Operations & Supply Chain Management and the Business Model Canvas

Technical Note

Ed Weenk (2020)

OPS & SCM and the Business Model Canvas[1]

Introduction

Many Operations and Supply Chain Management (OPS & SCM) courses tend to focus primarily on the "technical dimension" of the subject, addressing topics like capacity, transportation, inventories, and the physical infrastructure or distribution network. However, it is my firm belief that OPS & SCM is not just important for engineers, which is why I in my own courses I always include the business and the leadership dimensions into the overall storyline as second and third dimensions[2].

In terms of the business dimension, one of the powerful ways to visualize the role that the areas of OPS & SCM play as part of the overall business is by using the well-known Business Model Canvas (Osterwalder & Pigneur, 2010). I've been using the Business Model Canvas (BMC) for quite a number of years now, and over time I have developed some ideas about extending the concept to make it even more useful for the OPS & SCM area. Extensions on the one hand can be understood as 'additions' to the framework itself, and on the other hand as extensions to the ways of using the framework beyond the intended 'basic' way.

It is important to mention upfront that each of the extensions I propose have one fundamental starting point: the BMC is already a powerful tool in the way it was designed, so *whichever element is added, it needs to respect and be compatible with the original framework*. So the focus is on adding, not on changing, nor on replacing. Each of the proposed extensions has a direct relevance to the areas of Operations & Supply Chain Management.

The purpose of this Technical Note is to share my ideas on these potential extensions, so that readers can use these to their benefit and take even more advantage of the utilization of the BMC. The text will not enter in much detail into the basics of the BMC itself, but will refer to other useful sources for that.

In a similar fashion, the article will not go into great detail about the exact content of the suggested extensions, since they all connect to either basic strategic and/or basic OPS & SCM content, which can be found in course literature or will be dealt with as part of your courses.

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[1] *This technical note was written by Ed Weenk MSc PDEng, as a complement to basic texts about Operations and Supply Chain Management and to bridge the link towards wider topic of business and business models. The BMC is also addressed in the author's book "Mastering the Supply Chain" (2019), pp. 29-32, figures 2.6-2.7, as well as in a number of exercises in Part Three of the book.*
[2] *These three dimensions are also at the heart of the book* "Mastering the Supply Chain"

The article starts with a brief overview of the basic BMC, its background and purpose. Then four areas for potential extensions are proposed:

1. Distinguishing between customers and consumers;
2. Distinguishing between suppliers and key partners;
3. Adding 'OPS & SCM dynamics' to the business model
4. Using the BMC for 'scenario thinking'

The Business Model Canvas

To a certain extent the Business Model Canvas can nowadays be called a mainstream tool, one of the latest additions to the basic strategy toolbox taught at Universities and Business Schools, as well as it's used in an infinite number of Entrepreneurship courses and bootcamps. Also, it's coherent with the wider movement of the Design Thinking School, which in parallel has gained much attention. And even has it inspired the appearance of a plethora of other 'canvasses' for a wide variety of applications (Value Proposition Canvas, Circular Business Model Canvas, Lean Start-up Canvas, VUCA canvas, Pitch Canvas, and so on).

However, it is often easily forgotten that the BMC is in fact based on thorough research. To be precise, the nicely visual and attractive BMC we know now is derived from the findings of a PhD doctoral thesis (Osterwalder, 2004). In other words, it's not 'just' something invented by a clever consultancy, no, there is actually some solid research behind it.

