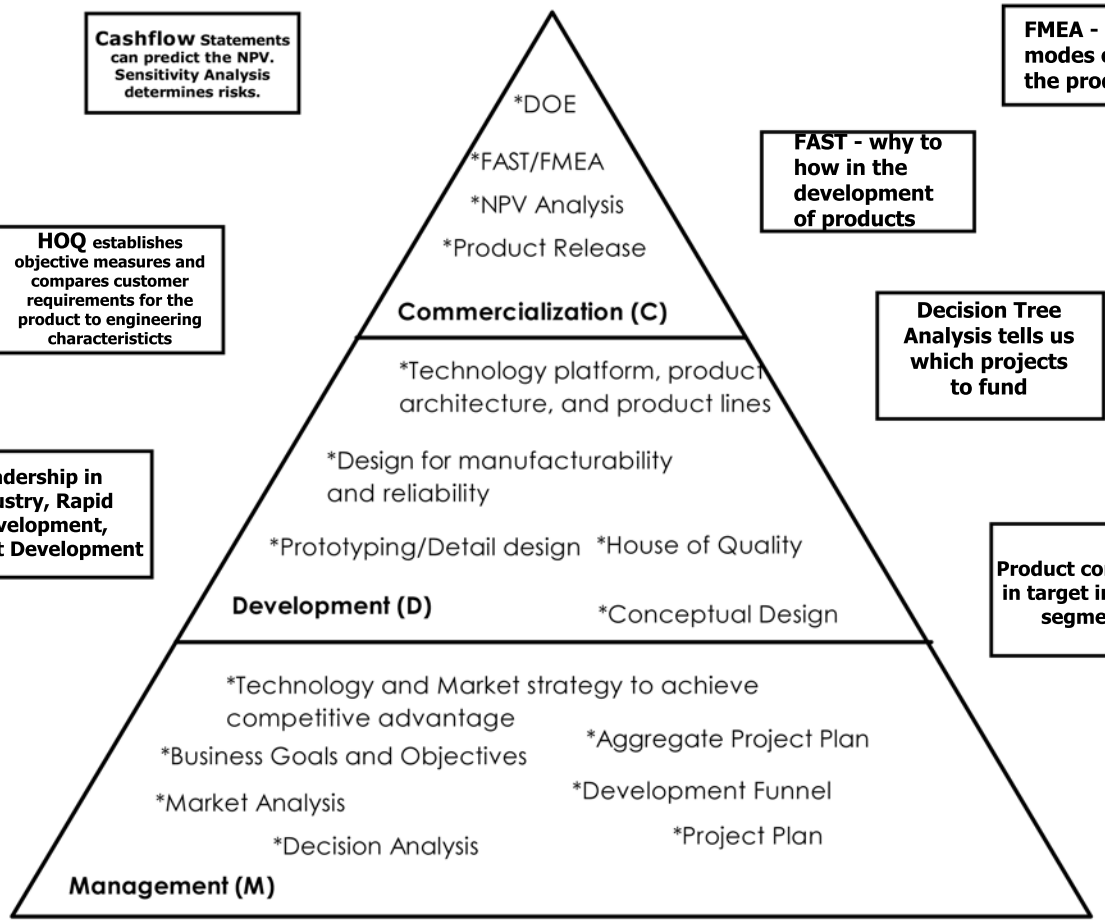
PROJECT INTEGRATION: Management, Development, Commercialization (MDC) Framework



Cashflow Statements can predict the NPV. Sensitivity Analysis determines risks.

FMEA - Failure modes of the product

FAST - why to how in the development of products

Define concepts of product and product lines

HOQ establishes objective measures and compares customer requirements for the product to engineering characteristicts

Decision Tree Analysis tells us which projects to fund

Alignment of customer needs and product line

Leadership in Industry, Rapid Development, Robust Development

Product converges in target industry segments

Concept Design and weighted criteria tell us which design to use

Assessment of product feasibility and commercialization feasibility

Structure Planning determines main and sub tasks with timings

Innovative Engineers, Design for Manufacturability, New Manufacturing Facilities

Decision analysis to Aggregate Project Plan

Market Needs Analysis for product assesses customer needs

Development Funnel Generated

Project Proposal

The people in the project group include Mike Arias, Vladimir Gorenshteyn, Max Gutman, and Stanley Xu.

We plan on introducing a new product in the marketplace that involves portable entertainment devices. More specifically, we want to offer a high capacity audio mp3 player and video player integrated into one portable device. Our target market will include people who are always on the go. We want to target those frequent PC and Internet users and those who are technologically savvy. The reason for this because music and/or video files are transferred to the portable audio/video device via home PC. This will be the company's most high-end, high-quality products above the only audio mp3 players that are in the market. There will be other products not so much on the high end for the more practical user that does not require too much storage space or a video watching option. These will also be of course, more affordable.

Our plan to develop our product is that we will hire the most qualified employees from specific sources and assign them to their respective departments. We plan on hiring those from big name companies to help set a strong foundation to create the best-quality products for the customers. This will also require that top-quality management is necessary. These managers (the four members in our team), will be the leaders and will have learned excellent product development strategies obtained from the ISM courses. With each of our project teams led by the managers, we will generate new ideas for design and marketing through a large focus on R&D. All the engineers in production will also be led by excellent managers in the department. Our higher-end products will be built on our already existing products with which we will add new features and enhancements to.

TABLE OF CONTENTS

Page

Phase 1

I. TECHNOLOGY STRATEGY....1
 i) Internal/External factors....2

II. PRODUCT/MARKET STRATEGY....3
 i) Five Forces/Value Models....4
 ii) Competitive Business Landscape....5

III. DEVELOPMENT GOALS....6
 i) Key Functions....7

IV. MARKET ANALYSIS....8
 i) Additional Markets....9
 ii) Issues....10
 iii) Market Needs Analysis....11

V. AGGREGATE PROJECT PLAN....12
 i) Type and Mix of Development Projects....13
 ii) Alignment of Customer Needs and Launch's Product Line....14

VI. G-UNIT CUSTOMER AND ENGINEERING REQUIREMENTS....15
 i) House of Quality (G-UNIT)....16

Phase 2

I. PROJECT PLANNING PHASE 2 (GANTT)....17
 i) Project Planning Phase 2 (PERT)....18

II. PROJECT PROPOSALS....19
 i) Influence Diagram/Decision Tree (G-UNIT)....20
 ii) Influence Diagram/Decision Tree (Abe128H)....21
 iii) Influence Diagram/Decision Tree (MLK20)....22
 iv) Influence Diagram/Decision Tree (PVR EK3)....23
 v) Influence Diagram/Decision Tree (Flashie)....24
 vi) Project Mix - Cost versus Profit Table....25

III. TECHNICAL FEASIBILITY VS COMMERCIALIZTION POTENTIAL....26

IV. DEVELOPMENT FUNNEL....27
 i) Development Funnel Figure F1....28

V. CONVERGENCE OF DEVICE SEGMENTS.....29

VI. FUNCTION STRUCTURE/MORPHOLGICAL MATRIX.....30
i) Concept Designs for G-UNIT.....31
ii) Weighted Criteria Table.....32

VII. PRODUCT CONCEPT/PLATFORM/LINES.....33
i) G-UNIT Features and Specs.....34
ii) G-UNIT Reference Design Diagram.....35

Phase 3

I. PROJECT PLANNING PHASE 3 (STRUCTURE).....36
i) Design Structure Matrix/GANTT.....37
ii) Program Evaluation and Review Technique.....38

II. CYCLE FLOW CHART.....39

III. FUNCTIONA ANALYSIS SYSTEM TECHNIQUE (FAST).....40

IV. FAILURE MODES AND EFFECTS ANALYSIS (FMEA).....41
i) FMEA Continue.....42
ii) FMEA Table.....43

V. FINANCIAL MODELING (TIMINGS).....44
i) Financial Modeling Cashflows.....45
ii) Financial Modeling Sensitivity Analysis I.....46
iii) Financial Modeling Sensitivity Analysis II.....47

Phase 4

I. FMEA ON OUR PROJECT.....48
i) FMEA Continue.....49
ii) FMEA Continue.....50

II. CAPTURE LEARNING DEVELOPMENT PROJECT.....51

III. STRENGTHS AND WEAKNESSES IN DEVELOPMENT.....52

IV. PROJECT INTEGRATION (PYRAMID).....53

V. PROJECT FUTURE.....54

Launch©

G-Unit

Project for ISM205

Created by: Mike Arias, Stan Xu, Max Gutman, and Vladimir Gorenshtyen

Technology Strategy:

Originally the Launch project development team was trying to make a multi-format reader that reads different format of files. Since MP3 players became very popular in Asian, Europe and North America, the project development team came out with a new idea – a MP3 player that plays both music and video. Once the idea has been made, the whole project development was working on their analysis of aspects. This new project would be called the G-unit, a portable media player (PMP).

The capabilities of the company:

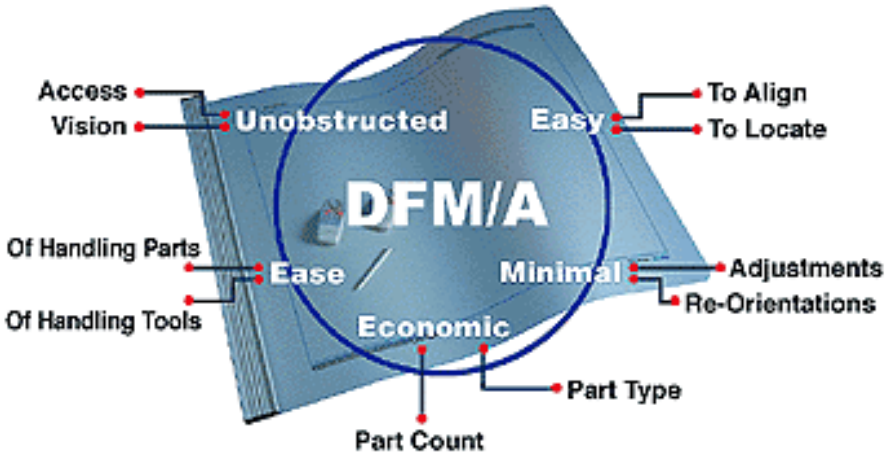
Launch is a famous MP3 manufacturer in Korea. The company is medium sized - it has two manufacturing plants in Asia. Launch has been in the MP3 business for 5 years. It has more than 10 different types of MP3 products, and the company itself is more than capable to manufacture a new generation of MP3 players. For this project, the development team did not treat the G-unit as just an add-on project that adds new features to the existing MP3 players, but instead starts from the ground up to develop this new PMP. While they have a good base of the new product – a device that plays MP3, they have formed a special group with different companies to obtain specialized skills and capabilities (including digital video screen)

To grow further, Launch will expand its traditional role of just competing with MP3 manufacturers and become a leader in the consumer entertainment market. They believed that manufacturing expertise and lower costs would become more important as the industry matures, and Launch's connections with other companies (completers), and experience in electronics manufacturing would give it a competitive advantage.

A technology strategy that Launch excelled at is establishing a time constraint for their projects. They are often first to market; reducing risks based on the nature of computer technology and how fast that technology changes.

<u>Design for Manufacturability:</u>

Launch's hardware design engineers are familiar with all of the manufacturing concerns, thus, designs would be optimized for manufacturability.



External factor:

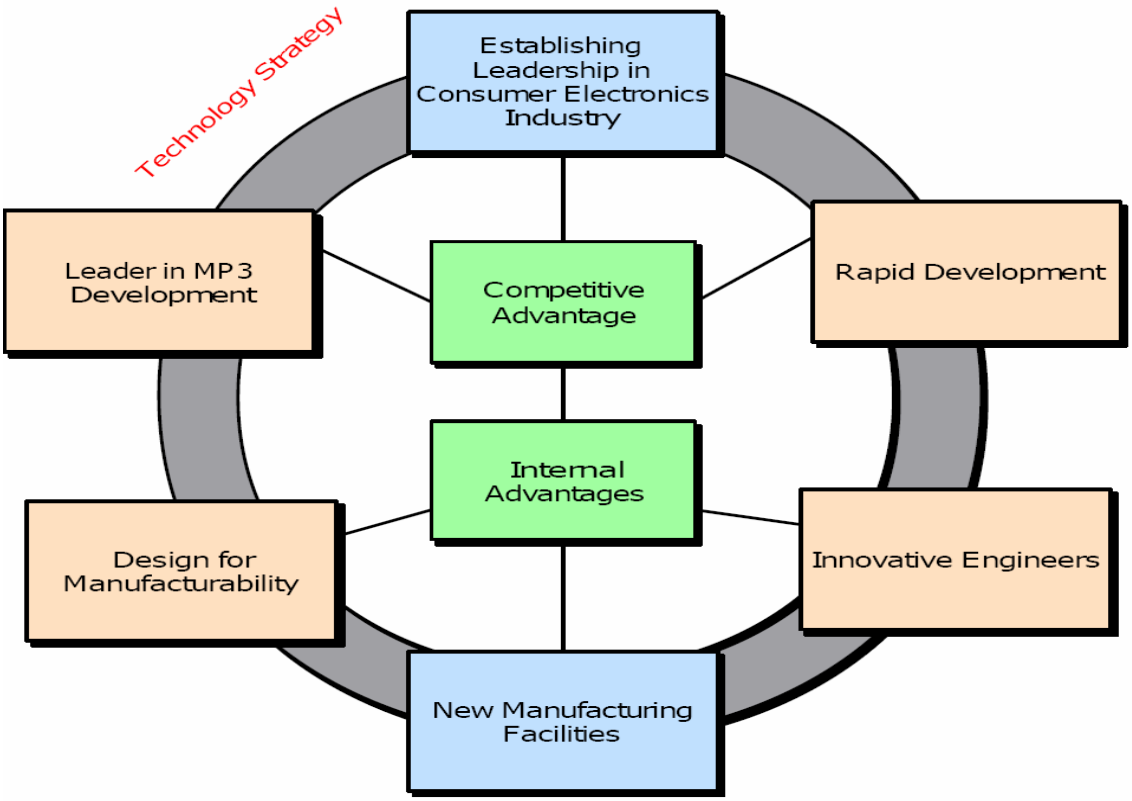
Linux – The whole device is running under Linux software that allows the device to read different formats, such as MEPG, WMA, WAV and ASF. Linux is the core software supplier for the G-unit device. As a strategic partner, Linux agreed to give full software support on the G-unit PMP.

LCD Screen Supplier – Since the G-unit PMP also plays video formats; there is a high volume demand for 3.5" LCD screens. Launch project team is also working closely with a local LCD screen supplier and has signed a contract with this supplier that guarantees the shipments of screens.

Internal factor -

The new manufacturing facilities – at the beginning of 2004, Launch executives have decided to build new manufacturing facilities in China to product its G-unit product. Since the expenses for building a new facility at China is cheaper than building one at USA, the cost of the product will be lower. The new facility will be fully automatic, with a massive product system. It has the capacity to produce 700,000 units per month.

The project planning started at the end of 2003. After the project development team clarifies with different suppliers and technical groups, the project was implemented right after all the meetings. January 2004, development team indicated Linux as the core software for this new device. Two months later, China facilities are relatively done and all the equipments are ready for production. Four months later, all the suppliers agreed to supply and contracts have been signed. At the end of November, Launch will start to produce its first PMP product.



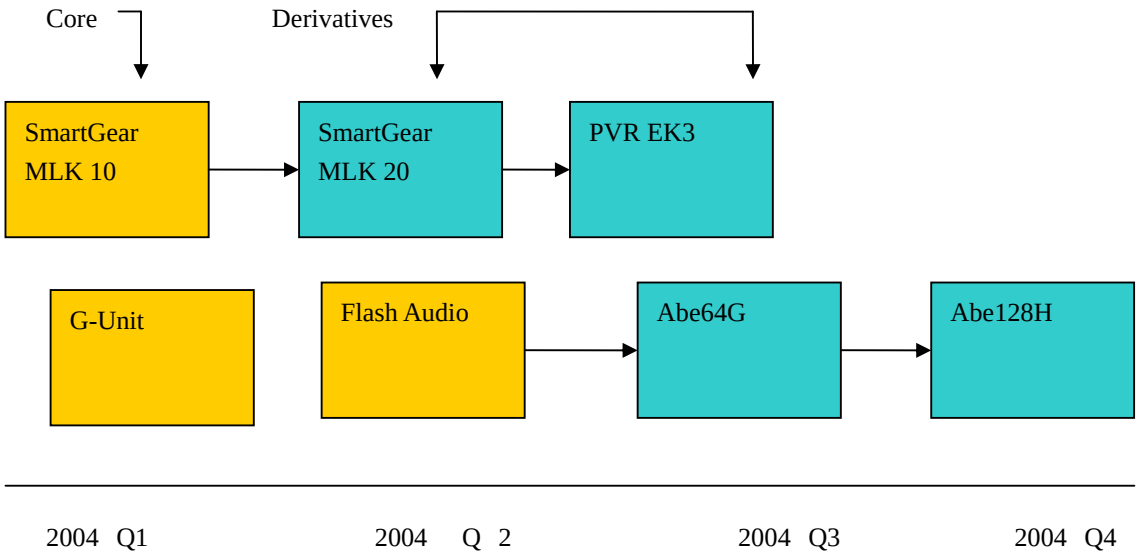
Product/Market Strategies:

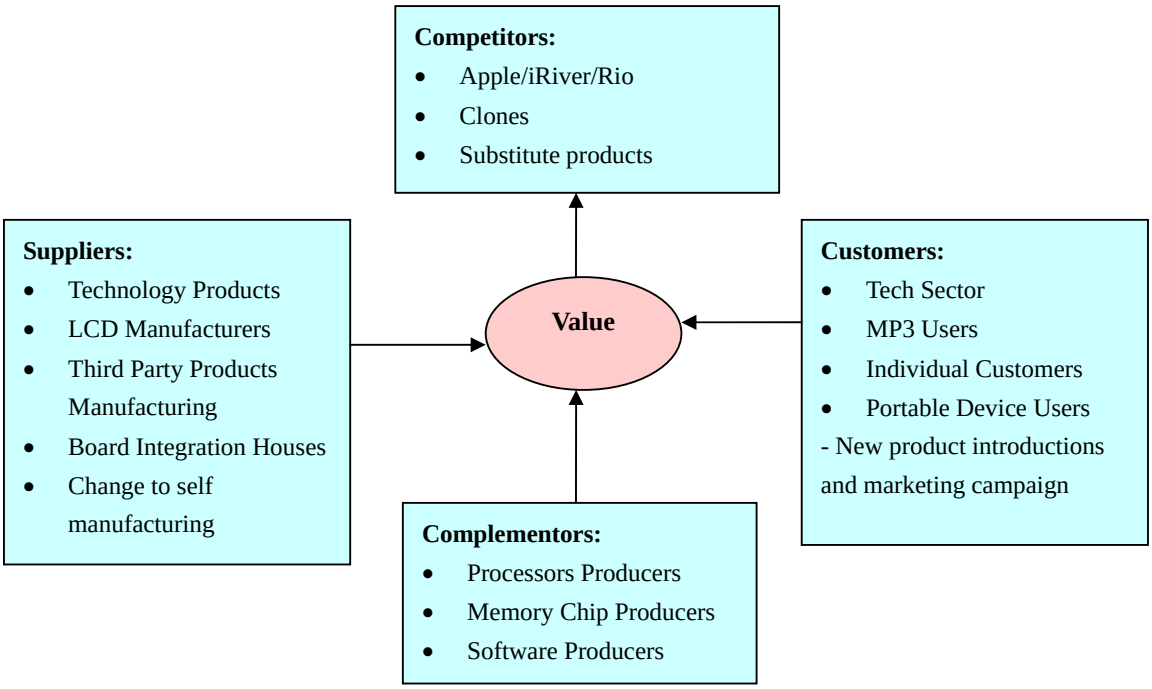
G-unit is a new product and it is the first one in this market. With unique 3.5" LCD display and Linux as the operation software, G-unit should gain much and much more competitive advantages. Albert Cox, the CEO of Launch, plans to introduce the new G-unit as not only an mp3 or video player, but also a device that has a build-in camera and satellite radio. Together with all those advance functions, the G-unit is the first and a unique high tech gadget within the market.

