

# New heritage doll company

[Business](#), [Company](#)



## **1. Introduction**

### **1.1 New Heritage Doll Company: Capital budget**

In September 2010 Emily Harris was considering two proposals for investment for the company New Heritage Doll Company.

As always, there are certain financial constraints that force the choice of a project and discard the other. The evaluation process for each project is hard, there are many details to consider, other data are not known with certainty and the only thing that can be done is an estimate as closely as possible. Our role here is to help interpret information, work with it, develop surveys and help clarify the dilemma so that the end result is the choice of the most suitable investment project for New Heritage Doll Company.

## **2. The Doll Industry**

New Heritage has created a durable franchise for its line of heirloom dolls. New Heritage has created a durable franchise for its line of heirloom dolls. Revenue in the toy industry in the United States was 42 billion in 2008 and is expected to grow 4.6% per year to reach 52.5 billion in 2013 (graph 1). The market is divided into two broad segments: video games (48%) and traditional toys and games (52%) (Figure 2). The second segment is further divided into preschool toys (14.5%), wrist (14.1%), sports toys (12.3%), and other toys and games (59.1%) (Figure 3).

## **3. New Heritage Company**

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### **3. 1 New Heritage Dolls**

The New Heritage Dolls Company was founded in 1985 by Ingrid Beckwith, a retired psychologist specializing in child development and the grandmother of two young girls.

It sought to extend the New Heritage brand and capitalize on high levels of customer loyalty by selectively licensing the company's doll characters and themes to a variety of media that reached the firm's target demographic of a toddler to pre-teen girls.

New Heritage Dolls Production Division

## **4. Capital Budgeting**

Capital budgeting is the planning process used to determine whether an organization's long term investments such as new machinery, replacement machinery, new plants, new products, and research development projects are worth pursuing. It is the budget for major capital, or investment, expenditures.

### **4. 2 Ranked Projects**

The real value of capital budgeting is to rank projects.

Most organizations have many projects that could potentially be financially rewarding. Once it has been determined that a particular project has exceeded its hurdle, then it should be ranked against peer projects. The highest-ranking projects should be implemented until the budgeted capital has been expended.

### **4.3 Need for Capital Budgeting**

1. As a large sum of money is involved which influences the profitability of the firm making capital budgeting an important task.
2. Long term investment once made cannot be reversed without significant loss of invested capital. The investment becomes sunk and mistakes, rather than being readily rectified, must often be born until the firm can be withdrawn through depreciation charges or liquidation. It influences the whole conduct of the business for the years to come.
3. The investment decision is the base on which the profit will be earned and probably measured through the return on the capital. A proper mix of capital investment is quite important to ensure an adequate rate of return on investment, calling for the need for capital budgeting.
4. The implication of long term investment decisions are more extensive than those of short-run decisions because of time factor involved, capital budgeting decisions are subject to the higher degree of risk and uncertainty than short run decision.

### **4.4 Capital Budgeting at New Heritage Doll Company**

Currently, the capital budgeting process in New Heritage is conducted by a panel consisting of the CEO, the CFO, the COO, the controller, and the division of presidents. Historically, capital budgeting was about 15% of Ebitda. Three formal methods are used in New Heritage capital budgeting:

1. Net present value (NPV).
2. Payback period.
3. Internal rate of return (IRR).

These methods use the incremental cash flows from each potential investment or project. Under accrual accounting, revenues and expenses are reported based on accounting principles. This means that revenues are reported when they are earned, and expenses are matched to the periods of the revenue. In other words, revenues and expenses are not reported on the income statement when the money is received or spent. Further, the revenue and expense amounts are not adjusted for the time value of money because of the monetary unit assumption.

Capital budgeting decisions should be based on cash flows that are adjusted for the time value of money. The time value of money recognizes that a dollar received or spent in the future is less valuable than a dollar received or spent in the present. Calculations such as the internal rate of return or net present value include adjustments for the time value of money. In these calculations present value factors, financial calculators, or computer software are used to discount the cash flows to their present values.

#### **4. 5 Incremental Cash Flows**

They are additional operating cash flows that an organization receives from taking on a new project. Positive incremental cash flow means that the company's cash flow will increase with the acceptance of the project. There are several components that must be identified when looking at incremental cash flows: the initial outlay, cash flows from taking on the project, terminal cost or value, and the scale and timing of the project. Positive incremental cash flow is a good indication that an organization should spend some time and money investing in the project.