Since it's not the purpose of this document to explain the Business Model Canvas in detail, I refer to other sources for an introduction, such as Osterwalder (2010), Osterwalder (2020) and Strategyzer (nd). For now, I's sufficient to depict the BMC and its 9 areas:
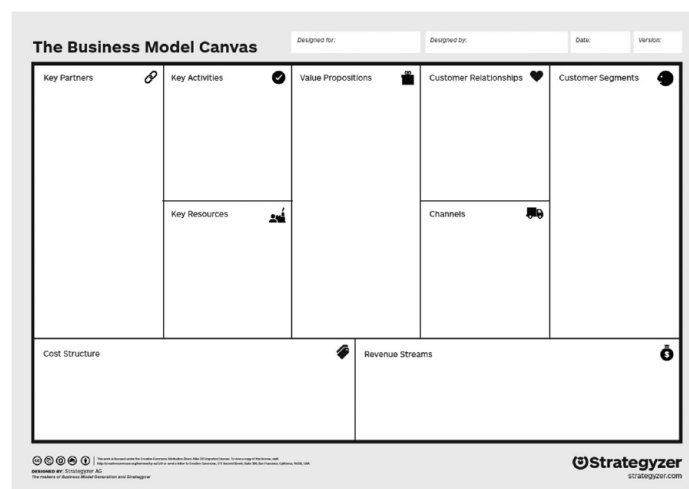
SOURCE Osterwalder and Pigneur (2010), www.strategyzer.com, under Creative Commons Attribution Share Alike

Figure 1: the Business Model Canvas

Why use the BMC in relation to OPS & SCM?

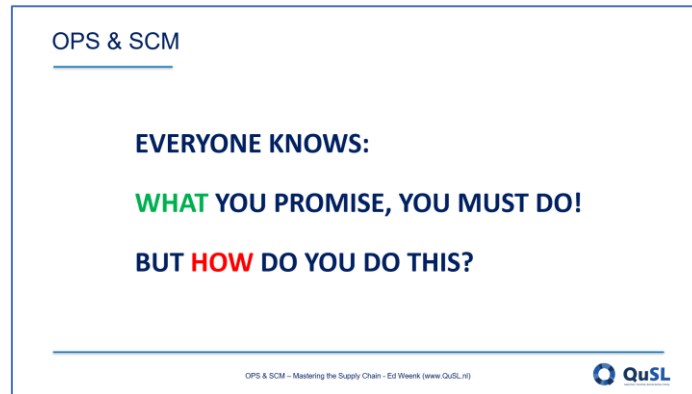Typically, the starting point for any of my OPS & SCM courses is the following:

Figure 2: The story of promising and delivering

The reason to start here is to create awareness of the fact that in order to be able to develop a solid solution for my operations and/or supply chain (an important part of the "how?" of my company), I need to have a very good and clear understanding of what it is supposed to deliver in terms of products and services (the "what?" of my company). This understanding would ultimately lead to identification of the relevant characteristics in terms of **demand**, as well as of **supply**.

"What?" and "How?" are directly connected, they are two sides of the same coin, one cannot live without the other. That's why this message deserves to be emphasized even in courses that focus on either one of the sides, OPS & SCM courses in my particular case. The BMC is an important tool for me to get that message across, because one of the very attractive aspects of the BMC is that is visually expresses both the *What?* and the *How?* in one (simplified) integrated overview, reinforcing the message I'm trying to transmit.

Aspects of the *What?* are covered on the right hand side of the canvas, whereas the aspects related to the *How?* can be found on the left hand side. To this, we can add the dimension of "how much?", just to make the picture complete (see Figure 3 below)[3].

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[3] *Alexander Osterwalder and colleagues in this respect typically use the terms 'frontstage' (what?), 'backstage' (how?) and 'profit formula' (how much?).*
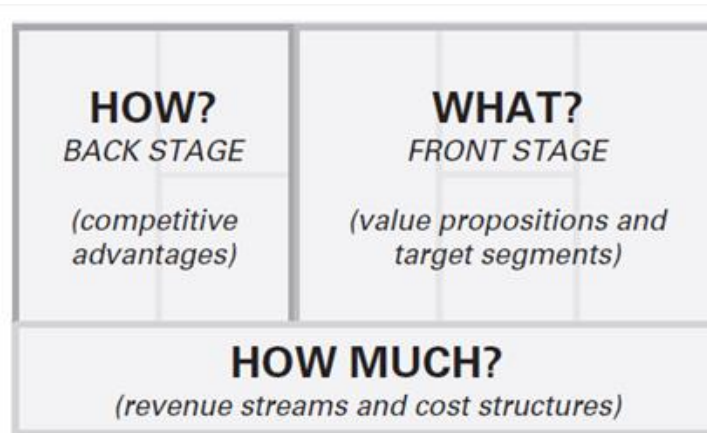
For a company to work successfully, a good alignment between What? and How? will need to be established, otherwise the building blocks for keeping the promise to the customers will not be sufficiently in place.

