

## Profitability Analysis

Profitability Analysis allows for a quantitative measurement and comparison of a project's profitability. In order to deliver a profitability analysis the **Internal Rate of Return (IRR)** ratio is required. The IRR is the compounded annual rate of return the project is expected to generate and is based on the **Net Present Value (NPV)**<sup>i</sup>. The IRR is the discount rate at which the NPV of the project is zero. The NPV is the sum of the present values (PVs) of incoming and outgoing cash flows over a period of time. The **Return on Investment (ROI)** can be included, it is a performance measure used to evaluate the profitability and efficiency of an investment<sup>ii</sup>. The **payback period** can also be included, it is the time taken to recoup the original investment with the new revenue and/or cost savings from the project.

Below is a sample of a comprehensive profitability analysis with all the measurements discussed. It is not based on any real values or numbers and you are not expected to replicate it, as it serves to be a visual example only. You may seek online resources to help you with understanding and calculating these financial concepts.

## Sample Profitability Analysis

	Pre-Project	Year 1 (2015)	Year 2 (2016)	Year 3 (2017)	Total
<b>Cash on Hand</b> (beginning of year)		4,000	199,000	349,000	552,000
<b>CASH IN</b>					
Sales		300,000.00	800,000.00	840,000.00	1,940,000.00
Extra Cash Through Savings					0.00
Retained Earnings	250,000.00				250,000.00
SMART Funding	45,000.00				45,000.00
<b>TOTAL CASH RECEIPTS</b>	295,000.00	300,000.00	800,000.00	840,000.00	2,235,000.00
<b>Total Cash Available</b> (before cash out)	295,000.00	304,000.00	999,000.00	1,189,000.00	2,787,000.00
<b>CASH OUT</b>					
Cost of Goods Manufactured		55,000.00	600,000.00	630,000.00	1,285,000.00
Operating expenses, incl. labour costs		50,000.00	50,000.00	50,000.00	150,000.00
<b>SUBTOTAL</b>	0.00	105,000.00	650,000.00	680,000.00	1,435,000.00
Capital purchase	291,000.00				291,000.00
<b>TOTAL CASH PAID OUT</b>	291,000.00	105,000.00	650,000.00	680,000.00	1,726,000.00
<b>Cash Position</b> (end of year)	4,000.00	199,000.00	349,000.00	509,000.00	1,061,000.00

Payback Period	19.68
ROI	11.66%
IRR	35.21%
NPV	\$188,850.81

\*State any assumptions you have made to make your analysis

<sup>i</sup> <http://www.kellogg.northwestern.edu/faculty/jeffery/htm/publication/roiforitprojects.pdf>

<sup>ii</sup> <http://www.investopedia.com/terms/r/returnoninvestment.asp>