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Identification Framework for Business Model Risks

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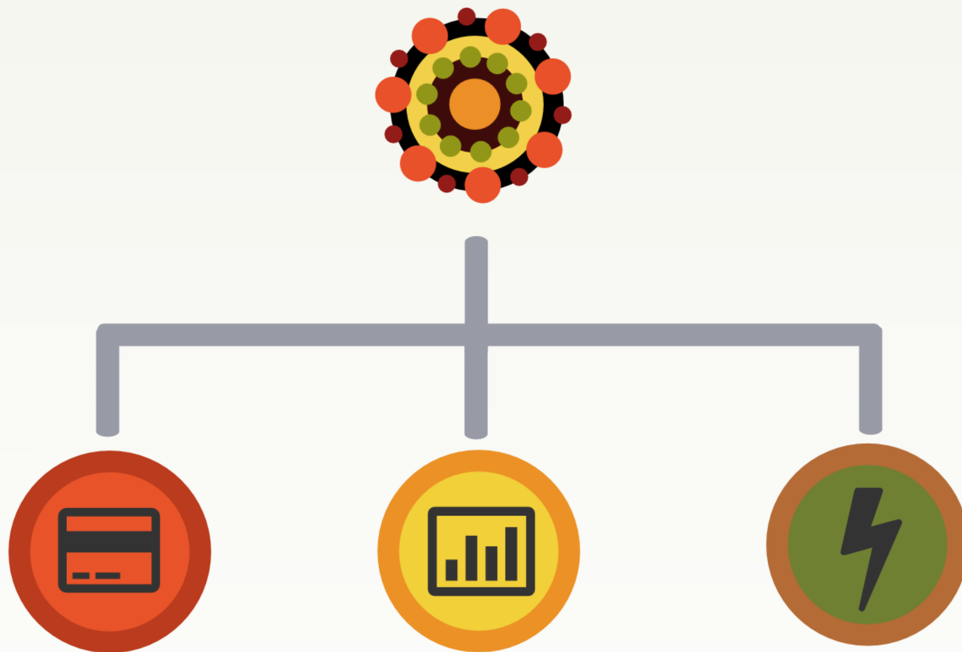

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SUMMARY

We develop an analytical framework for the systematic *identification* of business model risks. The framework utilizes as a starting point a simplified business model schema known as the Business Model Canvas. We review each one of the elements of the schema in turn, identifying the main risk characteristics associated with each.

The white paper has two main sections:

- A *Review* section discussing the motivation, concepts and precedent frameworks around business model definition and business model risks
- The *Identification Methodology* section documenting an approach to identify potential weaknesses of a business model and their likely impact

Further Resources

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Motivation and Background

The need for better understanding of business model risks

Business models are the business blueprints used by an organization to create, provide and capture value. There is a strong need in various domains to develop better understanding of business model risks. A proper risk framework would support the whole gamut or risk management capability, namely identification of key risks, quantification and finally, management of those risks.

The motivation to improve business model risk management comes from diverse spheres of economic activity as business models are central in most any enterprise. We will highlight two currently prominent domains. We believe the scope and importance of both provides adequate justification for pursuing this work.

Business Risk in the Banking sector

The first sector concerns the broader financial services domain, and in particular banking, which is still struggling with the global financial crisis aftermath. Banking sector business models continue to be under regulatory scrutiny and in a recent press release[1] the European Central Bank outlined its Banking Supervision priorities for 2016. One prominent strand of work aims to focus on further analyzing business model and profitability risks:

> **ECB Press Release (2016): Focus on Business Model and Profitability Risk**
> The key risk that stands out relates to banks business models and profitability. Both are being challenged by the high level of asset impairments and the protracted period of low interest rates. In 2016, building on previous work around banks business models and on profitability analyses, the SSM is launching a thematic review of banks profitability drivers at firm level and across business models. The analysis of profitability drivers will facilitate the identification of banks with structurally low profitability. In this context, an area of supervisory focus will be examining whether profitability is achieved through, among other things, a weakening of credit standards, greater reliance on short-term funding, or an increase in risk exposures not commensurate with the banks stated risk appetite.