Let's assume that a BMC for our company has been created, preferably in a workshop setting and using sticky notes. We now have a documented version that is agreed upon by all relevant stakeholders, typically representatives of the different corporate departments (marketing & sales, HR, finance, operations, supply chain, procurement, and so on).

Let's also assume that the basic checks on the BMC have been done after it was created, looking at the sticky notes one by one:

- Is anything missing, i.e. are all sticky notes on the 'what?' side supported by sticky notes on the 'how?' side?
- Are all sticky notes really necessary, i.e. if I take one of the sticky notes out, will the model fall apart?

Now let's focus on some specific additional dimensions that can be added to the BMC.

1. Distinguishing between customers and consumers[4]

In terms of customers, the BMC template speaks of the "segment", formulating the following two major questions:

- For whom are we creating value?
- Who are our most important customers?

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[4] This topic is also addressed in Mastering the Supply Chain, pp. 20-21.

In a number of business environments, for example the case of an online retailer or a consumer retail bank, the answers to these questions are straightforward. But how would it work out in the case of a Business-to-Business environment (B2B), for example a producer of fruit juices selling mainly through retailers and distributors? Who is the customer segment then? And what does that mean for the formulation of value propositions? And how to reflect this in the Canvas?

I have noticed in practice, with students and companies alike, that the first thought of most people will be to put the final consumer in the 'customer segment' box of the canvas, probably because in the end, those are the ones where the final product will end up (in the case of the fruit juice company, the consumers are the ones drinking the juice).

If we put the consumer in the segment-box of the canvas, then in order to be coherent, we need to answer the Value Proposition questions from the consumer perspective as well:

- What Value do we deliver to the customer?
- Which one of the customer's problems are we helping to solve?
- What bundles of products and services are we offering to each Customer Segment?
- Which customer needs are we satisfying?

All of this can still be fine, but in my opinion it might lead to three specific issues:

1. If the Consumers are defined as the 'segment', then where do the retailers and distributors end up in the canvas? Some people will argue that retailers and distributors would in those cases be the channels through which the consumers are reached, so they would go into the 'channels' box of the canvas. And in fact, the major channel-related questions could even support that approach[5].

2. However, that leads at the same time also to issue number 2: if the Value Proposition is phrased from the perspective of the consumer, then how do we deal with specific retailer-related value proposition aspects, like for example delivery quantities, delivery service levels, lead-times, automated IT-connections, and so on? It is not so clear where these aspects would have to go, even though it is clear that they are very relevant, particularly also from an OPS & SCM point of view.

3. In the case of 'pure' B2B companies selling through retailers and distributors, the company's revenues are in fact not coming directly from the consumers. The ones who pay them in return for their products and services are the retailers and distributors. Which then would imply that in these cases the major revenue streams do not come from the identified

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[5] Channel questions according to the BMC template are, among others: through which channels do our customers want to be reached? And how are we reaching them now?

customer segments, but in fact from the main channels. Although feasible from the perspective of the canvas as a tool, it somehow doesn't feel logical to me.

On the basis of the abovementioned issues, we could also look for another way of expressing the same B2B-setup. One could for example argue to place the retailers and distributors in the segment-box of the canvas, since they are the paying customers from whom the revenues in the B2B business model are coming. But then, where does that leave the end-consumers, should they not appear in the canvas altogether in such cases?

