Transcript

Using a Priority Matrix

Learning Objectives

After completing this topic, you should be able to

- *prioritize user stories using cost, value, and risk information*
- *recognize the priority level of user stories in a priority matrix*

1. Priority matrixes

When planning a project, you usually need to make compromises, balancing what the customer wants against what you're able to deliver. This involves prioritizing certain features, or user stories. You could use a simple method such as categorizing user stories as being of high, medium, or low priority. But, if you're looking for a more sophisticated prioritization method, you can weigh various prioritization factors – such as value, cost, risk, and releasability – against one another using a matrix.

A two-by-two matrix is a tool that you can use to compare two variables to one another.

Graphic

An example matrix includes four quadrants. The vertical axis is labeled low at the bottom and high at the top. The horizontal axis is labeled low at the left and high at the right.

Each variable is plotted on one of two axes, and each axis represents the range between two values. Usually these are qualitative values, such as "high" and "low."

This structure creates four quadrants that you can use to categorize values.

You could use a two-by-two matrix, for example, to categorize a list of items or tasks based on importance and urgency – with each of those variables marked as either high or low. This results in four quadrants, representing each of the possible combinations of ratings.

Graphic

A two-by-two matrix consists of four cells, in a grid arrangement. In this example, the top of a two-by-two matrix is labeled Urgency, with the cell on the left labeled Low and the cell on the right labeled High. The left side of the matrix is labeled Importance, with the top cell labeled High and the bottom cell labeled Low.

Select each quadrant in the matrix to learn more about it.

High importance and high urgency

The top right quadrant is for features that are both important and urgent. They have to be included and should be completed early on.

High importance and low urgency

The top left quadrant is for features that are important but not urgent. They should be included but it's not important to address them early on.

High urgency and low importance

The bottom right quadrant is for features that are urgent but not important. They have to be completed early on if they're to be included at all but aren't of very high value.

Low urgency and low importance

The bottom left quadrant is for features that aren't important or urgent. These can generally be left until last, or marked for possible exclusion if time runs out.

After plotting all features in the matrix, you can prioritize them based on the quadrant they're in. For example, items in the top right quadrant should be completed before the items in the bottom left quadrant because they're more urgent and important.

Graphic

Seven user stories are added to the matrix. Two user stories - stories B and F - fall in the top right quadrant, and another two user stories - stories A and D - fall in the bottom left quadrant.

Question

Which quadrants in the matrix represent items that are high for one variable but low for the other?

A two-by-two matrix with unlabeled axes displays. The top cells are labeled Low and High, from left to right, and the cells on the left side are labeled High and then Low, from bottom to top.

Options:

1. Top left
2. Top right
3. Bottom left
4. Bottom right

Answer

Option 1: *The top left quadrant of the matrix represents items that are high for one variable but low for the other.*

Option 2: *The top right quadrant indicates high levels for both variables.*

Option 3: *The bottom left quadrant indicates low levels for both variables.*

Option 4: *The bottom right quadrant of the matrix represents items that are high for one variable but low for the other.*

Correct answer(s):

1. Top left
4. Bottom right

A priority matrix is a two-by-two matrix you can use to help prioritize user stories. Using this type of matrix, you can compare features using any two factors. For example, you can compare the value that features will provide for the customer against the cost of developing the features, or compare risk against releasability.

Graphic

As an example, the top of a two-by-two matrix is labeled Releasability, with the cell on the left labeled Low and the cell on the right labeled High. The left side of the matrix is labeled Risk, with the top cell labeled High and the bottom cell labeled Low.

It's common to compare user stories in terms of cost against value. This is because an agile team typically aims to prioritize user stories that will provide the greatest value at the lowest cost.

Graphic

The top of the matrix is labeled Value, with the cell on the left labeled Low and the cell on the right labeled High. The left side of the matrix is labeled Cost, with the top cell labeled High and the bottom cell labeled Low.

Select each quadrant in a priority matrix that compares value and cost for more information.

Top left

The top left quadrant indicates features that cost a lot to develop but provide little value for the customer. These features should be last on a team's priority list.

Top right

The top right quadrant indicates features with high value to the customer and high development costs. Stakeholders may choose to develop these features if the necessary funds and resources are available, but features that cost less to develop and still provide the customer with a high degree of value should be developed first.