#### 4. 6 Free Cash Flows

A measure of financial performance calculated as operating cash flow minus capital expenditures. Free cash flow (FCF) represents the cash that a company is able to generate after laying out the money required to maintain or expand its asset base. Free cash flow is important because it allows a company to pursue opportunities that enhance shareholder value. Without cash, it's tough to develop new products, make acquisitions, pay dividends, and reduce debt. FCF is calculated as:

$$\text{EBIT} (1 - \text{Tax rate}) + \text{Depreciation ; Amortization} - \text{Change in Net Working Capital} - \text{Capital Expenditures} = \text{Free Cash Flow}$$

Where: Current assets - Current liabilities = Net working capital  
Where: Cash + Accounts receivable + Inventories = Current assets

It is important to note that negative free cash flow is not bad in itself. If free cash flow is negative, it could be a sign that a company is making large investments. If these investments earn a high return, the strategy has the potential to pay off in the long run.

#### 4. 7 Sunk Cost

It is a cost that has already been incurred and thus cannot be recovered. A sunk cost differs from other, future costs that a business may face, such as inventory costs or R&D expenses, because it has already happened. Sunk costs are independent of any event that may occur in the future.

#### 4. 8 Opportunity Cost

It is the best return that could be earned on assets the firm already owns if those assets are not used for the new project.

Now suppose the initial cost shown in each project was based on the assumption that the project would save money by using some equipment the company now owns and that equipment would be sold for a certain amount of money, after taxes, if the project is rejected. The amount is an opportunity cost, and it should be reflected in our calculations. We would add that amount to the project's cost. The result would be an NPV- Asset value.

#### **4.9 Terminal Value**

The terminal value of an asset is its anticipated value on a certain date in the future.

It is used in multi-stage discounted cash flow analysis and the study of cash flow projections for a several-year period. The perpetuity growth model is used to identify ongoing free cash flows. The exit or terminal multiple approaches assumes the asset will be sold at the end of a specified time period, helping investors evaluate risk/reward scenarios for the asset. An asset's terminal value is a projection that is useful in budget planning, and also in evaluating the potential gain of an investment over a specified time period.

### **5. Investment Proposals**

#### **5.1 Match My Doll Clothing (MMDC) Line Expansion**

This line consisted of a set to match clothes for girls and dolls and some accessories. Due to the good publicity, it is thought to be a good time to expand this line. It is believed that this expansion will be profitable because the current line is very popular and allows charging premium prices. This project involves the expenditure of large sums for research and development, market research and marketing.

Table 1

Initial expenditures (\$ thousands)	2010
Upfront R&D	\$625
Upfront Marketing	625
Investment in Working Capital	800
Property, Plant; Equipment	1, 470
Total	\$3, 520

The R&D and marketing expenditures would be deductible for tax purposes ta New Heritage’s 40% corporate tax rate.

### 5. 2 Design Your Own Doll (DYOD)

The research suggested that many loyal customers would purchase yet another doll if they could customize the doll’s features to create a “ one-of-a-kind” addition to a girl’s orfamily’s existing collection of dolls. However, even a limited degree of customization increased manufacturing complexity and expense.

Table 2

Initial expenditures (\$	2010	2011
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thousands)		
Upfront R; D	\$841	-
Upfront Marketing	360	-
Investment in Working Capital	-	1,000
Property, Plant; Equipment	4,610	-
Total	\$5,811	\$1,000

As with Match My Doll Clothing, the required R; D and marketing costs would be tax deductible. To complete development work, it is planned to use some of the company's existing IT staff. The majority of the work would take place during calendar 2011. The number of people is shown in the table below.

Table 3

Application Development Personnel Costs	Number	Salary	Total

Web Application Developers	1	\$150	\$150
Database Manager	1	160	160
Systems Integration Specialist	1	125	125
Total Cost	-	-	\$435

If this project stumbled for some reason, New Heritage risked damaging relationship with its best customers.

## 6. Projects Analysis

For each project, three metrics are going to be calculated:

1. Net Present Value (NPV).
2. Payback period.
3. Internal Rate of Return (IRR).

### 6.1 Net Present Value (NPV)

The difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of an investment or project.

NPV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account. If the NPV of a

prospective project is positive, it should be accepted. However, if NPV is negative, the project should probably be rejected because cash flows will also be negative. For example, if a retail clothing business wants to purchase an existing store, it would first estimate the future cash flows that store would generate, and then discount those cash flows into one lump-sum present value amount, say \$565, 000.