Leaving the end-consumer out of the canvas might not be considered a big issue, but in some cases it may be. As an example, the following proposed adjustment to the BMC is the result of using the canvas in a consultancy project some years ago in a B2B firm. The company was producing and marketing their own premium brand of consumer products. In the cross-functional project team that created the canvas, most participants agreed that defining retailers and distributors as the customer segment would be the natural thing to do. According to them, retailers and distributors were in the end the paying customers and the main source of revenue.

However, some team members, even though agreeing with the choice of assigning retailers and distributors to the 'customer segment' box, simply felt it would be impossible to present any new proposal inside the company if the consumer would not appear somewhere in the image. After all, the company was involved in a lot of publicity precisely aimed at those consumers (TV ads, social media campaigns and so on).

In order to deal with this issue, together with the project team, we decided on the following adjustment to the basic canvas[6]:
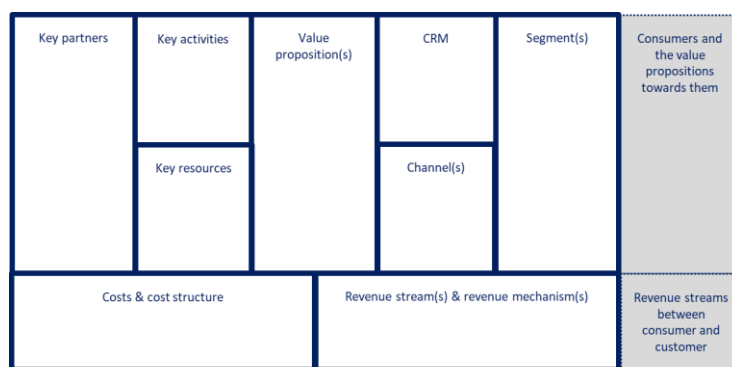
www.strategyzer.com (Extension was developed during specific projects at QuSL)

Figure 4: BMC extension to distinguish between customers and consumers

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[6] *As a remark on the side, one thing to keep in mind is that in the end the BMC is a tool, i.e. an instrument, in this case with the purpose of shaping your thoughts, and developing and testing new ideas about business models. And as is the case with any tool, if the user feels comfortable with the tool as it is, then he can go ahead, if he feels the need to adjust the tool slightly to specific needs, then he should be free to do so.*

In the additional boxes on the right hand side, consumers or consumer segments were indicated, plus an indication of the value propositions towards them, as well as the revenue streams between the consumers and the customers. These consumers and value propositions are relevant to the B2B customers (e.g. retailers and distributors) because ultimately they represent sales potential to them. Creating the additional boxes to the canvas was a satisfactory solution to the project team and it allowed them to have both the customers and the consumers separated but still present in one and the same view.

2. Distinguishing between suppliers and key partners

In the same project as mentioned before under point 1, on the other side of the canvas something similar happened. After the groundbreaking article of Kraljic (1983), in the OPS & SCM world we rather clearly distinguish between key partnerships and arms-length buying-selling. Therefore, the 'Key Partners' box in the canvas seems appropriate for those supplier relationships that really go beyond straightforward buying-selling, for example relationships including joint product development, frequent business reviews, systems integration and so on, i.e. those things you would normally not do with any one of your suppliers.

But where does that leave the commodity suppliers we might be buying from on the spot market? In the company project this issue came up, because indeed these commodity suppliers were not considered partners at all by the company's purchasing staff. However, all of the commodity suppliers together did represent quite a significant part of the total operational costs (COGS), so the team felt that those suppliers should also be somehow represented in the canvas.