The question of business model risk in financial services context arises primarily as a *gap* in an otherwise fairly substantial risk analysis framework employed by banks and regulators. That risk framework identifies and covers a large number of risks, classified by *risk type*. In particular so called *operational* risk

frameworks[2] have non-negligible overlap with business model risks as the success and viability of any business model must be supported by actual operations (systems, processes, personnel etc).

A key distinction between operational risks and business model risks is that the former focuses on operational vulnerabilities that can lead to unexpected losses, whereas the latter concerns the profile of the *profitability drivers* of the business and how those affect the balance between revenue and cost structure.

Business Model Risks for Startups

The second domain where there is very active interest to understand and harness the business model potential are the innovation / startup ecosystems. Entrepreneurial activity that scales into successful mainstream businesses has been something that various jurisdictions have sough to encourage. One of the factors relevant for achieving scale has been identified as the adoption of new business models [3].

EU Final Policy Brief (2014): The Need for Innovations in Business Models
The Innovation Union, a Flagship Initiative launched in 2010, is part of the Europe 2020 strategy that aims to create smart, sustainable and inclusive growth. Europe's innovation performance could provide a considerable contribution to this growth but it still needs to be boosted. One crucial aspect is the ability to bring good ideas from research as products and services to the market. New business models and services could be means to bridge the gap between research results and their commercial exploitation.

Whereas for well established businesses the analysis of business model risk helps eliminate vulnerabilities and tune profitability drivers, for *new businesses* a similar framework might help improve the *success rate* of new enterprises.

What exactly is business model risk?

Definition and Causes of Business Model Risk

A key challenge for assessing business model risk is that we currently have only a sketchy description of *what* exactly are we are trying to assess the "riskiness" of. Besides the fairly obvious fact that business risks concern the quantity and quality (e.g. sustainability) of earnings and other financial aspects that derive from those such as firm value) there is not much established formal risk analysis framework. Some interesting discussions can be found in [4, 5].

The background to this gap is that in financial services, where arguably the most advanced formal risk frameworks are to be found, regulation and internal management of risks has essentially evolved *in response to crises*. Almost every financial crisis in the modern era (Savings and Loans, Stock Market Crashes, Subprime Crisis etc) identified a new set of vulnerabilities (interest rate risks, market risks, credit risks, liquidity risks, conduct risks and so on) and regulation has been introduced as a mitigation tool to prevent a repetition of similar risk realizations. Heretofore business risks have not led to a significant crises (although there is some notion that current new entrants (fintech) may create just that). As a consequence historically business risks have had no regulatory focus and their management internally was left to individual firm's processes (e.g., Strategy and Planning teams)

The challenge of defining business risk stems primarily from the lack of common definition of what constitutes a business model but also the precise impact of the competitive landscape (which is characterized by competing business models).

In [6] we find the following definition of business risk: It captures the risk to the firm's future earnings, dividend distributions and equity price. In leading practice banks, business risk is more clearly defined as the risk that volumes may decline or margins may shrink, with no opportunity to offset the revenue declines with a reduction in costs. For example, business risk measures the risk that a business may lose value because its customers sharply curtail their activities during a down-turn or because a new entrant takes market share away from the bank. Moreover, this risk increasingly extends beyond balance-sheet items to fee-generating services, such as origination, cash management, asset management, securities underwriting and client advisory services.

On the face of it, the task of proceeding from the definition of business risk to a practical framework that can prove itself useful in real life is daunting. Yet much is to be gained from any progress. In this paper we focus on the first component of a risk framework: Risk Identification.

Business Model Description

Our first design choice is to adopt a concrete *business model description*. That is an abstraction that aims to capture the essential elements of what constitutes a business model. The hope is that a risk analysis framework will benefit from having at hand this condensed summary of the firm's essence.

There is an enormous diversity of organizations, small and large, operating in different sectors, with different objectives, regulations, legal frameworks etc. Each one of those is further composed of a large number of resources and processes and exhibits complex interactions with external parties. Efforts to describe business models in a systematic way go back a long way. For a recent review see[7]. In this section we adopt a concrete definition of a business model and make a number of scope reductions in order to reach a tractable degree of simplicity.