If the owner of the store was willing to sell his business for less than \$565, 000, the purchasing company would likely accept the offer as it presents a positive NPV investment. Conversely, if the owner would not sell for less than \$565, 000, the purchaser would not buy the store, as the investment would present a negative NPV at that time and would, therefore, reduce the overall value of the clothing company.

## **6. 2 Payback Period**

The length of time required to recover the cost of an investment. The payback period of a given investment or project is an important determinant of whether to undertake the position or project, as longer payback periods are typically not desirable for investment positions.

## **6. 3 Internal Rate of Return (IRR)**

The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero. Generally speaking, the higher a project's internal rate of return, the more desirable it is to undertake the project. As such, IRR can be used to rank several prospective projects a firm is considering.

Assuming all other factors are equal among the various projects, the project with the highest IRR would probably be considered the best and undertaken first.

#### **6. 4 How to Work With Working Capital Assumptions**

To know the value of current assets (cash, accounts receivable, and inventories) and accounts payable a set of assumptions are given, with which we must work:

1. Cash Minimum: Cash Balance as % of Sales. It is easy to know the amount of cash together by applying the percentage to sales revenue.
2. Days Sales Outstanding: In this case, the data is provided are the days. Using the formula of Days Sales Outstanding, we can solve for the value of accounts receivable.  $DSO = \frac{\text{Accounts receivable}}{\text{Sales}} \times 365$
3. Days Payable Outstanding: In this case, the data is provided are the days. Using the formula of Days Payable Outstanding, we can solve for the value of accounts payable.  $DPO = \frac{\text{Accounts payable}}{\text{Cost of sales}} \times 365$

#### **6. 5 Metrics Results for Both Projects Clarifications:**

For the terminal value, it has been employed the following formula:

Terminal value =  $\frac{FCF_{10} (1+G)^n}{R-G}$  Where:

- FCF<sub>10</sub> is the free cash flow of year 10 (2020).
- G is the growth rate. In this case, a growth rate of 2% has been used, for New Heritage prefers more conservative forecasting.
- R is the discount rate used. Three different discount rates have been used depending on the level of risk is low, medium, or high.

### 6. 6 Metrics for Match My Doll Clothing Line Expansion

These are the results obtained from free cash flows provided by Match My Doll Clothing Line Expansion:

Table 4

RISK LEVEL	RATE	NPV	PAYBACK PERIOD	IRR
Low	7.70%	7,285.27	7.52	23.08%
Medium	8.40%	5,938.36	7.52	22.12%
High	9%	5,002.43	7.52	21.40%

### 6. 7 Metrics for Design Your Own Doll

These are the results obtained from free cash flows provided by the Design Your Own Doll project:

Table 5

RISK LEVEL	RATE	NPV	PAYBACK PERIOD	IRR
Low	7.70%	9,219.21	9.06	18.17%
Medium	8.40%	7,010.46	9.06	17.09%
High	9%	5,483.73	9.06	16.29%

### 6.8 Other Aspects to Consider in Capital Budgeting Flexibility

Capital budgeting techniques used by large businesses often run into flexibility problems. Many companies use a standard capital budgeting form where an analyst plugs numbers into specific categories to come up with net present value, cash flows, ROI and other basic results. However, not all costs and revenues from a project fit into such a fill-in sheet and can be difficult to classify. The best type of capital budgeting is the kind that can be customized for each project. Accuracy Capital budgeting depends largely on the quality of information that is used for the budget analysis.

This opens the process up to flaws if the incoming data is incorrect. For example, if someone underestimates a key cost, capital budgeting will show

the project as less expensive than it will be. This is a common risk, and managers should always consider that the financial information behind the capital budgeting process is usually not 100 percent accurate. Benefit Type There are two general benefits associated with capital budgeting and projects. Hard benefits directly affect the project and loss statement and have easy, tangible results.

There are also soft benefits, which are quantifiable but do not easily affect profit or loss directly. A third group, intangibles, is related to intellectual, emotional, and environmental gains. Companies tend to only concentrate on hard benefits and forget that projects can produce other advantages as well. Emotions and Assumptions Capital budgeting is ultimately a tool that can help managers make decisions, not a process for making the decision itself. Managers are susceptible to the energy behind a project and may support a project because it appears exciting or the end results are highly noticeable.

Sometimes it is better to go with more boring, stable results that will keep the company strong than always moving for flashy projects.