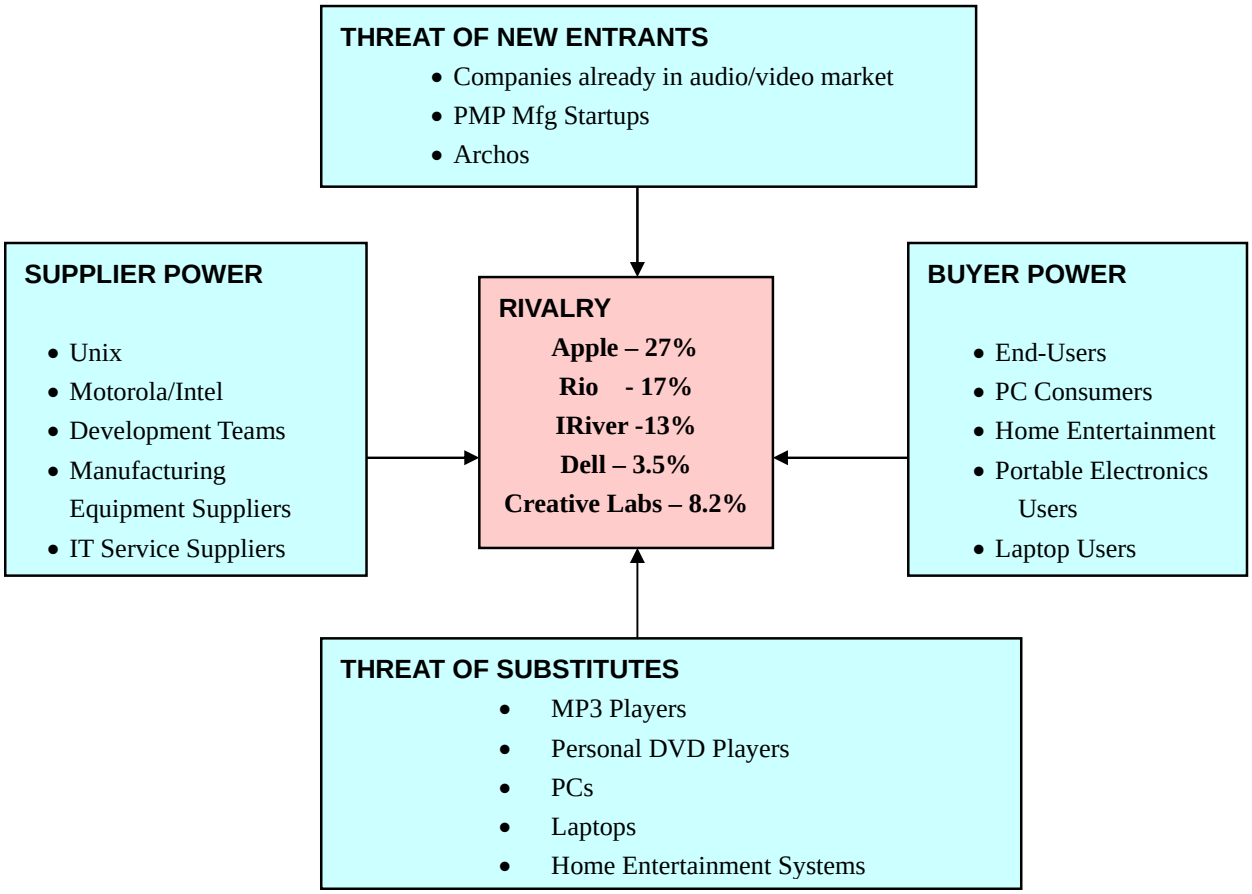
Target customers/Target group:
Since this fully functional device can do lots of different things. The cost of each one of them should be more than just an MP3 player. Such that, the project development team has indicated young adults from 15-24 would be the target customers. Additionally, tech savvy consumers that like to have the latest innovations in the market would have interest in a multi function portable media player. "Soccer" moms who spend a lot of time keeping the kids busy would benefit from our product because they will be able to let their kids watch hours of movies when taking them to sporting games or grandmas' house. Frequent flyers also benefit from our device because they can easily bring along the PMP on an international flight and pass the long hours by watching videos or listening to music that's stored on the large hard drive.

Enhancement on existing platforms:
In the future, Launch is going to modify this existing model to a more functional model. Future models will include build-in wireless card, so users can download music with the same piece of device.

- What products will be offered?
  -In the market, Sony has a small number of platform and derivative products with a short frequency of new product introductions.




Competitors:
Apple/iRiver/Rio
Clones
Substitute products
Suppliers:
Technology Products
LCD Manufacturers
Third Party Products Manufacturing
Board Integration Houses
Change to self manufacturing
Value
Customers:
Tech Sector
MP3 Users
Individual Customers
Portable Device Users
- New product introductions and marketing campaign
Complementors:
Processors Producers
Memory Chip Producers
Software Producers


THREAT OF NEW ENTRANTS
Companies already in audio/video market
PMP Mfg Startups
Archos
SUPPLIER POWER
Unix
Motorola/Intel
Development Teams
Manufacturing Equipment Suppliers
IT Service Suppliers
RIVALRY
Apple – 27%
Rio - 17%
IRiver -13%
Dell – 3.5%
Creative Labs – 8.2%
BUYER POWER
End-Users
PC Consumers
Home Entertainment
Portable Electronics Users
Laptop Users
THREAT OF SUBSTITUTES
MP3 Players
Personal DVD Players
PCs
Laptops
Home Entertainment Systems

Competitive Business Landscape

Porter Model Explanation for Launch
Personal Media Player Industry

Competitors:

We want to be able to offer our product as a substitute product for MP3 players and personal DVD players that are outside in other industries. By offering a product that provides both audio and video capabilities, we plan on differentiating ourselves from the other personal media players within the industry. We are faced with the threat that the other less innovative products within and outside the industry may already be sufficiently meeting customer needs. With our product, we want to focus on a new market segment, targeting those who want the technologies of audio and video in one device. Other forms of competition would be if other established companies decide to enter the market as well and introduce their versions of personal media players.

Customers:

A strong marketing campaign would rapidly differentiate us from existing personal electronics companies. We can target our product to many different users: PC users, Laptop users, MP3 player users, Portable DVD player users and generally people who are "on the go."

Suppliers:

To start off, it was initially required that we purchase other parts such as LCD screens from other companies. As our company grows, we plan on manufacturing our own LCD screens in the future. Launch is highly dependent on other companies such as Intel that produces processors and memory chips that add to the value and performance of the personal media players.

Complementors:

The relationships between companies such as Intel are very crucial. Also, providers of hard drives or flash drives that are used in the production of personal media players are essential. The recognition of the quality of these parts will also help boost value for the Launch products. These parts supplied have a very big impact on the products' success.

Substitutes:

Launch has a definite advantage since it can be seen as offering a newly introduced innovative product as well as a substitute product in other industries. The already existing products that are still practical and less innovative may still suffice for end users.

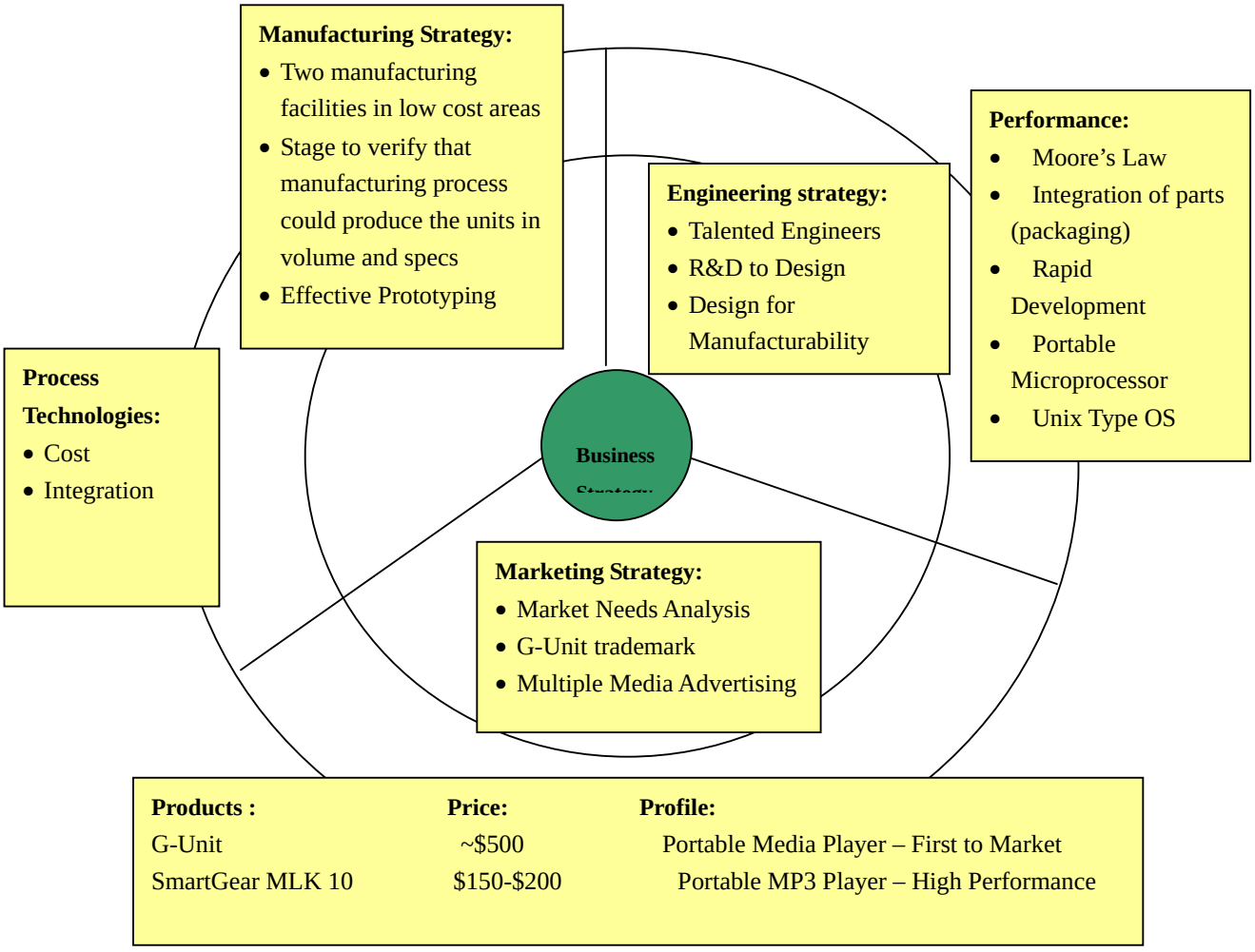
Development Goal:

After knowing the product's advantage, the project team has defined a set of goal as a guide for the future reference.

Make Launch a famous brand among all the MP3 players and other Portable Media: There are a couple of other brands of MP3/PMC players within the market that are competing. iPod and iRiver are the most famous ones. By altering G-unit's functions, Launch should be able to be more competitive and successful within the whole industry.

Minimize the cost:

The reason Launch build its facilities at China because the cost is lower than USA. In the future Launch will build some more facilities at other Asian countries. It will raise the production at a lower cost, and it will lower the cost in production. Better relationships with suppliers and our growing market share will give us buying power and quantity discounts that will allow us to lower the cost of our product components.



Market Analysis

Product Class: Consumer Electronics
Product Sub-Class: Portable Media Players
Product Brand: G-Unit P.M.P
Market: Consumer Electronics, MP3 Players, Audio/Video Players, Portable Storage
Customer needs: "Portable entertainment center"

The G-unit device will run on a Linux based OS. The device will offer 20GB and 40GB of storage, with the larger drive able to hold 175 hours of video, according to the engineering department. It uses USB 2.0 for connectivity and also has audio and video out. It weighs 20 ounces and has a Wide 3.5 inch vivid color display. Battery life is roughly 8 hours. Creative is planning to come out with a similar device, which will not have such a good sound quality and will cost approximately 25% more.

The market share for these devices is $1.1 trillion if we account the entertainment and media industry.

Table 1
Projected Adoption of Digital Music Technology

	2000	2001	2002	2003	2004	2005
Projected U.S. Population	273	276	278	281	284	287
Penetration of Digital Audio	20%	21%	23%	26%	32%	41%
People Using Digital Audio[1]	54.6	57.9	64.1	73.1	90.9	117.6
Number Using Streaming[2]	46.2	49.0	58.0	67.0	76.0	99.0
Number Downloading[2]	17.9	19.0	22.0	25.0	28.0	34.0

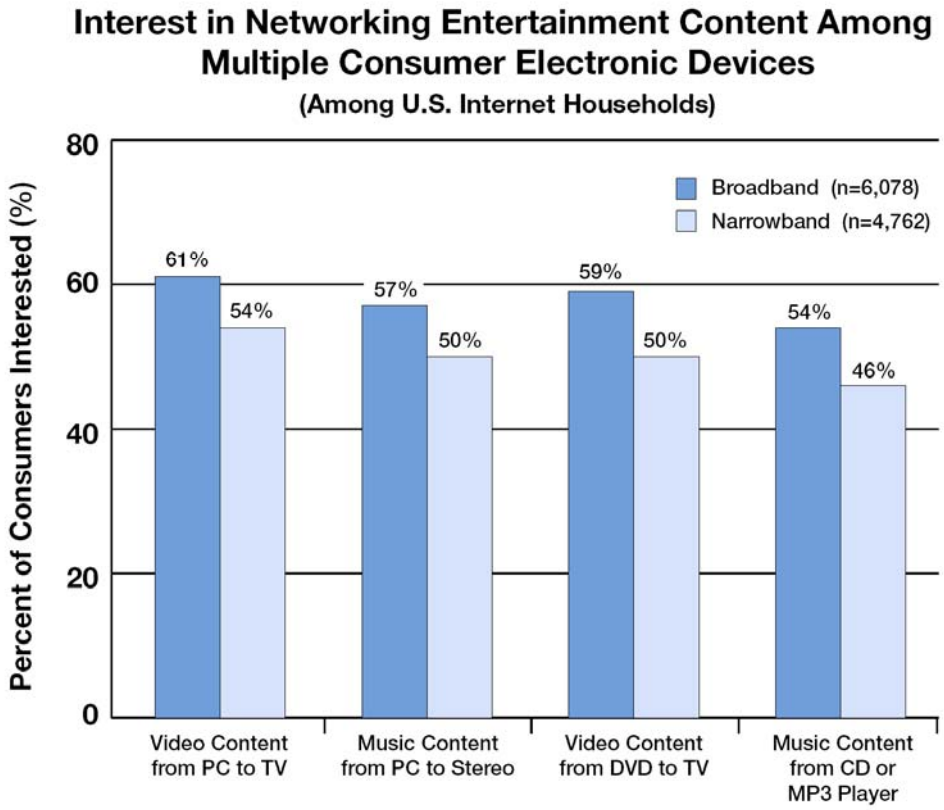
Source: Forrester Research (4)
[1] Numbers for 2001, 2004, and 2005 obtained from Forrester Research - intervening years estimated on straight-line basis
[2] Numbers for streaming and downloading do not sum to total since some people may use both methods

Five years ago the idea of carrying all the music in the world in your pocket seemed ridiculous and pointless, today many people can't imagine how they lived without it. We are predicting that although our player might not become popular right away, it will definitely become more and more recognized in the near future. Carrying a lot of pictures, together with massive amounts of music is very convenient. We will no longer need to bring our notebooks to our friend's house to connect to a TV. Everything will be stored on a pocket size player.

Additional Markets:

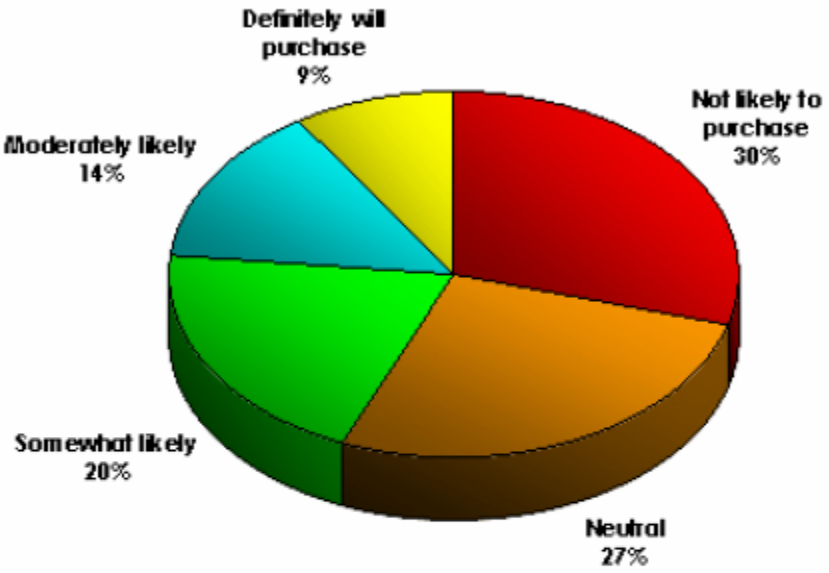
The market of digital cameras was $9 billion in 2004 and had projected growth of 37% (emarketers). We want to capture that market as complimentary to our device; our PMP will provide an option to use a memory card in order to read in images. Let's pretend you are on the road and want to download the pictures from the camera somewhere you will no longer need your computer just, take out the G-Unit and within seconds you are done transferring files through USB 2.0 fast connection.

Additionally, video systems for cars are becoming more and more affordable so our player can be also connected in the car for kids to watch the videos and listen to the music. The player has a potential to become home entertainment system that fits in your pocket that can be taken anywhere.



Consumer Likelihood in Purchasing a PMC

(Among Internet Heads-of-Households, n=1,044)



© 2004 TDG Research

The potential for these devices looks very promising with 43% expressing an interest in purchasing a PMC. However, this chart does not reflect the amount these potential adopters are willing to spend, nor does it consider the threat of alternative products. For a more in-depth analysis, see *Consumer Interest in Portable Media Centers* as well as TDG's upcoming PMC analysis and forecast.