One key simplification at this stage is that we only consider "monoline" businesses, that is, a standalone firm that pursues a *single business model*. Larger organizations (conglomerates) may operate multiple, more or less separated units that follow concurrently considerable different business models. Analyzing risks for such conglomerates entails at least one more layer of complexity, as there might be overlaps of clients, resources etc. It stands to reason that there is little hope of addressing business model risk of such aggregate entities before having a demonstrable handle on monoline business risk.

A further simplification is that we only consider client-centric business models. Trading oriented businesses (also known as proprietary trading) involve the firm engaging primarily in buyer-seller relationships in a traded market context. In such business models there is no Client-Service Provider relationship and the framework developed in this paper does not apply.

A Vocabulary of Business Planning Terms

Before focusing on business models it may be worthwhile fixing nomenclature of the various terms involved in the different business layers. A **Business Strategy** is a high level planning tool that captures the vision, goals and objectives of the organization. The **Business Model** is to be understood as a more

detailed *architectural blueprint* for a set of relationships and processes between external and internal actors. The business model describes the rationale of how an organization creates, delivers, and captures value. A **Business Plan** is the "flight manual" for the concrete and specified realization of a business model. It concerns a fixed time period and is based on an up-to-date assessment of the various market conditions. A **Budget** is a specific financial schedule that captures ex-ante only certain monetary aspects of the business plan. **Financial Statements** capture ex-post the realizations of some financial variables related to the business plan. A **Business Process Model** is a low level description that uses IT tools (e.g. UML language) to describe fairly precisely the actors, processes and data flows implementing the activities involved in a Business Model.

The Business Model Canvas

For the definition of a business model we adopt Osterwalder [8]: A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams.

