DECISION INTELLIGENCE PLATFORM:

STRATEGIC THINKING &
SCENARIO DEVELOPMENT & ANALYSIS MANUAL

ANTE COVID-19

"Half the money I spend on advertising is wasted; the trouble is I don't know which half."
John Wanamaker (1838-1922)

POST COVID-19

"Half the assumptions about how my industry will look like in the future is not valid anymore; the trouble is I don't know which half."
Executive, MNC (2020)

Source: Wikipedia & Roger Moser

Dr. Roger Moser
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FOREWORD

Digitization, COVID-19, the Russian attack on Ukraine among others have changed the rules of the game in most industries around the world and has affected supply and demand chains of multinationals and local companies alike. Executives of all kinds of organization are now realizing that most of their **assumptions** about how their markets will work and how their companies will continue to successfully operate **are called into question**.

This implies that companies need to rethink how their business environment will look like in the future – from broad political, legal, economic, socio-cultural, environmental and technological condition to the behaviour of competitors and complementors – **and how to adapt their business model to the new realities**.

One approach to prepare for such a completely changed reality is **the development of SCENARIOS** about how the future business environment might look like and draw conclusions for a company's business model (i.e., value creation, value capturing and value delivery) including the resources and budget implications for each function. It's important to understand that even if the developed scenarios don't become reality, they help executives and employees to better deal with the information overload that they currently experience.

As PROCESS experts for the development and analysis of SCENARIOS in dynamic business environments, we are supporting companies that require testing their assumptions about how their business environment will look like in the future and what kind of implications to draw from such outlooks.

On the following pages, you will find a brief manual about how to develop and analyse SCENARIOS that was primarily written as a quick response to the COVID-19 crisis. However, the approach and logic of this manual applies to any major change in an organization's context.

In addition, the advice on the following pages is not always easy to implement. **Our approach requires time and the conviction** that spending time to think about the future business context in a structured way is the best way to deal with uncertainty, ambiguity, equivocality and other market dynamics.

If you have any questions, please do not hesitate to contact us!

Kind regards

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OVERVIEW

This manual supports executives and employees in strengthening their strategic thinking and their ability to develop and analyse scenarios to decide with more confidence during times of uncertainty & equivocality. This manual consists of three parts.

Part ONE (I) provides an overview and conceptual introduction. It helps executives and employees to understand the different steps that applied STRATEGIC THINKING requires and it can be implemented through a SCENARIO DEVELOPMENT & ANALYSIS approach. Part ONE (I) also provides a quick overview on the online, real-time Delphi study (Expert Panel) software of DI – Decision Intelligence GmbH which we normally use.

Part TWO (II) provides a case example of a mid-sized MEM company from Switzerland that tries to apply the methodology in its specific industry context.

The case examples in Part TWO (II) are structured into three different examples of Scenarios:

The first example shows how the CEO and his team developed hypotheses and a scenario matrix focusing on assumptions about the future directly related to the COVID-19 pandemic to support an immediate Decision-making Challenge (*WHEN to prepare the scale-up of production again?*).

The second example shows how the CEO and his team developed hypotheses and a scenario matrix focusing on assumptions about the future requirements in their industry to support a mid-term Decision-making Challenge (*WHETHER to invest into 3-D printing capacities & capabilities?*).

The third example shows how the CEO and his team developed a detailed scenario as a potential outlook into the long-term changes of the company's business environment to better understand whether and how to adapt the case company's business model.

Part THREE (III) helps executives and employees how to turn scenarios that they have developed or collected from outside sources (e.g. from think tanks, consulting companies etc.) into detailed consequences for the resources (human, physical, technological, organizational, relational) of their functions based on the "Institutions-Resources Matrix".

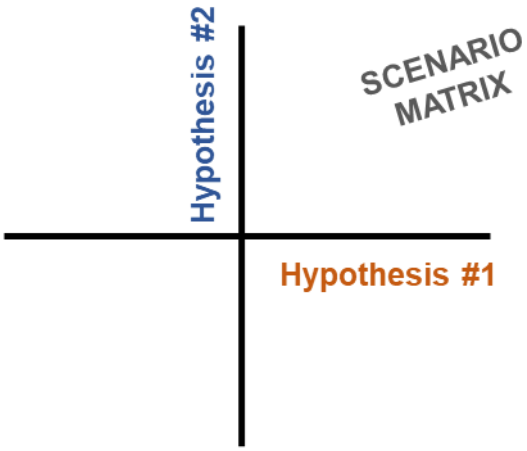
PART I

SCENARIO DEVELOPMENT & ANALYSIS MANUAL:
CONCEPT & OVERVIEW

Introduction

The core of any SCENARIO DEVELOPMENT & ANALYSIS project is the SCENARIO MATRIX (Exhibit 1). A scenario matrix consists of two assumptions (i.e. hypotheses) about how a specific part of the entire business context might look like in the future.

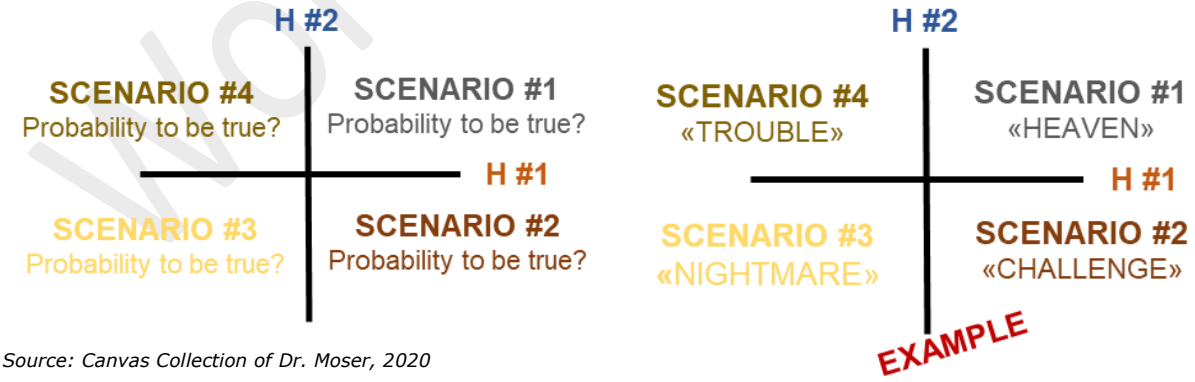
Exhibit 1: Scenario Matrix based on two hypotheses



Source: Canvas Collection of Dr. Moser, 2020

These two hypotheses (or assumptions, projections) about specific developments in the business context divide a SCENARIO MATRIX into four separate scenarios (Exhibit 2). Each of these four scenarios has its probability to become true in the future. In total, the probabilities of all four scenarios must equal 100% because one of the four scenarios is assumed to represent a part of the future reality.

Exhibit 2: Scenario Matrix with four distinctive scenarios



Source: Canvas Collection of Dr. Moser, 2020

Obviously, it is not enough to work with only one scenario matrix to understand how a company's future business environment might look like. In fact, selecting those hypotheses about ongoing or future changes that matter most for your organization might be the most challenging task of any scenario development & analysis project. Dr. Moser has developed a STRATEGIC ANALYSIS, STRATEGY CREATION & REALIZATION Canvas Collection (*constant work-in-progress*) that supports companies in selecting those trends and developments that truly affect the financial and operational sustainability of their business models.

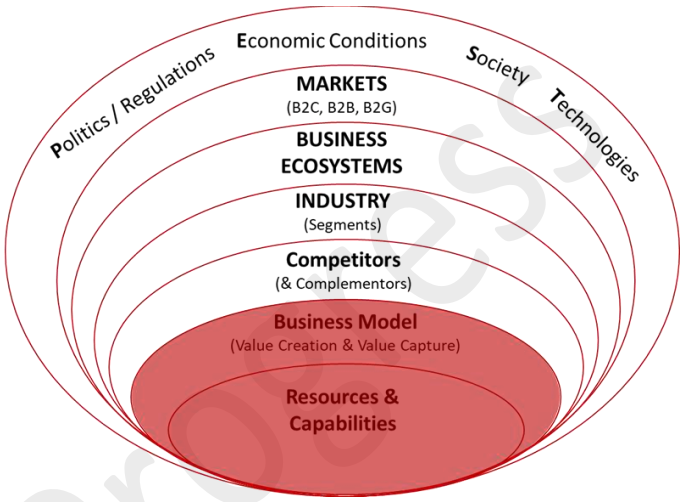
In short, if companies are not fully aware of why they are or have been successful with their current business model (value creation, value capture & value delivery) they will not be able to select those future trends and developments that might really threaten or even improve their competitiveness.

Dr. Moser has recently developed a "Business Environment Analysis" structure (Exhibit 3) that supports executives in identifying ongoing trends and future developments at different levels of the business environment.

Exhibit 3: Structure for a "Business Environment Analysis"

In order to answer some of the questions; for example, why do you make money ***today*** & what potential developments do you need to plan for **in the future** so that you can adapt your business model (i.e. develop a strategy), you can apply different strategic analysis frameworks. These frameworks can be structured along the following layers:

- General business context (*PEST(EL)*)
- *Markets* you are serving
- *Business Ecosystems* you are embedded in
- *Industry* (Segments) you are positioning yourself in
- *Competitors* & *Complementors* you are facing
- *Business Model* (Value Creation & Value Capture)
- *Resources & Capabilities* (Value Delivery)



Source: Canvas Collection of Dr. Moser, 2020

In many cases, developments in the outer layers of the "Business Environment Analysis" structure trigger adaptations at its inner layers but it can also happen the other way.

In the context of COVID-19, it is pretty clear that a development in the *"Environmental & Natural Context"* (that's the second **E** in the PEST**E**L / PESTL**E** framework which you might be aware of) has triggered adaptations to rules and regulations (i.e. the political / legal environment) as well as the economy of entire countries (i.e. (macro)economic environment) with huge consequences on how entire societies have to collaborate (i.e. socio-economic environment) but also chances and risks for our infrastructure and new technologies (technological environment).

These changes in the outermost edge of our "Business Environment Analysis" structure are then influencing the inner layers. For example, the changes triggered by COVID-19 in the different PESTEL environments have changed and will certainly change how numerous *Business-to-Consumers markets* (e.g. restaurants, malls, personal services etc.), *Business-to-Business markets* (e.g. automotive production, textile industry etc.) but also *Business-to-Government markets* (e.g. infrastructure building & maintenance, private education sector etc.) are operating.

The same is true then for entire *Business Ecosystems* such as mobility or healthcare and the entire realm of social media & entertainment among others. Such fundamental shifts and 'new rules of how things work' are then also redefining how entire *Industries* & *Industry Segments* along with their value chains function and how *Competitors* & *Complementors* are adapting their behaviour to perceived or real changes.

However, we should not forget that also developments within companies or industries can have a massive impact on other layers of the "Business Environment Analysis" structure. In the context of COVID-19, it is certainly any vaccine or at least any rapid & easy antibody identification test which can quickly affect how politics and entire economies can function again.

Scenario Matrix Development

Step 0: Reflection on the DECISION-Making CHALLENGES you face

Before you start with a SCENARIO DEVELOPMENT & ANALYSIS project, you need to first clearly define which:

- *Decision-making Challenges* you face and want to address with this project, and
- *Questions* you need to answer to make each decision.

We call this concept "Decision Context Map" where we list all identified *Decision-making Challenges* and the *Questions* that need to be addressed to conclude each *Decision-making Challenge.*

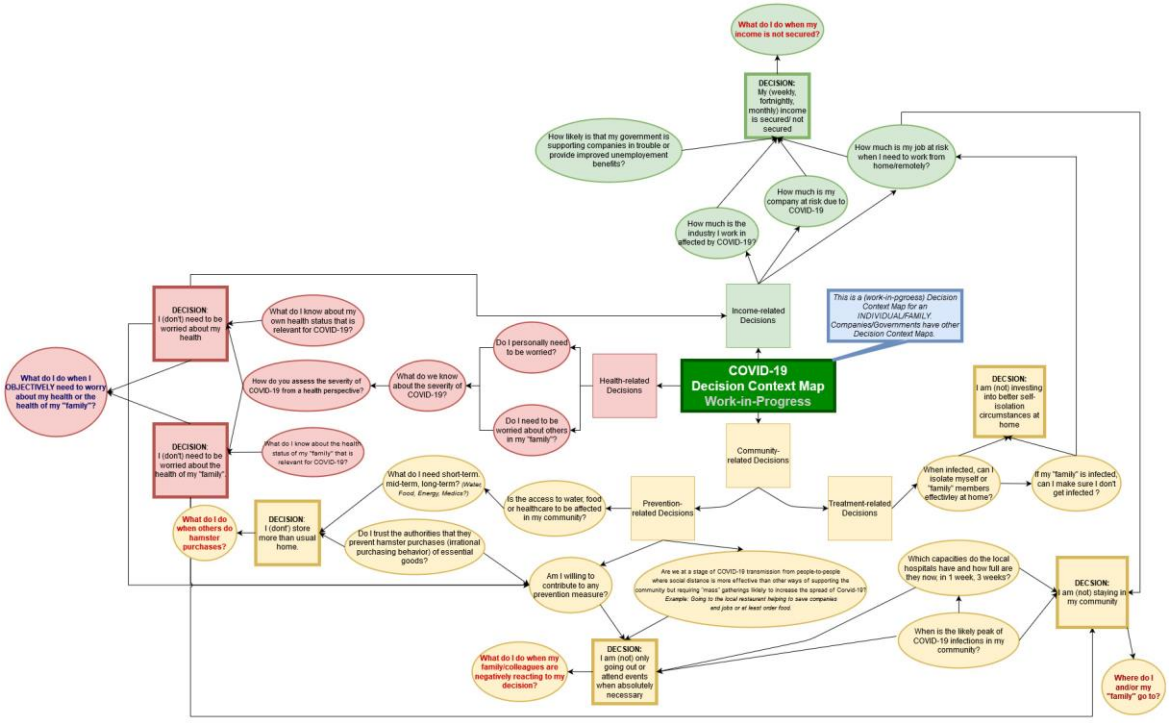
Moreover, you then need to be aware of which questions you expect this project to provide (some) essential intelligence (i.e. data, information, knowledge, insights) for.

How to?
Please read the Decision Intelligence Navigator whitepaper of Dr. Moser in case you need more detailed information about how to identify key decision-making challenges and the respective questions you need to get answers to.

Output of Step 0:
You have developed a "**Decision Context Map"** for each *Decision-making Challenge* including all *Questions* you need to get answered (irrespective of whether you think a scenario approach (Delphi / expert panel) would be suitable to answer them).

Exhibit 4 shows a simple "Decision Context Map" for an individual/family in the context of COVID-19.