Bottom left

The bottom left quadrant indicates features that cost little but also have little value for the customer. Because these are potentially quick and easy to develop, they may be included – but they shouldn't take priority over features that provide greater value.

Bottom right

You should prioritize user stories that fall in the bottom right quadrant. These are associated with low costs but high value.

Question

You've created a priority matrix to categorize user stories based on their value and cost.

Which quadrant indicates user stories that are the most desirable for the customer and development team?

Options:

1. The top left quadrant
2. The top right quadrant
3. The bottom left quadrant
4. The bottom right quadrant

Answer

Option 1: *Incorrect. The top left quadrant indicates user stories that have low value but cost a lot to develop. These stories should be given the lowest priority.*

Option 2: *Incorrect. The top right quadrant indicates user stories that have a high cost and high value for the customer. Stories that cost less to develop and still provide high value should take priority over these.*

Option 3: *Incorrect. The bottom left quadrant indicates user stories that have low value and low cost. Stories that provide better value should be prioritized.*

Option 4: *Correct. The bottom right quadrant indicates user stories that are high in value but low in cost. These should be given the highest priority.*

Correct answer(s):

4. The bottom right quadrant

It's also important to assess risk against value. A risk is anything that could potentially have a negative impact on a project.

Taking risks is sometimes necessary in order to create better products, and almost all projects contain some types of risks.

You can use a priority matrix to prioritize user stories based on their levels of risk and value. Using the matrix, you categorize user stories into four groups – those associated with high risk and low value, high risk and high value, low risk and high value, and low risk and low value.

Graphic

The top of a two-by-two matrix is labeled Value and its left side is labeled Risk. The top left quadrant indicates high risk and low value, the top right quadrant indicates high risk and high value, the bottom right quadrant indicates low risk and high value, and the bottom left quadrant indicates low risk and low value.

During an agile development process, you should focus first on stories that are high in both risk and value. This is so that you can determine as early as possible whether you'll be able to get the required features to work. If not, you might consider including different features and you'll still have enough time to develop them.

Next you can focus on stories that are high in value but low in risk.

You might consider stories that are low in value and risk, but you should always avoid stories that are high in risk and low in value. In these cases, the risks are most likely not worth taking.

2. Prioritizing stories

You might wonder how to prioritize user stories that are high in value, cost, and risk – all criteria that are important. To address this, you can use two matrixes - a cost-to-value matrix, and a risk-to-value matrix. Using the results from both matrixes, you can then easily prioritize the stories.

To begin, you should categorize the user stories for a project using a cost-to-value matrix.

Graphic

In a cost-to-value matrix, four stories - C, E, B, and F – have been added to the top left quadrant. Stories D, K, and H are in the top right quadrant, stories I, J, and L are in the bottom left quadrant, and stories A, M, and G are in the bottom right quadrant.

You then list the stories in order of their priority. In this example, you should prioritize stories A, M, and G because they're in the quadrant representing high value but low cost. Next it would be appropriate to focus on stories D, K, and H, which also have high value for the customer, although they'll cost more to develop.

Graphic

In order of priority, the high-value stories are A, M, G, D, K, and H.

Once you've prioritized all stories based on their cost-to-value ratio, you can use a risk-to-value matrix to adjust their prioritization levels. For example, a story that has been placed somewhere in the middle based on its cost-to-value ratio might require technology that is

very risky. You would move this story to a higher priority level in the schedule so that the risk can be dealt with early on.

Graphic

In this example, story G is moved up in priority because it's associated with high risk.

You may move a user story with low risk to a lower position in the priority list.

Graphic

Story D is moved down in priority.

When assessing risk, you might also find that a particular story depends on information that won't be available for some time. You could then lower the priority of the story, to indicate it should be developed later on in the project.

Suppose you're developing a new word-processing software application and want to prioritize user stories based on value, cost, and risk. Your aim is to create a product that is high in customer value, at the lowest possible cost – and to address risks early.

To begin, you collect user stories and plot them on a cost-to-value matrix.

Graphic

A cost-to-value matrix displays. In the top left quadrant are four stories - 1, 5, 14, and 15. In the top right quadrant are four stories - 3, 6, 9, and 11 – and in the bottom right quadrant are five stories - 4, 2, 7, 10, and 13. In the bottom left quadrant are two stories - 8 and 12.