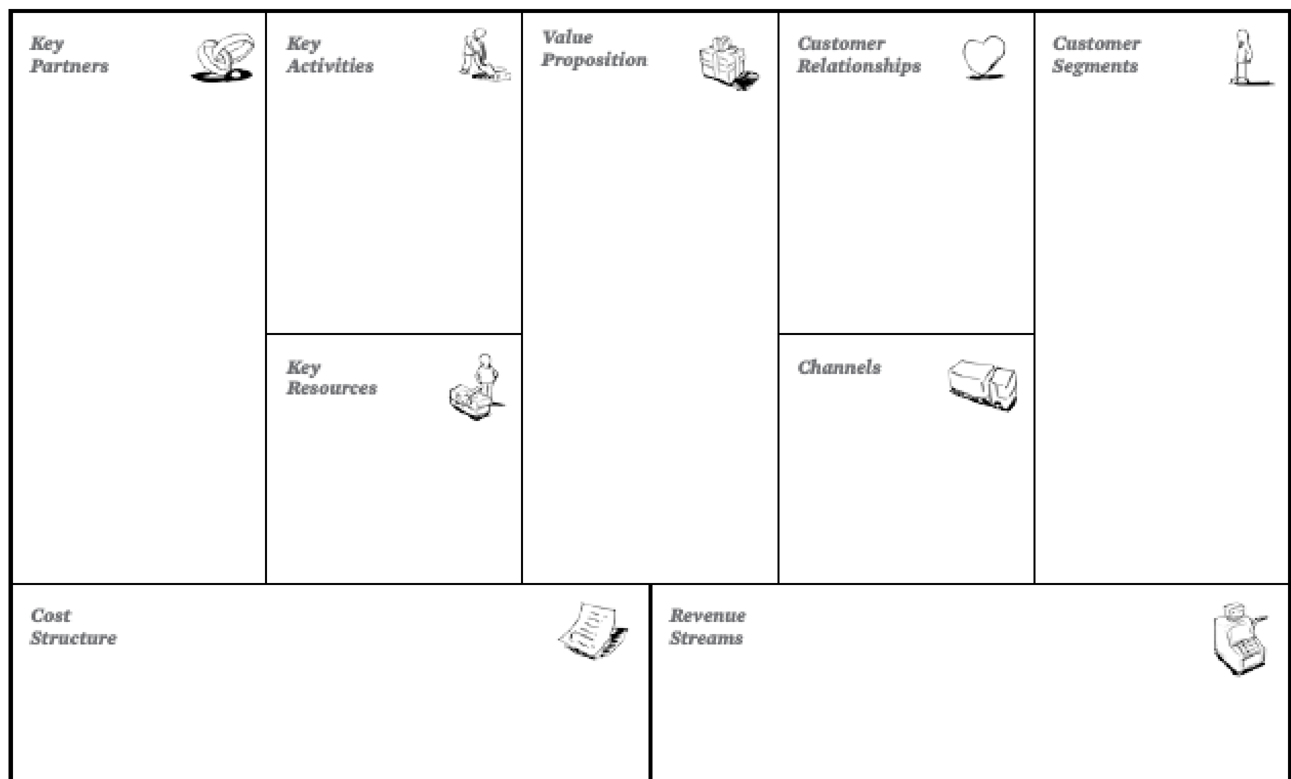

Figure 1: The original business model canvas

According to the simplified[9] Business Model Canvas (BMC), a business model is defined as the fol-

lowing assembly of intangible and tangible processes and resources and attributes:

1. **Customer Segments:** The differentiated groups of customers that are catered for by the business model
2. **Value Propositions:** The core value being delivered to customers, the needs being satisfied
3. **Distribution Channels:** The delivery channels for reaching customers for sales and ongoing relationships
4. **Customer Relationships:** The ongoing relationship (physical, virtual interaction) that is to be established with customers
5. **Revenue Streams:** The value and manner in which customers pay for products or services
6. **Key Resources:** The resources (physical and financial assets, personnel, know-how etc) required to materialize the value proposition (creation of product or service, support etc)
7. **Key Activities:** The activities required to materialize the value proposition (manufacturing of product or provision of service, support etc)
8. **Key Partners:** The business partners, suppliers, collaborating entities that are involved in formal partnerships that involve the exchange of products and/or services.
9. **Cost Structure:** The expenses incurred via Activities, Resources and Partners in the realization of the Value Proposition

The BMC focuses mostly on internal aspects of a business model. When assessing risks to the business model we will find that the competitive landscape is almost always a relevant factor. Therefore we introduce an additional element, the **Key Competitors:** Other businesses targeting the same customer segments with similar or overlapping value propositions.

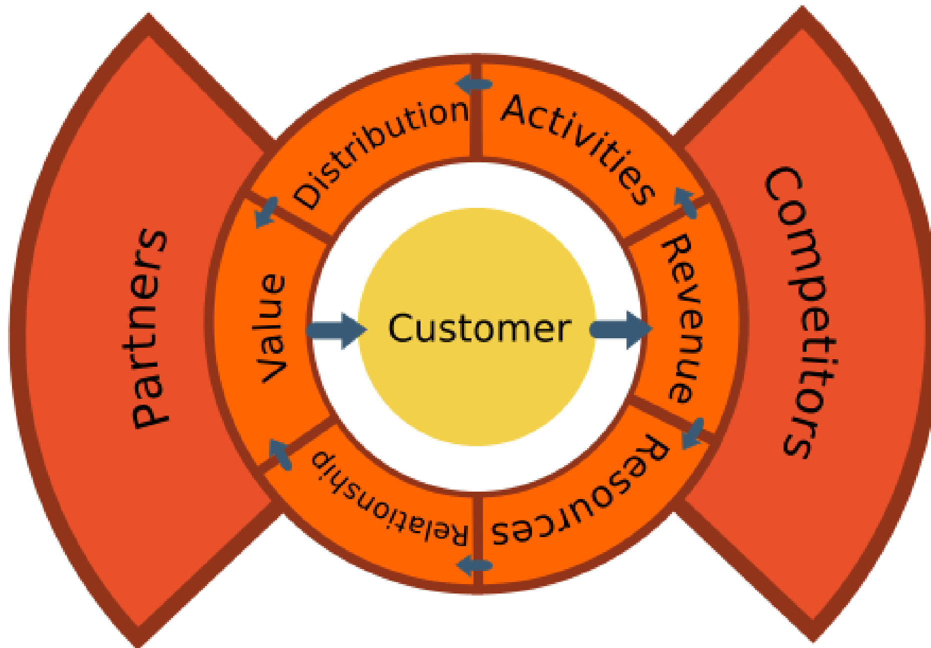

Figure 2: In this summary depiction of the business model, the firm (or business line) is indicated as a set of elements centered on the customer. Activities and Resources, are followed up by Distribution Channels and Client Relationships. These four elements help realize the Customer Value Proposition. In turn this entices Customers to generate the Revenue Stream, which then gets distributed through the Cost Structure (arrows) to support the firm operations. Key external parties are the Partners and Competitors of the firm.