Exhibit 4: COVID-19 "Decision Context Map" for an Individual/Family



Source: Roger Moser

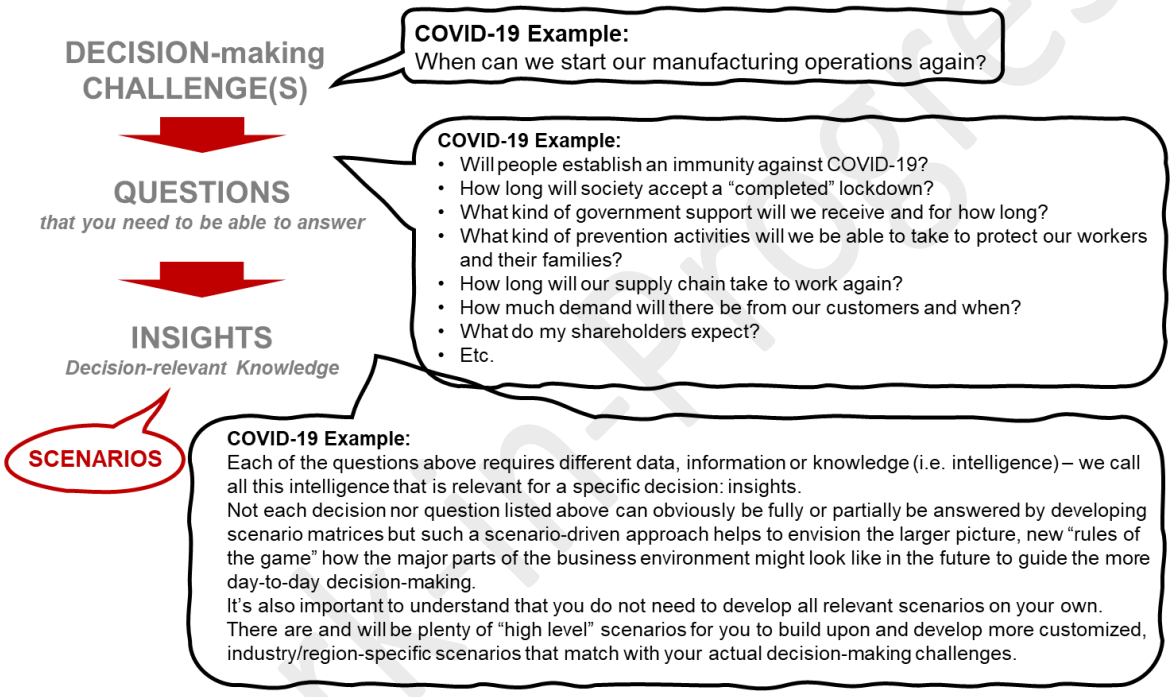
Step 1: Identification of the Trends and Developments that matter

Once you are clear about the *Decision-making Challenges* you focus on and the *Questions* you should be able to answer, it is time to identify those ongoing trends and future developments that are essential to understand to answer your *Questions* and subsequently make the necessary *Decisions*.

This is a time-consuming and very tedious process. Most executives want to jump right into the development of scenario matrices but if they don't reflect on the detailed *Decisions* they want to make and the numerous *Questions* they need to answer (to make these Decisions), their scenarios often focus on the wrong hypotheses; i.e. focus on ongoing trends and future developments that do not help them to make better *Decisions*.

This is why a *Decision-Question-Insights* logic (Exhibit 5) is so important to follow before you start working on scenarios.

Exhibit 5: Decision-Question-Insight Logic



Source: Canvas Collection of Dr. Moser, 2020

How to?

When you know the *Questions* you need to get answered, you are surely looking for the intelligence required. In the context of COVID-19 and this SCENARIO DEVELOPMENT & ANALYSIS, the trends and developments that matter can optimally be identified when you truly understanding about what made your company successful so far.

It might sound somewhat ridiculous but in the context of COVID-19, your assumption as a shop owner might have been that you will have every day at least a few customers passing by your outlet. However, with the lockdown order in many countries, this simple yet essential *Assumption* you could rely on so far is not valid anymore. It is now essential to formulate a *Hypothesis* about when potential customers are (allowed to come) back to make many different *Decisions* from keeping staff to ordering or stopping supplies.

The following Exhibits 6-9 can serve as a simple guideline. You don't require a fancy technology solution to create the output you need. You rather need experience and time to reflect on which assumptions are now invalid and where input about how the future might look like (your hypothesis) are enriched by people with diverse backgrounds and expertise.

Exhibit 6: Introduction to the Forecast Canvas

FORECAST Canvas: INTRODUCTION

Any **FORECAST or FUTURE OUTLOOK** starts with a clear review of the actual Value Proposition of our company (i.e. how do we create value and how do we capture value). The respective mechanisms used by the company serve as "mental filters" for the executives to:

- Identify developments – from the business context to the competitive environment – that have the potential to weaken or strengthen the value proposition of the company.
- Assess potentially relevant developments with respect to whether and how it would affect the company's current value proposition.
- Think of developments not yet on any radar that would allow the company to significantly strengthen, weaken or completely alter the company's value proposition.

Why and how do we make MONEY (i.e. create & capture value) today?

Why and how WILL we make MONEY (i.e. create & capture value) IN THE FUTURE?

*Future developments in the **BUSINESS CONTEXT & MARKETS** the company is investing in & serving*

The most widely used analysis frame-work is PEST(EL) which is actually nothing else than a simple checklist in order to identify relevant developments in the political, economic, socio-cultural, technological, environmental (nature) or legal environment or other market trends.

*Future developments in the **BUSINESS ECOSYSTEMS** the company is embedded in*

The Business Ecosystem approach is not easy to evaluate because it is a broad concept with multiple analogies from natural ecosystems but missing parameters to measure whether a company actually plays the desirable roles of a keystone player or dominant player – or a niche player multiple ecosystems.

*Future developments in the **INDUSTRIES & COMPETITIVE ENVIRONMENT** the company is positioned in*

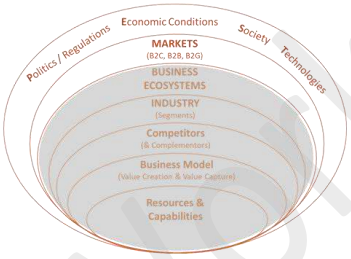
The most widely used analysis framework is PORTER's FIVE FORCES to understand how specific developments – often triggered by developments in the business context – are affecting the attractiveness (i.e. the distribution of power) of industries & industry segments. In addition, there exist several approaches to understand how competitors might change their tactics and business model in the future.

Source: Roger Moser

Source: Canvas Collection of Dr. Moser, 2020

Exhibit 7: Identification of Trends / Development from PESTEL and Markets

FORECAST Canvas of *Our COMPANY* | Focus: PESTEL & Markets



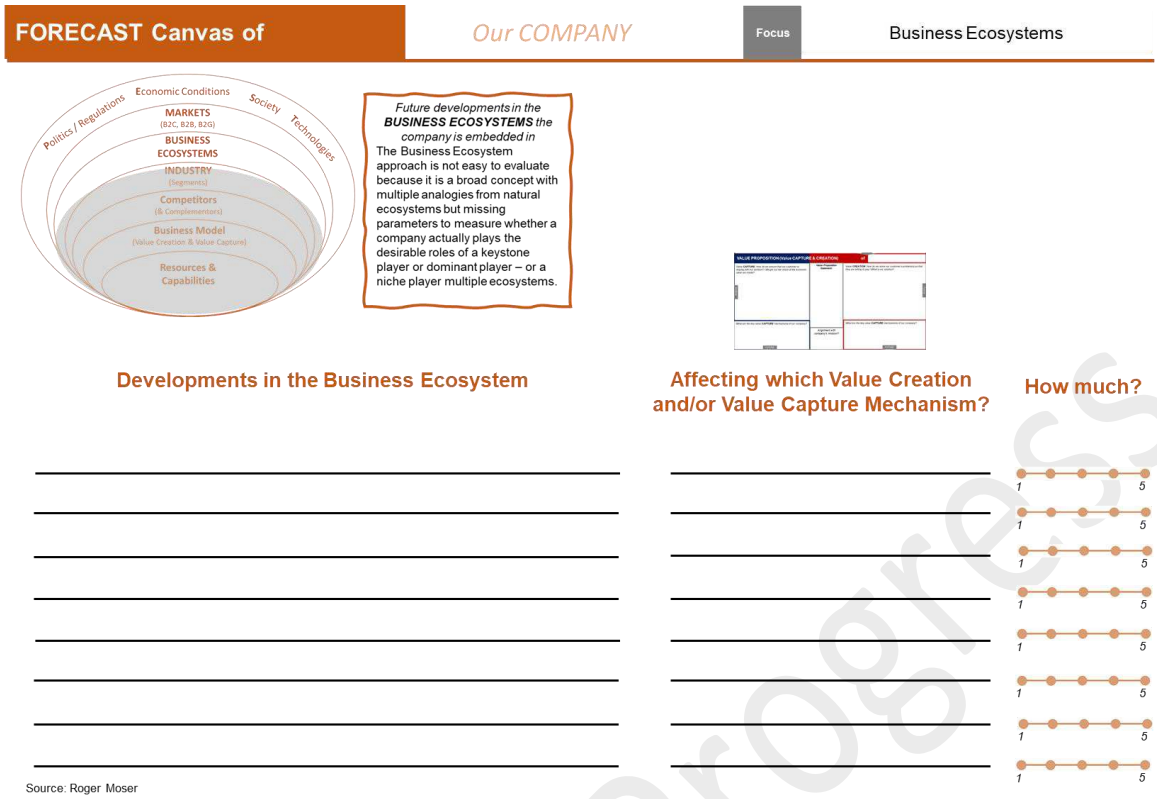
*Future developments in the **BUSINESS CONTEXT & MARKETS** the company is investing in & serving*
The most widely used analysis frame-work is PEST(EL) which is actually nothing else than a simple checklist in order to identify relevant developments in the political, economic, socio-cultural, technological, environmental (nature) or legal environment or other market trends.

Developments in PESTEL Context and Markets	Affecting which Value Creation and/or Value Capture Mechanism?	How much?
		1 5
		1 5
		1 5
		1 5
		1 5
		1 5
		1 5

Source: Roger Moser

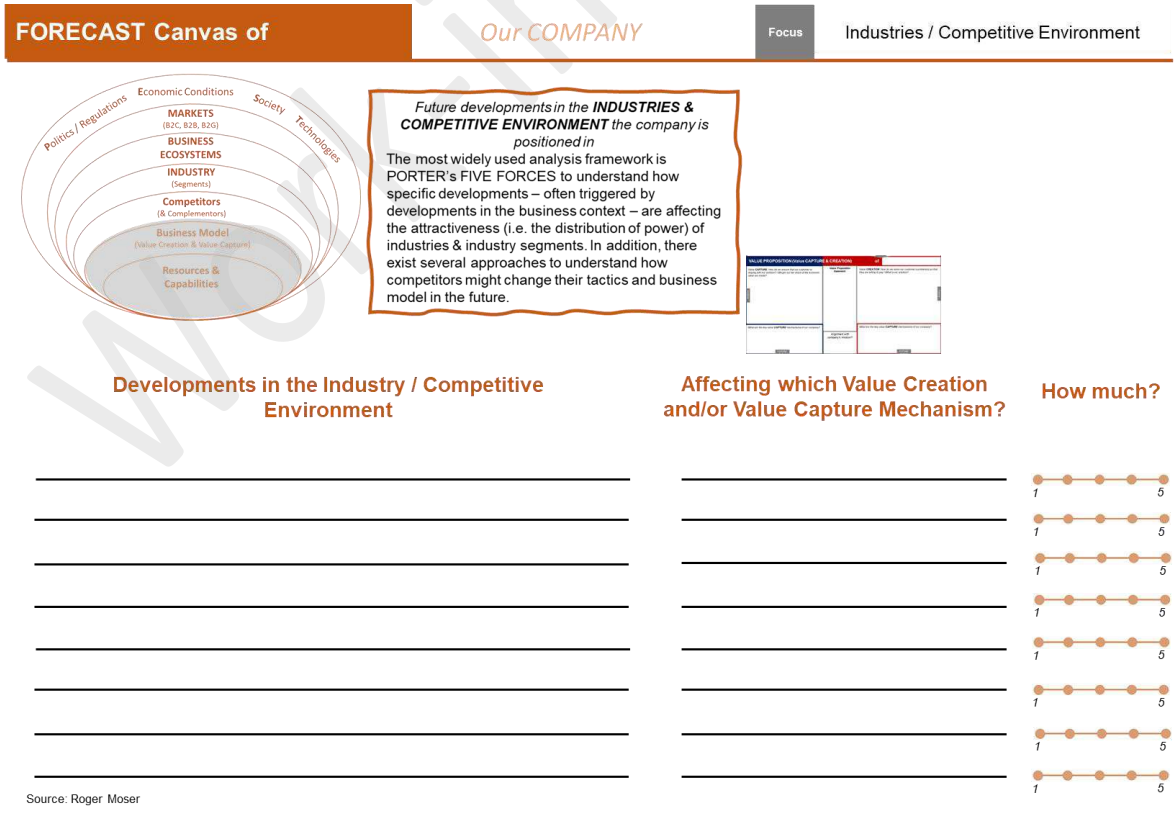
Source: Canvas Collection of Dr. Moser, 2020

Exhibit 8: Identification of Trends / Development from Business Ecosystems



Source: Canvas Collection of Dr. Moser, 2020

Exhibit 9: Identification of Trends / Development from Industries / Competitive Context



Source: Canvas Collection of Dr. Moser, 2020

Output of Step 1:

*In **step 0,** you had defined your **Decision-making Challenges** and the **Questions** you need to get answered. In **step 1, you** have now identified which major developments in the context of COVID-19 matter most in the different layers of the "Business Environment Analysis" structure (Exhibit 3) for your selected Decision-making Challenges and the related Questions.*

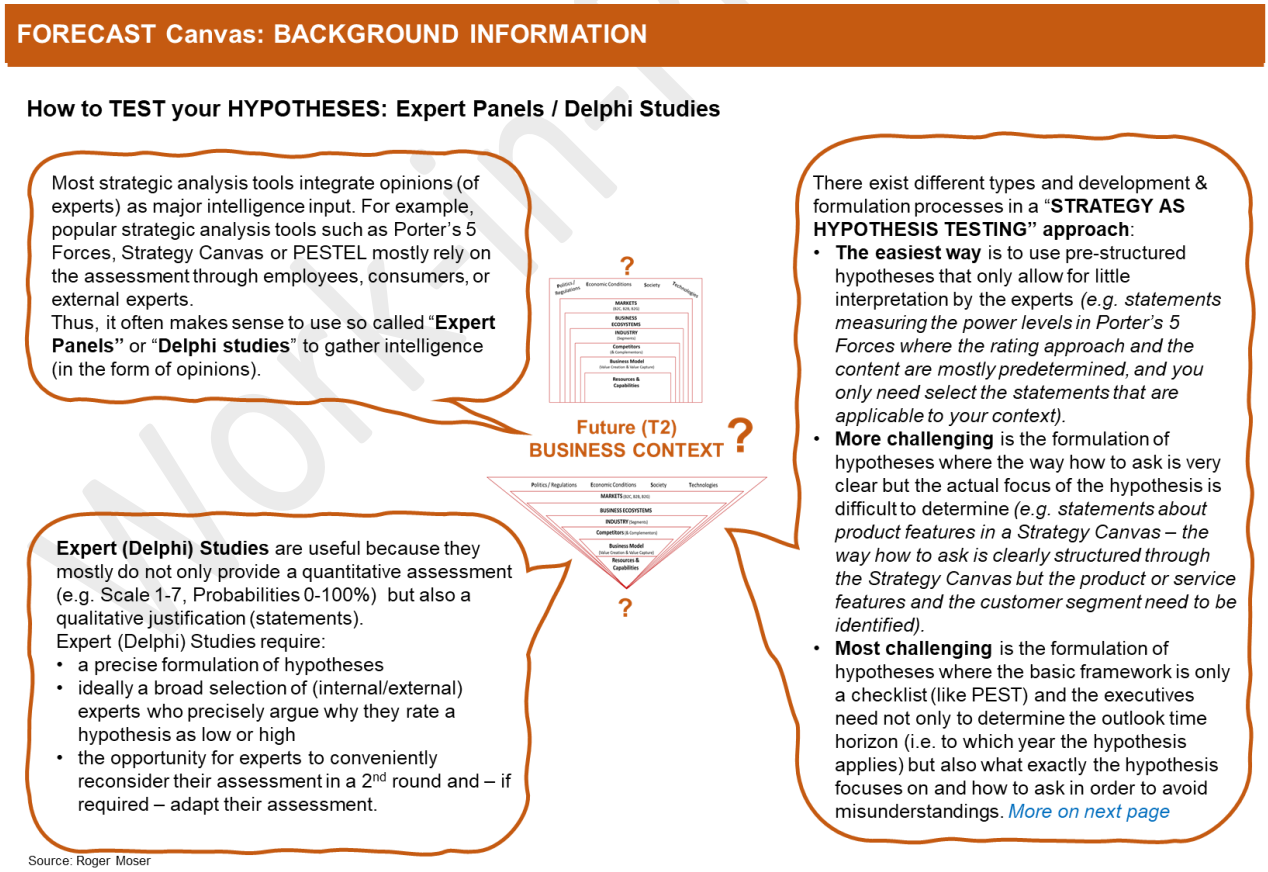
Some of the trends & future developments that matter you might be able to understand better based on existing scenarios provided by think-tanks or consulting companies or other forms and sources of intelligence. For those trends and developments that you still need to develop your hypotheses about how they might look like in the future, you might be able to usefully address them via a scenario analysis.