Issues:

First and foremost is the price tag, right now is set between US$400-700. That is expensive, especially compared with the digital music player market (US$150-400). Second, is the size. While not quite as big as an Xbox, the real estate required to fit a decent color LCD, controls, and hard drive is a bit high. With the mantra being "smaller is better" in the digital music market, will such a relatively-hefty device take off? Lastly, is the market ready for portable media players? Video and the PC is still a relatively-recent development, and while many enthusiasts have gigabytes of hard drive space devoted to movies and TV shows, the technology has yet to hit the mainstream. If it does make it to the mass market over the next couple of years, we will be well-positioned given G-Units' early entry into the market.

PMP vs LAPTOP:

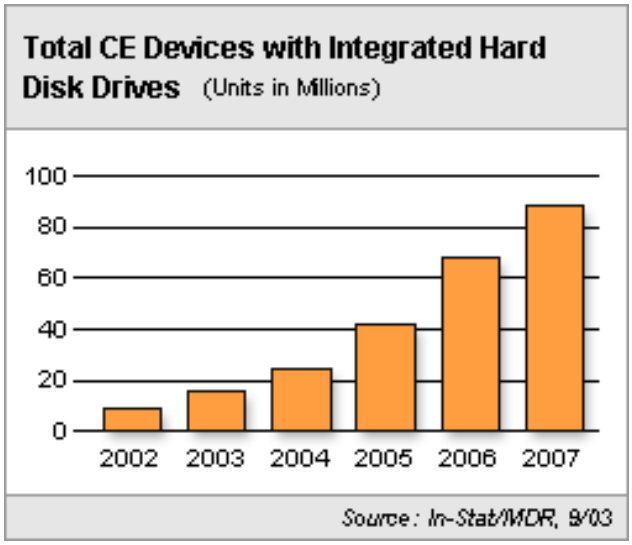
If you're a parent and have a ton of photos of the kids to take with you to grandma's, would you rather take your laptop or a device that fits in your pocket and can connect to grandma's TV for a slide show?

If you have two or three kids and a cross-country road trip in the minivan, do you buy each one his own laptop, or buy three PMCs and load them up with dozens of hours of movies and cartoons, and thousands of their favorite songs?

When's the last time you saw a laptop for sale for $500? Or a pocket PC with a 20 GB Hard Disk and 22 hours of audio battery life or 7 hours of continuous video life?

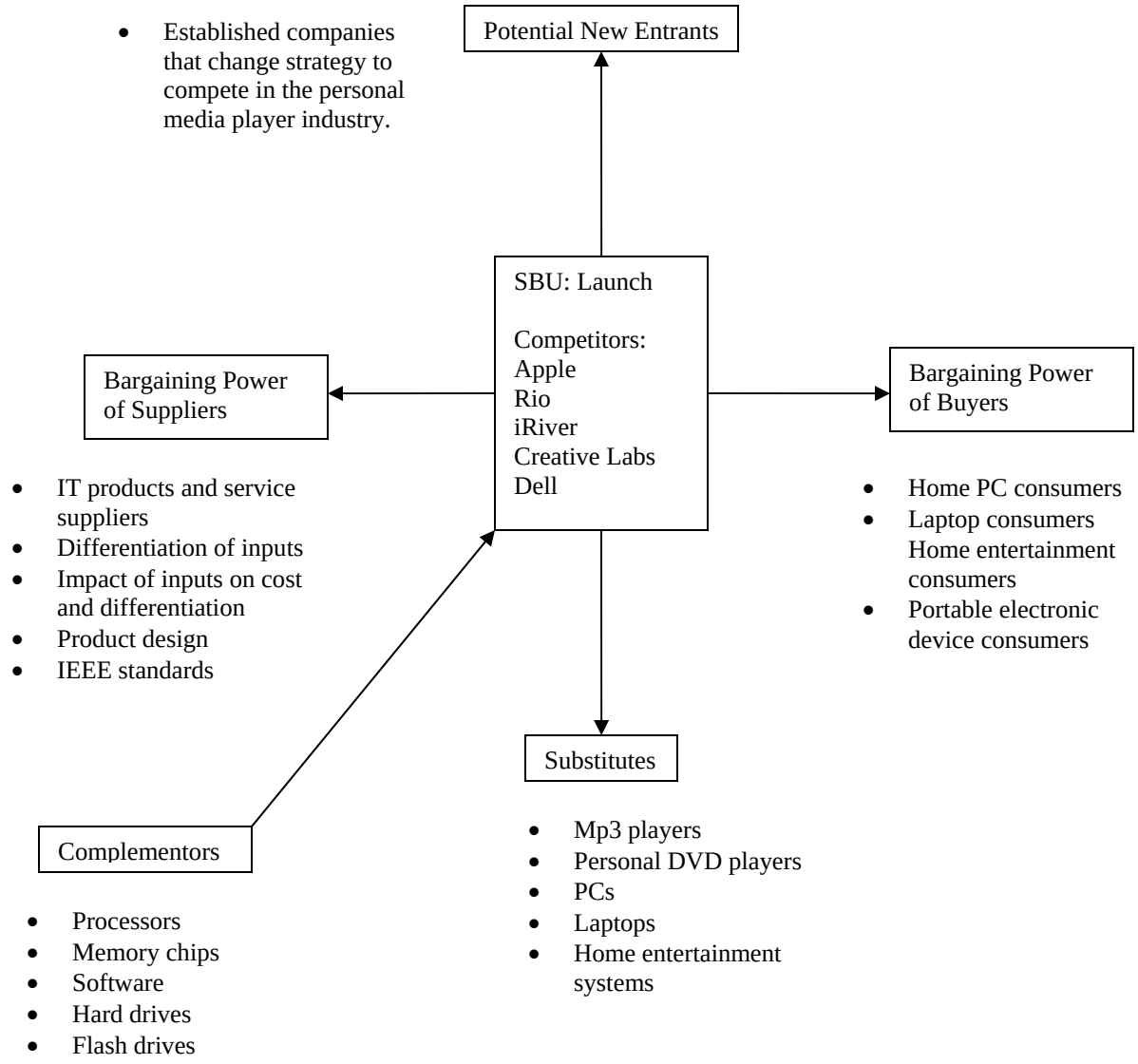
MARKET NEEDS ANALYSIS – PROBLEMS

Potentially, there could be no mass appeal for portable media players or similar products (ie video-iPods). Idealistically, it may be cache to have an entire entertainment center in the palm of your hands wherever you are. But realistically, the convenience of carrying around a movie player is very limited. The success of iPods and similar mp3 players do not automatically guarantee the success of PMPs. IPods and like devices can be used almost anywhere, in a shopping mall, on the bus, walking down the street or while reading a book. This is because music requires much less active attentiveness than watching something on a video screen. Additionally, watching movies often will take at least an hour or two compared to 3-4 minute songs. Given that, how many different places would you ever use such a device? And how much would that ability really be worth? Additionally, compared to the iPods, the consumer will see higher price tags, larger form factor and lower battery life. Perhaps these devices will serve better in the portable DVD market where the market is a definition of a niche. There is also the notion that a laptop is a better purchase than the PMP because the price difference far outweighs the added utility.



Competitive Business Landscape

Porter Model for Launch
Personal Media Player Industry



We at Launch are new entrants into the $50 million personal media player industry. We are not developing a substitute product. Rather we are creating a new innovation that combines the features of an mp3 player along with an LCD screen to play movie files into a single personal media player. There are many existing products out in the market such as mp3 players and there are also personal DVD players. Our product offers both features that store different file types in a single hard drive. In other industries, our product can be perceived as a substitute product.

Competitors:

As a new entrant into the industry, Launch is able to capture a good portion of the market share. We want to be able to offer our product as a substitute product for mp3 players and personal DVD players that are outside in other industries. By offering a product that provides both audio and video capabilities, we plan on differentiating ourselves from the other personal media players within the industry. We are faced with the threat that the other less innovative products within and outside the industry may already be sufficiently meeting customer needs. With our product, we want to focus on the niche market, targeting those who want the technologies of audio and video in one device. Other forms of competition would be if other established companies decide to enter the market as well and introduce their versions of personal media players.

Customers:

As a small company introducing a new and innovative product, we are given the opportunity to start a strong marketing campaign that would rapidly differentiate us from existing personal electronics companies.

Suppliers:

To start off, it was initially required that we purchase other parts such as LCD screens from other companies. As our company grows, we plan on manufacturing our own LCD screens in the future. Launch is highly dependent on other companies such as Intel that produces processors and memory chips that add to the value and performance of the personal media players.

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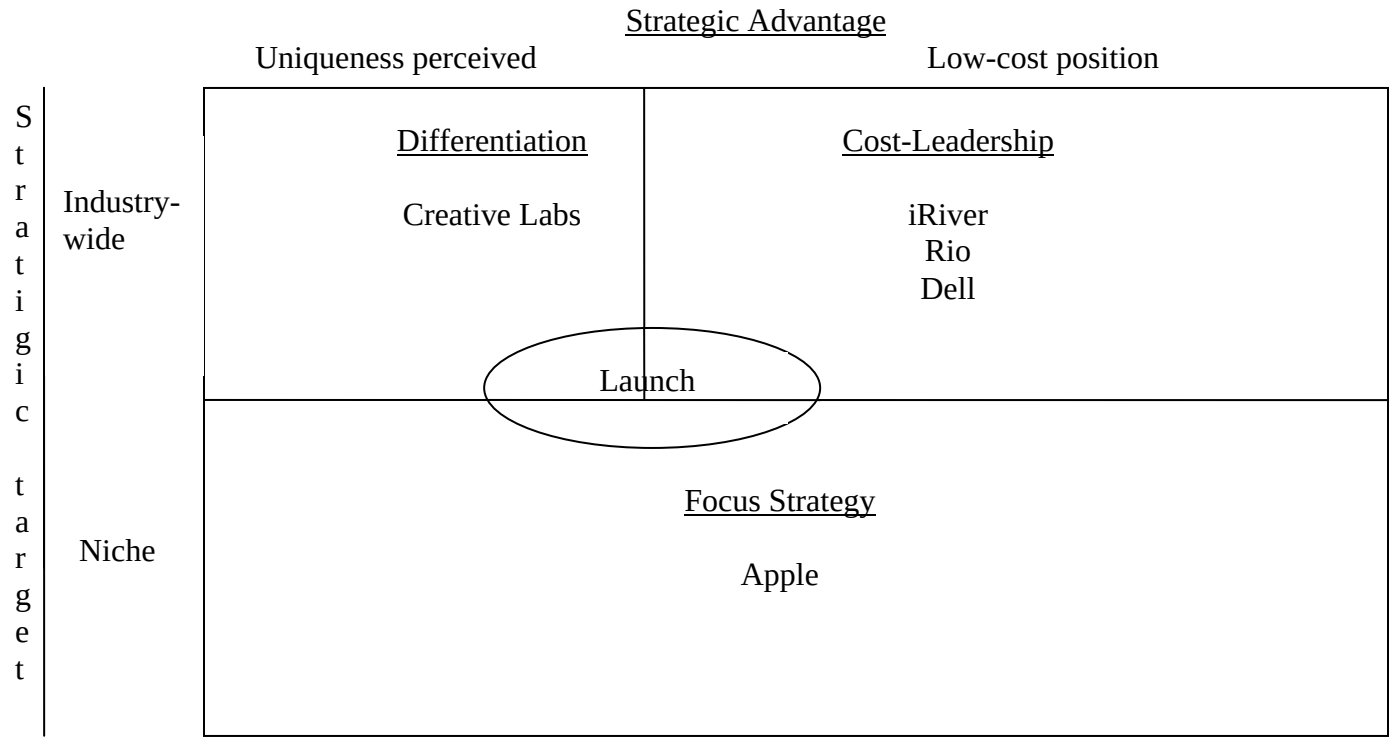
Substitutes:

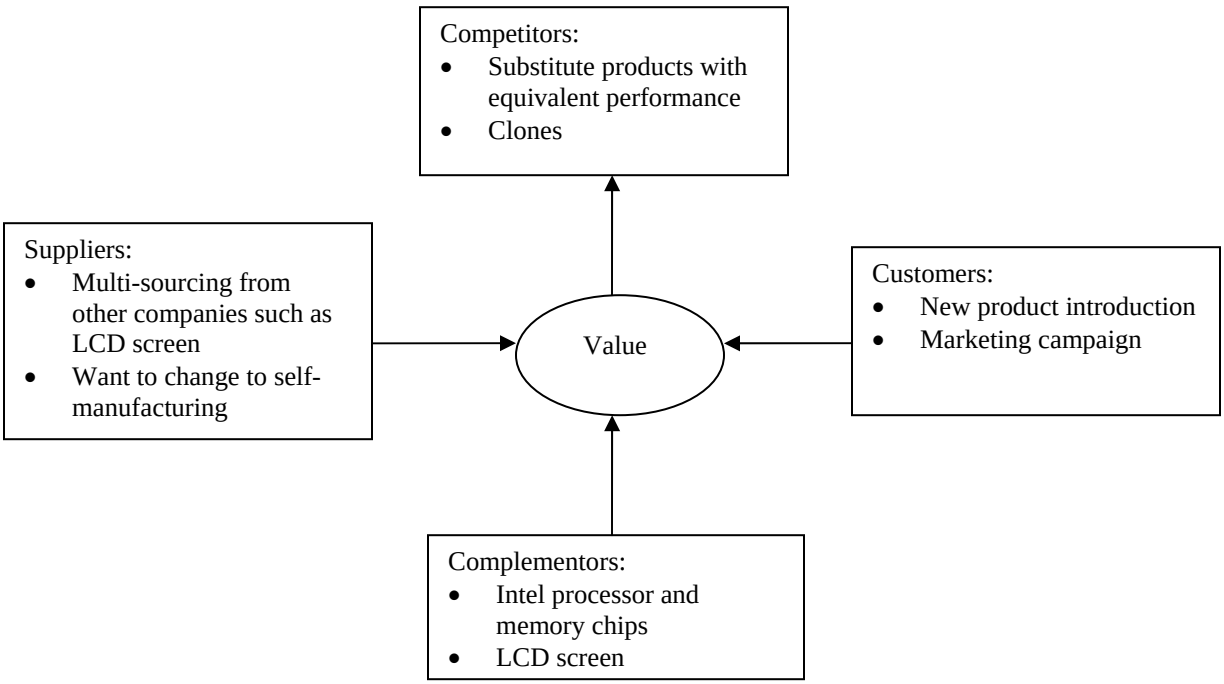
Launch has a definite advantage since it can be seen as offering a newly introduced innovative product as well as a substitute product in other industries. The already existing products that are still practical and less innovative may still suffice for end users.

Companies within the Industry That Create Competitive Advantage



Value Net for Launch

Relationships between Launch and the Players



Aggregate Project Plan

Launch's projects are more likely to succeed when our organizations has a comprehensive approach to match organizational resources to project requirements and develop an aggregate plan to coordinate the management of multiple projects. Launch will strive to learn concepts and tools to help identify the different skills required by different types of projects, and develop a framework to select a project portfolio that we can successfully complete while developing the resources and skills that will allow our organization to grow.

Projects that our company is currently undertaking:

Product Model	Description	Type	Price (in $)	# of units (in 1000s)	Development Cost (in $mill)	NPV (in $mill)
Abe64G	64mb MP3 / WMA player	Old Core	99	1350	15	125
Abe128H	128mb MP3 / WMA player	Derivative / Enhancement	125	1150	16	150
Flashie	Flash Pen Drive	Next Generation	75	1200	13	110
SmartGear MLK10	MP3 player with an internal HDD 10GB	Next Generation	200	1100	22	250
SmartGear MLK20	MP3 player with an internal HDD 20GB	Enhancement	225	1450	23	275
PVR EK3	Portable Voice Recorders with flash technology	Addition to Family	299	500	10.5	50
G-unit	Portable media player with 20GB HDD	New Core	499	2000	44 - 60	800
Linux Dev	Linux development environment for G-unit	Additive	-	-	4	-

Launch G-unit

Trade-off matrix

- App. Execution Time	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
+ Support all A/V formats	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	☺
+Portable Media Player Connectivity	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	☻	
+MP3 decoding	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
+ Expandible Memory	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				☻
- Weight	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
+ Hard Drive Size	x	x	x	x	x	x	x	x	x	x	x	x	x	□					☺
+ Warrenty	x	x	x	x	x	x	x	x	x	x	x	x							
+ Lithium-Ion Battery	x	x	x	x	x	x	x	x	x	x	x				■				
+ USB 2.0	x	x	x	x	x	x	x	x	x	x							☻		☺
- Size of Unit	x	x	x	x	x	x	x	x	x		■		■	☻			☺		
+ FM Tuner/Voice Recorder	x	x	x	x	x	x	x	x	□		☺								
+ Color Display	x	x	x	x	x	x	x		■		☻								
+ Remote Control	x	x	x	x	x	x													
- Time to Design	x	x	x	x	x		■									□	□		
+ Headphone	x	x	x	x				☺											
+ Padded Case	x	x	x						■										
+ Large Buttons	x	x			□				■										
- Cost of Development	x		□				■				□	□	□						

Relationships

- ☻ Strong Pos.
- ☺ Medium Pos.
- □ Medium Neg.
- ■ Strong Neg.

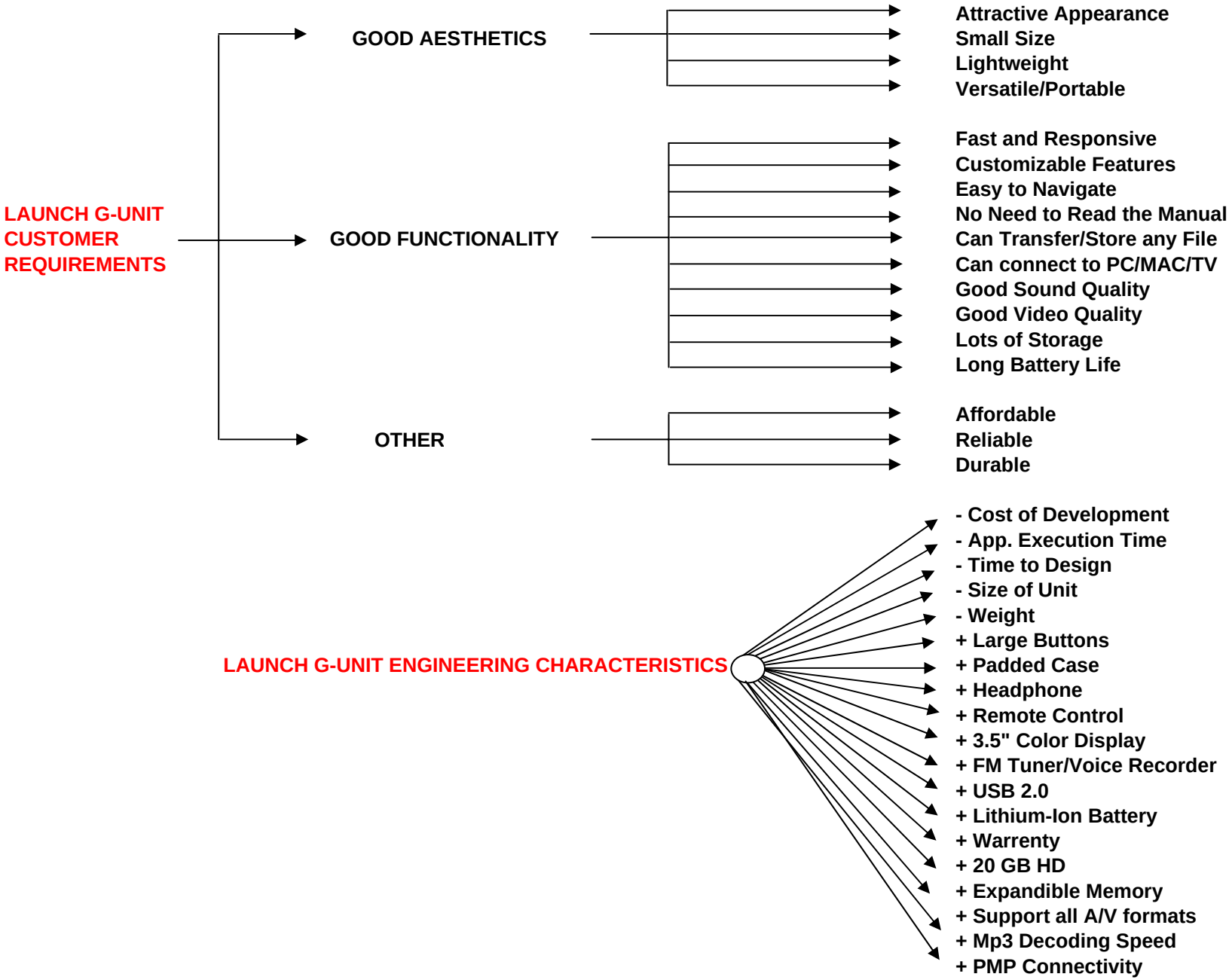
Product/Engineering Characteristics

Customer Percep.