Given the nature of some of the future scenario's we were considering in the project, it was decided to not put all of key partners and commodity suppliers together in the 'key partner' box of the canvas. Instead, together with the project team, we decided on the following adjustment to the BMC:
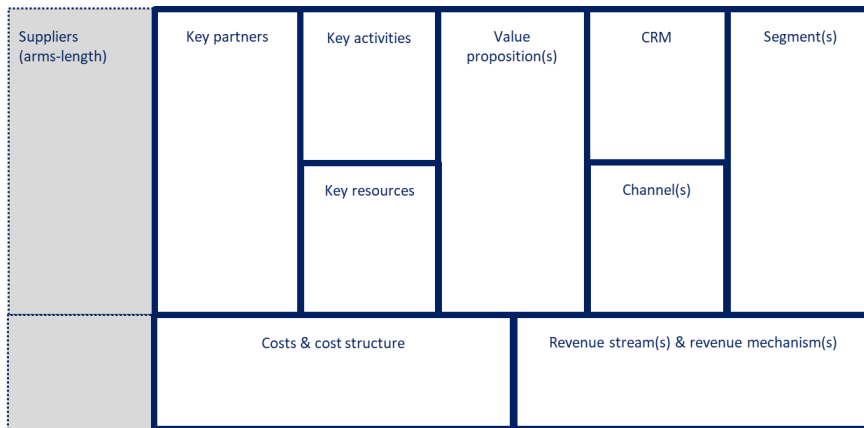
Figure 5: BMC extension to distinguish between key partners and suppliers

The adjustment proved to be particularly useful when elaborating scenarios in which the business model implications of inhouse manufacturing vs. outsourcing to a key partner vs. commodity purchasing were compared and evaluated, so it was considered a satisfactory extension, because now each of these scenario's (visually) really played out differently in the canvas, which led to more focused discussions on the topic.

Let's now go and look at a third potential addition to the BMC.

3. Adding 'OPS & SCM dynamics' to the business model

In its basic form, the BMC is well-suited to express the (static) structure of a certain business model. That raises the question as to how this useful basis can be extended with a view on the dynamics related to that same business model. These dynamics are relevant for the OPS & SCM area, since in the end they determine such essential issues as capacity, speed of response, safety stocks, and so on.

A potential extension of the BMC could look like this[7]:

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[7] Please note that in order to keep the explanation of the various possible additions to the BMC transparent, Figure 6 doesn't include the additions mentioned in Sections 1 and 2 of this Technical Note (customers vs consumers and suppliers vs key partners). Figure 10 at the end of this document will show a view with all of the additions included together at the same time.
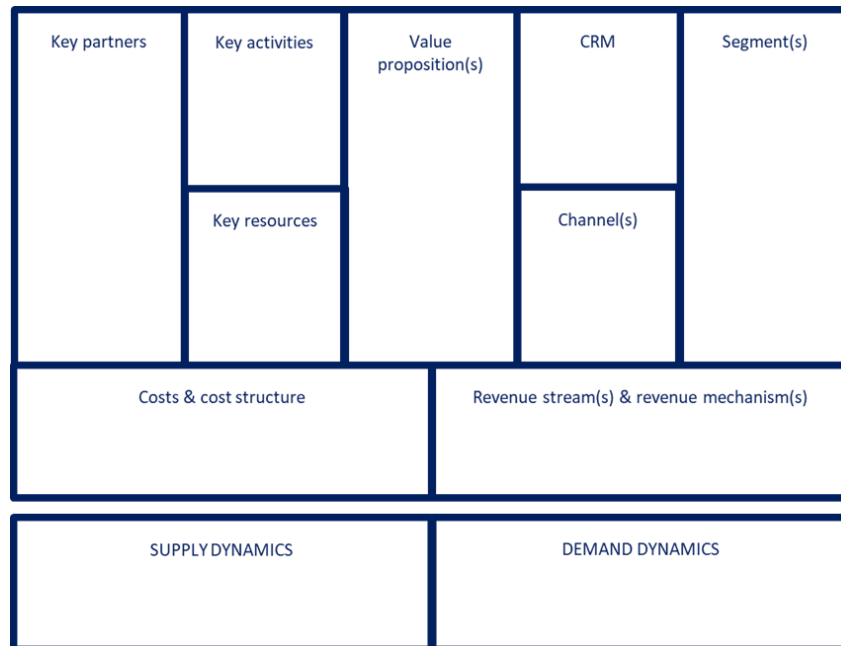
Figure 6: BMC extensions dealing with demand and supply dynamics