You find more information about how to do this in different white papers and the STRATEGIC ANALYSIS, STRATEGY CREATION & REALIZATION Canvas Collection of Dr. Moser.

Step 2: Formulating "precise" Hypotheses for your Expert Panel / Delphi Study

Once you know which ongoing trends and future developments matter most for you and which you want to evaluate in a SCENARIO DEVELOPMENT & ANALYSIS PROJECT, the next tough job is to turn these "essential" trends and developments in the context of COVID-19 into *HYPOTHESES* that you can assess via and Expert Panel / Delphi Study. Exhibit 10 provides some background information

Exhibit 10:How to test Hypotheses via Expert Panels: Background Information



Source: Canvas Collection of Dr. Moser, 2020

Again, most executives rush into the formulation of *HYPOTHESES* without developing a prior understanding about how expert panels work and which benefits they provide.

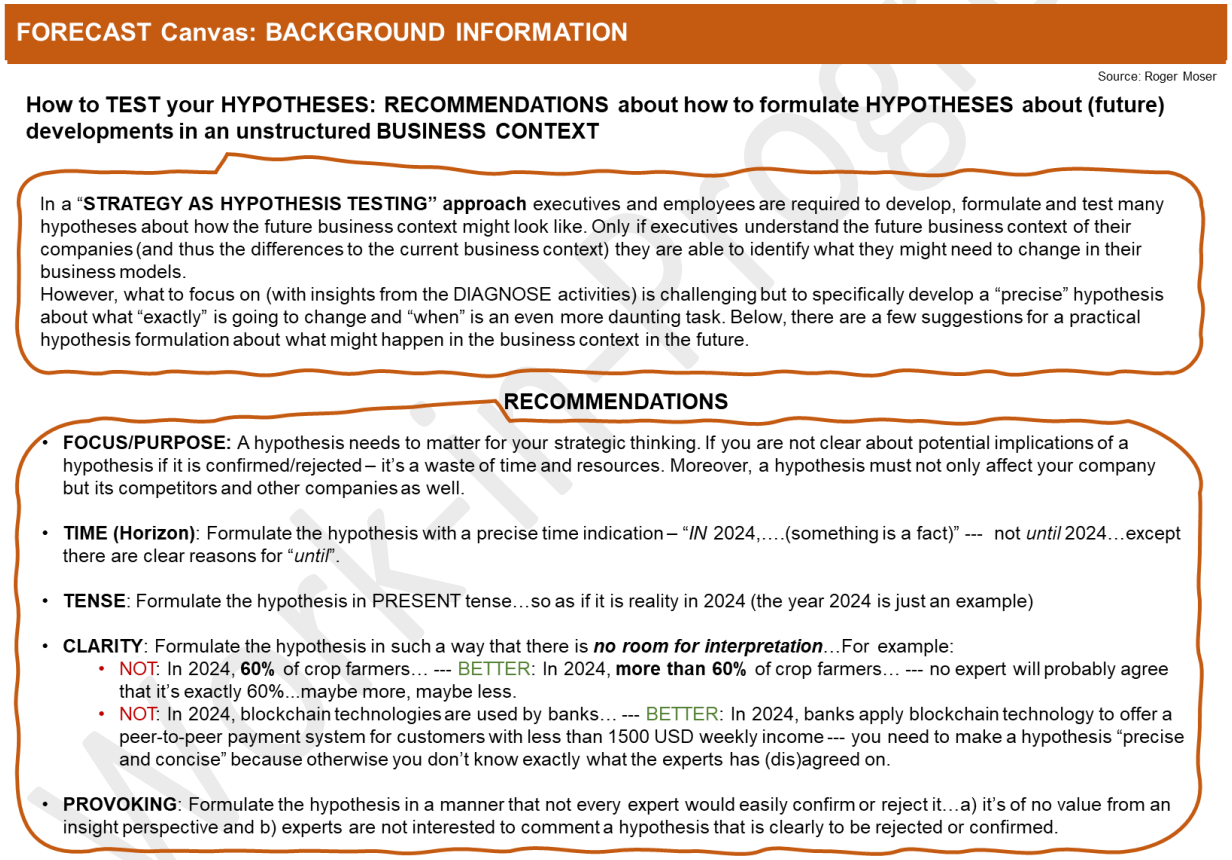
Expert panels / Delphi studies are ONE way among many to collect either input on single hypotheses or, at a later stage, input on how selected scenarios are specifically impacting the stakeholders of an industry (i.e. industry players, suppliers, customers, governments, society-at-large)

How to?

Exhibit 11 provides some advice about how to formulate hypotheses that are useful to be assessed through an (online) expert panel / Delphi study.

In general, you need to make sure that the participating experts find it interesting and intellectually challenging to assess your hypotheses. There is no value in having experts just confirming/rejecting hypotheses that are very likely/unlikely just that you have some more input. What motivates experts to assess your hypotheses AND ALSO PROVIDE some arguments for their low or high assessment is a hypothesis that is somewhat PROVOKING.

Exhibit 11:How to test Hypotheses via Expert Panels: Recommendations



Source: Canvas Collection of Dr. Moser, 2020

This requires you to carefully choose the time horizon and what you define as the NULL HYPOTHESIS (H_0) and what as ALTERNATIVE HYPOTHESIS (H_1).

This might sound academic and far away from reality but it's actually not true. We will provide a detailed summary for executives in a subsequent part of this manual. For now, please refer to the following article of the Head of Decision Intelligence, Google.

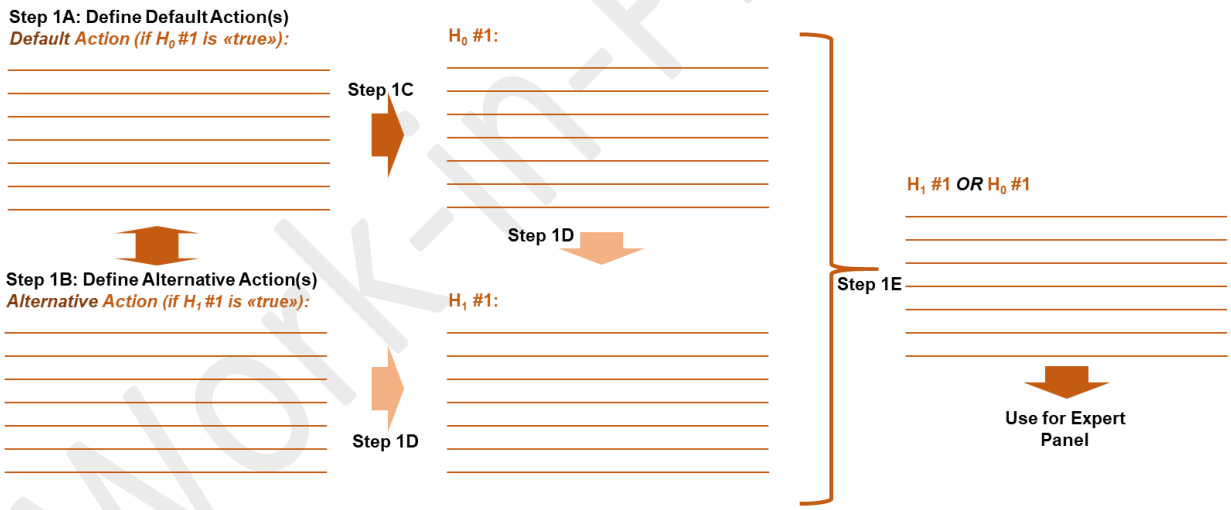
In a nutshell, what Cassie, Head of Decision Intelligence at Google, says is the following:

1. The decision-maker must choose a ***DEFAULT ACTION***. That's the action the decision-maker will implement if there is no additional insight to be gathered.

2. The decision-maker must determine the ***ALTERNATIVE ACTION***. That's the action the decision-maker will implement if she/he doesn't implement the *default action*. So, the ALTERNATIVE ACTION is implemented when additional insights indicate that the DEFAULT ACTION does not lead to the intended outcome.
3. The decision-maker then defines the null hypothesis **(H_0)** and the alternative hypothesis **(H_1).**
    - !!! The null hypothesis **(H_0)** must be formulated in such a way that additional intelligence (which you plan to gather) **can prove** the null hypothesis **(H_0) to be wrong !!!**
    - **!!!** In other words, to develop strategically valuable HYPOTHESES, it must be possible that your intelligence gathering (e.g. through an expert panel / Delphi study) makes your **null hypothesis (H_0) look ridiculous.**
    - **!!!** WHY? Because if your intelligence gathering (e.g. through an expert panel / Delphi Study) is very unlikely to REJECT (*i.e. in other words that is likely to confirm*) your **null hypothesis (H_0)**, there is no value in your entire expert panel efforts.
4. **Choose whether you are integrating the** null hypothesis **(H_0)** OR the alternative hypothesis **(H_1) into your Delphi study / Expert Panel.**

Exhibit 12 of Dr. Moser's Canvas Collection is a simple step-by-step guide to follow Cassie's advice (Head of Google's Decision Intelligence) and finally select the most suitable of the two hypotheses for an expert panel / Delphi study.

Exhibit 12: Working Sheet to develop Hypotheses based on Actions / Decisions you need to make.



Step 1A: Define **Default** Action(s): The **default** action is the action that you will implement if you don't receive any further intelligence.
Step 1B: Define **Alternative** Action(s): The **alternative** action is simply the action that you will implement if you don't implement the **default** action.
Step 1C: Formulate* the H_0 (null hypothesis): H_0 should be formulated in such a way that if H_0 is confirmed, then the default action is implemented because it makes most sense.
Step 1D: Formulate* the H_1 (alternative hypothesis): H_1 should be formulated in such a way that it is true if H_0 is rejected.
Step 1E: Select H_0 or H_1 for the Expert Panel / Delphi study based on what experts will prefer to assess and comment.

** Please refer to our guide about how to formulate hypotheses for Delphi / expert panel studies.*

Source: Roger Moser

Source: Canvas Collection of Dr. Moser, 2020

This is a challenging step for everybody (including professors and other academics) but it's worthwhile doing as it tremendously increases the strategic insights you can gather from a SCENARIO DEVELOPMENT & ANALYSIS project.

Output of Step 2:

You have (normally) 10-20 hypotheses formulated and are ready to gather input from a diverse group of experts via an online expert panel / Delphi study.

Step 3: Gathering Inputs/Opinions from a diverse Set of "Experts" via an online Expert Panel / Delphi Software

Dr. Moser is currently working on a fully cloud-based platform to manage your Scenario Development & Analysis project. At the moment (April 2020), we are happy to provide you with our existing online, real-time Expert Panel software (cloud-based) to test your hypotheses on the scales 0-100 or 1-5 with the option for the participating experts to justify their assessments.

Exhibit 13:Screenshot of a recent Expert Panel / Delphi study with Michael Enderle on the future Business Context for MEM (Machine Equipment Manufacturers) Companies in India.
WELCOME MESSAGE for a participating EXPERT

MEM Companies in India: A Business Context Outlook for the next 5 Years

Dear Roger

Thank you for your willingness to participate in this **expert panel (Delphi) study on *the MEM Industry in India: A Business Context Outlook for the next 5 Years*** about which you have been informed some time ago.

During the next 20-25 min we will ask for your personal opinion about 14 statements regarding future developments about the business & investment context of European MEM companies in India.

Your input will provide you with the following benefits:

1. After each statement **you will immediately see how the other participating experts have rated the statement** and which reasons they have for a high or low probability assessment.
2. After the study is finished, **you will receive an executive summary with all major result**s and suggestions on how you can make use of the study results to derive implications from the long-term outlook for your functional strategies tomorrow.
3. **With your personal link you can return to the study anytime** and see whether other experts have provided further input.

Please note that your responses will be kept strictly confidential. We would appreciate if you could participate in the study **until 15th October 2019.**

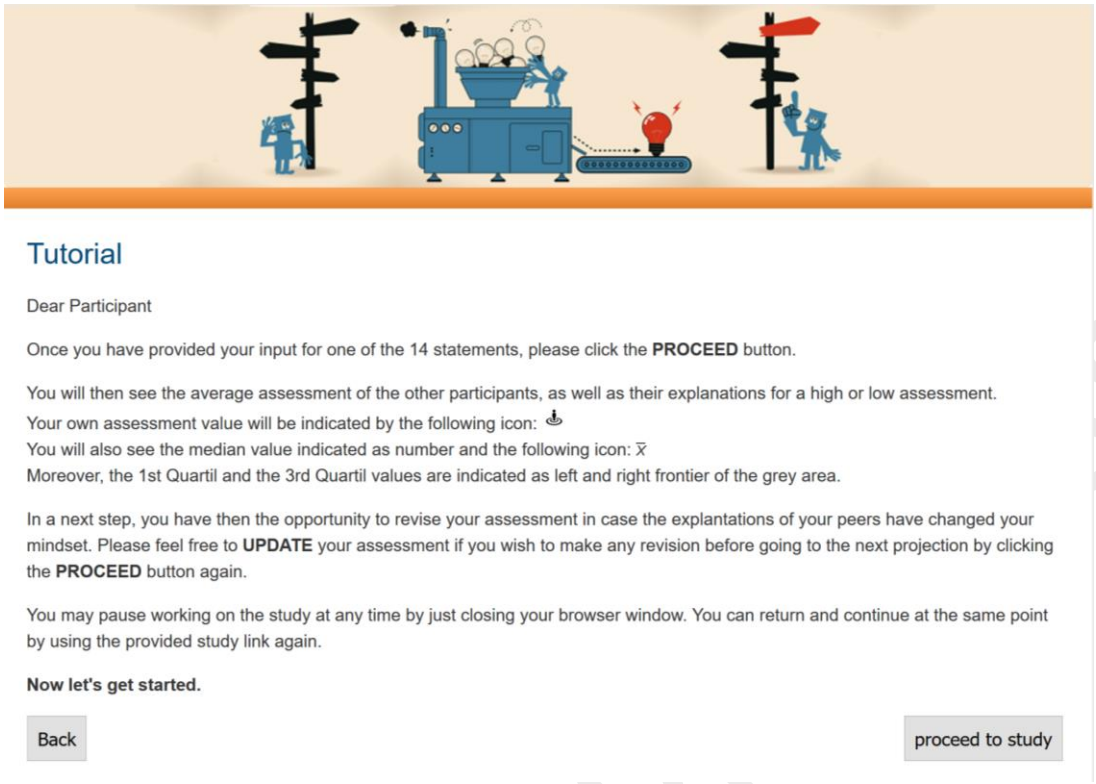
We thank you for your valuable time!