Customer Requirements		Importance	- Cost of Development	+ Large Buttons	+ Padded Case	+ Headphone	- Time to Design	+ Remote Control	+ Color Display	+ FM Tuner/Voice Recorder	- Size of Unit	+ USB 2.0	+ Lithium-Ion Battery	+ Warrenty	+ Hard Drive Size	- Weight	+ Expandible Memory	+MP3 decoding	+Portable Media Player Connectivity	+ Support all A/V formats	- App. Execution Time	1	2	3	4	5
Good Asthetics	Attractive Appearance	7		□					☻		☻													◎	▲	⬭
	Small Size	5			■			□		□	☻		☻		■		□							◎		⬭	▲
	Lightweight	4			□						☺				□	☻								◎	▲	⬭
	Versatile/Portable	7			☻	☺				☺	☺		☻			☺			☻	☻			◎		⬭	▲
Good Functionality	Fast and Responsive	8										☺								☺	☻		◎		▲	⬭
	Lots of Features	7	■	☻		☺		☺		☻		☻								☻				◎	▲	⬭
	Easy to Navigate	3		☺				☺	☺														◎	▲		⬭
	No Need to Read the Manual	2						■		□							■			☺				⬭	▲	◎
	Can Transfer/Store any File	6	■				■					☺			☻				☻	☻				◎		▲
	Can connect to PC/MAC/TV	7						☺			□	☻							☻	☻				◎	⬭	▲
	Good Sound Quality	8	■			☻												☻						⬭	◎	▲
	Good Video Quality	8	■						☻											☺				◎	▲	⬭
	Lots of Storage	5													☻			☻			□			◎	▲	⬭
	Long Battery Life	6	□						■	□			☻						☺				▲		◎	⬭
Other	Affordable	7	☻				☺																▲	⬭	◎	
	Reliable	8			☻									☻										◎	●	△
	Durable	6			☻				□			■	☺			■									◎	⬭	▲

Objective measures	Units of measure	$m	cm	Oz	YN	Wk	YN	"	YN	"x"	YN	YN	Yr	GB	Oz	YN	YN	YN	YN	ms
	Our product	70	3	4	Y	7	Y	3.5	Y	6x5	Y	Y	1	20	20	N	Y	Y	Y	9
	Product B	60	2	5	N	5	N	4	Y	8x6	Y	Y	2	30	17	Y	Y	Y	N	8
	Product C	77	3	1	N	10	Y	3	N	11x5	Y	Y	1	10	30	N	Y	N	N	11
Technical difficulty		9	1	2	3	6	3	7	2	8	2	5	3	8	5	6	4	6	9	7
Importance		8	1	3	2	4	3	8	5	5	8	8	4	9	7	3	4	3	5	6
Estimated cost		7	1	2	1	4	1	7	3	4	2	7	3	6	4	6	3	5	9	4
Targets		60	3	4	Y	6	Y	4	Y	6x5	Y	Y	1	30	19	Y	Y	Y	Y	7

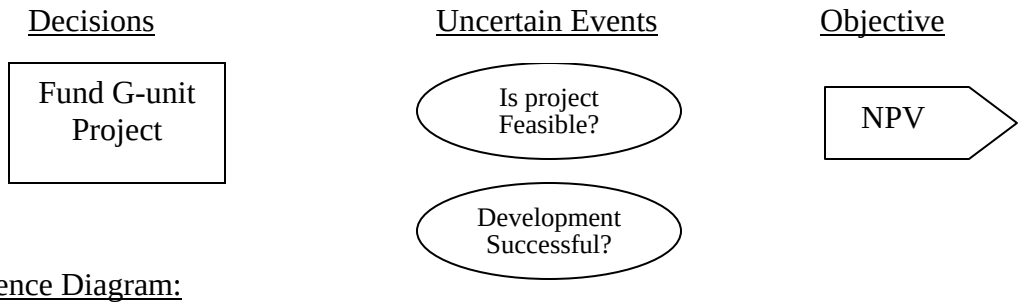
- △ Ours
- ⬭ Product B
- ◎ Product C


LAUNCH G-UNIT CUSTOMER REQUIREMENTS
GOOD AESTHETICS
Attractive Appearance
Small Size
Lightweight
Versatile/Portable
GOOD FUNCTIONALITY
Fast and Responsive
Customizable Features
Easy to Navigate
No Need to Read the Manual
Can Transfer/Store any File
Can connect to PC/MAC/TV
Good Sound Quality
Good Video Quality
Lots of Storage
Long Battery Life
OTHER
Affordable
Reliable
Durable
LAUNCH G-UNIT ENGINEERING CHARACTERISTICS
- Cost of Development
- App. Execution Time
- Time to Design
- Size of Unit
- Weight
+ Large Buttons
+ Padded Case
+ Headphone
+ Remote Control
+ 3.5" Color Display
+ FM Tuner/Voice Recorder
+ USB 2.0
+ Lithium-Ion Battery
+ Warrenty
+ 20 GB HD
+ Expandible Memory
+ Support all A/V formats
+ Mp3 Decoding Speed
+ PMP Connectivity

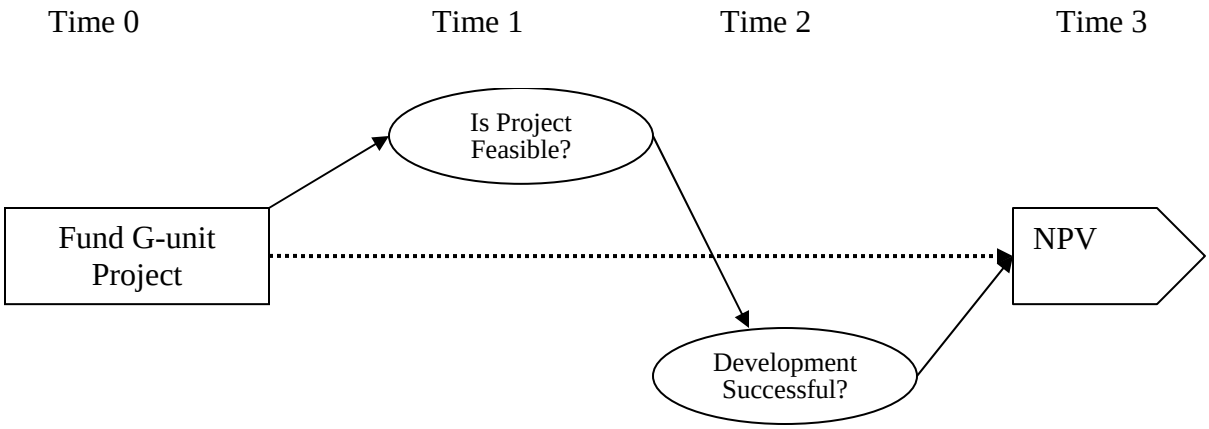
Launch has allocated an annual budget of $87M for the development of five projects that were proposed with considerable market and technology analysis done.

- G-unit – A portable media player with 20GB HDD.
- Abe128H – An MP3 flash player with 128mb flash card.
- SmartGear MLK20 – An MP3 player with an internal 20GB HDD.
- PVR EK3 - A Portable Voice Recorders with flash technology.
- Flashie – Flash Pen Drive, 64mb to 2gb compact flash drive.

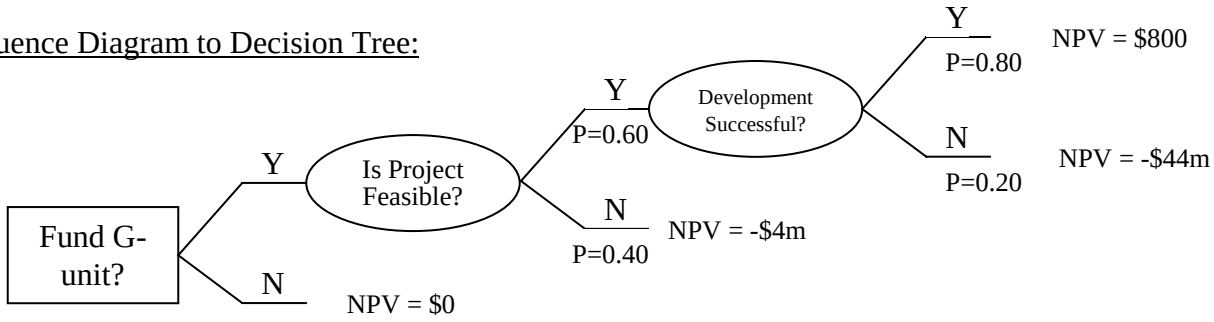
Product/Products	Is Project Feasible (F)?		Will development (D) be successful?		Time to Market (months)	NPV of expected profit ($m)
	Cost($m)	p(F)	Cost($m)	p(D/F)		
G-unit	4	0.6	44/year	0.8	18	800
Abe128H	1	0.8	15	0.9	10	175
SmartGear MLK20	2	0.75	20	0.85	12	250
PVR EK3	0.5	0.95	10	0.98	6	50
Flashie	1	0.9	12	0.95	9	110



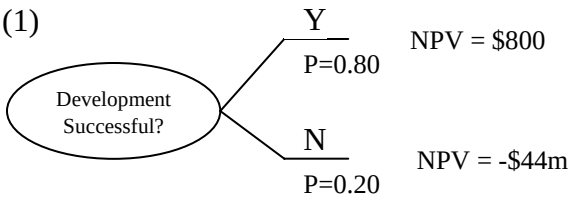
Influence Diagram:



Influence Diagram to Decision Tree:

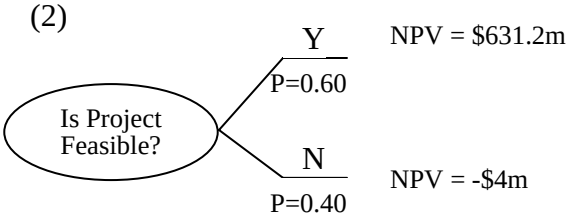


(1)



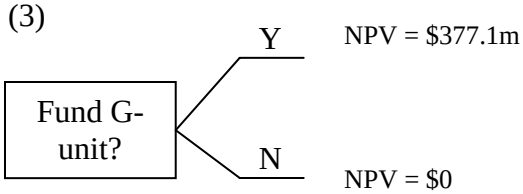
NPV = ($800)*0.8 + (-$44)*0.2 = $631.2m

(2)



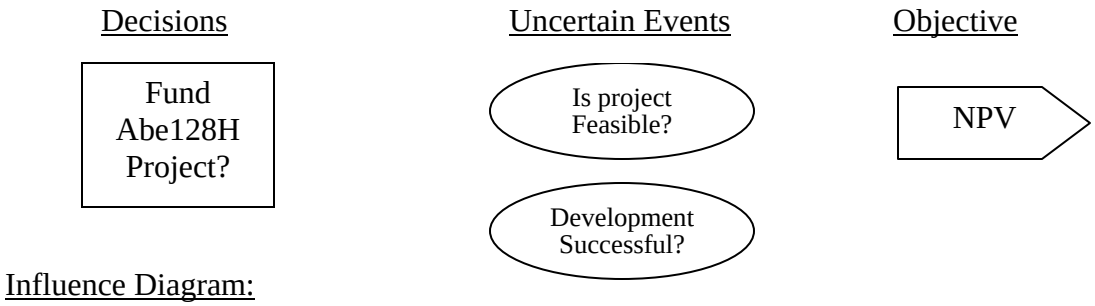
NPV = ($631.2)*0.6 + (-$4)*0.4 = $377.1m

(3)

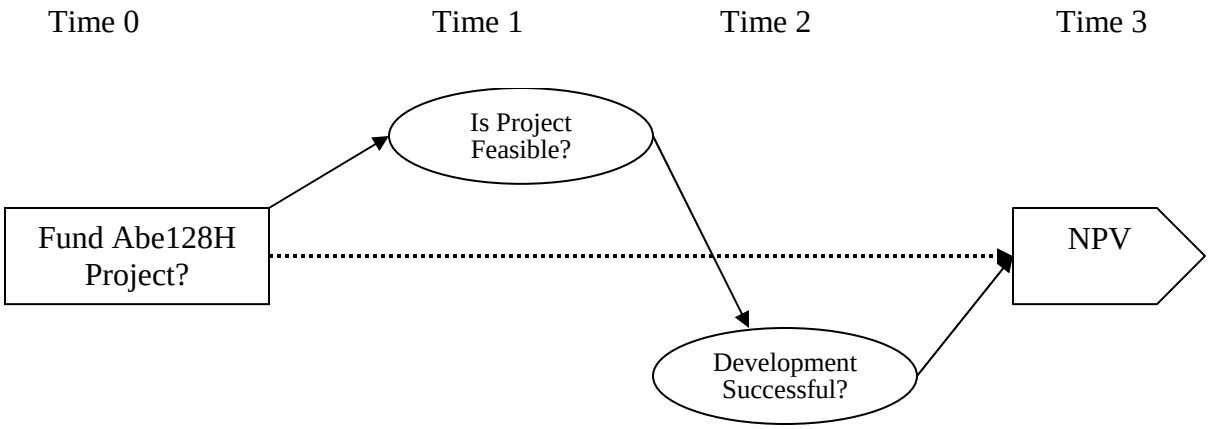


NPV = $377.1m

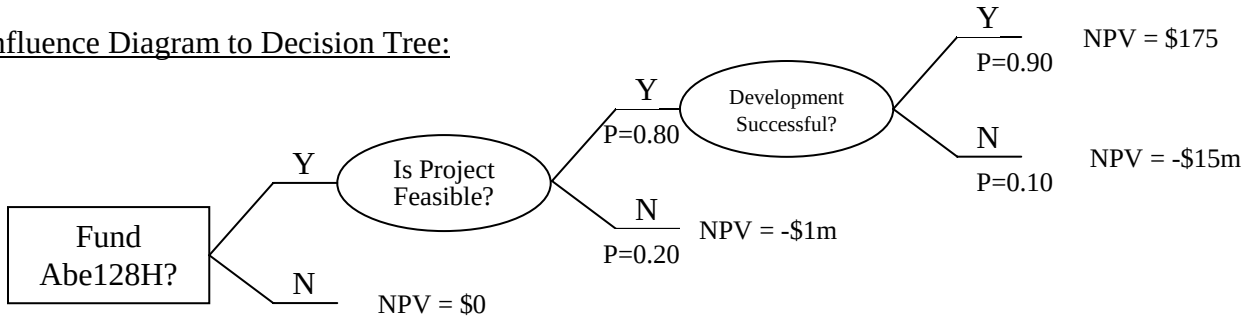
Project Cost = $48m



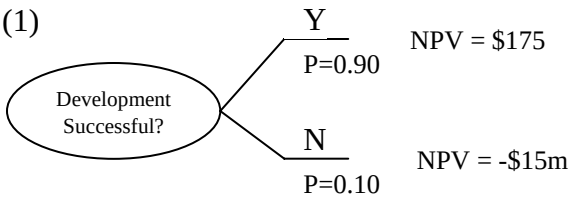
Influence Diagram:



Influence Diagram to Decision Tree:

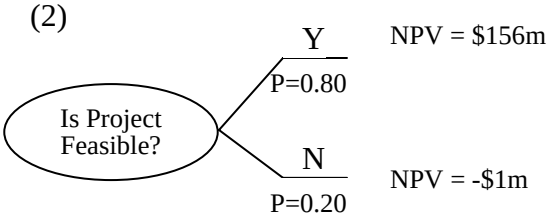


(1)



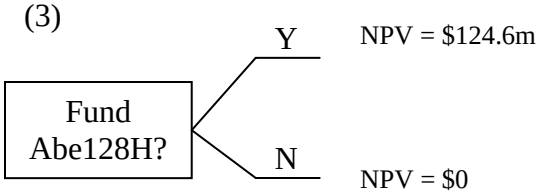
NPV = ($175)*0.9 + (-$15)*0.1 = $156m

(2)



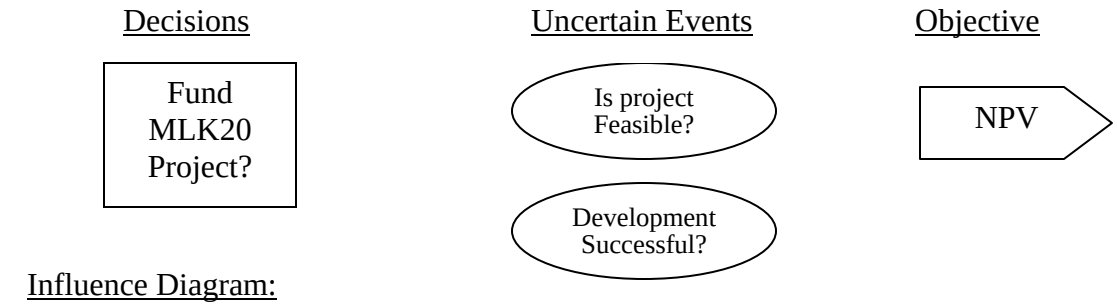
NPV = ($156)*0.8 + (-$1)*0.2 = $124.6m

(3)