The boxes for supply dynamics and demand dynamics could be used for capturing the following items (see the Annex for more detailed specifications):
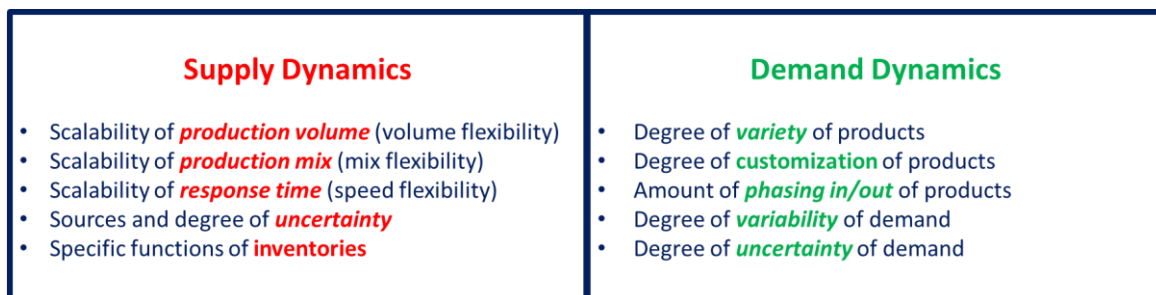

Supply Dynamics

- Scalability of *production volume* (volume flexibility)
- Scalability of *production mix* (mix flexibility)
- Scalability of *response time* (speed flexibility)
- Sources and degree of *uncertainty*
- Specific functions of **inventories**

Demand Dynamics

- Degree of *variety* of products
- Degree of **customization** of products
- Amount of *phasing in/out* of products
- Degree of *variability* of demand
- Degree of *uncertainty* of demand

Figure 7: details of demand and supply dynamics aspects

The suggested additions allows for capturing the static as well as the dynamics of a business model in one and the same (extended) image.

Now, let's look at a fourth 'extension' of the BMC. This one doesn't affect the structure of the canvas, but proposes a slightly different additional application of the same tool.

4. Using the BMC for 'scenario thinking'

In practice, I see that the BMC in most cases is used for relatively short-term business model development and analysis, whether it be for a start-up or for an established company. This raises the question as to whether it could potentially also be used for developing ideas for medium to long term scenarios and the visualization of the potential implications of those scenarios versus the current business model.

After using the BMC in my OPS & SCM courses and trainings for quite a number of years now, my conclusion is affirmative. Yes indeed the BMC can be used for that purpose in a meaningful way. Obviously, the BMC doesn't give any answers about which future scenario to choose, but it does provide the framework for facilitating brainstorming about those scenarios and developing alternatives, which then forms the basis for deeper analysis and elaboration.

The procedure in fact is very straightforward, and works well for almost any trend or development, for example coming out of a PESTEL analysis.

1. Prepare the BMC for the current situation of the company or Business Unit
2. Using sticky notes of different colors, indicate per box in the BMC where impacts from the chosen trend or scenario can be expected
3. Step 2 can be repeated a desired number of times, each for another trend or scenario and preferably each time with a different color of sticky notes
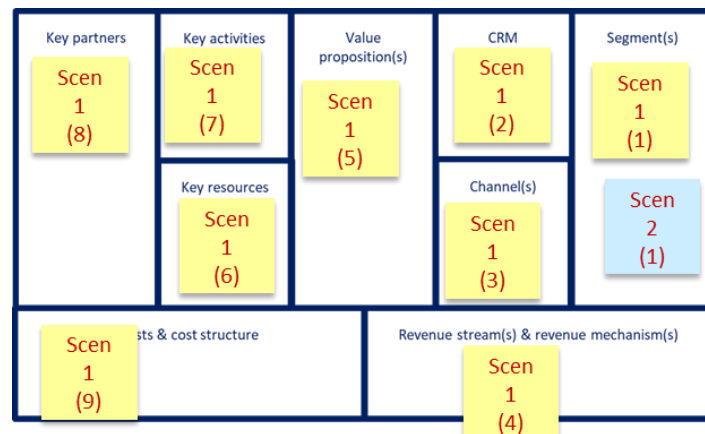