Yours sincerely

Prof. Dr. Roger Moser *Michael Enderle*

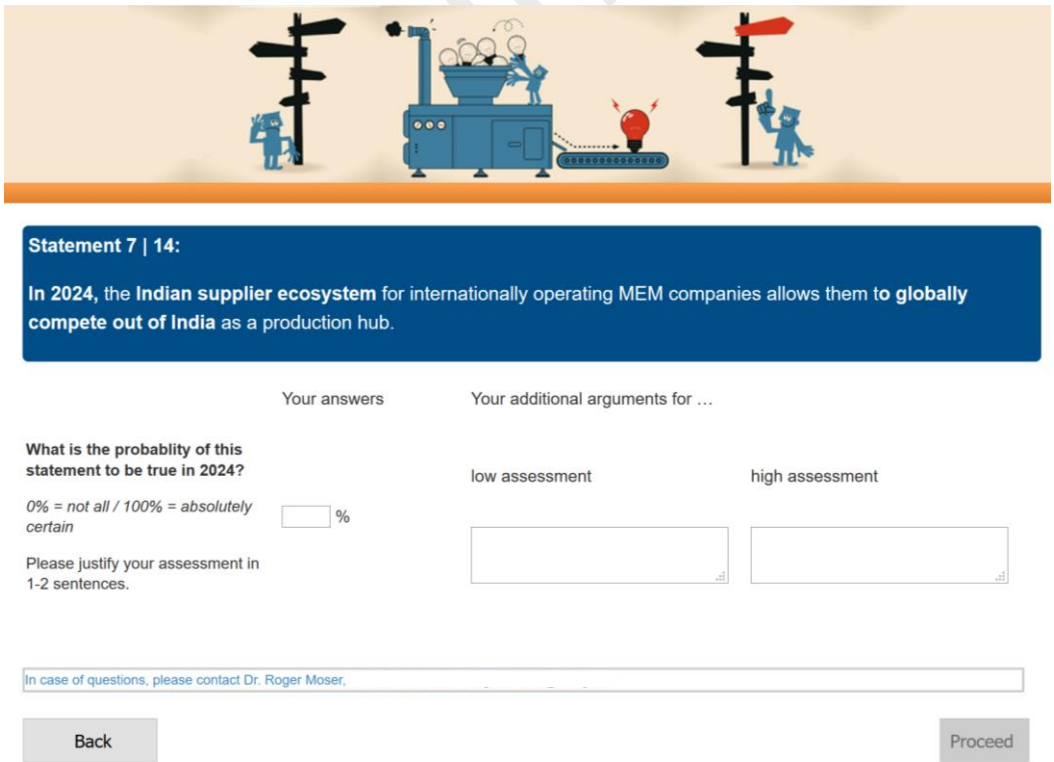
Source: Expert Panel Software, DI – Decision Intelligence

Exhibit 14:Screenshot of a recent Expert Panel / Delphi study.
TUTORIAL for a participating EXPERT



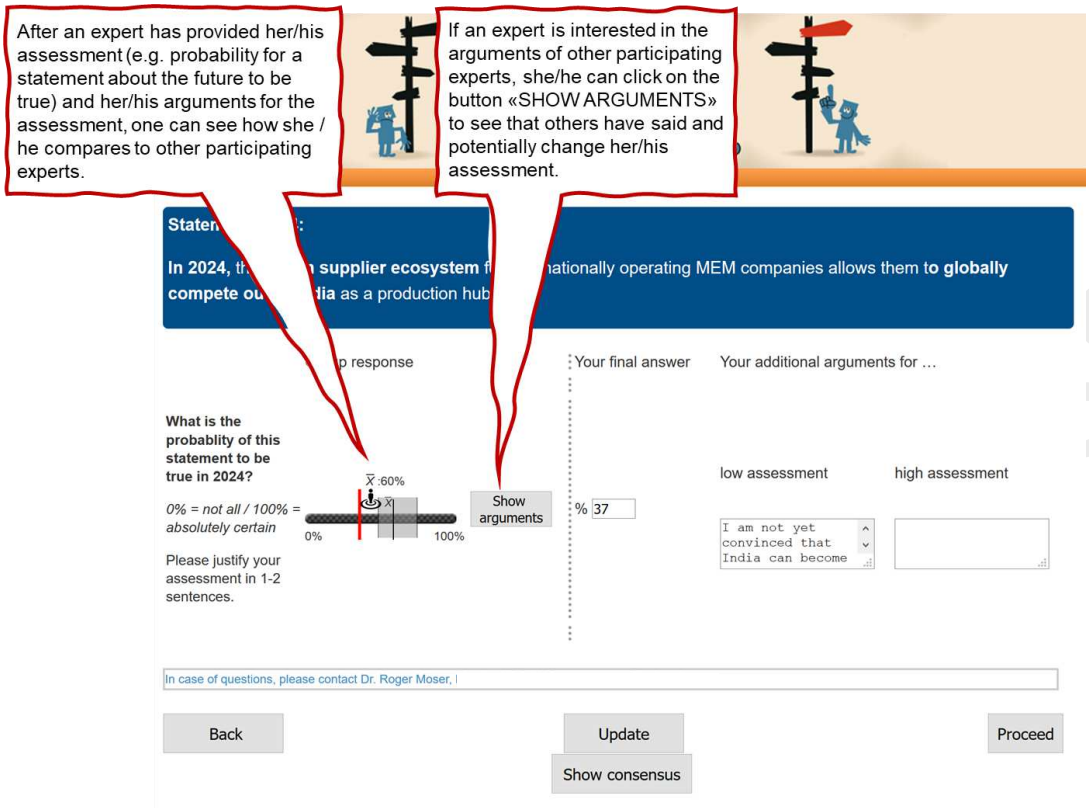
Source: Expert Panel Software, DI – Decision Intelligence

Exhibit 15:Screenshot of a recent Expert Panel / Delphi study.
Example of a HYPOTHESIS about the future that an expert assesses online.



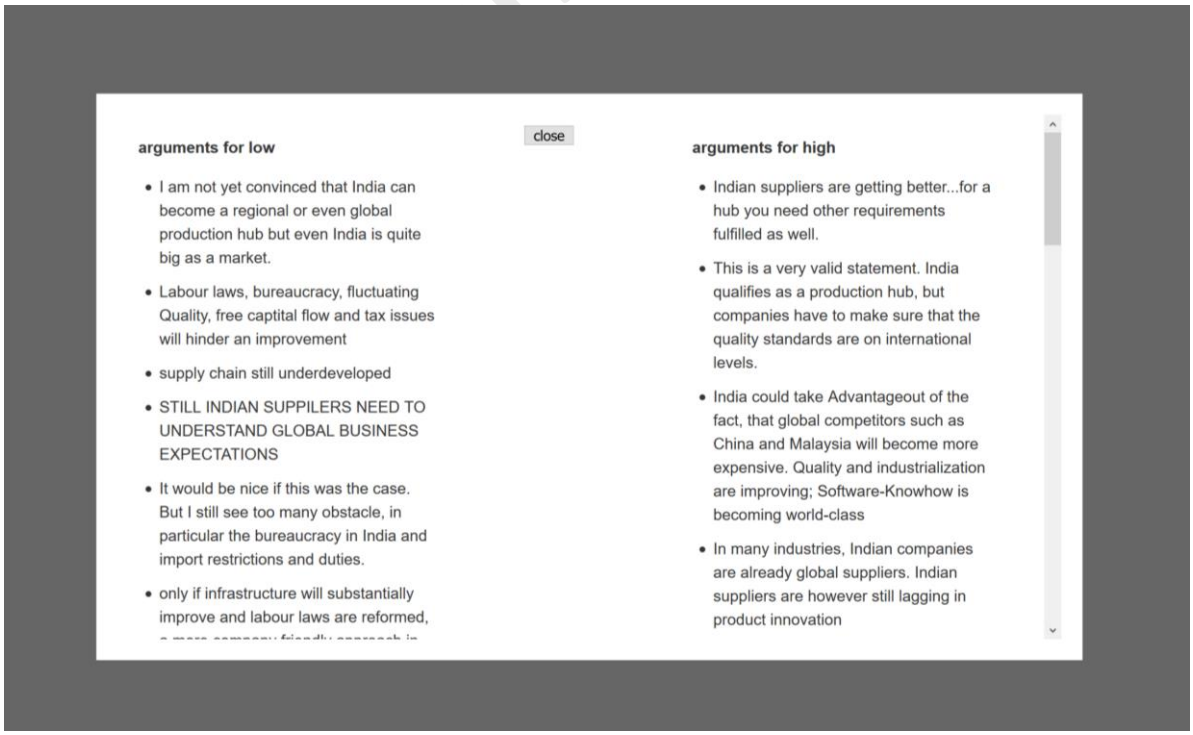
Source: Expert Panel Software, DI – Decision Intelligence

Exhibit 16:Screenshot of a recent Expert Panel / Delphi study.
Example of the information that an expert receives after she/he has provided her/his assessment of a HYPOTHESIS.



Source: Expert Panel Software, DI – Decision Intelligence

Exhibit 17:Screenshot of a recent Expert Panel / Delphi study.
Example what experts see when they click on the "SHOW ARGUMENTS" button.



Source: Expert Panel Software, DI – Decision Intelligence

PART II

SCENARIO DEVELOPMENT & ANALYSIS MANUAL:
CASE EXAMPLES for Hypotheses, Scenario Matrices, Scenarios

While Part I of the SCENARIO DEVELOPMENT & ANALYSIS MANUAL is very conceptual, Part II is intended to exemplify what such an approach means in the context of COVID-19.

Most important, whatever uncertainty and/or ambiguity an executive is facing, an understanding of "**strategy as learning**" (Exhibit 18) is essential to deal with a dynamic environment (e.g. VUCA world). In such an approach, however, learning is not defined as acquiring existing knowledge but to test hypotheses and subsequently create new insights. This requires executives **to be proficient in developing and testing hypotheses** – similar to academics – but in a more applied manner.

You think you don't have the time for this? Probably you don't have the time – but also because you simply don't have enough practice. Unfortunately, COVID-19 will probably force you to practice the development and testing of hypotheses to deal with this uncertain and ambiguous business environment.

Exhibit 18: Strategy as Learning in a VUCA World

STRATEGIC ANALYSIS & STRATEGY CREATION & REALIZATION CANVAS: INTRODUCTION

*"If you believe that **strategic thinking** is only for senior executives, think again. It can, and **must, happen at every level of the organization;** it's one of those unwritten parts of all job descriptions."*

*"**In order to be strategic,** you need a solid understanding of the industry context, trends, and business drivers. An intellectual appreciation of the importance of bringing in current data and seeking trends isn't enough. You also have to:*

- ***Make it a routine exercise to explore and synthesize the internal trends** in your day-to-day work. For example, pay attention to the issues that get raised over and over in your organization and synthesize the common obstacles your colleagues face.*
- ***Be proactive about connecting with peers both in your organization and in your industry to understand their observations of the marketplace**. Then, share your findings across your network.*
- ***Understand the unique information and perspective that your function provides** and define its impact on the corporate level strategy."*

"Questions are the language of strategy."

Source: Bowman: 4 Ways to Improve Your Strategic Thinking Skills, Harvard Business Review, December 2016.

* *While many scholars refer to this approach as STRATEGY as LEARNING, I believe it would better to talk about "STRATEGY as UNDERSTANDING" because a good strategy (as the way from the current business model to a future business model) requires executives to truly understand the causes and effects (mechanisms) their companies' competitive advantages rely on.*

*"An alternative perspective on strategy and execution — one that we argue is more in tune with the nature of value creation in a world marked by volatility, uncertainty, complexity, and ambiguity (VUCA) — **conceives of strategy as a hypothesis rather than a plan.** Like all hypotheses, it starts with situation assessment and analysis — strategy's classic tools. Also like all hypotheses, it must be tested through action. With this lens, encounters with customers provide data that is of ongoing interest to senior executives — vital inputs to dynamic strategy formulation. **We call this approach "strategy as learning**,…"*

*"**Strategy as learning* requires** senior executives to engage in an ongoing dialogue with operations across all levels and departments. **The people who create and deliver products and services for customers are privy to the most important strategic data the company has available**. And the strategic learning process involves actively seeking deviations that challenge assumptions underpinning current strategy. Deviations and surprises must be welcomed for their informative value in adapting the strategy."*

*"What is new is the idea that closing the gap between strategy and execution may not be about better execution after all, but rather about […] **a greater flow of information from customers to executives, and more experiments."***

Source: Edmondson & Verdin: Your Strategy Should Be a Hypothesis You Constantly Adjust, Harvard Business Review, November 2017.

Source: Roger Moser

Source: Canvas Collection of Dr. Moser, 2020

Part II of this manual is built on a *Case Company* in Switzerland with less than 200 employees and primarily operating as a machine equipment manufacturer (MEM) serving customers around the globe.

NOTE: The scenarios developed below only serve as examples and cannot automatically be applied to other cases. As indicated before, every company needs to identify the essential and specific assumptions about trends and future developments that might not be valid anymore and subsequently develop those

scenarios that are most valuable for the immediate decision making of its executives during the COVID-19 context.

CASE EXAMPLE I: Developing Hypotheses / Scenario Matrices

Identification of the Decision-making Challenges / Development of Decision Context Maps

In the context of COVID-19, most companies are certainly overwhelmed with *Decision-making Challenges* from operational supply chain issues, cash-flow generating or cost-saving activities to long-term, strategic decisions about which products & services might still be in demand in the future and therefore, which resources and capabilities are still valuable for the company.

Exhibit 19 is an example of how our case company could structure the **timeline** to identify different kinds of *Decision-making Challenges*:

- Ongoing week
- Next month
- Next 1-2 quarters
- Next 1-2 years
- Next stable phase (the "next normal")

Exhibit 19: Partial Screenshot of a McKinsey article about "Planning ahead" in the context of COVID-19.

Exhibit 2

A strategic crisis-action plan guides responses to a crisis's unfolding stages.

Starting position (baseline and crisis context)

This week	2–4 weeks	1–2 quarters	1–2 years	Next normal
Zoom will run out of capacity	Capacity running out	Liquidity position	Growth likely to return	Business challenged postcrisis (eg, cruise ship)
Need to increase ventilator production 4-fold	Supply-chain instability			Business demand greater postcrisis (eg, home delivery)
Exports 40% down				
Government bailouts offered				

Scenarios (issues and opportunities)

This week	2–4 weeks	1–2 quarters	1–2 years	Next normal
All exports shut down	Access and nonaccess	Nationalization	Still not recovered	Business returns to normal because of testing (eg, hotels)
Share buyback unwise	Claims on production	M&A wave	Quarantine still needed	Drug approvals much faster
Need for/conse-quences of accepting government bailout	Collaboration across players	Market rebound ahead of fundamentals	Surveillance government	Pace of all delivery expected to stay at crisis-level pace
		No revenues		
		Price controls		

Posture and broad direction of travel

Source: McKinsey & Co., 2020

The kind of strategic hypotheses testing, which can be improved through the expert panels / Delphi studies, are primarily suitable to support *Decision-making Challenges* in 1-2 quarters to the next normal.

Our case company in the MEM (Machine Equipment Manufacturer) sector started to think about the development of different scenarios. First, the CEO and his executives developed a Decision Context Map for each of the following time horizons:

- Next 6 months
- Next 18 months
- The new normal (whenever COVID-19 is managed as one of many challenges of public life)

To understand what kind of information was already available, he conducted some internet research and found lots of different high-level scenarios. However, most of these scenarios did not provide insights that would help him and his team to make the *Decisions* they identified in their Decision Context Maps.

Thus, he realized that he and his team were required to develop their scenarios and gather the necessary intelligence. But before they started to do their industry-specific scenarios, he and his team wanted to do one high-level scenario on their own to compare their approach with existing scenarios.

As a first step, they focused on a "NEXT 6 MONTHS" timeframe and started a scenario development exercise contributing to finding an *Answer* to the following **QUESTION:**

"When will more than 80% of the lockdown regulations in Switzerland end?"…

…as part of their **DECISION-MAKING CHALLENGE:**

"When to RESTART their manufacturing operations from currently 30% utilization to as much as the market allows for."

[You might ask yourself now why the question is not "when will the lockdown regulations end?" Well, this is exactly the fine art of decision-making in a VUCA world leveraging what we can learn from scenario studies and the way we need to formulate and test hypotheses.