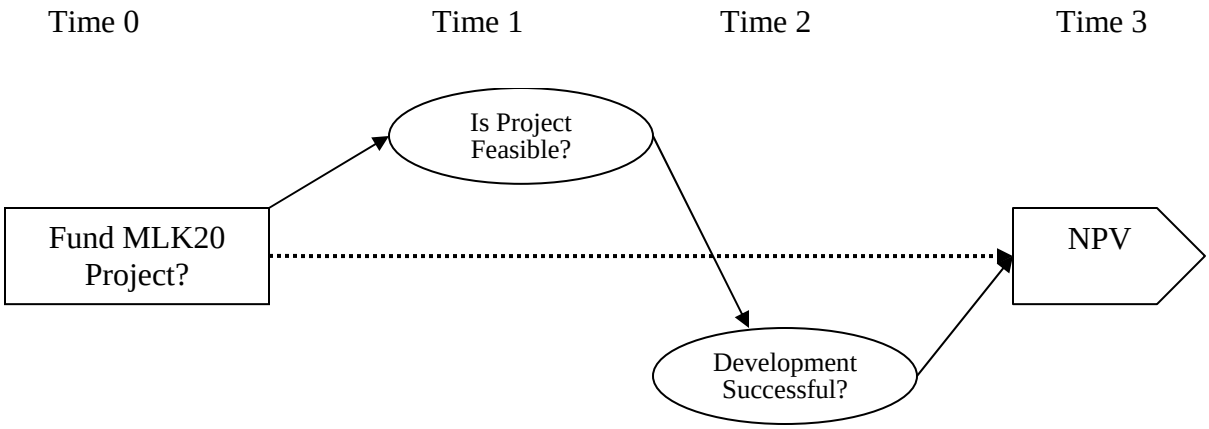


NPV = $124.6m

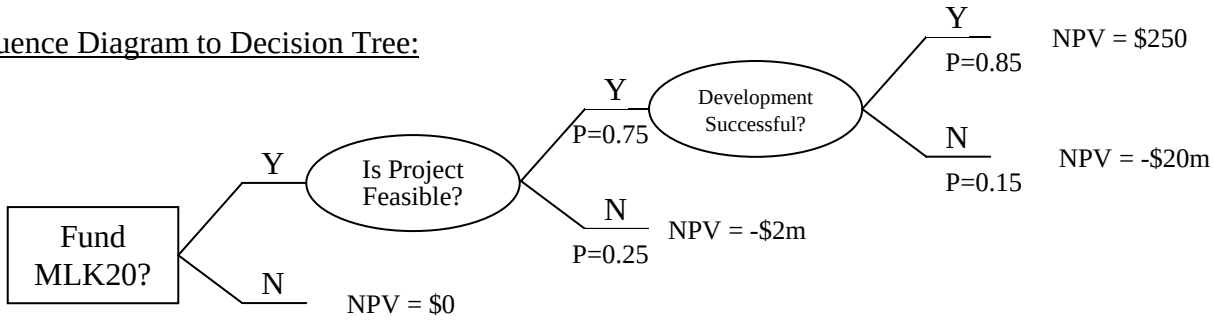
Project Cost = $16m



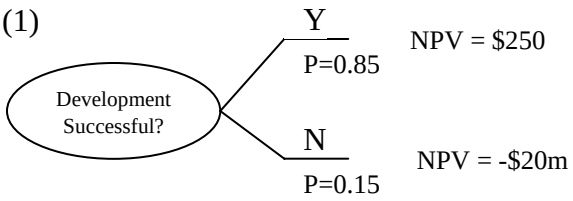
Influence Diagram:



Influence Diagram to Decision Tree:

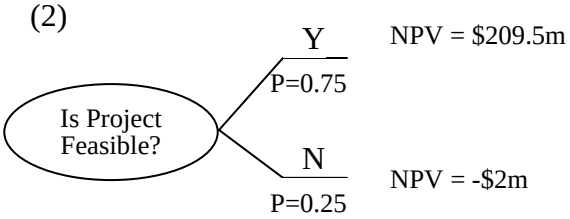


(1)



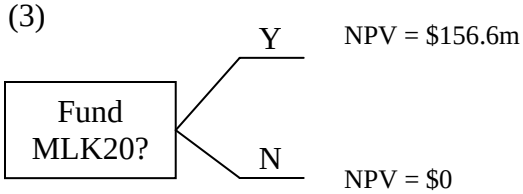
NPV = ($250)*0.85 + (-$20)*0.15 = $209.5m

(2)



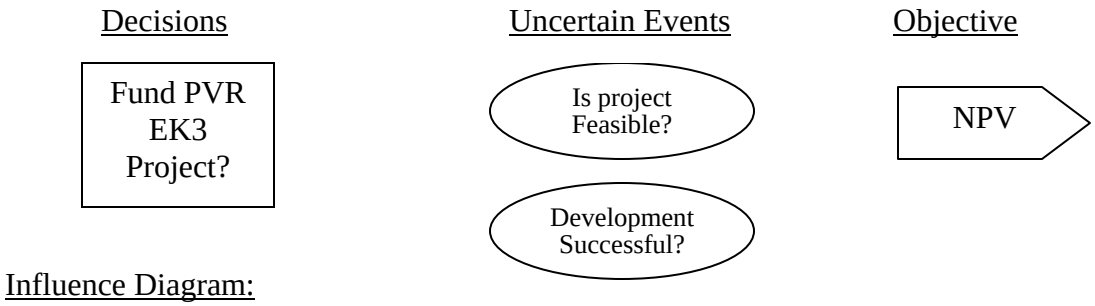
NPV = ($209.5)*0.75 + (-$2)*0.25 = $156.6m

(3)

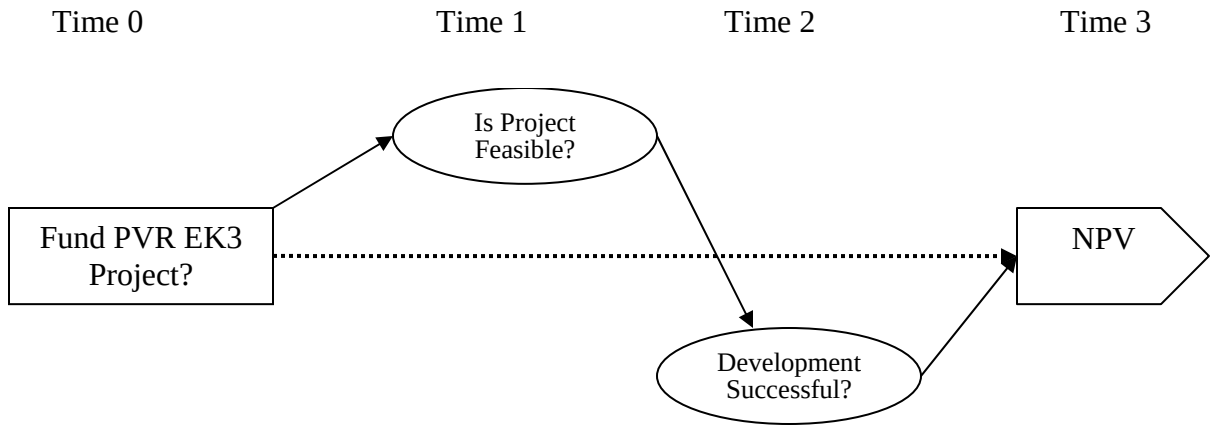


NPV = $156.6m

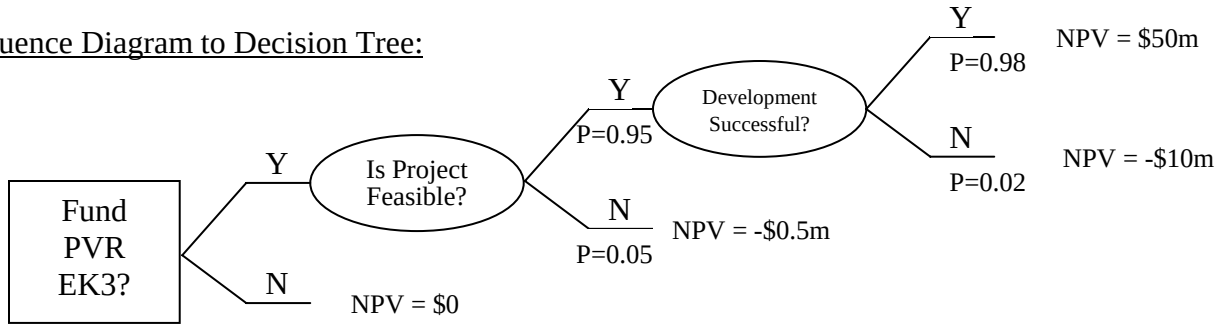
Project Cost = $22m



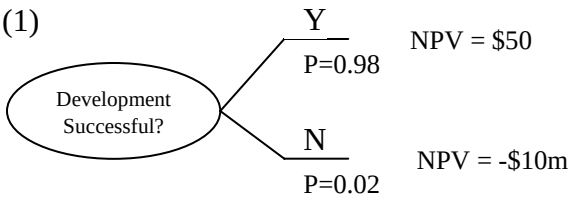
Influence Diagram:



Influence Diagram to Decision Tree:

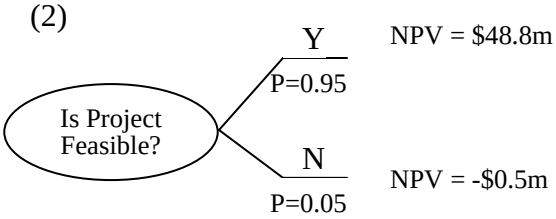


(1)



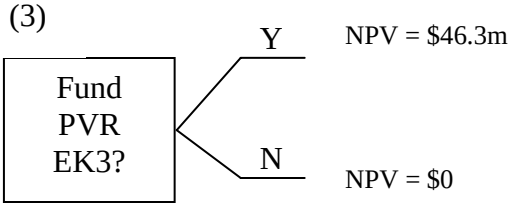
NPV = ($50)*0.98 + (-$10)*0.02 = $48.8m

(2)



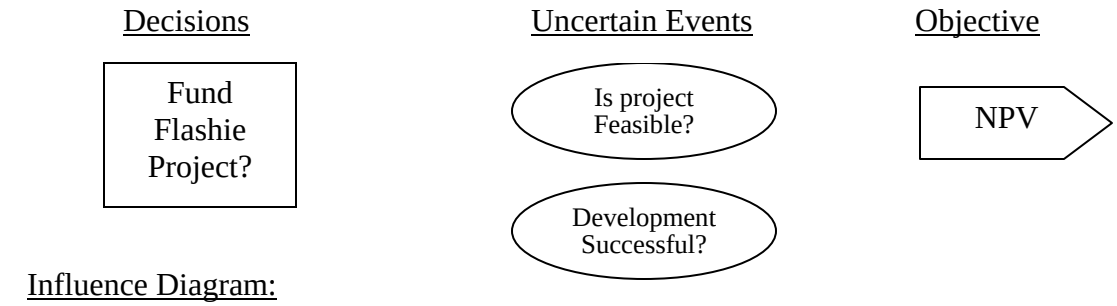
NPV = ($48.8)*0.95 + (-$0.5)*0.05 = $46.3m

(3)

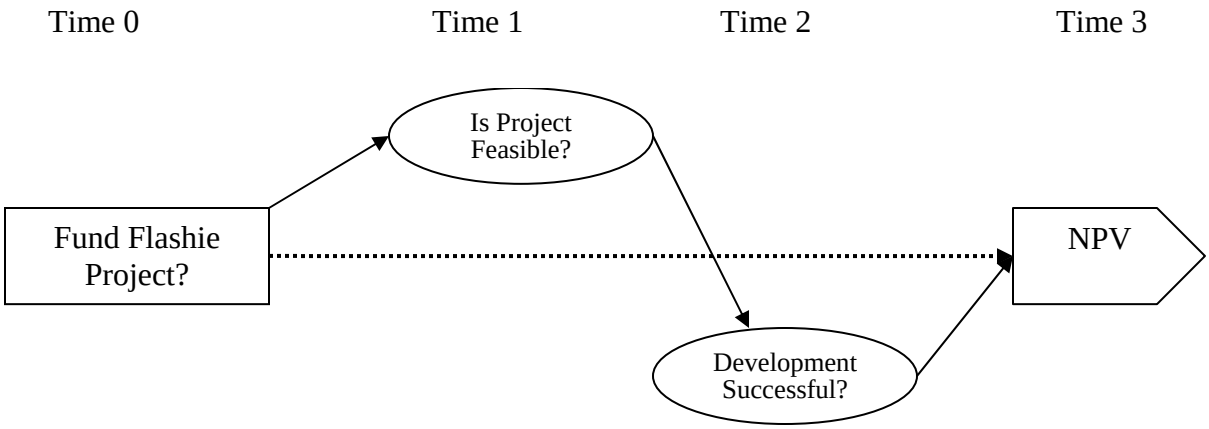


NPV = $46.3m

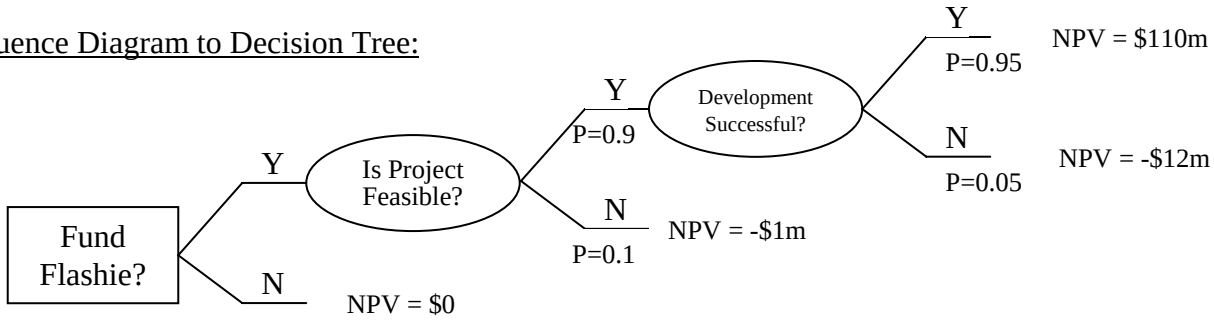
Project Cost = $10.5m



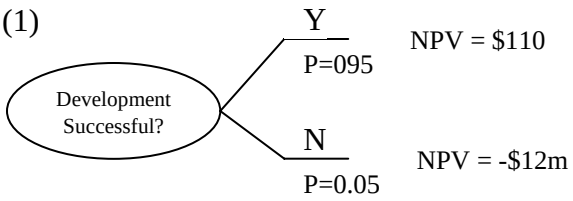
Influence Diagram:



Influence Diagram to Decision Tree:

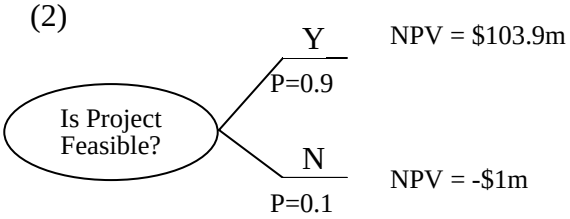


(1)



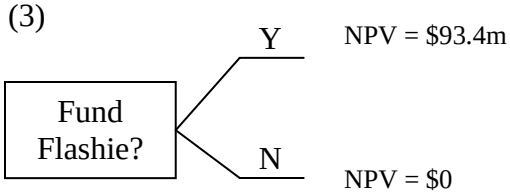
NPV = ($110)*0.95 + (-$12)*0.05 = $103.9m

(2)



NPV = ($103.9)*0.9 + (-$1)*0.1 = $93.4m

(3)

