



## THE DECISION MATRIX IN NEW PRODUCT DEVELOPMENT

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New product development is critical to a company's future growth and its competitive edge. Many clients struggle with identifying and prioritizing their new product development projects. Most decisions are intuitive and not data-driven, leading to a 70% failure rate of new product launches.

A large medical device company had five new product development projects in its pipeline. However, due to budget and resource constraints, all projects could not be resourced. The business and technical teams used an iterative process using the 2x2 decision matrix to prioritize the five potential projects based on return on investment (ROI), project risk and needed resources.

### Step 1 (Figure 1)

First the team evaluated the projects with respect to the risk associated with each project and their return on investment. ROI was more important than project risk. The projects with a high ROI took precedence over the projects with low ROI, followed by low risk projects being more viable than the high risk ones.

ROI	High	<b>A</b> <b>Definitely Do</b>	<b>B</b> <b>Potentially Do</b>
	Low	<b>C</b> <b>Last Resort</b>	<b>D</b> <b>Do Not Do</b>
		Low	High

**RISK**

Figure 1 –Project ROI vs Risk

This matrix was not enough to make a definitive decision on project selection as the resources also had to be factored in. As ROI is directly related to resources, the team weighed resources needed against the project risk.

### Step 2 (Figure 2)

Then the team evaluated the project risk versus the resources needed in a second 2x2 matrix. Risk was more important than the resources needed. As in step 1, low risk projects took precedence over high risk ones, and projects requiring few resources were higher priority than those requiring a large number of resources.

### About Winovia

Winovia® LLC, a consulting company that provides customized, sustainable solutions, strategies and training in new product development and quality management processes and high performance materials. Winovia employs the Six Sigma and Design for Six Sigma philosophy with the goal of strategic market penetration, improving product and process quality and increasing revenues and profits for its clients.

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Therefore, in terms of project selection, the order of importance of the criteria were (from most important to least important):

ROI > Risk > Resources, and,

1. High ROI over Low ROI, followed by
2. Low Risk over High Risk, followed by
3. Few Resources over Large Number of Resources

<b>Resources Needed</b>	Many	<b>3</b> <b>Last Resort</b>	<b>4</b> <b>Do Not Do</b>
	Few	<b>1</b> <b>Definitely Do</b>	<b>2</b> <b>Potentially Do</b>
		<b>Low</b>	<b>High</b>

**RISK**

**Figure 2 – Resources needed vs Project Risk**

A project priority hierarchy was developed based on the criteria importance and the two matrices (Figure 3).

<b>Order Of Importance</b>	<b>ROI</b>	H	H	H	H	L	L	L	L
	<b>RISK</b>	L	L	H	H	L	L	H	H
	<b>Resources</b>	L	H	L	H	L	H	L	H
	<b>Project Priority</b>	A1 > A3 > B2 > B4 > C1 > C3 > D2 > D4							
		<b>Definitely Do</b>				<b>Do Not Do</b>			

**Figure 3 –Project Priority Hierarchy**

*(The project letter is from the first matrix, and the number is from the second matrix)*

### Step 3

Using quantitative evaluation methods for ROI , project risk, and resources needed (people, equipment and materials), the team then positioned the five potential projects in the above matrix. The projects (P1, P2, P3, P4, and P5) fell into the categories A1, C3, B2, C1, and D4 respectively (Figure 4). Based on resources available and the project priorities, P1, P3, and P4 were resourced. Using a structured product development process, all three products were launched very successfully- meeting all customer needs, sales, and profit projections

<b>Order Of Importance</b>	<b>ROI</b>	H	H	H	H	L	L	L	L
	<b>RISK</b>	L	L	H	H	L	L	H	H
	<b>Resources</b>	L	H	L	H	L	H	L	H
	<b>Projects</b>	<b>P1</b>		<b>P3</b>		<b>P4</b>	<b>P2</b>		<b>P5</b>
		<b>Definitely Do</b>				<b>Do Not Do</b>			

**Figure 3 –Project Priority Hierarchy**

The 2x2 decision matrix can be used in a step-wise process to target the vital few options when more than two criteria are involved. This process is simpler and less involved than trying to work through a more complicated and cumbersome 2x2x2 three-dimensional decision matrix.