The problem with the straightforward question "When will the lockdown regulations end" is twofold:

- *First, from a decision-making perspective at the company level, I do not need to have the previous legal situation restored 100% but understand when most of the usual business operations can happen in a stable manner again. The point in time when more than 80% of the regulations have been stopped might be months earlier than when all (100%) lockdown regulations have been ended.*

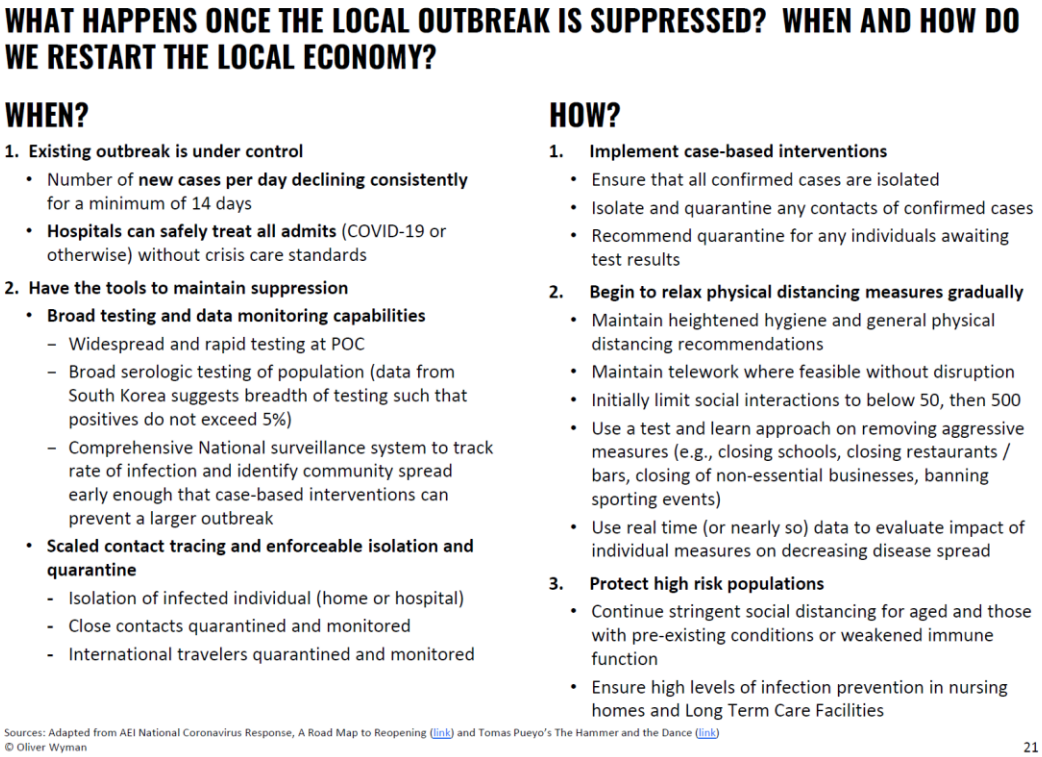
  It's also better to formulate the question as "MORE THAN 80%" rather than "80%" because there will hardly ever be a point in time when exactly 80% of the lockdown regulations are stopped.

- *Second, when trying to find intelligence, either from existing reports or from experts, it is unlikely that I will be able to cover all relevant aspects that will drive a complete stop of the lockdown but I might be capable to identify those 3-4 parameters that help to understand when the majority of lockdown regulations are likely to get repealed.*

Thus, it matters already when developing your Decision Context Map how you formulate the questions you need to answer to make your decisions.]

So, the CEO and his team started to better understand which information the government would need to repeal the lockdown regulations. For this purpose, they looked at numerous reports and scenario studies offered by consulting companies, think tanks and other institutions. A quick web search of less than 2 hours provided the following information (selection).

Exhibit 20: Screenshot of COVID-19 Primer of Oliver Wyman



WHAT HAPPENS ONCE THE LOCAL OUTBREAK IS SUPPRESSED? WHEN AND HOW DO WE RESTART THE LOCAL ECONOMY?

WHEN?

1. **Existing outbreak is under control**
   - Number of **new cases per day declining consistently** for a minimum of 14 days
   - **Hospitals can safely treat all admits** (COVID-19 or otherwise) without crisis care standards
2. **Have the tools to maintain suppression**
   - **Broad testing and data monitoring capabilities**
     - Widespread and rapid testing at POC
     - Broad serologic testing of population (data from South Korea suggests breadth of testing such that positives do not exceed 5%)
     - Comprehensive National surveillance system to track rate of infection and identify community spread early enough that case-based interventions can prevent a larger outbreak
   - **Scaled contact tracing and enforceable isolation and quarantine**
     - Isolation of infected individual (home or hospital)
     - Close contacts quarantined and monitored
     - International travelers quarantined and monitored

HOW?

1. **Implement case-based interventions**
   - Ensure that all confirmed cases are isolated
   - Isolate and quarantine any contacts of confirmed cases
   - Recommend quarantine for any individuals awaiting test results
2. **Begin to relax physical distancing measures gradually**
   - Maintain heightened hygiene and general physical distancing recommendations
   - Maintain telework where feasible without disruption
   - Initially limit social interactions to below 50, then 500
   - Use a test and learn approach on removing aggressive measures (e.g., closing schools, closing restaurants / bars, closing of non-essential businesses, banning sporting events)
   - Use real time (or nearly so) data to evaluate impact of individual measures on decreasing disease spread
3. **Protect high risk populations**
   - Continue stringent social distancing for aged and those with pre-existing conditions or weakened immune function
   - Ensure high levels of infection prevention in nursing homes and Long Term Care Facilities

Sources: Adapted from AEI National Coronavirus Response, A Road Map to Reopening (link) and Tomas Pueyo's The Hammer and the Dance (link)
© Oliver Wyman

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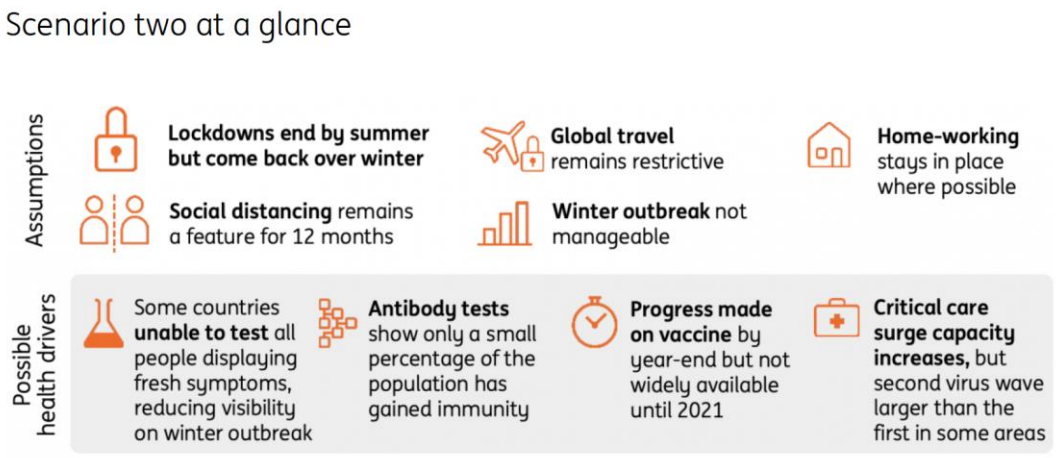
Source: Oliver Wyman, 2020

Exhibit 21: Screenshot of COVID-19 Scenarios of ING Bank



Source: ING, 2020

Based on the insights from different reports, the CEO and his team decided to select two parameters as part of their first high-level scenario exercise to better understand when more than 80% of the lockdown regulations could be revoked:

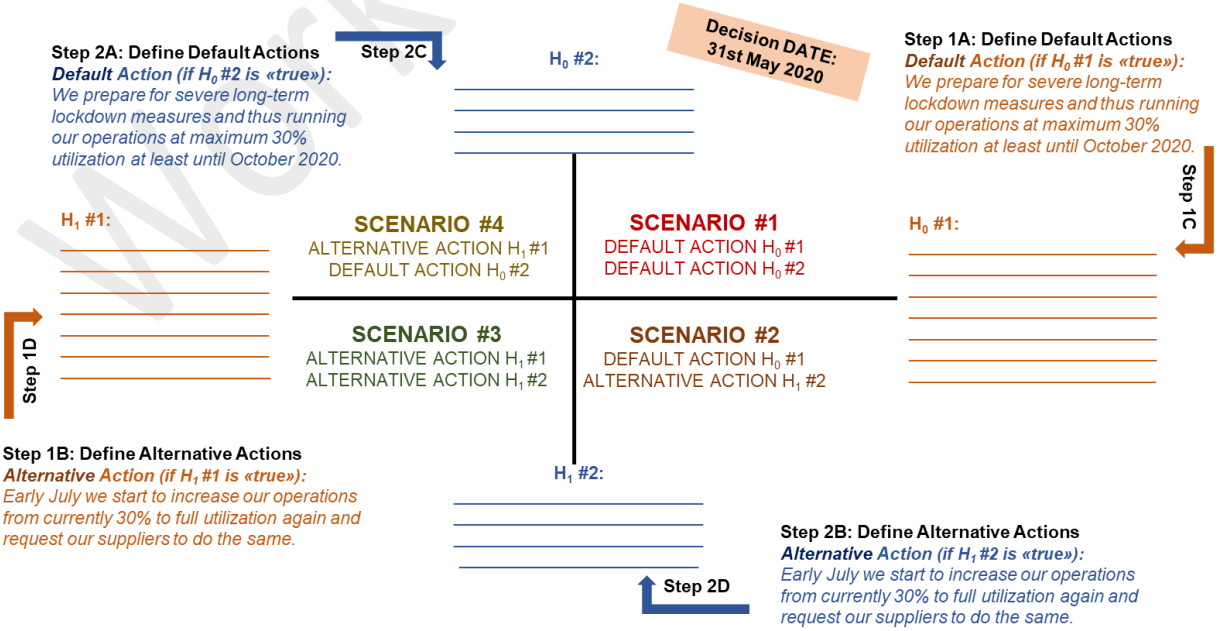
- First, similar to the study of ING bank and Oliver Wyman, they had identified the following drivers as essential to create a better understanding about when most of the lockdown regulations could be repealed:
  - Capacity of the healthcare system to deal with severe and critical cases of COVID-19.
  - The availability of a vaccine for COVID-19 to establish long-term immunity.

- The availability of alternative and improved treatments to deal with severe symptoms of COVID-19.
- The ability of a country to quickly identify, trace and isolate new Sars-CoV-2 cases so that the R0 for Sars-CoV-2 is constantly ≤ 1.
- The acceptance of the Swiss society towards severe lockdown regulations.
- The economic pressure IN Switzerland to revoked severe lockdown regulations.
- The political and/or economic pressure ON Switzerland to revoke severe lockdown regulations.
- Transparency on the real percentage of people in Switzerland who had already contracted Sars-CoV-2 with mild or no symptoms and had already established immunity.

- Second, the CEO and his team then selected two of the drivers from the list above to see how such a combination of two hypotheses would look like in a scenario where END of MAY the **default action** was to plan for a long-term lockdown operations plan with max. 30% utilization at least lasting until October 2020 and an **alternative action** starting END of MAY with the preparation of an increase of operations from currently 30% to full utilization again from early July 2020 onwards. The two drivers selected to make this decision END of MAY were:
  - Transparency on the real percentage of people in Switzerland who had already contracted Sars-CoV-2 with mild or no symptoms and had already established immunity.
  - The ability of a country to quickly identify, trace and isolate new Sars-CoV-2 cases so that the R0 for Sars-CoV-2 is constantly ≤ 1.

Exhibit 22 shows the working sheet they used to first define the **default action** *("We prepare for severe long-term lockdown measures and thus running our operations at maximum 30% utilization at least until October 2020")* and the **alternative action** *("Early July we start to increase our operations from currently 30% to full utilization again and request our suppliers to do the same").* In their planning, they had to decide for one of the two actions end of May, latest first week of June.

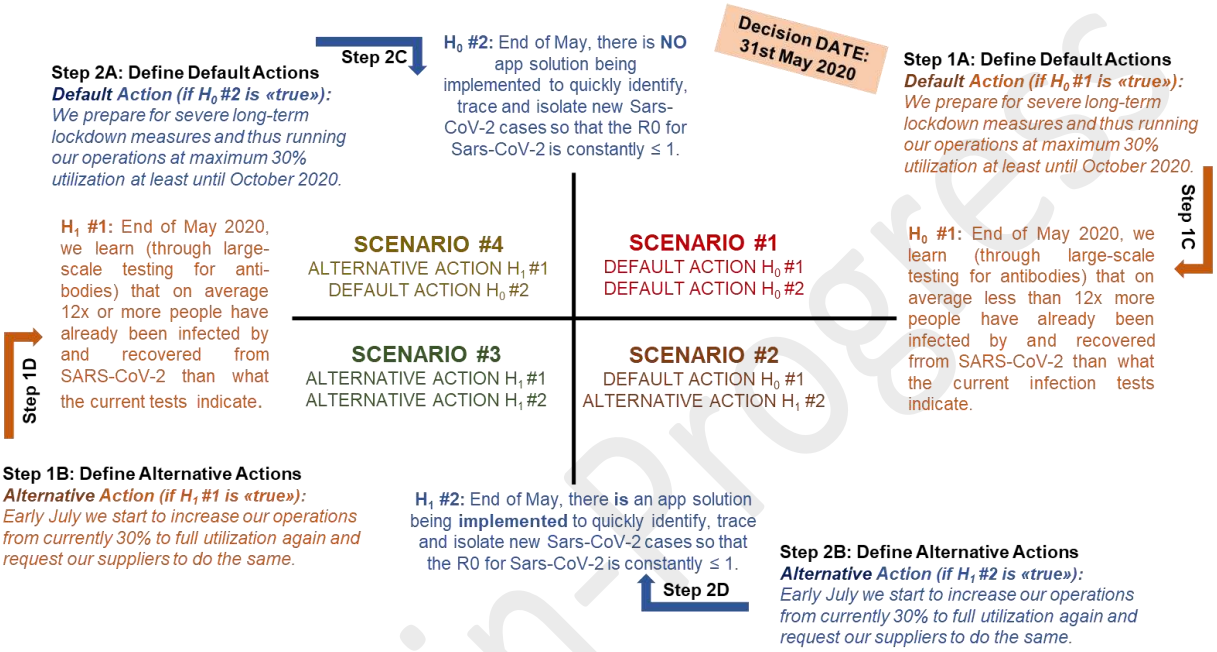
*Exhibit 22: Working sheet to define the **Default Action(s)** and the **Alternative Action(s)** to develop the **H_0 and H_1 of Hypothesis #1 & #2** each.*



Source: Canvas Collection of Dr. Moser, 2020

- Third, based on the *default action* and the *alternative action* they then formulated **H_0 and H_1 of Hypothesis #1 & #2** each (Exhibit 23).
  Hypothesis #1 was based on one of the two selected drivers from the list above (*Transparency on the real percentage of people in Switzerland who had already contracted Sars-CoV-2 with mild or no symptoms and had already established immunity*).
  Hypothesis #2 was based on the other selected driver from the list above (*The ability of a country to quickly identify, trace and isolate new Sars-CoV-2 cases so that the R0 for Sars-CoV-2 is constantly ≤ 1*).

