

# DE RUIJTER

## We've developed and validated our scenarios. Now, how do we create business value from them? \*

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### Introduction

The question posed in the title is a natural one for any executive. The exercise of creating scenarios, i.e., alternate and plausible futures, is exciting stuff. By themselves scenarios create value in organizations because their existence facilitates discussions about something other than the 'official future' which most forecasting-based strategic plans define. In that way developing scenarios helps to open minds to better see what might come. But using scenarios will also help you to decide and act proactively. So, while there is value in the scenario development exercise, the real payoff comes for organizations which systematically link their scenarios to management decisions and actions through real options.

In this brief paper we will outline four steps needed to turn scenarios into a value-added component of your strategy execution plan: (1) *stress test* your current business and *wind tunnel* your plans and goals, (2) *generate real options* to deal with scenarios, (3) *create real options* and (4) *monitor* how the future unfolds while you exercise your options. Then we will describe how you can integrate scenarios in your investment analysis.

### Creating business value from scenarios

The first step after developing and validating your scenario's is to '*stress test*' your current business, and to '*wind tunnel*' your current business plans and goals against each of the scenarios. Stress testing against your scenarios will show the strengths and weaknesses of your current business. Wind tunneling helps you to see whether your current plans are future-proof. Are your goals feasible? Is the budget too high or too low? Should you continue your activities unchanged, or should you bring forward or postpone some of them, or should you accelerate or stop some of them completely?

The second step is to *generate* options to fill in gaps and blanks in your current business or existing plans. Start with one of the scenarios and imagine what actions you could take under the circumstances described in that scenario to seize business opportunities and to manage risks. Each of the imagined actions is an option, an opportunity – not an obligation! - to do something or to not do something in the future. Generating options creates ideas for alternative actions, alternative routes to reach the vision for your business. After thinking through one scenario and generating options for that scenario, repeat this for each of the other scenarios you created. Having gone through all the scenarios, summarize the generated options, so you can evaluate them across scenarios. You test each option against each scenario. It helps to make a table of options (rows) and scenarios (columns).

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\* This paper is based on '*Scenario Based Strategy. Navigate the Future*', published by Ashgate/Gower in 2014.

Score each combination of option and scenario with pluses (++) or (+), minuses (--) or (-) or a zero (0; neutral) to show to which extent the option is appropriate, relevant and feasible in that scenario. Options which show pluses in every scenario are called future-proof or *robust options*: whatever the circumstances are, they are always a good idea. Options which have some pluses and some minuses or zeroes are positive in some specific situations: they are situation-dependent options. Options which give you the chance to start a new activity in specific situations are referred to as *call options*. Options which give you the chance to stop an existing activity in specific situations are referred to as *put options*.

Generating options provides you with the ideas of what you can do if a certain scenario plays out. Sometimes that is good enough, often it is not. Often you actually have to *create* those options; you have to take some action. And that is the third step. For example, if you want to have the option to extend your plant at the current location and you have no more land available, you should obtain the *option* to build on an adjacent plot. Here your first step could be to acquire the right to buy the plot or lease it at some point in time. Creating call and put options often requires a holistic approach. Creating an option often involves a written contract. So financial consequences are calculated and contracts are written, and so on. Have lawyers pointed out all the risks and opportunities? Have risk managers put their worries on the table in an understandable way to others? Have managers explained clearly why the option is created and what value it brings? A holistic approach requires that these parties talk to each other, understand each other's language and are able to look from the other person's point of view before you formalize the option.

With the generated and created options you can make your business plan flexible, you have alternative routes to realize the vision of your business. Now we come to the fourth and last step: to monitor how the future is revealing itself. You see the early warning signs of what is to come and you can start exercising your options according to the way the future is unfolding!

### **Investment analysis using scenarios and real option valuation**

In the monitoring stage, you will find that every now and then an investment opportunity comes along. If you want to know whether it is a good investment for you, you can 'wind tunnel' it against each of your scenarios, just like you did for your existing business or plans in step one. Using a table will show you whether it is a robust investment or not. If it is not robust, you can try to create an option to minimize the downside. Or maybe, you can bear the downside even if you do not use an option.

Investments analysis is numerical by nature. The value of the investment is partly determined by internally driven variables and partly by externally driven variables. Scenarios describe the outside world and therefore the variables which are externally driven. So, 'wind tunneling' investment opportunities requires that each scenario is translated into important external business variables quantitatively. Often scenarios are only qualitative stories, and therefore not useful for investment analysis. Quantitative scenarios give you multiple sets of internally consistent assumptions for the external variables in your analysis. Using the assumptions you can calculate the cash flows and the net present value (NPV) in each scenario.