Figure 8: BMC with scenario development

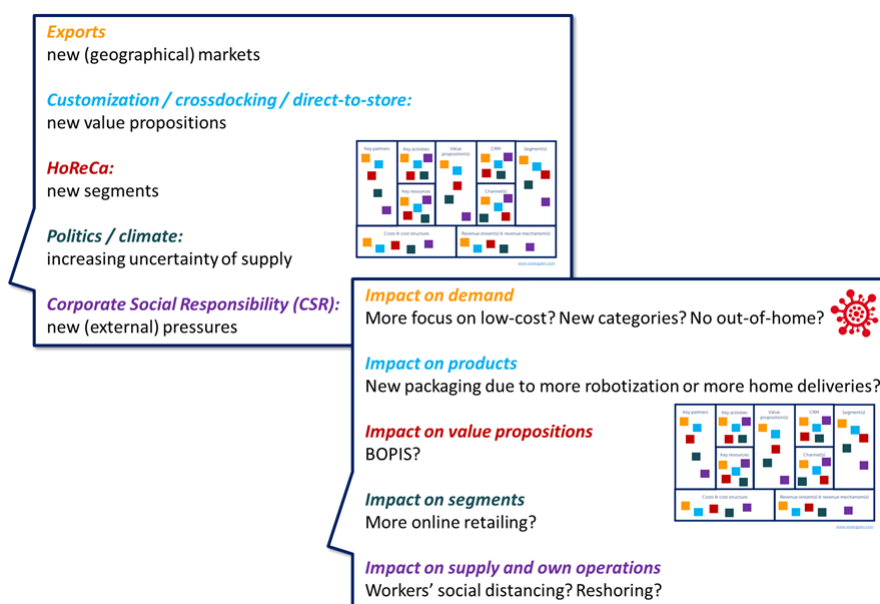After having finished, the overall analysis and evaluation may start:

Figure 9: scenario development with the BMC, example from an OPS & SCM class

Summary

In this brief technical note, I have tried to link the widely used framework of the Business Model Canvas (BMC) to a number of general OPS & SCM concepts, thus aiming at providing the reader with a basic understanding of how the BMC can be meaningfully applied within the context of OPS & SCM, even beyond its already useful basic application.

As hopefully has been illustrated, many of the relevant principles and frameworks of the WHAT & HOW at play in OPS & SCM, can be somehow connected to the BMC, making it into an even more powerful tool.

