited)



Niharika Prashanth 8:26 PM

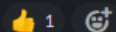
MOMs for Pricing trend Analysis close out meeting

Attendees - @Anish Kulkarni @Daanyal Mirza @Niharika Prashanth

1. @Niharika Prashanth to address the comments added and make changes along with adding pricing analysis for 3 competitors by tonight
2. @Hanzheng Zhang to review the document and reinforce it with additional data tomorrow (we were supposed to close the card today)
3. @Daanyal Mirza to review the pricing trend analysis post completion

Close the card by EOD 26th October

@Daanyal Mirza @Hanzheng Zhang @Niharika Prashanth to collaborate if there are points to be discussed



1



5 replies Last reply 19 days ago