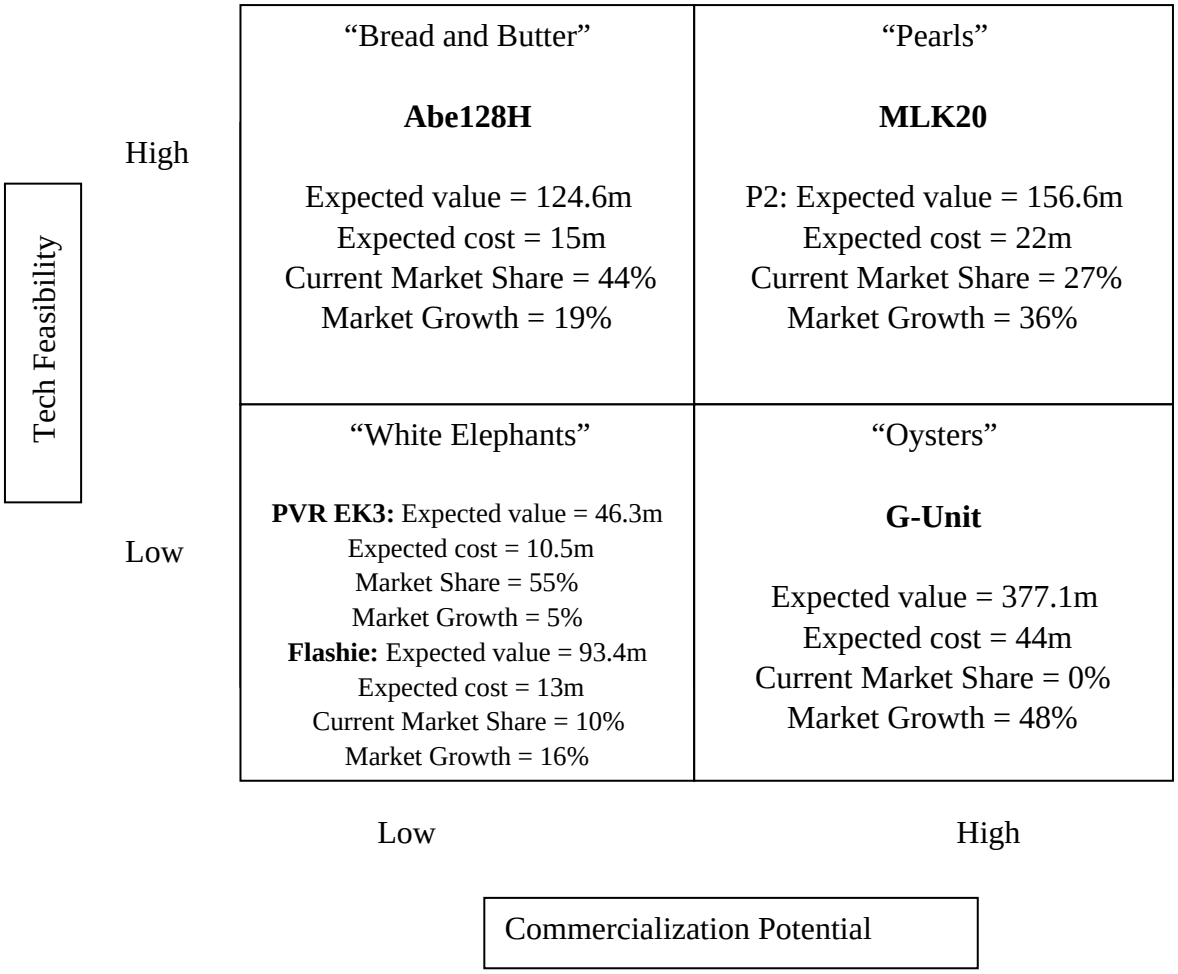


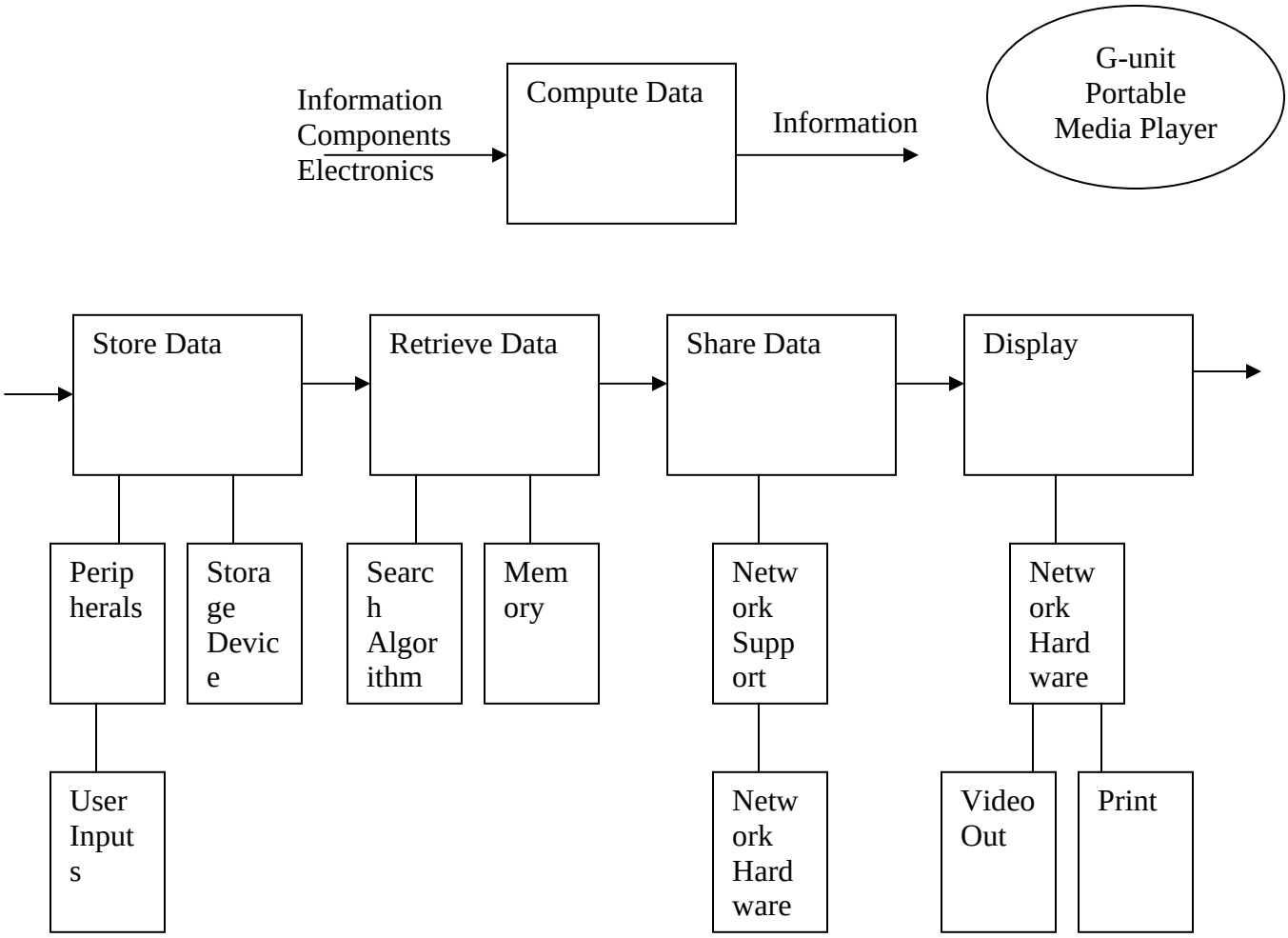
NPV = $93.4m

Project Cost = $13m

Projects	G-unit	Abe128H	MLK20	PVR EK3	Flashie		
Profit	377.1	124.6	156.6	46.3	93.4		
Cost	48	16	22	10.5	13	Total Cost	Total Profit
	0	0	0	0	0	0	0
	0	0	0	1	0	10.5	46.3
	0	0	0	0	1	13	93.4
	0	1	0	0	0	16	124.6
	0	0	1	0	0	22	156.6
	0	0	0	1	1	23.5	139.7
	0	1	0	1	0	26.5	170.9
	0	1	0	0	1	29	218
	0	0	1	1	0	32.5	202.9
	0	0	1	0	1	35	250
	0	1	1	0	0	38	281.2
	0	1	0	1	1	39.5	264.3
	0	0	1	1	1	45.5	296.3
	1	0	0	0	0	48	377.1
	0	1	1	1	0	48.5	327.5
	0	1	1	0	1	51	374.6
	1	0	0	1	0	58.5	423.4
	1	0	0	0	1	61	470.5
	0	1	1	1	1	61.5	420.9
	1	1	0	0	0	64	501.7
	1	0	1	0	0	70	533.7
	1	0	0	1	1	71.5	516.8
	1	1	0	1	0	74.5	548
	1	1	0	0	1	77	595.1
	1	0	1	1	0	80.5	580
	1	0	1	0	1	83	627.1
	1	**1**	**1**	**0**	**0**	**86**	**658.3**
	1	1	0	1	1	87.5	641.4
	1	0	1	1	1	93.5	673.4
	1	1	1	1	0	96.5	704.6
	1	1	1	0	1	99	751.7
	1	1	1	1	1	109.5	798

Given the annual budget of $87 million, the comulitive value can be maximized by selecting to do project G-Unit, Abe128H, and MLK20. The expected value will come out to $658.3 million and the total cost is $86m leaving just $1 million that can be invested elsewhere or serve as overhead.

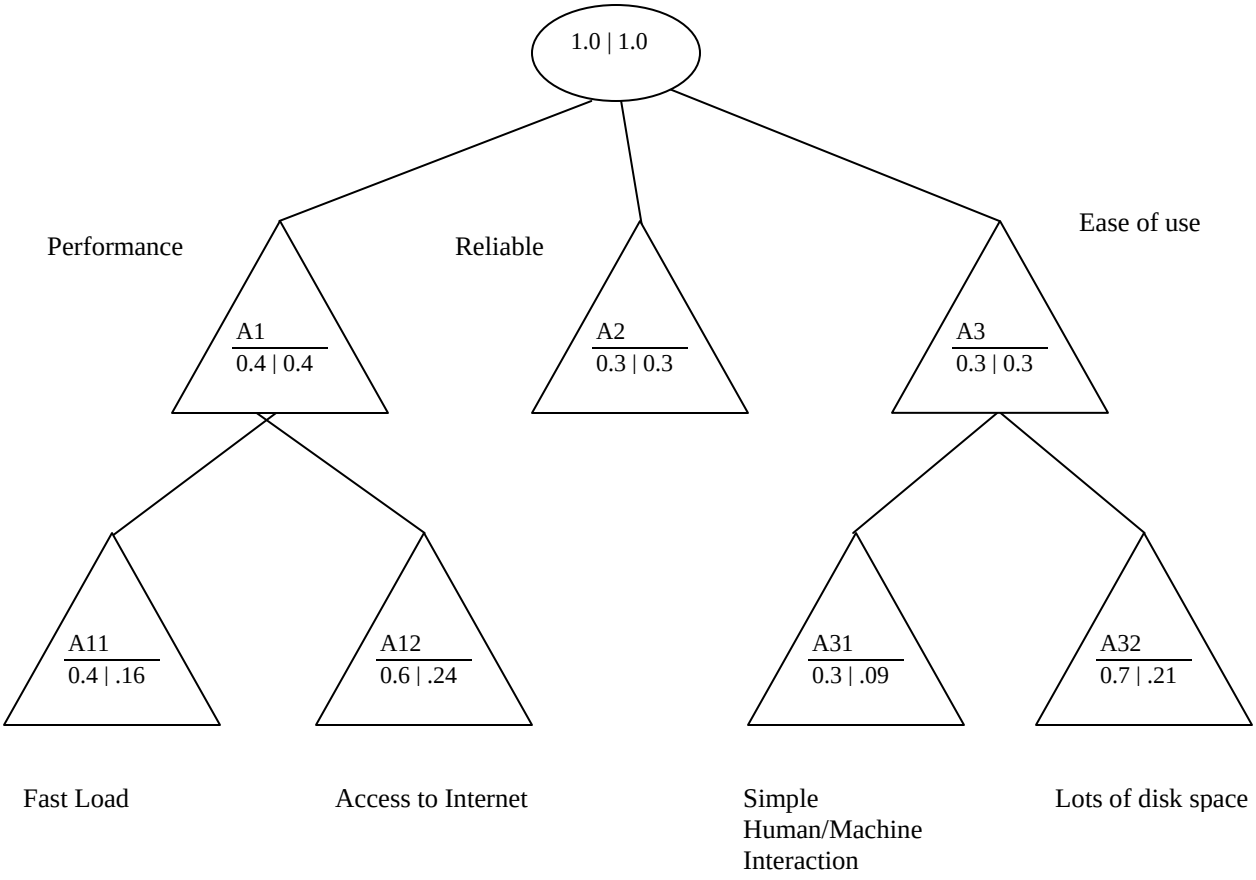

Tech Feasibility
High
Low
"Bread and Butter"
Abe128H
Expected value = 124.6m
Expected cost = 15m
Current Market Share = 44%
Market Growth = 19%
"Pearls"
MLK20
P2: Expected value = 156.6m
Expected cost = 22m
Current Market Share = 27%
Market Growth = 36%
"White Elephants"
PVR EK3: Expected value = 46.3m
Expected cost = 10.5m
Market Share = 55%
Market Growth = 5%
Flashie: Expected value = 93.4m
Expected cost = 13m
Current Market Share = 10%
Market Growth = 16%
"Oysters"
G-Unit
Expected value = 377.1m
Expected cost = 44m
Current Market Share = 0%
Market Growth = 48%
Low
High
Commercialization Potential



Zwicky Matrix

Realizations/Subfunct.	1	2	3
Search Algorithm	Binary Tree	Red-Black	
Memory	SDRAM	DDR	Virtual
Network Hardware	NIC	Wireless	Nic + Wireless
User Inputs	Keyboard/Mouse	Voice Recognition	Touch Screen
Video Out	CRT	LCD	
Print	Laser Printer	Bubble Jet	Fax
Storage Device	Hard Drive	Floppy	Memory

Concept 1: Binary Search, SDRAM, NIC, K/M, CRT, Laser Printer, Hard Drive
Concept 2: Red-Black Search, DDR, Wireless, VR, LCD, Fax, Memory
Concept 3: Binary Search, DDR, None,Touch Screen, LCD, Laser Printer, Hard Drive
Concept 4: Red Black Search, Virtual, Nic + Wireless, K/M, CRT, Bubble Jet, Floppy



DECISION ANALYSIS		Design I		Design II		Design III		Design IV	
Criteria	Wt	Rank	Utility	Rank	Utility	Rank	Utility	Rank	Utility
Fast Load	0.16	3	0.48	5	0.80	5	0.80	2	0.32
Internet Access	0.24	3	0.72	4	0.96	1	0.24	5	1.20
Reliability	0.30	4	1.20	4	1.20	5	1.50	3	0.90
Simple Interaction	0.09	4	0.36	2	0.18	5	0.45	4	0.36
Lots of Disk Space	0.21	4	0.84	3	0.63	4	0.84	2	0.42
Totals	**1.00**		**3.60**		**3.77**		**3.83**		**3.20**

Concept → Product Platform → Product Line: Portable Media Player

Concept → Create Defining Technology Elements → Create Product Platform → Define Product Lines for different Markets

- **Portable Player for**
- **Audio Video & Images**
- **Large LCD screen with**
- **high resolution graphics**
- **Lots of options for**
- **Connectivity**
- **Networking features**
- **(USB 2.0/802.11)**
- **Larger and faster HDs**
- **More Video Functionality**
- **Best MP3 Functionality**
- **Fit all the components in a**
- **seemless & small packaging**
- **Address power consumption**
- **to save battery capacity**

- **Navigation**
- **Operating System**
- **Video Components**
- **Packaging**
- **CPU**
- **Manufacturing of the PCB Board**
- **MP3 Technology**
- **LCD Resolution**
- **MP3 Technology**
- **LCD Resolution**

- **Defining Elements**

+

- **Supporting Elements**
- **Hard Drive**
- **Battery**
- **Memory**
- **Standard Interfaces**
- **Peripherals**
- **CD Player**
- **Speaker**
- **Backlight**

Medium End (G-Unit v1.0):
- **Moderate Priced**
- **Good Performance**
- **Reasonable Memory**
- **3.5" LCD**
- **More Support**
- **20 mb Hard Disk**
- **400Mhz CPU**
- **More Standard Interfaces**
- **Linux Kernal O/S**
- **Standard MP3 functions**

High End (G-unit v2.0):
- **Expensive**
- **Robust**
- **Increased memory**
- **25% Faster**
- **4" LCD**
- **High Performance**
- **More software**
- **40 mb Hard Disk**
- **Faster MP3 Decoding**
- **Better video resolution**

Financial Modeling and Analysis for Launch's G-Unit

1) Development Cost: $7M (spread out over 4 quarters in Year 1 and QI of Year 2)

2) Ramp Up Cost: $3.5M (spread out from Q1 to Q3 in Year 2)

3) Marketing and Support Cost: $2M/Year (from Q2 in Y2 onward)

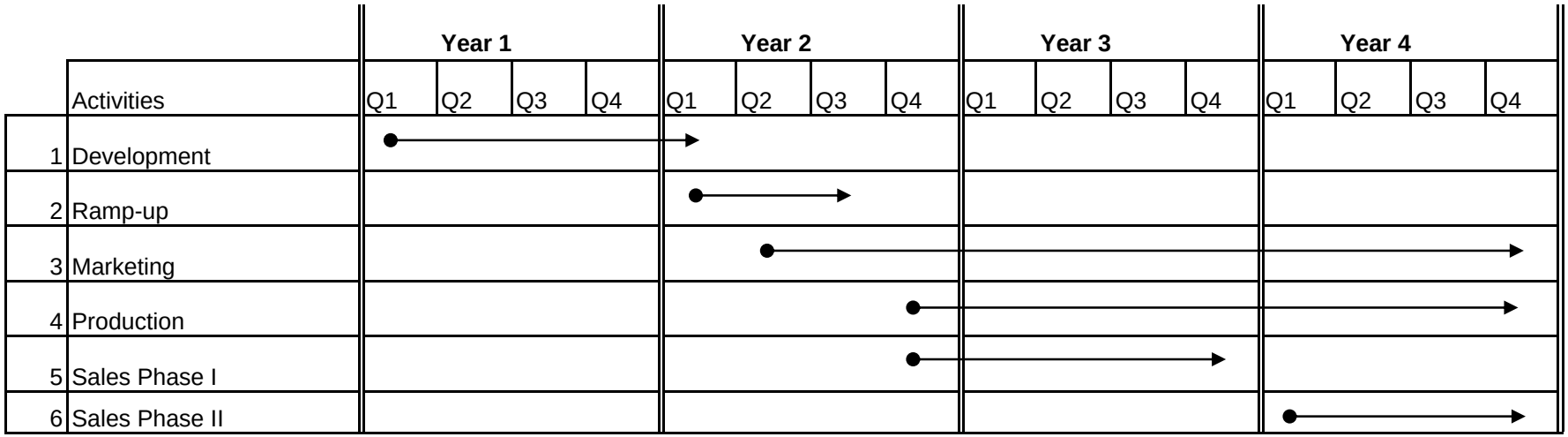
4) Unit Production Cost: $350/unit

5) Sales and Production Volume: 150,000/Year (from Q4 in Y2 onward)

6) Unit Price Phase I: $600/unit (Q4 Y2 to Q4 Y3)

7) Unit Price Phase II: $440/unit (Q1 Y4 onward)

8) Discount Factor: 12%



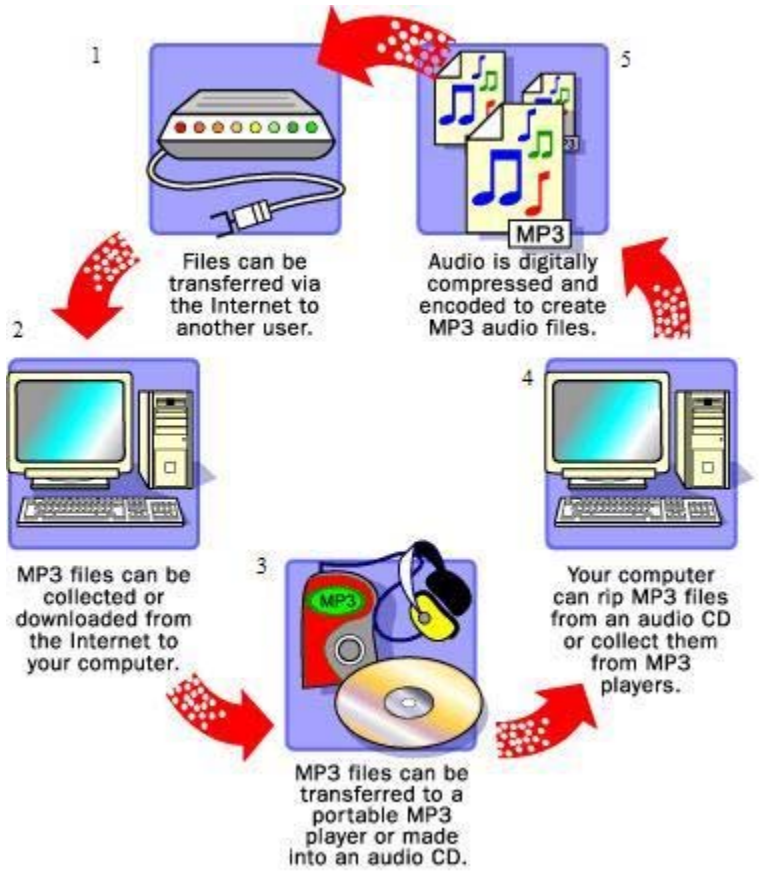
Cash Flow (in $1000s)		Year 1				Year 2				Year 3				Year 4			
	Activities	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Development	-1400	-1400	-1400	-1400	-1400											
2	Ramp-up					-1750	-1750	-1750									
3	Marketing						-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500
4	Production								-13125	-13125	-13125	-13125	-13125	-13125	-13125	-13125	-13125
5	Sales Revenue								22500	22500	22500	22500	22500	16500	16500	16500	16500
	Cash Flow	-1400	-1400	-1400	-1400	-3150	-2250	-2250	8875	8875	8875	8875	8875	2875	2875	2875	2875
	Present Value (DF = 12%)	-1400	-1359.2	-1319.6	-1281.2	-2798.7	-1940.9	-1884.3	7216.2	7006	6801.9	6603.8	6411.5	2016.5	1957.7	1900.7	1845.4

Total Cash Flow	**42625**
Total NPV	**29776**

The present value of our project's future net cash flows minus the initial investment is the Net Present Value.

Since the NPV of an investment is positive ($29.8M), the investment should be made (unless an even better investment exists).