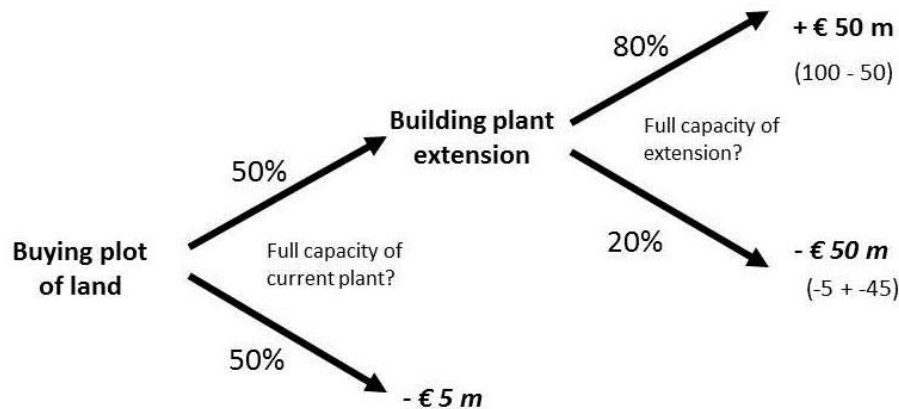
Let's have a look at a simplified example. We have three scenarios which have low, medium and high growth respectively. Our investment opportunities are (1) to improve quality, (2) to extend the current plant and (3) to focus on high margin products only (and abandon the low margin products). Let's see how these three possible investment opportunities score in the three different scenarios (++ for positive NPV and -- for negative NPV).

Scenario >>	Scenario A	Scenario B	Scenario C
<b>Investment</b>			
<b>Investment 1</b>	++	++	++
<b>Investment 2</b>	--	--	++
<b>Investment 3</b>	--	++	++

Investment 1, improving the quality, is robust; it will perform well in each scenario, no matter what the situation in the outside world is. This investment is always profitable and future-proof.

Investment 2, plant extension, on the other hand is not robust; it only performs well in scenario C. Let's assume the investment opportunity is very lucrative in scenario C, the high growth scenario, and we wouldn't want to discard this opportunity. We could see if a call option might help here. To see if a call option is of help to you, you must decompose the initially proposed investment into a series of smaller investments to find the minimal initial investment which still guarantees the ability to do the full investment eventually.

Now, let's apply some numerical assumptions to this investment of plant extension. Extending will cost € 50 million and you assume only a 40% probability that the extension will be a success. If it is a success, you have a potential value of € 100 million. What should you do? The traditional calculation would show this:  $40\% \times € 100 \text{ million} - € 50 \text{ million} = - € 10 \text{ million}$ . Your conclusion based on this negative value would be: do not extend. Now, let's see if we can decompose the costs of the extension and the success rate. The costs consist of two major components: the plot of land and the building of the extension itself, € 5 million and € 45 million respectively. A closer look at the success rate could reveal that we are dealing with two major uncertainties: will the capacity of the current plant be fully used, and will the capacity of the extension be fully used? The probability that the current capacity will be fully used is 50%. And if that happens, the probability that the capacity of the extension will also be fully used and therefore successful is 80%. The tree diagram shows the decomposition and the several outcomes.



If we calculate the value now, we find a positive value:  $(50\% \times -\text{€ } 5 \text{ million}) + (50\% \times 20\% \times (-\text{€ } 5 \text{ million} - \text{€ } 45 \text{ million})) + (50\% \times 80\% \times (-\text{€ } 5 \text{ million} - \text{€ } 45 \text{ million} + \text{€ } 100 \text{ million})) = \text{€ } 12.5 \text{ million}$ . From this perspective your conclusion would be to invest in the plot of land to start with. Buying the plot is in fact creating a call option; the price of this option is the minimal investment (in this example € 5 million). This call option allows you to capture the upside opportunity while limiting the downside risk. Monitoring helps you to see the early warning signs which indicate which scenario is unfolding and that you might have to exercise your call option in the near future.

Investment 3, focusing on the high margin product, is not robust either; it shows a negative NPV in scenario A. Here you could see if it is possible to invest and at the same time creating the option to get rid of this investment if and when needed, which is in fact creating a put option.

## Conclusion

The future is unpredictable and therefore uncertain. Scenarios can help you to handle those uncertainties: they don't reduce the uncertainty about the future, but help you to see opportunities and risks beforehand, so you are able to grasp the opportunities through call options and to minimize risks using put options. After developing and validating your scenarios you take four more steps to become well prepared for the future: stress test your current business and wind tunnel your current business plans and goals, generate real options, create real options and monitor how the future is revealing itself while you exercise your options when needed. As scenarios add to static forecasts by making uncertainty explicit, options thinking and valuation adds to NPV calculations by valuing the flexibility which is needed in today's dynamic and uncertain times.

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