Exhibit 23: Working sheet including the H_0 and H_1 of Hypothesis #1 & #2



Source: Canvas Collection of Dr. Moser, 2020

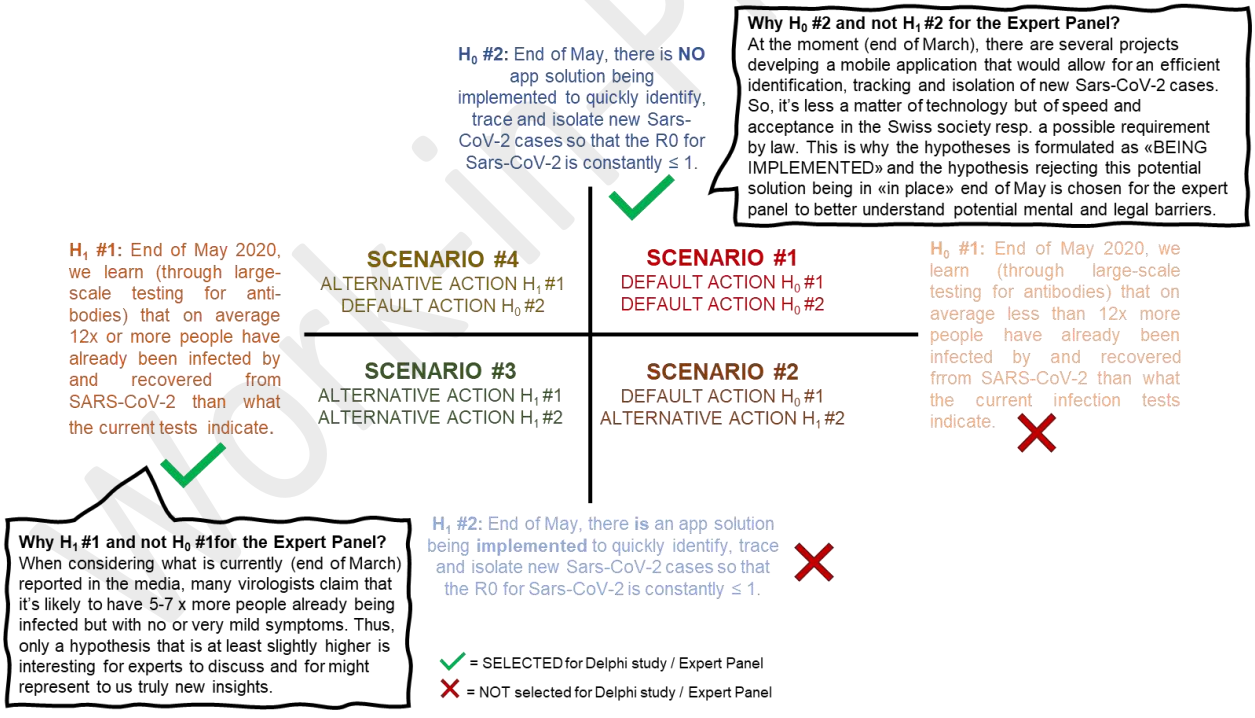
- Fourth, the CEO and his team had to select either H_0 or H_1 for each of the two hypotheses (#1 & #2) for the online, real-time Delphi study / Expert Panel (Exhibit 24).
  Note: Besides the clarification of the *Decision-making Challenge* and the respective *Default* and *Alternative Actions* as well as the *Questions* and the respective *Hypotheses*, it is essential to make sure that the intelligence gathered is as useful as possible. This is why the selection between H_0 or H_1 for each *Hypothesis* for the Delphi / expert panel software is important when trying to gather the input from different kinds of experts. Simply said, you have put in a lot of efforts to identify your *Decision-making Challenges*, define *Default/Alternative Actions* and formulate *Hypotheses* but if don't choose wisely which *Hypothesis* to get assessed by experts you might end up with only little additional insights to support your decision making.

  In our example, the CEO and his team looked at **hypothesis #1** and finally decided to ask the experts to assess H_1 and not H_0 because other sources of information (e.g. computational models and small-scale tests in other countries) suggested that the real percentage of people in Switzerland who had already contracted Sars-CoV-2 with mild or no symptoms and had already established immunity is at least 5-7 times higher than the tested number of people. As a consequence, the CEO and his team considered the following aspects to choose H_1 over H_0 of **hypothesis #1**:

a) It would be more valuable to understand that many experts believe in 12x or more people having already contracted Sars-CoV-2 than the test results indicate as compared to the already quite likely 5-7x.
b) The participating experts would be more motivated to assess a hypothesis that is slightly provoking.
c) If H_1 would be supported by a majority of experts, H_0 looks ridiculous and the CEO and his team could go for the ALTERNATIVE Action.

When looking at **hypothesis #2**, the CEO and his team finally decided to ask the experts to assess H_0 and not H_1because in this case choosing H_0 was, similar to H_1 of hypothesis #1, less supported by existing information and expectations. In our example, it was reported in the media that other countries had already used tracing apps and that ETH Zurich among others were developing solutions to be quickly integrated into existing popular apps in Switzerland. So, having a statement (H_1) confirmed that was already reported in the media from a technical perspective would not lead to substantially new insights but H_0 would allow to better understand potential legal and mental barriers in the Swiss society. As a consequence, the CEO and his team opted for H_0 which would either confirm (*in case the experts had rejected H_0*) what most intelligence sources already estimated or reject (*in case the experts confirmed H_0*) the idea of a fast implementation of a tracing app in Switzerland most likely providing an interesting list of potential mental and legal barriers that were not fully addressed in rather short newspaper articles but relevant to a fast implementation.

Exhibit 24: Selection of either H_0 or H_1 of Hypothesis #1 &#2 for the Expert Panel / Delphi study



Source: Canvas Collection of Dr. Moser, 2020

- Fifth, the CEO and his team had now two hypotheses (H_1 of Hypothesis #1 and H_0 of Hypothesis #2) which they could integrate into an online, real-time Expert Panel / Delphi study.

CASE EXAMPLE II: Developing Hypotheses / Scenario Matrices

After this first exercise, the CEO and his team had developed a better understanding of how the process worked and focused on a first industry-specific scenario matrix.

This time, they wanted to select a *Decision-making Challenge* they had to make in the next 18 months. After some first discussions, the team realized that they felt completely lost about what to focus on because there were potentially so many important changes happening in the near-term future.

We then advised the team to go back to the core of strategic management and follow the recommendations in Dr. Moser's Canvas Collection:
The key advice to follow was "*that you first need to understand why the company has been successful so far to identify those trends and developments that could significantly affect your company's success factors in the future".*

Although this might sound easy and simplistic, it's quite a challenge to identify those value creation & value capturing mechanisms as well as value delivery activities of a company that create an attractive strategic position and economic profits.

For more information on this process and different analysis tools, please refer to Dr. Moser's Canvas Collection.

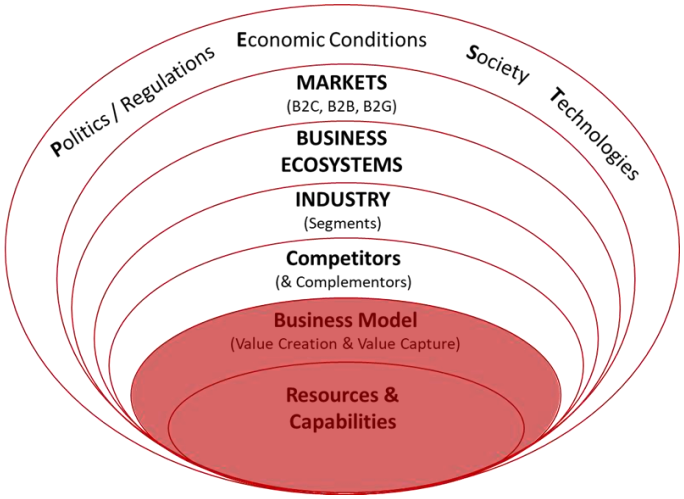
In our case example, the team had identified the following aspects (*simplified and reduced information due to confidentiality*):

- The company had more than 70% of its customers in industry ABC and made less than 60% of its revenues in CH (45%) and EU (15%), 20% in the US and another 20% in Asia.
- Its customers valued the high level of technical innovation and adaptation that the company's engineering team provided to each built-to-order machine.
- Its customers valued the high degree of production flexibility they offered due to the integrated value chain activities within the company leading to fast and flexible responses to changing customer requirements.

With this (and more) insights as a filter, the CEO and his team then tried to develop assumptions about how the company's business context will look like in the future. They followed a simple "Business Environment Analysis" structure (Exhibit 25) starting with COVID-19 as the trigger for many other changes in the entire business context:

Exhibit 25: Structure for a "Business Environment Analysis"

In order to answer some of the questions; for example, why do you make money ***today*** & what potential developments do you need to plan for **in the future** so that you can adapt your business model (i.e. develop a strategy), you can apply different strategic analysis frameworks. These frameworks can be structured along the following layers:
- General business context (*PEST(EL)*)
- *Markets* you are serving
- *Business Ecosystems* you are embedded in
- *Industry* (Segments) you are positioning yourself in
- *Competitors* & *Complementors* you are facing
- *Business Model* (Value Creation & Value Capture)
- *Resources & Capabilities* (Value Delivery)



Source: Canvas Collection of Dr. Moser, 2020

Their simplified analysis looked like this:

- **Trigger Event:** Spread of Sars-CoV-2 worldwide resulting in massive lockdowns for entire societies and economies due to the massive health impact of COVID-19 on people's life (that's a development from the **E**NVIRONMENTAL Context of the PEST**E**L framework).

  Please be aware that the following assumptions (i.e. hypotheses) about current and future changes in the case company's business context could be subject to internal or external expert panels / Delphi studies to develop a better understanding about whether and how these assumed changes in the business environment will evolve.

- The impact of COVID-19 on the **PEST**(E)**L layer** was assumed to be as follows (selection) in the context of our case company:
  - **P**olitics: The governments of countries worldwide are trying to buy time via severe lockdowns of commercial and social events to develop an effective response to COVID-19 and safe as many lives as possible.
  - **E**conomy: The economies of all affected countries are likely to fall into a massive recession with no clear forecast when they are starting to recover. It might take many years to reach pre-COVID-19 levels. Most companies are currently facing severe cash-flow problems and are likely to delay any large investments into the long-term future. This is especially true for new capital expenditures such as production machines.
    The Swiss franc is likely to be massively overvalued – leading to a significant price disadvantage in most foreign markets; especially in emerging markets.
  - **S**ociety: The lockdown of most commercial and social activities has created a new mindset where people are cautious about what they spend their money on – leading to a probably substantially lower demand in goods that our customers produce.
    Society will demand – given the shock about non-available crucial goods such as masks or antibiotics – a relocation of different production activities to Europe/Switzerland.
  - **T**echnology: Many companies around the world currently experience how crucial it is to have the ability to digitize commercial activities (e.g. communication, after-sales services etc.) and will expect their business partners to be up-to-date.
  - **L**egal: The enforcement of commercial contracts will be more difficult in the short- and mid-term future (e.g. due to an increasing overload of pending court cases), emphasizing the importance of mutual trust (e.g. trust as mutual vulnerability) to conduct business with each other.

- The implications from the PESTEL layer on the **MARKETS layer** (focus: **Business-to-Business** for our case company) were identified as follows:
  - It is most easy to conduct business with customers and suppliers where the company has already a long-lasting relationship and overlapping business networks (i.e. a high level of mutual vulnerability exists).
  - Suppliers will insist more often on a (partial) pre-payment of their deliveries to reduce their risk.
  - At the same time, customers will be reluctant to pay upfront and are tempted to create a price-focused competition in the industry.
  - Customers will also require flexibility from the company if they are supposed to make investments into new machinery.

  - New customer requirements regarding sizes and types of machinery are likely to evolve as their industries are changing.
  - The Swiss market was likely to remain its major market with the least impact of the strong Swiss franc on their cost competitiveness.

- Although the case company was a small player and focused on a clear product-driven offering, it still tried to understand how these changes in the MARKETS layer would impact the key mechanisms in the **BUSINESS ECOSYSTEMS layer** they were a part of:
  - The company realized that evolving business models such as the creation of transparency of individual machine utilizations through MEM companies among their clients might be the only way for its customers to stay competitive short- and mid-term and that a small player like the case company would be seen less as a threat to its clients to misuse the potential power that it could accumulate through the provision of such a platform for its customers to jointly compete for larger deals in their respective industries.
    The logic was that, for example, it would be easier for 4 smaller clients of the case company to scale-up production from 40% to 60% each than for 1 client to scale up production from 20% to 100%.
  - The company also realized that its customers were shifting their product portfolio; partially with "innovation grants" from local governments.

- All these insights from the PESTEL, MARKETS and BUSINESS ECOSYSTEMS layers were then analysed to understand the **future "rules of the game" in** the case company's **INDUSTRY (SEGMENT):**
  - The addressable market volume for the case company is likely to decrease by 35% in 2020 compared to the 2019 level and will only slowly grow again in 2021.
  - The demand growth from its customer will not be linear and steady but see high growth rates in some months and sharp declines in other months.
  - To compensate for the missing demand from its existing customers, many companies will have to identify new product markets or services and potentially even new geographical markets to expand.
  - Larger players in the industry are more likely to be able to cope with the unsteady demand, forcing smaller players into more niche markets.

Based on this initial analysis of potential changes in the business environment, the CEO and his team then formulated a *"Decision-making Challenge"* in the next 18 months as follows:

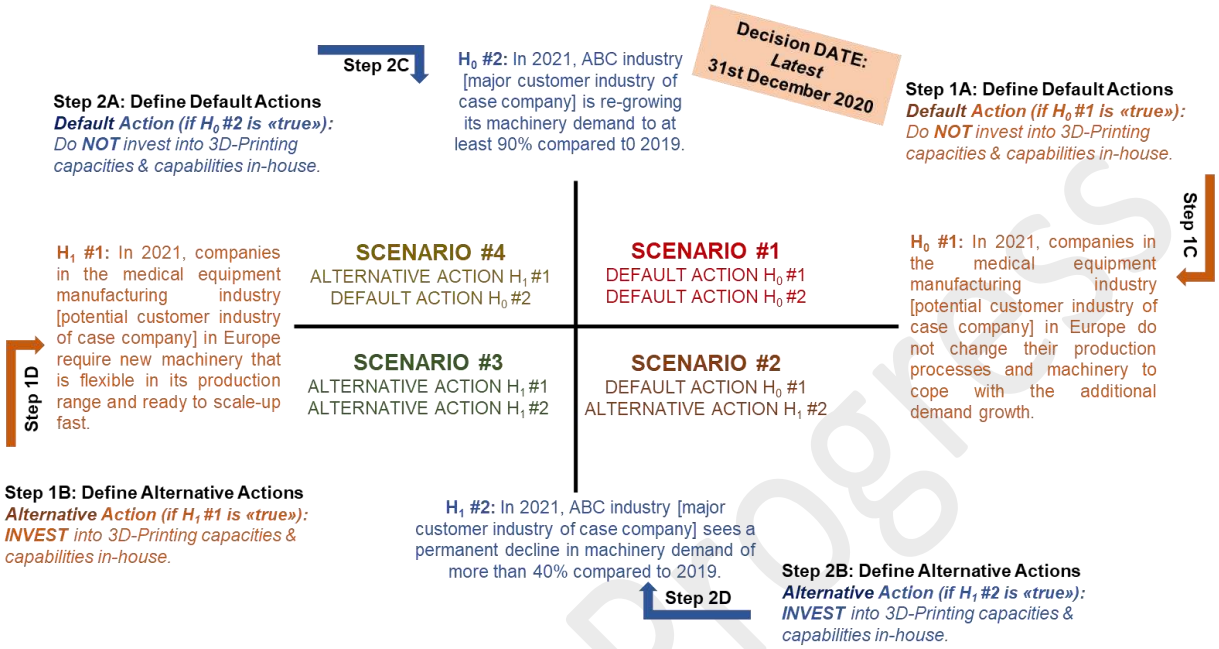
"Do we need to invest into 3D printing capacities & capabilities (machines and skills development)?"