Business Model Risk Identification Framework

Customer Segments

Description
Customer Segments are the different groups of people or organizations an enterprise aims to reach and serve.

Properties

The customer segmentation is an internal attribute of the business model (Competitors may be segmenting the market differently). A key aspect of each Customer Segment is it size (number of clients). Another key aspect is the purchasing power (sometimes called wallet size) or related indicator of economic status of the Customer. Another attribute with possible relationship risk implications is the sophistication of customers (financial literacy, general knowledge of the products / services they purchase). Segmentations can be based in any combination of the following attributes of the customer base:

- Customer *needs* that require and justify a distinct product / service offering
- Customers reached through different Distribution Channels
- Customers require different types of Relationships
- Customers with substantially different profitabilities
- Customers willing to pay for different aspects of the offer

Risk Profile

A given customer segmentation becomes a risk when it no longer optimally reflects the realities of the client base or how the internal structure of the firm matches that client base. The impact of a such a mismatch will be downstream as ineffective or inappropriate distribution, reduced product appeal etc, which will ultimately impact revenue.
Changing customer behavior and expectations can be for a variety of reasons. For example changing demographics or economic factors. Assessing the risk of an unsuitable segmentation requires analyzing current and historical patterns of client behavior and expectations.

Value Proposition

Description

Value Propositions are the intrinsic properties of products and services that create value for a specific Customer Segment.

Properties

Value Propositions have both quantitative attributes, such as price, speed of service) and qualitative ones, such as design, customer experience, novelty, brand name, effectiveness, performance and customization. The value proposition is defined *per customer segment* as different segments will be experiencing the product or service in different ways. Almost always the *price* aspect is a key contributor to the value proposition. Further, the Value Proposition is typically relative versus alternative offerings. The fundamental relationship is that higher value proposition leads (other things being equal) to more sales and revenue.

Risk Profile

As per business plan, there is an expected level of value that accrues to the customer using the product or service. This is established e.g., in pre-launch client surveys. The risk is that the actual value proposition delivered declines seriously or does not materialize, leading to loss of clients or inability to attract new clients.
Risk factors that can diminish the value proposition to clients:

- Service provision issues (Quality Control)
- Changing client expectations
- Changing economic environment
- Alternative products or services

The value proposition is in general context dependent and hard to quantify in absolute terms. Client surveys can provide ongoing observables as to its relative development.

Distribution Channels

Description

Distribution Channels are the means by which a company communicates with and reaches its Customer Segments to deliver its Value Proposition.

Properties

Communication, distribution, and sales Channels comprise a company's interface with customers. They require investment to setup and are optimized to meet a given Customer Segmentation. Channels serve several functions, including:

- Raising awareness among customers about a company's products and services
- Helping customers evaluate a company's Value Proposition
- Allowing customers to purchase specific products and services
- Providing post-purchase customer support

The fundamental relationship is that more and higher quality distribution channels will deliver more revenue.

Risk Profile

Distribution channels are expected to be available and operational as per business plan. The risk is that distribution channels become ineffective and do not fulfill their objective (even while requiring running costs to maintain).
Risk factors that can diminish the effectiveness of sales channels

- Quality of the implemented sales channel (people, processes, equipment)
- Suitability to changing behavioral patterns (new more attractive channels, alignment with client segments)
- Crowding of channel bandwidth by other competitors

The effectiveness of distribution channels can be measured with market surveys and suitable analytic processes.

Customer Relationships

Description

Customer Relationships describe the types of ongoing interactions a company establishes with specific Customer Segments.