Based on the matrix, you discard the stories that are high in cost and low in value, and mark stories that are both low in cost and value for later development. And you prioritize the stories that are low in cost and high in value, as well as those that are high in both cost and value.

Next you look more closely at the stories that are left and order them in terms of their risk-to-value ratio.

Graphic

You prioritize the high value stories in this order, from highest to lowest priority - 4, 3, 2, 6, 7, 11, 10, 13, and 9.

Highest up are those stories that produce the highest value - but some of these also have the highest cost. In fact, certain stories include features that the customer might be able to do without for now, so developing them would raise development costs unnecessarily.

Graphic

Stories 4 and 3 are high in cost and value.

Similarly, at the lower end are stories that are very low in cost but have a lower value level. Some of these stories might be left out of the project completely, especially if time and resources run short.

Graphic

Stories 4 and 3 are low in cost and value.

Question

You've collected various user stories and plotted them in a Cost-to-value Matrix.

How should you prioritize the stories based on their cost-to-value ratio?

Options:

1. Give Story B the highest priority
2. Give Stories A and D the lowest priority
3. Give Story E the highest priority
4. Give Story F the lowest priority

Answer

Option 1: *Correct. Story B is in the bottom right quadrant, indicating high value and low cost. As a result, it should be given the highest priority.*

Option 2: *Correct. Stories A and D are in the top left quadrant, indicating high cost and low value. As a result, they should be given the lowest priority.*

Option 3: *Incorrect. Story E is in the bottom left quadrant, indicating low value and cost. As a result, it should be given lower priority than stories that have high value and low cost.*

Option 4: *Incorrect. Story F is in the bottom right quadrant, indicating high value and cost. As a result, it should be given higher priority than stories that have both low value and cost.*

Correct answer(s):

1. Give Story B the highest priority
2. Give Stories A and D the lowest priority

You decide to focus on a subset of stories - those that produce the highest level of customer value, currently prioritized by cost.

Graphic

The mid range stories are 2, 6, 7, 11, and 10

To further prioritize these stories, you consider their risk-to-value ratio.

Graphic

A risk-to-value matrix displays. In the top left quadrant is story 2, in the top right quadrant are stories 7 and 11, in the bottom right quadrant is story 10, and in the bottom left quadrant is story 6.

Like you did with the cost-to-value ratio, you use the matrix to determine which stories to prioritize. Teams generally give priority to the stories with the highest risk and highest value because they offer a good risk-to-value ratio.

This step may also identify stories that you should consider removing from immediate development - such as story 2 - because it's associated with low value but high risk.

Finally you adjust the priorities of remaining stories, moving those associated with both high value and high risk to the top.

Graphic

Stories 10 and 7 are moved up in priority.

Question

You've prioritized user stories based on their cost-to-value ratio. To further prioritize them, you've also created a risk-to-value matrix.

How should you reprioritize the stories based on their risk-to-value ratio?

Options:

1. Give user story E a higher priority
2. Give user story B a lower priority
3. Give user story C a higher priority
4. Give user story F a lower priority

Answer

Option 1: *Correct. Story E is in the top right quadrant, indicating both high risk and high value. As a result, it should be given the highest priority instead of the lowest.*

Option 2: *Correct. Story B is a low risk and low value story so it shouldn't be given high priority in the schedule. Currently it's listed first. Instead it should be moved to after story C.*

Option 3: *Incorrect. Story C is in the quadrant representing low risk and low value, so it's appropriate to include it second-last in the list. It shouldn't be given a high priority.*

Option 4: *Correct. Story F is in the quadrant representing high risk and low value, so it's appropriate to give it the lowest priority.*

Correct answer(s):

1. Give user story E a higher priority
2. Give user story B a lower priority
4. Give user story F a lower priority

Summary

You can use a priority matrix to compare user stories in terms of two variables, such as value and cost, or value and risk. Doing this can help you prioritize the user stories.

Generally it's best to order stories based on their cost-to-value ratio, and then to adjust the order you've determined based on the stories' risk-to-value ratios. Stories with the highest value and lowest cost, and with the highest value and highest risk, should be assigned the highest priority levels.