They then identified the following *Questions* (selection) that they need to get answered to make the *Decision*:

- Q1: Do we need to shift our product portfolio to other industries to keep our company financially stable? If yes, how much?
- Q2: Which industries that we could potentially serve as a MEM company from Switzerland are likely to see significant growth and require innovative solutions?
- Q3: Do our customers require new kinds of machines or add-on services that require 3D-printing capacities & capabilities?
- Q4: …

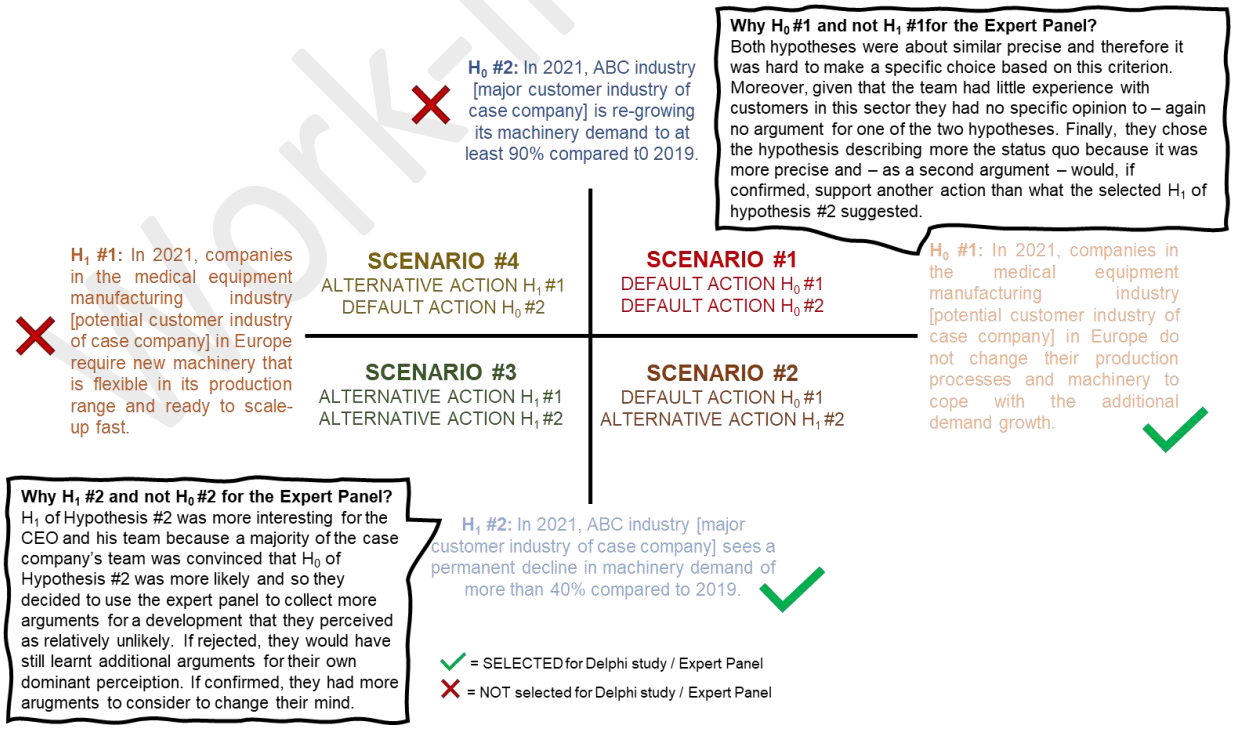
Based on the identified *Questions*, the CEO and his team developed a few scenario matrices with *Hypotheses* they wanted to test in an expert panel / Delphi study. An example of such a scenario is presented in Exhibit 26 where they decided to ask the experts to assess **H_0 of Hypothesis #1** and **H_1 of Hypothesis #2** (Exhibit 27).

Exhibit 26: Exemplary Scenario Matrix to gather Intelligence for the Decision-making Challenge



Source: Canvas Collection of Dr. Moser, 2020

Exhibit 27: Justification for the selection of hypotheses for the Delphi study / expert panel



Source: Canvas Collection of Dr. Moser, 2020

When the CEO and his team had conducted an online, real-time expert panel with the selected Hypotheses (*H_0 of Hypothesis #1 and H_1 of Hypothesis #2 / Exhibit 27)* among their industry peers, the results indicated that **the company is facing Scenario #2 resulting in contracting action recommendations.**

Why Scenario #2? Well, the expert panel provided support for both tested hypotheses (*H_0 of Hypothesis #1 and H_1 of Hypothesis #2*) once recommending the *Default Action* of *Hypothesis #1* (**NOT to invest** into 3D printing) and once recommending the Alternative Action of Hypothesis #2 (To **INVEST** into 3D printing).

Obviously, this created a **decision dilemma** for the CEO and his team. What they did as a next step was to carefully study the arguments that the different experts had provided for their high or low level of agreement with Hypothesis #1 and Hypothesis #2. Finally, the detailed analysis of all the arguments provided by the participating experts convinced the CEO and his team that the decline in their major customer industry was likely to be significant and permanent (Hypothesis #2), providing support for the Alternative Action (to INVEST into 3D printing). However, concerning Hypothesis #1, they realized that the medical equipment manufacturing industry (a potential new customer industry for our case company) is not yet sure about future machinery features requirements but that it is not unlikely that 3D printing will play at least a minor role for a fast prototyping approach.

As a result, the CEO and his team were now convinced that they should prepare for a more detailed potential investment plan into 3D printing capacities & capabilities until end of the year to make a final decision.

CASE EXAMPLE III: Developing Scenarios

After the development of a first set of industry-specific scenarios for short-term and mid-term *Decision-making Challenges*, the CEO and his team then realized that the hypotheses they had assessed with the help of an expert panel / Delphi study so far could also serve as background to think about the "new normal" of their industry once the plan to mitigate and overcome the COVID-19 pandemic would be clear and implemented at national / international level.

For this purpose, they were less interested in a few hypotheses that support them in making specific decisions but rather to understand how the future rules of the game in their industry could look like and to check whether the case company's business model would still fit in such a new business context or not.

Now they also realized that so far **they had only developed single hypotheses** (*H_0 & H_1 for Hypotheses #1, #2, #3 etc.*) for different changes in the business environment **and** used them to build **scenario matrices BUT they had not yet developed DETAILED SCENARIOS.**

So, they started to have a closer look at how they could develop detailed scenarios. Dr. Moser had done this before in many projects – simply with the focus on India or China as the new business environment – from a European perspective – and offered a simple but well-tested structure to make the scenarios more comparable among each other.

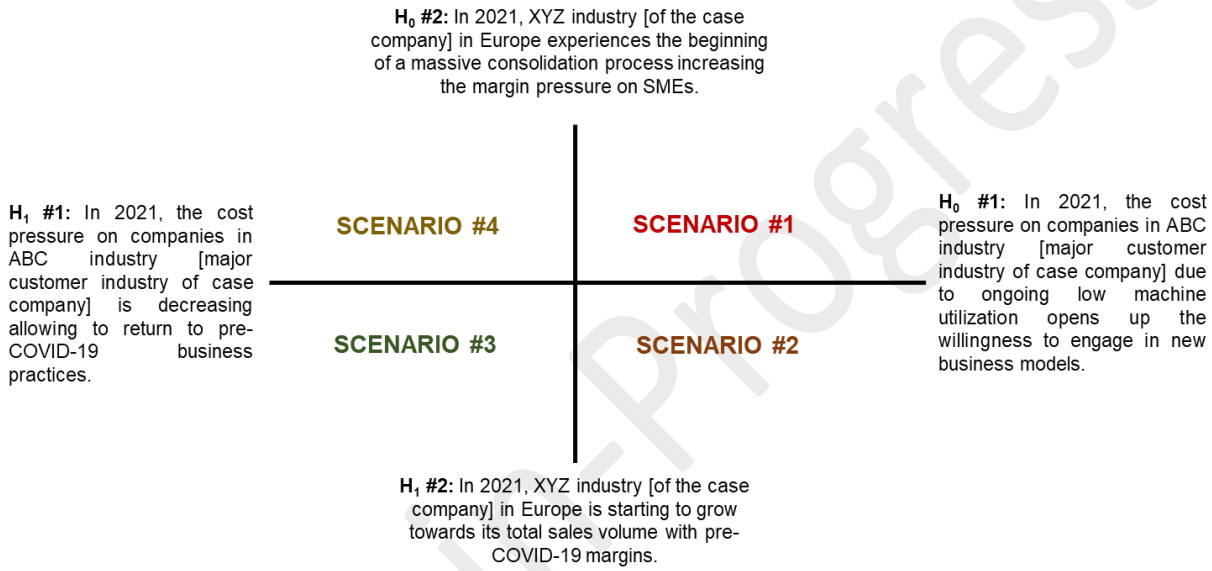
First, the CEO and his team created a new scenario matrix – but this time they were not driven by a specific decision they were required to make but driven by those trends and future developments that seemed to have the highest impact on their major value creation and value capturing activities.

In an earlier analysis exercise, they had identified the following success factors for their company:

- Its customers valued the high level of technical innovation and adaptation that the company's engineering team provided to each built-to-order machine.
- Its customers valued the high degree of production flexibility they offered due to the integrated value chain activities within the company leading to fast and flexible responses to changing customer requirements.
- …

Based on these insights, the team identified several potential future developments in their industry that could significantly affect the company's value creation or value capturing activities. Exhibit 28 shows two selected hypotheses creating a scenario matrix as the starting point for a detailed scenario development (Exhibit 29).

Exhibit 28: Scenario matrix to explore the future business context of the case company



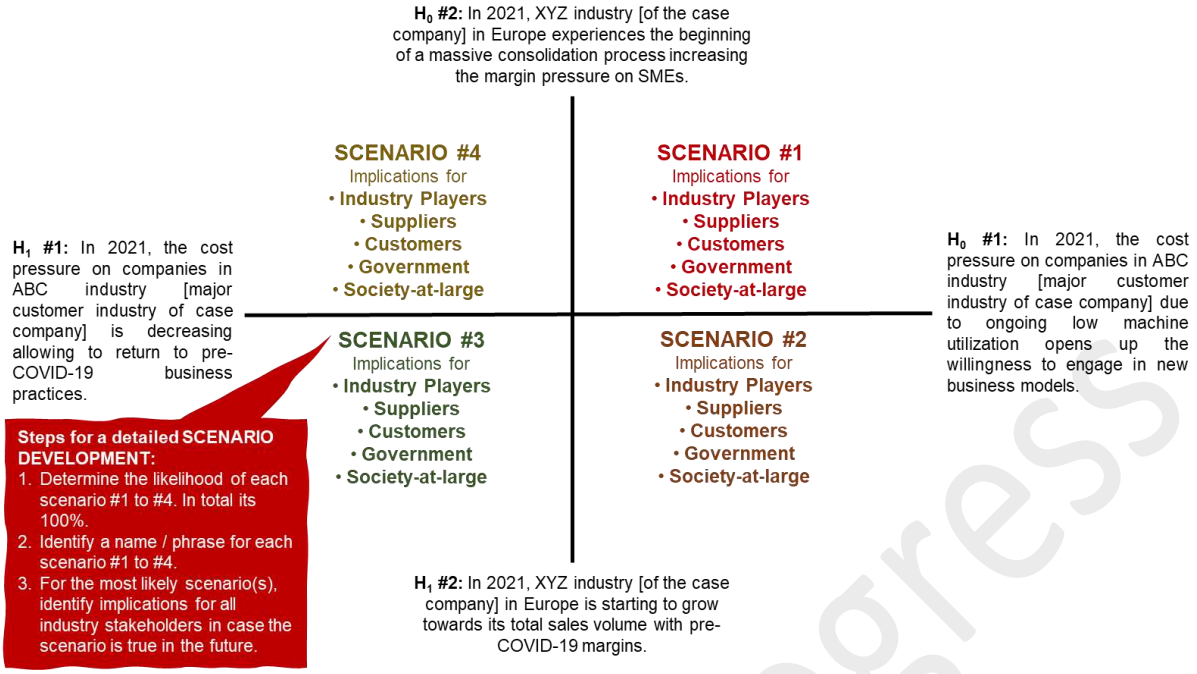
Source: Case Company Example, Simplified Content

The major activities to develop a detailed scenario from a scenario matrix including hypotheses are as follows:

- First, each of the four scenarios should get a percentage of likelihood to be true in the future. The total sum of the likelihood of the four scenarios must be 100%.
- Second, each of the four scenarios should be labelled with a name/phrase that tries to accurately summarize the essence of each scenario.
- Third, for the most likely scenario(s) to be true in the future, identify the implications for the "industry stakeholders":
    - Industry Players
    - Suppliers
    - Customers
    - Government
    - Society-at-large

  This step is important to truly understand not only what this means for the case company but its entire supply chain and direct business context. It requires a lot of time to discuss all major implications for the industry stakeholders but this exercise builds the major input for all subsequent steps – and you must be aware of the saying "garbage in - garbage out".

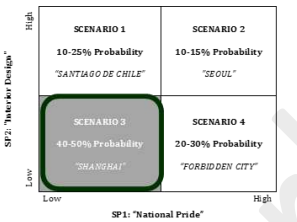
Exhibit 29: How to develop a detailed, structured scenario



Source: Case Company Example, Simplified Content

The case company's specific scenario assessment and its description of the consequences for each industry stakeholder cannot be discussed in this manual. However, in exhibit 30 you see such a description of a project which Dr. Moser did for the German automotive sector.

Exhibit 30: Example of a detailed scenario description from a project on the future of the Chinese premium automotive market for German automotive OEMs.



*China's younger generation is **NEITHER** driven by national pride considerations in their lifestyle and consumption behavior **NOR** is the perception of a car's brand is more driven by its interior design and features than its exterior design.*

Customers:
- Customer's preference for foreign premium cars prevails while Chinese cars are rather a choice for the mainstream segment
- Customers balance brand considerations, luxurious features and quality aspects in their purchasing decisions
- Customers have comparable preferences in their style and design taste to the triad-markets regarding a car's visual appearance
- Customers perceive buying a car as a 'one-stop' action and maintenance and after-sales considerations take up a minor role

Suppliers:
- The remaining domestic suppliers are active on international level either via their own components or offerings' of their acquired overseas suppliers
- Foreign suppliers have invested at an early stage in high-value-generating operations such as R&D in China and benefited from the available local talent pool – they easily outperform most of their domestic counterparts
- Increasing investments by both OEMs and suppliers while supplier base is particularly growing

Industry / OEMs:
- Remaining domestic OEMs have succeeded in technological upgrading and successfully integrated 'Chinese' design elements in their cars
- Foreign OEMs have a stronghold of the domestic market through importing westernized design to launch new car models in the Chinese market
- Especially foreign OEMs benefit from widely available local talents which they 'breed' themselves and in turn are seen the most attractive employers

Government:
- The Government of China (GOC) has defined new pillar industries asides from the automotive industry which perceives little 'regulatory attention'
- The GOC allocates enormous investments to improve the nationwide (public) infrastructure and strongly controls registration and access of cars in urban areas to alleviate traffic conditions in tier1-3 cities.

Society:
- China's society does not differ substantially from the conventional triad-markets (EU, USA, Japan) integrating westernized mind-sets and values which are clearly visible in lifestyle and daily behavior
- China has become an integrative part of the globalized world and the Chinese society perceives it selves as global citizens 'Well-educated' Chinese overseas returnees largely deter from working in domestic firms in China's automotive industry

Source: Moser et al., China Automotive Industry - Scenario 2022 Report, Focus: Premium Car Segment

Please note that the most valuable output of such a scenario development project under extreme uncertainty & ambiguity is not that you are suddenly able to predict the future and your company knows now exactly how the future business context will look like BUT…:

- …this is a group effort and allows each participant to:
  - broaden her/his horizon about how different trends and future developments might impact the industry and the company.
  - better understand the implications of different trends and future developments on the key functions within the company and key players along the company's value chain; and
  - learn how to think in options and that without an understanding why the company is successful today, there is no effective preparation for the future possible.
- …this is a way to leverage the tacit knowledge, experience and expertise of executives and employees which is related or often unrelated to their job profiles in the company.
- …this is a way to leverage the social capital (i.e. the formal and informal networks) of a company's executives and employees to improve the "speed-to-insight" – the most crucial capability to improve your mental agility in uncertain & ambiguous markets.