How the MP3 (and Video) File Cycle Works

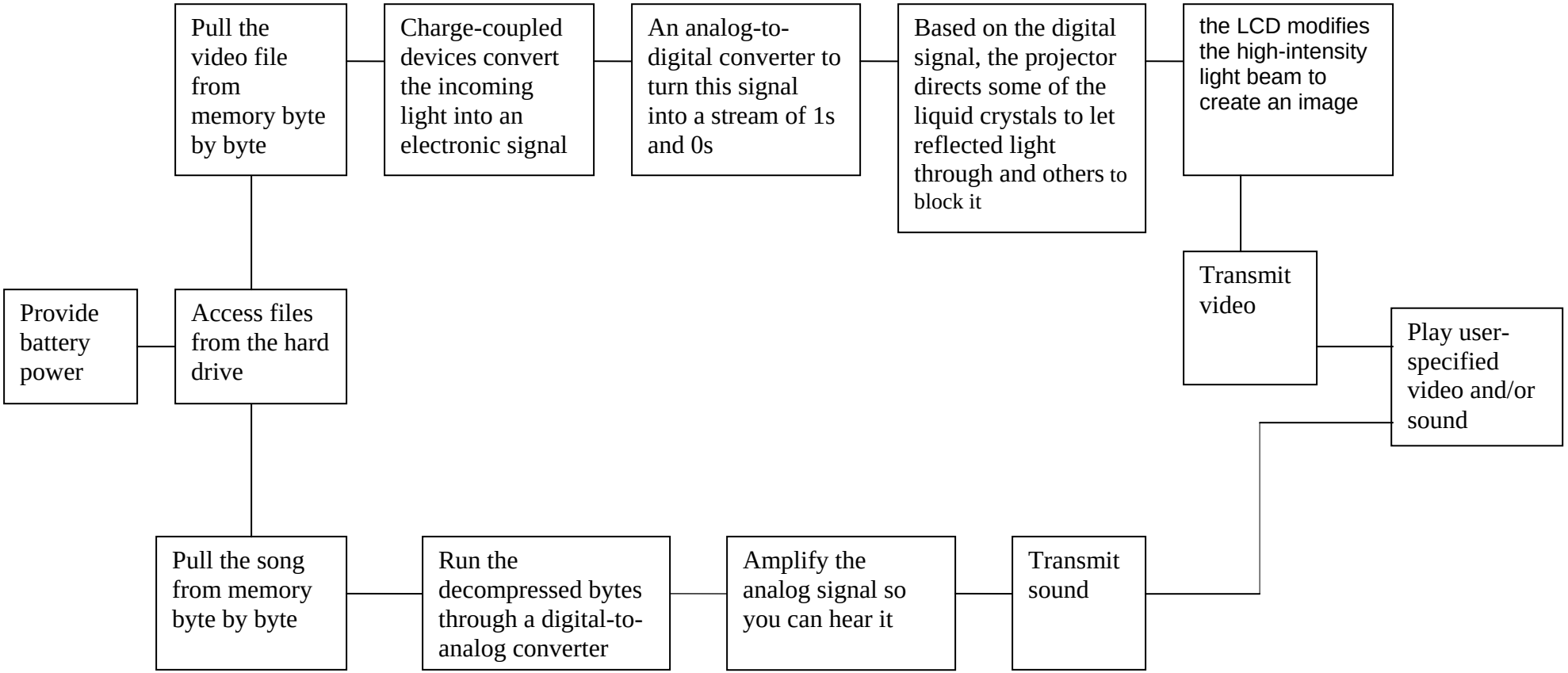


The preceding cycle flow chart displays the cycle and steps taken to retrieve digital music and video files from the PC. These are the initial external steps taken by the users to obtain the files and play them on the personal media players. The following table is the Functional Analysis System Technique (FAST), displaying an organized structure of the “How?” and the “Why?” on the operations of a personal media player. This will describe the internal functions, “looking under the hood,” on how the personal media player works.

Functional Analysis System Technique (FAST)

Personal Media Player

HOW? **WHY?**



Failure Modes and Effects Analysis (FMEA)

The following analysis is a failure modes and effects analysis for the personal media player. This enables us to see the exact meaning of failure in terms of the product's function. Here, we see the consequences of not meeting customer requirements. The analysis will help us predict what failures might occur, what the effect of such failures might be in the functional operation of the machine and what steps might be taken to prevent the failure or its effect on the function.

When considering failures and their effect on function, it would give us the order of priority in which the failure modes and their effects should be addressed. This is based on three categories:

- The severity of the failure in terms of customer dissatisfaction
- The probability of the occurrence of the failure
- The probability of the design or development process detecting the failure

These three categories can each be rated to assess their level using our own judgment. The product of these three numbers will be used to calculate the risk priority number (RPN), and the value of this number can be used to help prioritize any activities initiated to improve overall reliability.

Rating	Severity	Occurrence	Detection
1	Exceeds specification but not noticed by customer	Never	Very high – program design process will detect failure
2	Noticed by customer but does not affect the product function	Very occasionally	High – program design process is likely to detect failure
3	Noticed by customer, minor effect on product function, customer accepts condition	Very occasionally	High – program design process is likely to detect failure
4	Customer dissatisfied with function of product	Occasionally	Medium – program design process may detect failure
5	Significant effect on customer satisfaction	Occasionally	Medium – program design process may detect failure
6	Significant inconvenience to customer	Frequently	Low – program design process is unlikely to detect failure
7	Significant annoyance to customer	Frequently	Low – program design process is unlikely to detect failure
8	Customer endangered	Very frequently	Zero – program design process will not detect failure

After setting up the diagram and entering appropriate values, an analysis can be done for the functionality of the components of the media player. Based on the calculated

RPN product ratings, the three functions we are mainly concerned with are the battery, functional buttons, and the LCD screen. They have RPN ratings of 75, 72, and 56 respectively. The components we are least worried about are the hard drive and the speakers and their operations. These two have the lowest RPN ratings and yield the lowest risk of potential failure.

The battery, having the highest rating, appears to be the biggest issue, especially in the long run. The next component, very close in priority, is the functional buttons to operate the device. These two are the most important components, the user-based functionality components, in priority because these are required to power and operate the device. Without either of them working properly, the device would be useless. These components are actually the components that go through the most wear and tear and are most likely to fail first. The best way to take care of this is to introduce touch sensor buttons similar to the iPod in order to be relieved of the trouble of accumulating dirt over time. Also for the battery, one alternative to dealing with a depreciating battery that has a lesser life over time is to have a removable or replaceable battery that can be installed whenever the old one deteriorates.

Third in priority, the LCD screen is the differentiating component of the device. The LCD screen is a crucial component; otherwise the device would operate only as an mp3 player since no video can be played. The best way to protect this component is to increase the durability of the device as a whole and use higher quality parts.

The hard drive, although one of the most crucial components is lower in priority. However, this is due to its reliability and ability to handle the amount of “work” required handling and playing files. This component is also probably most protected and highly durable since it is an encased component. Also, the chances of the hard drive crashing are very slim. Capacity should also not be a problem since there are different capacities specified that the buyer can choose from and therefore they will know how much the device can handle.

The speakers are lowest in priority since the connections are well-protected internally. This is also low in priority since its only function is to play the audio. The user does not have to interface with the functionality of the speakers since it is only an output device. The volume control is part of the functionality buttons.

Failure Modes and Effects Analysis (FMEA)

Component	Function	Potential failure mode	Possible causes of failure	S	Possible effects of failure	O	How easy is it to detect?	D	RPN (S•O•D)	What actions do we need to take?
Hard drive	Memory storage of files	Drive crashes	Corrupt files, lack of RAM	8	Device will not operate	1	Relatively easy; Won't be able to access files, slow	2	16	Provide enough RAM to support memory usage
Hard drive	Memory storage of files	Overcapacity	too many files, not enough space	6	Cannot add more files, slower functionality	3	Relatively easy; Can't add files, capacity monitor icon	2	36	No action required
Speakers	Output sound	Does not emit clear sound, or does not play sound at all	Bad file, interference, loose connection	4	Static, unclear sound, sound occasionally cuts out	1	Relatively easy; Won't be able to hear music clearly	3	12	No action required
Speakers	Output sound	Blow out	Too much treble or bass for the speakers to handle	4	Unclear sound, weak sound, not best quality	1	Relatively easy; Won't be able to hear music clearly	3	12	Provide enough capacity for the speakers to handle high outputs
LCD screen	Display video	Does not display video or play list	Damaged LCD screen	7	Will not be able to see what is playing on the screen	2	Relatively easy; Blank screen, cracked screen	4	56	Increase durability of case for further internal protection
Button functions	Navigation through options	Does not perform function	Dust/dirt clogs internal sensors	6	Difficulty pressing buttons, buttons won't work	3	Relatively easy; Function not performed when button is pressed, button jammed	4	72	Introduce touch screen button interface
Battery	Powers device	Battery dies	Used up all charged energy capacity, depreciation	5	Device will not operate, battery dies more often	5	Relatively easy; Device turns off, won't turn on, capacity monitor icon	3	75	Introduce removable/replaceable battery to refresh old or depreciated ones

PRODUCE AND MARKET PORTABLE MEDIA PLAYER (PMP) PRODUCT LINE IN ACCORDANCE WITH CLIENTS' NEEDS

Main Purpose

Leadership

Planning

Design and Manufacture PMP

PROVIDE THE PRODUCTS TO THE CLIENTS

ADMINISTER AND MANAGE THE ENTERPRISE

PROJECT LEADERS

PROJECT TEAM MANAGEMENT AND FOCUS

RESPONSIBILITY AND ACCOUNTABILITY

Develop Product Lines

ANALYZE AND DETERMINE CLIENTS' NEEDS

DEVELOP PRODUCTS IN FUNCTION OF THOSE NEEDS

OBTAIN RESOURCES

Manpower and components

R&D

Energy, Audio/Video Compression, Size and Integration

ENGINEERING

Smaller packaging, higher resolution LCD, Faster processing, Longer battery life

MANUFACTURING

Improved production plant tools and techniques, better design and manf. integration

UPKEEP

Invest capital to new facility equipment and technologies

LEARNING FROM PREVIOUS PROJECTS AND APPLYING

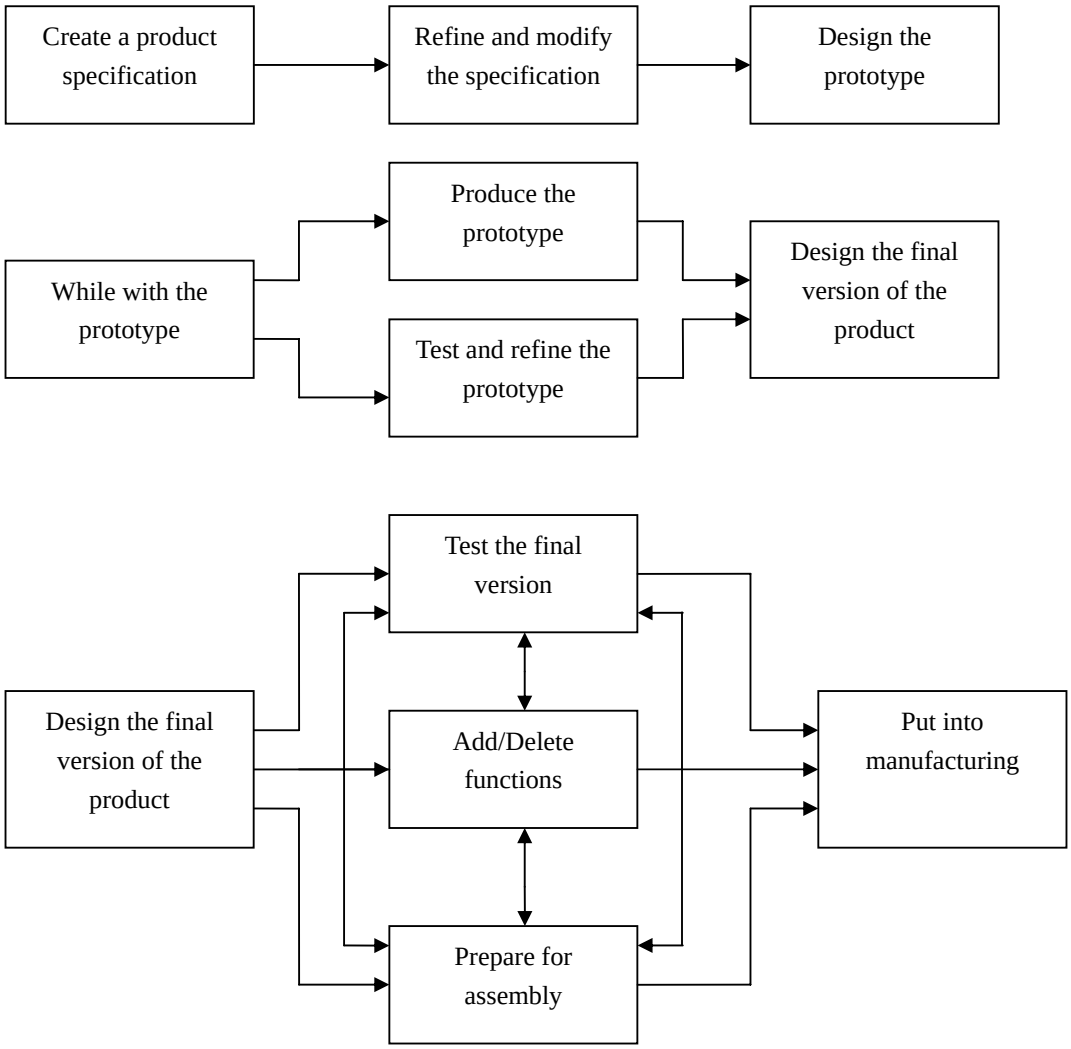
Key Functions

Major Functions

Basic Units

Structured Planning for G-Unit

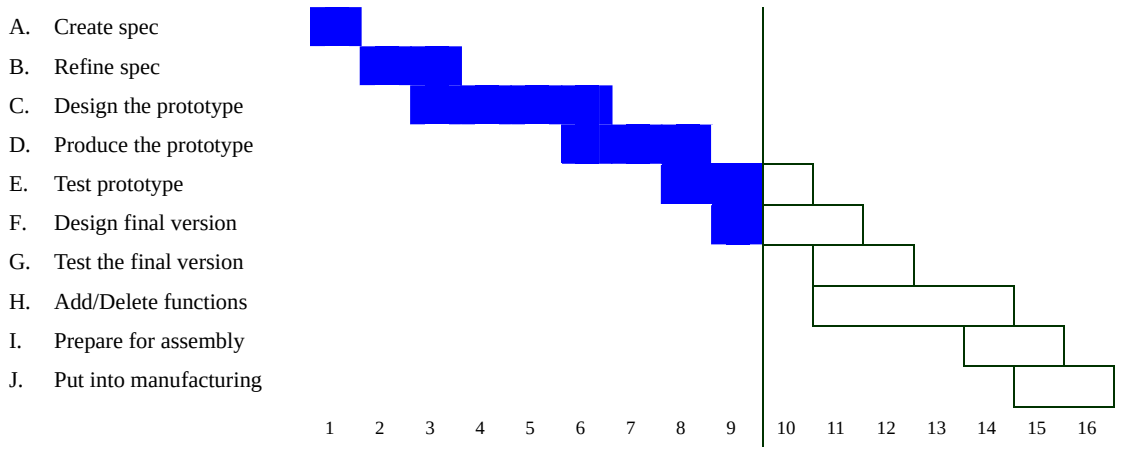
Step 1: determine the main tasks and sub-tasks



Step 2: Create a design structure matrix (DSM) to represent the structured plan

Task		A	B	C	D	E	F	G	H	I	J
Create a product specification	A	A									
Refine and modify the specification	B	X	B								
Design the prototype	C	X	X	C							
Produce the prototype	D			X	D						
Test and refine the prototype	E	X	X	X		E					
Design the final version of the product	F			X	X	X	F				
Test the final version	G						X	G	X	X	
Add/Delete functions	H						X	X	H	X	
Prepare for assembly	I						X	X	X	I	
Put into manufacturing	J			X			X			X	J

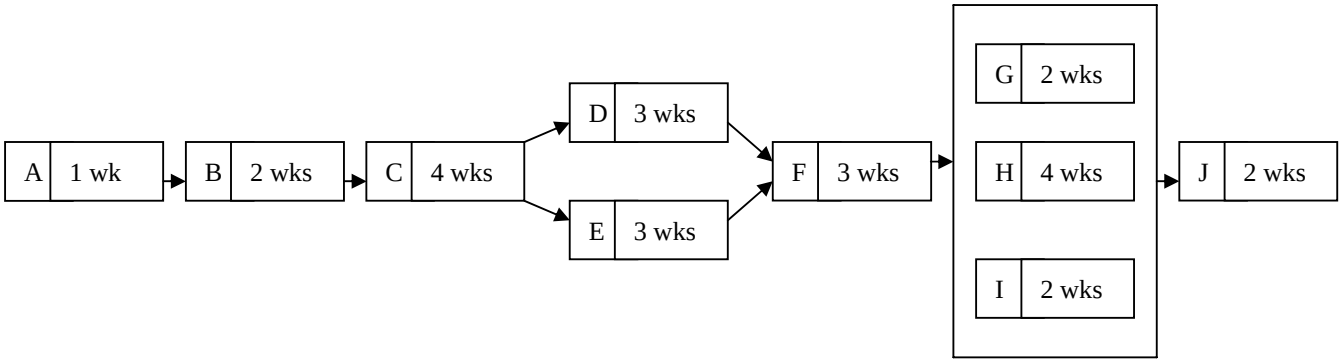
Step 3: Create a GANTT chart to sequence and schedule the sub-tasks



Numbers are in weeks

Step 4: Create a PERT (program evaluation and review technique) chart, to display the dependencies and timing issues within the project.