Thus, I hope it has also become even more visible how aspects of the fascinating and dynamic world of OPS & SCM are an integral part of a company's business model.
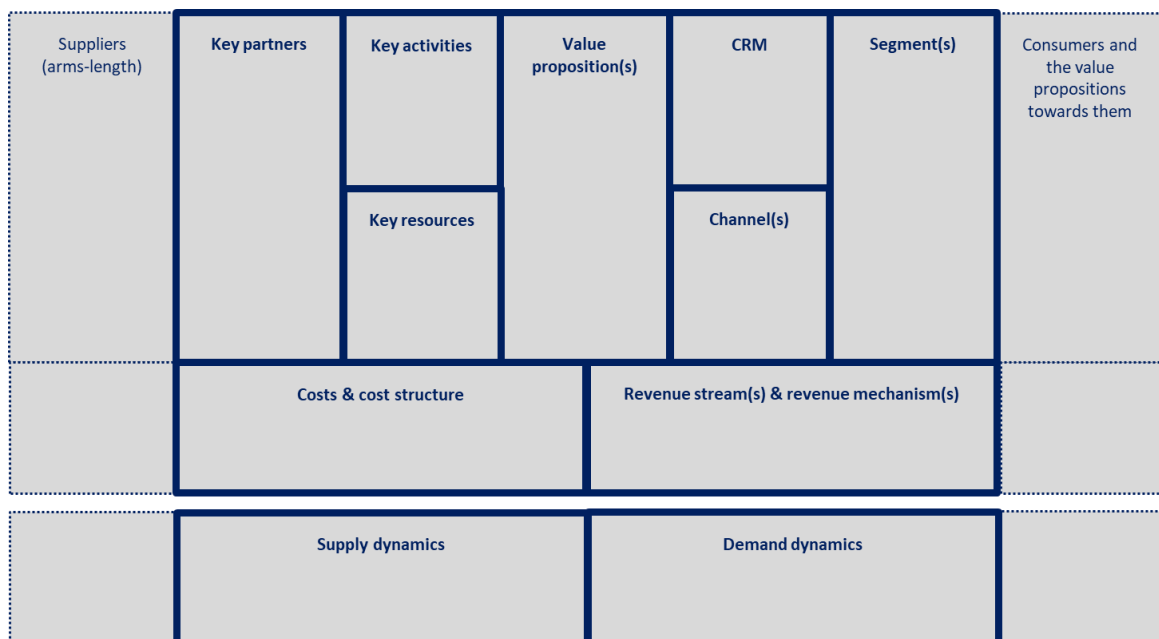
www.strategyzer.com (Extensions were developed during specific projects at QuSL and/or in courses and trainings)

Figure 10: BMC with all potential extensions included

References

- Kraljic, P. (1983) Purchasing must become supply management, Harvard Business Review, September

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- Weenk, E. (2012) *The Perfect Pass: what the manager can learn from the football trainer*, Libros de Cabecera

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Annex: demand and supply dynamics

Demand dynamics, e.g.:

- *Variety*: how large and complex is the product portfolio (e.g. nr. of articles/SKU's)?

- *Customization*: which degree of customization is allowed (e.g. none, limited, full; for which features of the finished product: all, only a few; how long before delivery is customization confirmed in comparison to the production time: long or short time)?

- *Phasing in/out of SKU's*: how many changes per year/season (e.g. % of SKU's in/out as part of total)?

- *Variability of demand*: how much fluctuation does the demand show (e.g. % difference between minimum and maximum demand at yearly, monthly, weekly, daily level; or average demand vs standard deviation of demand, also called variation coefficient)?

- *Uncertainty of demand*: how well able to predict (e.g. % forecast accuracy, or low-medium-high predictability)?

Supply dynamics, e.g.:

- *Production volume*: of the key resources, which options exist to scale the volume up or down (gradually, big-step), how fast (fast, slow, or number of weeks to effectuate) and how permanent (can be scaled up as well as down easily, or once additional capacity has been installed it cannot easily be taken out again)?

- *Production mix*: based on the key resources, which options exist to make changes in the product mix, i.e. easily switch to other products, introduce new products (gradually or big-step)? How fast can those changes be made (slow, fast, or how many weeks of response time)? What is the potential impact of changes in the product mix to production efficiency (big impact, limited)? How permanent is that impact on efficiency (temporary or longer period)?

- *Response time (speed)*: which options are there to scale the velocity up or down (gradually or big-step)? How easy/difficult, how fast/slow, how temporary/permanent and how cheap/expensive would making such changes be?

- Which sources of *uncertainty* exist in supply (in sourcing, in production, in distribution)? And which degree of uncertainty is there (low/high, or % hiccups)?

- Which specific *inventory functions* are relevant in terms of amount (e.g. spot-buying, speculation stock, seasonal stock, minimum order quantities, minimum production batch sizes, and so on)? And how much do inventory levels vary in time (min/max levels per year, per week, per month)?