Properties

This business model component recognizes that in many cases the interaction with clients is not an instant and anonymous transaction (as it is for example in a trading business model) but is instead an ongoing process. The types of customer relationships include approaches such as: Personal assistance, self-service, automated service, communities, or co-creation. Customer Relationships are supported by company processes and are contributing to the Cost Structure.
Relationships enable or enhance client acquisition and retention thereby contributing to the Lifetime Value of the client (See Revenue Streams). They contribute also to the Value Proposition for customers. For example, trust and loyalty to the brand or status of the firm is an aspect of the customer relationship and loss of such trust can severely impact the business model performance. Better customer relationships will in general lead to more clients and revenue.

Risk Profile

As per business plan a certain set of Customer Relationships is expected to be in place (supported by Resources and Activities). Risks associated with customer relationships:

- Internal of External factors affecting negatively the relationship so as to prevent it from serving the intended purpose (Reputation damage, Poor Performance)
- Unexpected Cost increases in supporting the relationship

The perception of Customer relationships by clients is highly context dependent and hard to quantify in absolute terms. Client surveys help establish observables and their trends.

Revenue Streams

Description

This component captures all financial rewards (expressed in cash or otherwise) that a company generates from each Customer Segment.

Properties

Revenues may be in the form of lump-sums from sales, regular fees etc. Revenues have a natural decomposition into sales volumes (number of clients) and revenue per sale (number of products sold, revenue per product etc). A metric that is commonly used to capture revenue in a comprehensive way is Customer Lifetime Value which attempts to cumulate total profit from the lifetime of the client relationship

Risk Profile

As per business plan the revenue stream is expected to be sufficient to cover all costs and provide for a profit margin. Deviations from that expectation (rendering the firm unprofitable or even insolvent) constitute Revenue risks. Revenue risks materialize through missed sales targets (volumes) or inability to maintain prices. A list of contributing elements to revenue risk is the following:

- Market Size Change: The risk of reduction in the wider market demand for the firm's product and services as a result of factors external to the firm or its competitors
- Market Share Change: The risk that product volumes (expressed as relative market share) will deviate from business plan or budget, leading to unexpectedly lower revenues
- Price Risk: The risk of lower profitability versus the business plan, as the result of tighter pricing (e.g. price war).

In terms of quantifying revenue risks, sales volumes and margins are observable variables that develop largely continuously. Hence they can be analyzed in connection with other observable factors. Significant modifications of strategy may create more lumpy changes in revenue and would in general be more difficult to quantify.

Key Resources

Description

Key Resources are the company assets and liabilities required to implement a certain business model. These resources allow an enterprise to create and offer its Value Proposition, reach markets, maintain relationships with Customer Segments, and earn revenues.

Properties

Resources can be owned or leased by the company or acquired from key partners. A formal (but certainly not exhaustive) catalog or Key Resources is captured in the "balance sheet" of the firm which is a snapshot of what constitutes the company (stock) at any given moment. In our context key resources can be:

- Human Capital (trained and talented personnel supporting the various Key Activities and management of the firm)
- Intellectual capital (internal know-how, patents etc)
- Physical assets (real estate, equipment etc)
- Financial Assets
- Funding Sources (Liabilities)

More resources will lead to higher ability to generate product or service and ultimate revenue. Yet resources are costly to acquire and maintain.

Risk Profile

As per plan there is an expectation that a list of required resources are in place and contributing as intended to the execution of the plan. Resource linked Risks emerge as realization that those expectations are not met. Given the large variety of resources, there are many risk factors affecting resources, for example:

- Legal Risks: Disputes around intellectual property
- Physical Assets Risks: Physical Damage Risk or System Failure
- Key Person Risks: Important individuals with know-how or external visibility leave the firm
- Employment Practices Risk: Employment practices followed by the firm which may not meet applicable laws and standards
- Financial Asset Risks: Credit Risk in Client Receivables, Market Risk in investments or Ownership Stakes in other firms
- Funding Risks: Uncertainty around the availability of future external funds for financing operations (equity funds, loans etc)
- Employee Pension Liability Risk: The risk of unexpected required contributions to employee pension funds that cannot meet their required solvency standard on standalone basis

Resource risks is the business model component most overlapping with the classic risk management disciplines and here it is advised to adopt identification and quantification methods already developed.