## **7. Election of Project**

In the case of the Match My Doll Clothing, given the current economic situation and the inherent characteristics thereof, it seems most reasonable to choose the medium risk discount rate (8.4%). At this rate, the following results are reached:

Table 6

RISK LEVEL	RATE	NPV	PAYBACK PERIOD	IRR
Medium	8.40%	5,938.36	7.52	22.12%

In the case of the Design Your Own Doll, as it has a fairly long payback, it has new unknown processes for New Heritage and because if the project fails the customer relationships will be damaged, it seems that it is more appropriate to assign the high-risk discount rate (9%). At this rate, the following results are reached:

Table 7

RISK LEVEL	RATE	NPV	PAYBACK PERIOD	IRR
High	9%	5,483.73	9.06	16.29%

Match My Doll Clothing Line Expansion and Design Your Own Doll are Mutually Exclusive Projects which means that is a set of projects from which at most one will be accepted.

For example, a set of projects which are to accomplish the same task. Thus, when choosing between " Mutually Exclusive Projects" more than one project



may satisfy the Capital Budgeting criterion. However, only one, i. e. , the best project can be accepted. Of these three, Net Present Value, Payback Period, and Internal Rate of Return, only the Net Present Value and Internal Rate of Return decision methods consider all of the project's cash flows and the Time Value of Money.

And, only the Net Present Value decision method will always lead to the correct decision when choosing among Mutually Exclusive Projects. This is because the Net Present Value and Internal Rate of Return decision methods differ with respect to their Reinvestment Rate Assumptions. The Net Present Value decision method implicitly assumes that the project's cash flows can be reinvested at the firm's Cost of Capital, whereas, the Internal Rate of Return decision method implicitly assumes that the cash flows can be reinvested at the projects IRR.

Since each project is likely to have a different IRR, the assumption underlying the Net Present Value decision rule is more reasonable. Nevertheless, the NPV method has some disadvantages. One major disadvantage is that the method requires a detailed prediction of the project's future cash flows. It is not that difficult if the project life is four years. But generally, the life of a project is much longer. For example, computing the NPV for one of these projects would require forecasting cash flows for the entire life of the project.

This period could be 20 years, 30 years but we don't know exactly how many and forecasting revenues for so many years is extremely difficult. A second disadvantage of the NPV method is that it assumes that the discount rate will

remain the same over the life of the project. In many instances, the cost of capital, and therefore the discount rate, changes as firms refinance debt.

### 7.1 Projects NPV Profiles

The figure below presents the net present value profile (A graph showing the relationship between a project's NPV and the firm's cost of capital)

For both Match My Doll Line Expansion and Design Your Own Doll projects. To make the profile, we find the project's NPV at a number of different discount rates and then plot those values to create a graph. We can see that at a zero cost of capital, the NPV is simply the net total of the undiscounted cash flow. This value is plotted as the vertical axis intercept. It is also seen that the IRR is the discount rate that causes the NPV to equal zero, so the discount rate at which the profile line crosses the horizontal axis is the project's IRR.

When we connect the data points, we have the NPV profile.

IRRMMDC IRRMMDC NPV (\$) NPV (\$) Cost of capital (%) Cost of capital (%)  
 IRRDYOD IRRDYOD DYOD DYOD Crossover rate; conflict if r is to the left, no conflict if r is to the right Crossover rate; conflict if r is to the left, no conflict if r is to the right At  $r = 10\%$   $NPV_{MMD} > NPV_{DYOD}$  but  $IRR_{DYOD} > IRR_{MMD}$ , so there is a conflict At  $r = 10\%$   $NPV_{MMD} > NPV_{DYOD}$  but  $IRR_{DYOD} > IRR_{MMD}$ , so there is a conflict  
 MMDC MMDC The IRRs are fixed, and DYOD has the higher IRR regardless of the cost of capital.

- However, the NPVs vary depending on the actual cost of capital.

- The two NPV profile lines cross at the crossover rate that is the cost of capital at which the NPV profiles of two projects cross and, thus, at which the projects' NPVs are equal.
- MMDC project has a higher NPV if the cost of capital is less than the crossover rate, but DYOD has the higher NPV if the cost of capital is greater than that rate.

Besides, MMD has the steeper slope, indicating that a given increase in the cost of capital causes a larger decline in NPVMMDC than in NPVDYOD. Finally, although MMDC is more sensitive to the variation of the discount rate, we think the most reasonable for New Heritage, as to these two investment proposals, is to choose Match My Doll Clothing Line Expansion for the following three reasons:

- NPV is greater (\$5, 938. 36) than that of Design Your Own Doll (\$5, 483. 73).
- The payback period is shorter (7. 2 years) than that of Design Your Doll (9. 06 years). Years Years
- The IRR is greater (22. 12%) than the Design Your Own Doll (16. 09%).