A. Create product spec	G. Test the final version
B. Refine the spec	H. Add/Delete functions
C. Design prototype	I. Prepare for assembly
D. Produce prototype	J. Put into manufacturing
E. Test prototype	
F. Design final version	

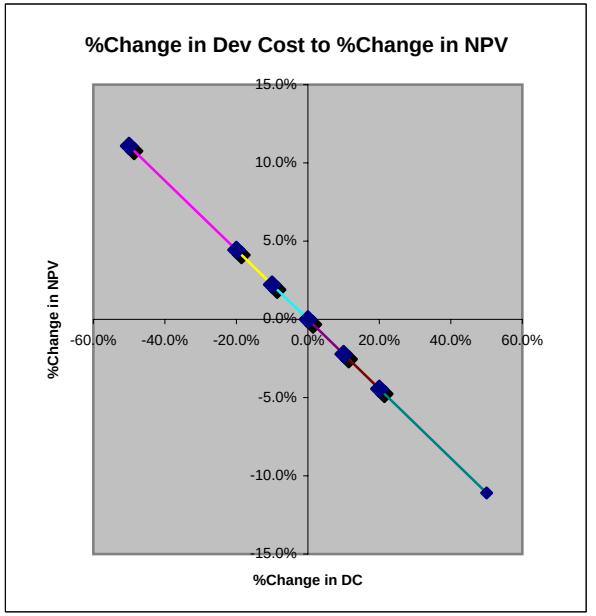


Step 5: Task list for G-Unit

Tasks	Estimated time need
Concept Development	
➢ Create a product specification	1 week
➢ Refine and modify the specification	2 weeks
➢ Design prototype	4 weeks
Readings	
➢ Product prototype	3 weeks
➢ Test and refine prototype	3 weeks
Process of doing the homework	
➢ Design final version	3 weeks
➢ Test the final version	2 weeks
➢ Add/Delete functions	4 weeks
➢ Prepare for assembly	2 weeks
➢ Put into manufacturing	2 weeks
Total	**16 weeks**

Development Cost			NPV		
% Change in Dev Cost	Development Cost ($1000s)	Change in Dev Cost	% Change in NPV	NPV ($1000s)	Change in NPV
-50.0%	3500	-3500	11.1%	33077	3301
-20.0%	5600	-1400	4.4%	31097	1321
-10.0%	6300	-700	2.2%	30436	660
0.0%	7000	0	0.0%	29776	0
10.0%	7700	700	-2.2%	29115	-661
20.0%	8400	1400	-4.4%	28455	-1321
50.0%	10500	3500	-11.1%	26474	-3302

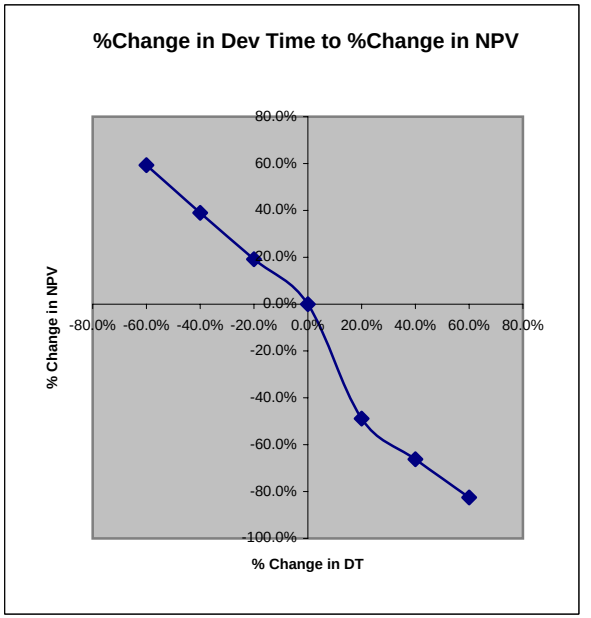
Conclusion: A 10% increase in Development Cost will reduce the NPV by 2.2%



Development Time			NPV		
% Change in Dev Time	Development Time (Q's)	Change in Dev Time	% Change in NPV	NPV ($1000s)	Change in NPV
-60.0%	2	-3	59.3%	47426	17650
-40.0%	3	-2	38.9%	41367	11591
-20.0%	4	-1	19.2%	35485	5709
0.0%	5	0	0.0%	29776	0
20.0%	6	1	-48.9%	15229	-14547
40.0%	7	2	-66.2%	10073	-19703
60.0%	8	3	-82.5%	5212	-24564

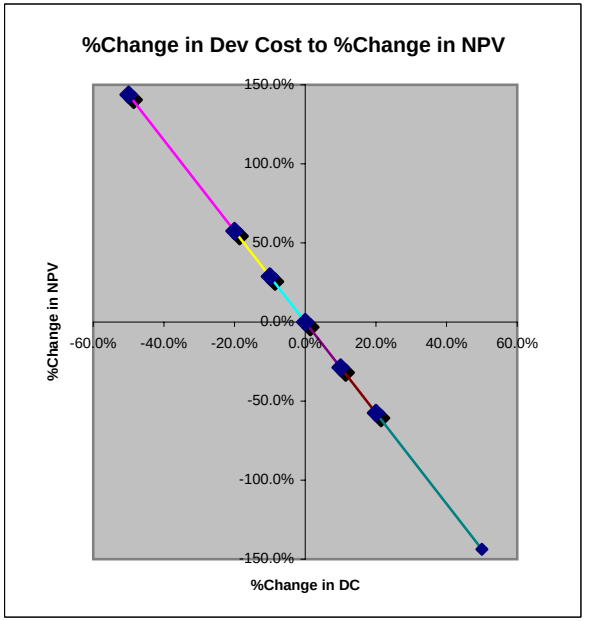
Conclusion: A 20% decrease in Development Time will increase the NPV by 19.2%

But a 20% increase in Development Time will decrease NPV by 48.9%



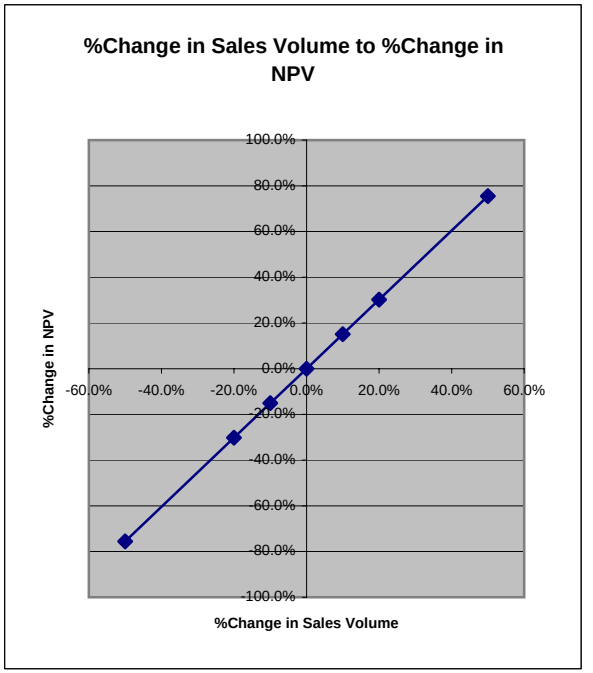
Unit Manufacturing Cost			NPV		
% Change in Unit Manuf. Cost	Manuf. Cost ($/unit)	Change in Unit Manuf. Cost	% Change in NPV	NPV ($1000s)	Change in NPV
-50.0%	175	-175	143.8%	72586	42810
-20.0%	280	-70	57.5%	46893	17117
-10.0%	315	-35	28.7%	38334	8558
0.0%	350	0	0.0%	29776	0
10.0%	385	35	-28.7%	21217	-8559
20.0%	420	70	-57.5%	12659	-17117
50.0%	525	175	-143.7%	-13017	-42793

Conclusion: A 10% increase in Unit Manuf Cost will reduce the NPV by 28.7%



Sales Volume			NPV		
% Change in Sales Volume	Sales Volume (1000s/yr)	Change in Sales Volume	% Change in NPV	NPV ($1000s)	Change in NPV
-50.0%	75	-75	-75.6%	7265.8	-22510.2
-20.0%	120	-30	-30.2%	20771.7	-9004.3
-10.0%	135	-15	-15.1%	25273.7	-4502.3
0.0%	150	0	0.0%	29776	0
10.0%	165	15	15.1%	34277.7	4501.7
20.0%	180	30	30.2%	38779.8	9003.8
50.0%	225	75	75.5%	52258.8	22482.8

Conclusion: A 10% increase in Sales Volume will increase the NPV by 15.1%



Failure Modes and Effects Analysis (FMEA) for Our Project

Component	Function	Potential failure mode	Possible causes of failure	S	Possible effects of failure	O	How easy is it to detect?	D	RPN	What actions do we need to take?
Project proposal	Identify the product to be developed and plan on how it is to be developed	Product proposed is not feasible	Not well-planned or thought out	6	Cannot do project on proposed project, need to choose another	2	Easy; get feedback, check for consistency	1	12	No action required
Development goals, technology strategy, marketing strategy	Defines strategies executed by our company	Not completely identified	Lack of research	8	Cannot move on to the next phase, strategies cannot be correctly implemented	3	Relatively easy; get feedback, check for consistency	2	48	Do additional research, review project for consistency, make necessary changes
Market sizing and market need analysis	Determine feasibility of our proposed product line	Not completely identified	Lack of research	7	Cannot move on to the next phase, cannot target ideal market segment or strategies to implement	3	Relatively easy; get feedback, check for consistency	1	21	Do additional research, review project for consistency, make necessary changes
Aggregate project plan	Project mix within development goals and strategies	Not completely identified	Lack of research, development goals and strategies not clearly identified	7	Project mix can't be well defined	3	Relatively easy; get feedback, check for consistency	2	21	Do additional research, review project for consistency, make necessary changes, revise corresponding to identified goals and strategies
Competitive analysis	Breakdown the business landscape	Not properly broken down, missing components, elements	Lack of research, inaccurate analysis	8	Inaccurate analysis of industry competitors	3	Relatively easy; get feedback, check for consistency	2	48	Do additional research, review project for consistency, make necessary changes
House of Quality	Benchmarking tool, quality assurance	Not accurately benchmarked	Miscalculation or incorrect scale	6	Best practices not accurately identified	3	Medium; compare elements individually	3	54	Review process and activities, check values, in-process checks

Risk analysis	Determine product to be developed	Incorrect identification of product to be developed	Miscalculated risks	8	Wrong product chosen to be developed, unsuccessful product development	3	Medium; compare elements individually	4	96	Verify calculations, check values, in-process checks, revise in correspondence to product that is to be developed
Decision analysis	Help make decisions at different steps of the way	Wrong decision path	Miscalculated pay-off	8	Less effective/ efficient decision made, higher costs in product development	3	Medium; compare elements individually	4	96	Verify calculations, check values, in-process checks
Development funnel	Ensure successful convergence of the development process	Wrong funnel model used	Inaccuracy of Phase I goals, strategies, and planning	6	Potentially "good" options for development can be either screened or not identified at all	2	Medium; compare elements individually	4	48	Do additional research, review project for consistency, make necessary changes
Project plan (Phase II)	Determine appropriate tasks and activities	Missed activities or tasks	Not carefully planned	8	Plan not completed	2	Medium; follow checklist and make sure each element is covered	4	64	Review checklist to make sure all is covered
Technology platform, product platform, product lines	Determine/list products and product elements	Platforms and product lines not determined	Lack of research	6	Unable to identify defining technology elements	3	Medium; follow checklist and make sure each element is covered	4	72	Do additional research, review project for consistency, make necessary changes
Function structure of design	Decompose product to understand each individual function	Inaccurate, incomplete structures	Lack of research	7	Unable to assess individual functions to maximize functionality of each component, cannot do following activities	3	Medium; follow checklist and make sure each element is covered	4	84	Do additional research, review project for consistency, make necessary changes

Generate alternative concepts	Give realization to function structure	No possible alternative concepts	Platform and product lines not accurately identified, inaccurate function structure	5	Cannot determine any other possible alternatives, only one product to develop and work with	2	Medium; make sure each element is covered, correspond with function structure	2	20	Do additional research, review project for consistency, make necessary changes, correspond values from revised platforms and product lines
DOE	Determine prototype for development	Experiment failed, inconsistent	Factors are not controlled, too many noise factors	6	Experiments cannot be verified, information may not be "correct"	4	Relatively easy; compare data with repeat experiments	2	48	Redo experiments, better control of control factors, reduce noise factors, increased quality control
Project plan (Phase III)	Determine tasks and activities to submit project on time	Missed activities or tasks	Not carefully planned	8	Plan not completed	2	Medium; follow checklist and make sure each element is covered	4	64	Review checklist to make sure all is covered
Financial modeling, revenue analysis, design for quality	Incorporated into technology effort, determine costs	Inaccurate or miscalculated, inaccurate analysis	Miscalculations or allocation of money resources	8	Projected earnings and costs incorrect, money lost in product development and in sales	3	Medium; check results, redo calculations	4	96	Check and verify all calculations, check all values, in-process checks
FAST, FMEA	Value analysis, prioritize components to be focused on	Components not identified or assessed correctly	Lack of research, not enough information provided in function structures	7	Important components cannot be identified or assessed	2	Medium; make sure each element is covered, correspond with function structure	4	56	Do additional research, review project for consistency, make necessary changes corresponding to function structures, check calculations and accuracy of values
Gap analysis	Fill in missing gaps not covered in the project	Not all gaps filled	Overlooked activities	6	Missing tasks or activities, incomplete project components	4	Somewhat difficult; examine, review project	6	144	Review and go through entire project, finish incomplete tasks, compare tasks and activities to MDC framework

Capture Learning Development Projects

Area of focus	Types of Changes to Capture Learning	Examples
Procedure	Ensure the production process with high quality	Case: the LCD screen Changes: have two quality check departments, to make sure all the products with minimum defective rates
Tool/Methods	To find the most efficient way in manufacturing, to make sure each one of the tools are being use in the process	Case: the product process was being delay Change: production team should provide a set of production tools. So each employee gets to make the product efficiently
Process	Change the production process if problems arise.	Case: Employees working more than 8 hours per day, but still can't finish the tasks Change: Make two shifts, morning shift and night shift therefore, more people to work to finish the tasks.
Structure	Make sure which department is responsible for what	Case: the leader of each department Changes: elect the most talented and most experienced leader to lead an department
Principle	Set up rules for all of the employees to follow	Case: the shipping/receiving department Change: the company should be firmed the time for each activity. To make sure every task is under supervise and on time.

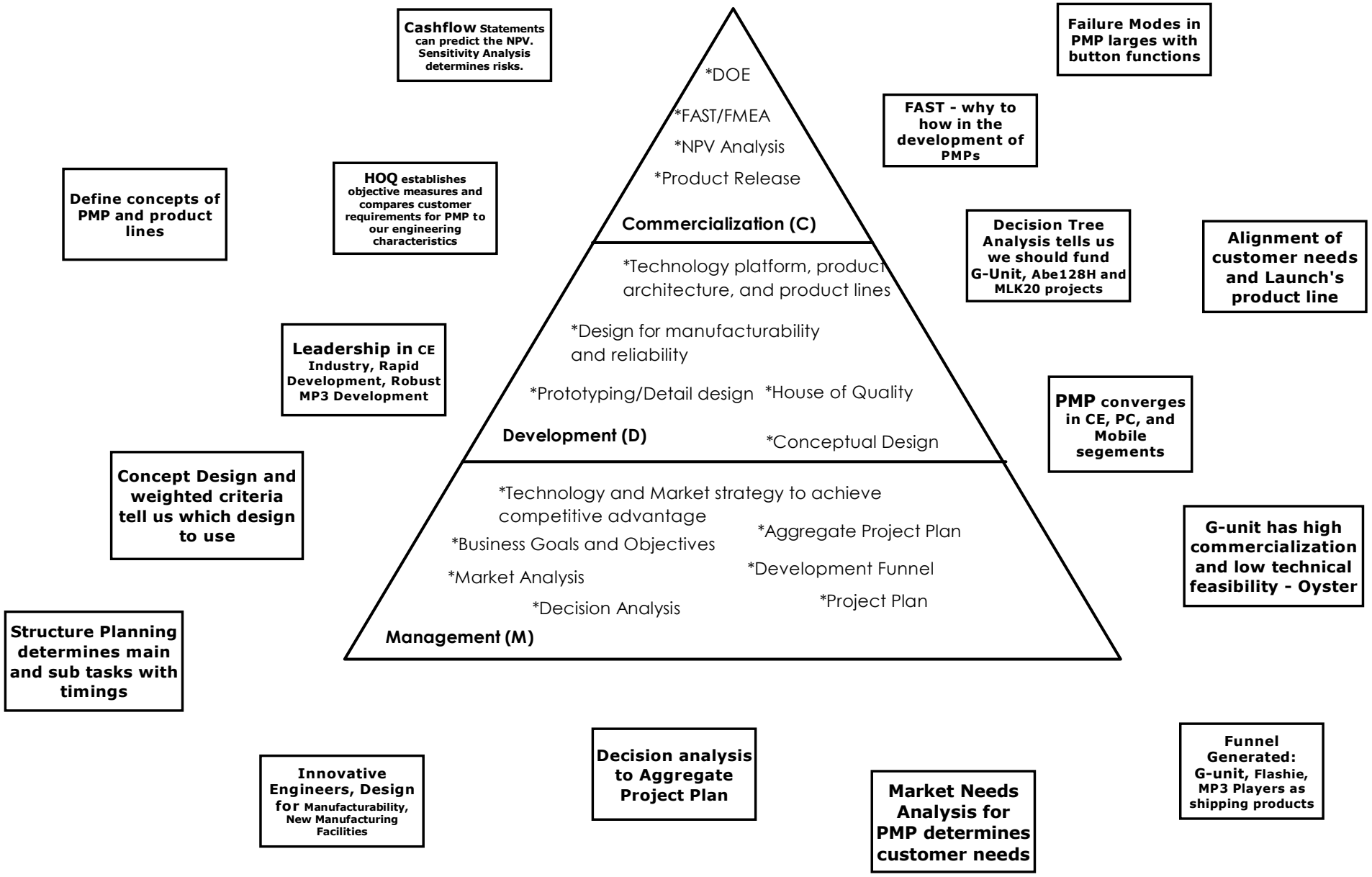
Strength and Weakness in the Development

Project Dimension	Strengths	Weakness	Key Events
Pre-Project Activities	Prepare tools for manufacturing purposes	Took too much time in pre-project activities	Postpone on introduction day that makes consumers disappointed
Project team	Everyone in the team must be talented and have experience in doing similar tasks before	People within the team are from different departments, it is hard to gather all them at once	To design a new product, the project team must be form as soon as possible
Project Management	Everything must be under schedule and everything must be right	The task should be consecutive – once one task is finished, then another one should be continue	The efficiency of the project development
Senior Management Review and Control	Executives leaders should check the project frequently	Let the project team have too much power and out of control on the project	Once a change need to be make, top managers should inform the project team and make sure the team is making changes
Prototype/Test	It takes time and effort to refine the prototype	If this refinement takes too much time, it will affect the whole development process	Prototype tests should be on schedule
Real-Time Adjustment	Respond to unexpected events quickly	It takes time to report to a superior manager	In case the prototype test failed, the project team should be responsible for it. Time to report and request should be minimize

Project Long Term:

We are offering a state-of-the-art personal media player out early in the market before our competitors. The G-Unit is one step ahead of the competitors with its unique functionalities and superior quality LCD screen for watching video files. These features are not offered in most portable devices, giving the Launch Group a huge advantage. Since we are considerably ahead of the competition, offering a highly differentiated product that is likely to be imitated, the product life cycle will be ideally long, as expected. During the time that others are trying to develop their own personal media player models, The G-Unit will already have been in the market for quite some time already and it will have also already matured a considerable amount, integrating itself in competition with other personal devices and mp3 players.

While the G-Unit is flourishing as a unique product competing in the market, we will use that time to develop newer and more advanced products to stay a step ahead of the competition. We will use much of the revenues and earned market shares from the G-Unit in order to achieve this. We plan to expand into the mid-range and low-end product lines as well. By doing this, we will be able to target all demographics that are interested in purchasing a portable player that is affordable and reasonable. As we are developing newer and advanced products and product lines, we will also be able to expand our business into different market segments of the technology industry. We will be able to potentially branch out of the personal media player market and specialize in developing other technologies such as sole mp3 players or portable video screens as separate units. With our developed and improving competencies that have been generated through the production of our original personal media player, we will be able to specialize in developing and producing parts. We will also be able to make improvements in quality in the already successful personal media players that are already out in the market.

With our differentiated and high quality product, we expect high sales and popularity growth. We expect to offer a high demand product. However since spending on technology is forecasted to decrease in the following year, we need to respond to this. With the development of our mid-range and low end product lines in progress, we will be able to appeal to consumers with lower cost products to induce sales and still maintain steady revenues. Our continued development practices and continuous focus on R&D, provided the resources earned from the G-Unit, will serve as a foundation platform for products to be released in the future. As long as we keep differentiating and offering high-quality products to target all groups, we will be able to maintain stability in the market. We are highly dependent on staying ahead of the competition in order to gain our competitive edge in a market where spending is estimated to decrease.

PROJECT INTEGRATION: Management, Development, Commercialization (MDC) Framework As it applies to G-Unit