Key Activities

Description

While Key Resources are a *snapshot* of what constitutes the firm, Activities are akin to a *flow* description of the firm. Activities capture the main processes that must be in place to make the business model work.

Properties

Activities include research and development, production, marketing, sales, service provision, maintenance, support etc. As with Resources, ceteris paribus, more and higher quality Activities support more production and ultimately more revenue.

Risk Profile

As per business plan the expectation is that there are in place adequate Resources to enable the Activities required and those perform as expected in the course of planned period. Risk factors that can affect the ability of Activities to deliver:

- Activity Execution: Poor or erroneous completion of regular business tasks. E.g, service interruption, errors or poor quality.
- Performance Risk: Adverse developments to the firm's human resource pool (sickness, underperformance) which affect the quality of the performed activities
- Fraud: Unexpected loss as the result of fraudulent activities of persons internal or external to the firm.

Key Partnerships

Description

Partnerships is the network of suppliers and partners that help make the business model work.

Properties

Companies create alliances to optimize their business models, reduce risk, or acquire resources. We distinguish between different types of partnerships:

- Strategic alliances between non-competitors
- Strategic partnerships between competitors
- Joint ventures to develop new businesses
- Buyer-supplier relationships to assure reliable supplies

Partnerships are in general adding value to the firm and more / stronger partnerships lead to better operating results.

Risk Profile

As per business plan, there will be a list of partners that are expected to be providing critical resources or activities. Risks associated with partnerships involve unexpected developments that deviate from the plan:

- Negation of the partnership by the external party along with difficulty replacing it with other party
- Partnership fails to deliver the expected results creating reputation or cost impact

Due to the lumpy impact of an unexpected failure of a partnership the impact might be hard to quantify

Cost Structure

Description

The Cost Structure describes all costs incurred to implement and operate a business model. Costs are required for creating value using Resources and Activities, delivering value via Distribution Channels and maintaining Customer Relationships.

Properties

A business model will involve a mix of diverse cost elements:

- Customer Acquisition Cost (abbreviated to CAC) refers to the resources that a business must allocate (financial or otherwise) in order to acquire an additional customer (this includes research and marketing costs)
- Fixed Productions Costs that are known a-priory (at least for a certain period) such as fixed salaries, rents, operational costs with agreed price levels etc.
- Variable Production Costs that are not known a-priory and can be linked to market variables, production volumes, variable remuneration components etc.

Risk Profile

As per business plan, there is a projected expected cost structure that takes into account current and historical observed cost levels. A primary risk factor associated with the cost structure is that variable costs will be larger than expected. In turn higher variable costs may be depend on higher compensation levels due to labor market conditions, external market prices for resources or services etc.
While the cost structure can be monitored continuously this does not mean that variations from expectation are always going to be small. To the degree that there is *concentration* in any of the Business Model elements (e.g., reliance on a Partner for a particular resource) adverse events may generate large jumps in costs.

Competitors

Description

Competitors is the set of all external organizations that operate or have the potential to operate in providing competing Value Propositions to Customers

Properties

Competitors may operate under similar or distinct business models. They may have substantially different track record, resources, partnerships, distribution channels and customer relationships. The key metric linked to a competitive landscape is the market share of each participant, but the net profitability of each is also an important metric. At the highest level we can distinguish competitors as:

- Incumbents: established competitors that are well known to the market and have validated business models
- New entrants: newly established competitors (at least with respect to a given market) which may operate known or new business models

Risk Profile

Competition increases the risk profile of any given business model by stressing practically all business model elements. An existing level of competition and corresponding market share distribution must be incorporated in the business plan as per expectation. Uncertainty is linked to adverse (for the firm) developments in the ability of existing or new competitors to increase market share or operate more profitably.

- Revenue Streams: Reducing market share and/or suppressing margins
- Value Proposition: Eroding the firms value proposition by offering more compelling value
- Distribution Channels: Crowding out channels and increasing distribution costs
- Client Relationship: Juxtaposing better relationship structures
- Cost Structure: Competing for Resources and increasing resource costs
- Partners: Reducing the pool for available partnerships

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