Once the CEO and his team had developed such as detailed analysis for several selected scenarios, **they now faced the challenge to turn these high-level insights** about how the future business context might look like in the future **INTO specific CONSEQUENCES FOR THEIR RESOURCE AND BUDGET ALLOCATIONS ON A FUNCTIONAL LEVEL.**

PART III

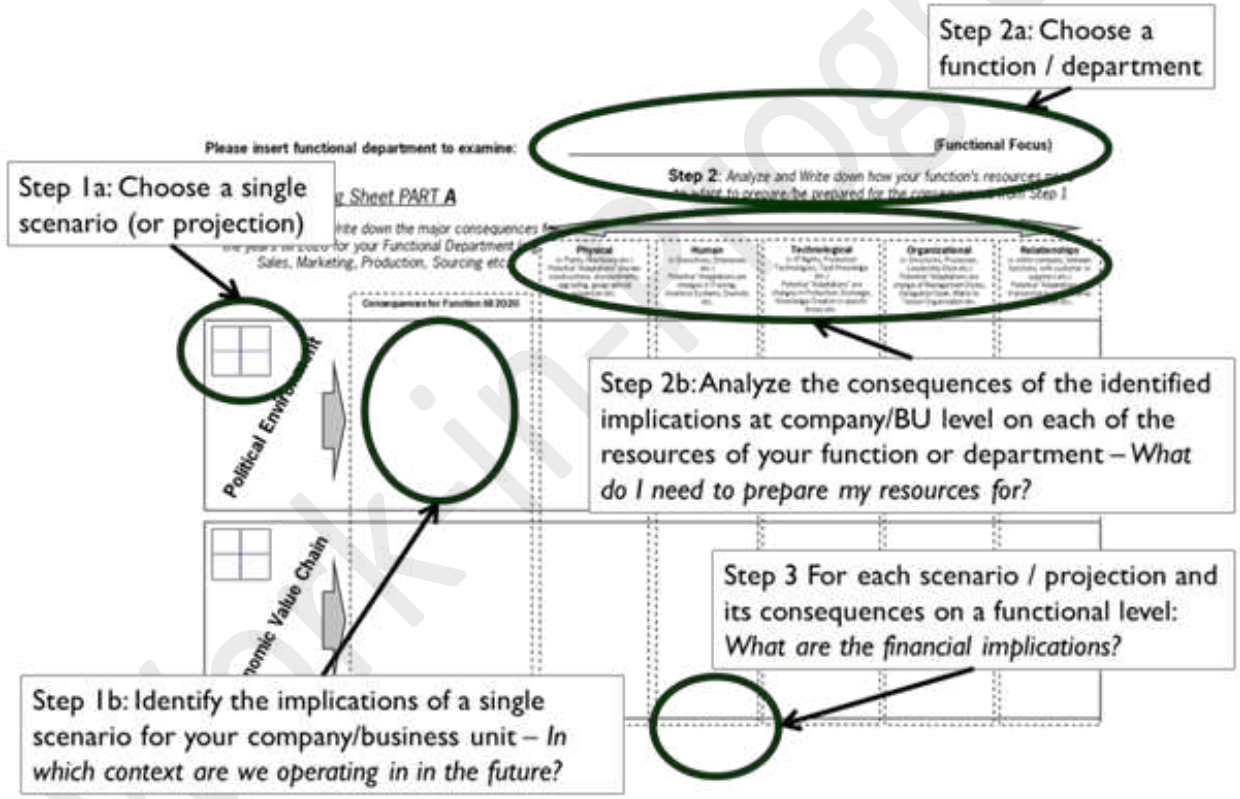
SCENARIO DEVELOPMENT & ANALYSIS MANUAL:
Turning SCENARIOS into FUNCTIONAL CONSEQUENCES

"Show me your budget RE-allocations and I tell you your strategy!"

In the following, we present you an approach that also our case company applied to better understand the implications of their scenarios on their functional strategies and resources.

The Institutions-Resources Matrix (I-RM) focuses specifically on the structuring of insights about the future and their transformation into consequences for companies – not only on the corporate or business unit level but especially the functional level where most strategies are finally implemented (Exhibit 3).

Exhibit 31: The Institutions-Resources Matrix (I-RM)



Source: Moser, Institutions-Resources Matrix Primer, 2013

The I-RM is basically a tool for any interested party to turn rather long-term future insights into functional consequences today resp. tomorrow. In short, the I-RM involves three major steps.

First, **step Ia** requires you to choose a specific scenario or single projection about trends or future developments in the business environment and identify in **step Ib** the implications of this specific scenario or single projection on the case company's corporate resp. BU strategy or on the value creation, value capturing or value delivery activities (i.e. business model) of a company. In most cases, executive teams can do this without major challenges at a conceptual level.

Next, **step 2a** requires you to choose a specific functional focus (e.g. purchasing, after-sales, production, finance, IT etc.) as well as identifying those elements of the corporate resp. BU strategy or the business model which significantly affect the chosen function.

Step 2b then transforms the implications of the corporate resp. BU strategy or the business model identified as relevant for the functional strategy (i.e. insights from step 1b) into consequences for the specific resources of the chosen function. The I-RM includes the following resources in its basic model although executives can add or replace or even delete the suggested resource categories according to their specific needs:

- Physical Resources
- Human Resources
- Technological Resources
- Organizational Resources
- Relational Resources

Finally, the **optional step 3** allows executives to assess the potential financial consequences of any identified implication for a function and thus provide a first outlook on future budgets of the focal function.

In practice, executives have to repeat especially step 1a/b and step 2a/b for any chosen function for all selected scenarios resp. single projections that potentially have a strong impact on the company's business model resp. the functions and their set of activities. If such an analysis is done for a single function across major future developments that matter for the company, executives often realize that some consequences for the resources of a function have been repeatedly identified across various scenarios or projections. These consequences are often the most interesting ones as they matter across different scenarios and/or single projections. These are then the consequences where executives want to spend some more time to assess what this means for the future budget allocation of the function and other aspects of strategy implementation including communication, motivation, qualification and organization.

CASE STUDY (Public): THE FUTURE OF THE PREMIUM AUTO SECTOR IN CHINA

In the following, I describe an example of how to apply the I-RM. It uses insights from an online, real-time expert-panel (Delphi) study with more than 80 participants about the future institutional environment of the premium automotive industry in China in 2022. This study was part of the overall efforts of several German automotive companies to create additional, more privileged insights about the future business environment of the premium automotive sector in China several years ago. The study includes in total 11 different projections evaluating the probability and impact of future developments in the political, macro- and microeconomic, social and infrastructure environment as well as 8 projections incorporating issues regarding future changes in R&D, sourcing, production and distribution/after-sales in China.

Different scenarios consisting of two different projections that are not correlated with each other have been developed and consequences for the major industry players have been identified during an additional workshop on the campus of China-Europe International Business School (CEIBS) in Shanghai with approx. 30 industry experts. In this case example, a selected scenario from the social environment scenario matrix serves as the primary input. However, please remember that any structured insights about future developments in the business environment of an industry might serve as input for the I-RM.

The social environment scenario matrix in our study on the future premium automotive sector in China is determined by a projection primarily focusing on a trend in the society at large as

well as a projection integrating more directly a potential future change among the buyers of premium cars in China.

Transforming Future Insights into Functional Consequences Today: The I-RM Process

For the exemplary application of the I-RM, we choose a specific scenario from the social environment analysis of the future of the premium automotive sector in China in 2022. The scenario matrix itself consists of four distinctive scenarios (Exhibit 32). As requested in step 1a of the I-RM we chose one of them for our further analysis as each of the four scenarios in the matrix has different implications for the strategy on the corporate resp. BU level or business model and subsequently for the functions under analysis. In the case example, we chose scenario #3 (i.e. Shanghai) as the specific scenario for the further analysis because the experts have assessed it with the highest probability to be true in 2022.

Exhibit 32: Scenario Matrix for the Social Environment of the Premium Automotive Sector in China in 2022

Source: Moser et al., China Automotive Industry - Scenario 2022 Report, Focus: Premium Car Segment

However, before we analyze the implications of scenario #3 (Shanghai) on the corporate resp. BU strategy level and the business model (i.e. step 1b of the I-RM) we shortly look at the two projections that build the social environment scenario matrix (Exhibit 32). The social scenario matrix consists of two projections. The vertical projection (i.e. SP2: Interior Design) represents a projection that tries to evaluate how important interior design elements will be for premium car buyers (*SP2: Interior Design: In 2022, the brand perception of premium cars is significantly more driven by a car's interior design and features (e.g. cockpit ambience, rear space, centre console*) than a car's exterior design (e.g. front/rear lights, radiator grill)). The horizontal projection (i.e. SP1: National Pride) represents a projection that focuses primarily on an overall trend in the Chinese society (*SP1: National Pride: In 2022, China's young generation is strongly driven by national pride considerations in their lifestyle and consumption behaviour including premium car purchases*). If we look at scenario #3 (Shanghai) in the scenario matrix for the social environment of the automotive premium

sector in China, we see that this specific scenario implies low probabilities for both the Interior Design projection as well as for the National Pride projection.

In the study, the workshop after the expert panel / Delphi study participants had identified consequences for the five major industry stakeholders in case that each combination of the two projections would be true in 2022 [please note that in today's COVID-19 environment such a workshop could be organized via zoom or Microsoft Teams]. The implications for each industry stakeholder group in scenario #3 are listed in exhibit 33.

Exhibit 33: Implications for the 5 Industry Stakeholders in case that Scenario #3 is true in 2022.

*China's younger generation is **NEITHER** driven by national pride considerations in their lifestyle and consumption behavior **NOR** is the perception of a car's brand is more driven by its interior design and features than its exterior design.*

Customers:

- Customer's preference for foreign premium cars prevails while Chinese cars are rather a choice for the mainstream segment
- Customers balance brand considerations, luxurious features and quality aspects in their purchasing decisions
- Customers have comparable preferences in their style and design taste to the triad-markets regarding a car's visual appearance
- Customers perceive buying a car as a 'one-stop' action and maintenance and after-sales considerations take up a minor role

Suppliers:

- The remaining domestic suppliers are active on international level either via their own components or offerings' of their acquired overseas suppliers
- Foreign suppliers have invested at an early stage in high-value-generating operations such as R&D in China and benefited from the available local talent pool – they easily outperform most of their domestic counterparts
- Increasing investments by both OEMs and suppliers while supplier base is particularly growing

Industry / OEMs:

- Remaining domestic OEMs have succeeded in technological upgrading and successfully integrated 'Chinese' design elements in their cars
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Government:

- The Government of China (GOC) has defined new pillar industries asides from the automotive industry which perceives little 'regulatory attention'
- The GOC allocates enormous investments to improve the nationwide (public) infrastructure and strongly controls registration and access of cars in urban areas to alleviate traffic conditions in tier1-3 cities.

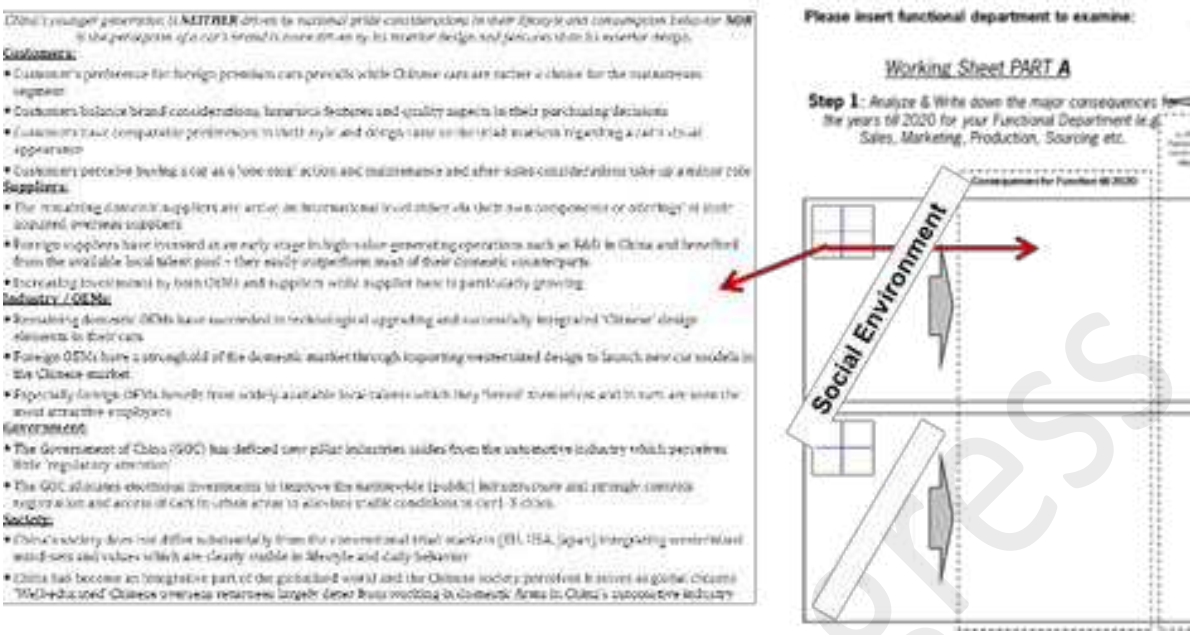
Society:

- China's society does not differ substantially from the conventional triad-markets (EU, USA, Japan) integrating westernized mind-sets and values which are clearly visible in lifestyle and daily behavior
- China has become an integrative part of the globalized world and the Chinese society perceives it selves as global citizens
- 'Well-educated' Chinese overseas returnees largely deter from working in domestic firms in China's automotive industry

Source: Moser et al., China Automotive Industry - Scenario 2022 Report, Focus: Premium Car Segment

With these insights on the consequences for the industry stakeholders in case scenario #3 (i.e. the specific scenario that we chose in step 1a) is true in 2022 we start with step 1b (i.e. the identification of the implications for the corporate resp. BU strategy of the company under analysis) (Exhibit 34).

Exhibit 34: Step 1b as simplified Visualization in the Context of the Social Environment scenario



Source: Moser, Institutions-Resources Matrix Primer, 2013

In this case example, we look at scenario #3 from a German premium OEM and simply pick the following consequence for OEMs in case that scenario #3 is true in 2022 from Exhibit 32: "In 2022, customers have comparable preferences in their style and design taste to the triad-markets regarding a car's visual appearance".

An example of the application of the I-RM is shown in Exhibit 35. It shows the process of how to transform insights about future developments (i.e. "In 2022, customers have comparable preferences in their style and design taste to the triad-markets regarding a car's visual appearance") into consequences for a company's functional strategies.

Exhibit 35: Template for the Application of the I-RM

Institutions-Resources Matrix

Institutions-Resources Matrix: **Analysis of Scenario #3** Worksheet 3.1	Organization: **BMW China (exemplary case)** Time Frame: **2014-2022**
Analyst(s): • Mr. ABC ZYW • Mrs. HGT TZU • Dr. ZUR EFT	**Strategy Summary:** • … • … • … • …

Source: Moser, Institutions-Resources Matrix Primer, 2013

The template of the I-RM includes some basic information about the selected scenario under analysis, the company under analysis, the time frame as well as the analysts involved. It also makes sense to summarize the results of each scenario analysis in the strategy summary.

Step 1: Institutions → Competitive Strategy (Corporate or BU level)

Institution (Potential Future Developments)	Consequences for **YOUR COMPANY's** Competitive Strategy	*Optional: Consequences for **YOUR COMPETITORS'** Competitive Strategy*
Scenario Matrix: Politics	…	…
Scenario Matrix: Economic Value Chain	…	…
Scenario Matrix: **Society** Specific Scenario: **#3 (Shanghai)** … ***Implications for Customers:*** … **Result 2:** *"Customers have comparable preferences in their style and design taste to the triad-markets regarding a car's visual appearance"* …	• *The Chinese consumer does not need to be treated differently when it comes to exterior and interior design elements.* • *In search of economies of scale the potential slightly different design preferences of the Chinese consumers as compared to the traditional customers in Europe and US have to be weighed against each other.* • *If local design competence does not allow for additional differentiation potential the question remains where the company can invest to positively influence the brand's perception among Chinese consumers.* …	…
Scenario Matrix: Technology/Infra	…	…
etc.	…	…

Source: Moser, Institutions-Resources Matrix Primer, 2013

In step 1a and step 1b executives select a business environment perspective (e.g. society). Within the chosen institutional environment perspective a specific scenario has to be selected (e.g. Scenario #3, Shanghai as shown in Exhibit 5). The consequences of a specific scenario for the different stakeholders (e.g. customers) are then evaluated and those that are relevant are further analyzed concerning their impact on the company's corporate resp. BU strategy.

Step 2a: Competitive Strategy → Functional Strategy: Choice: ***Marketing/Branding***

Consequences for **YOUR** ***Competitive*** Strategy	Consequences for **YOUR** ***Functional*** Strategy: ***Marketing/Branding***	Consequences for **YOUR** ***Functional*** Strategy:
• *The Chinese consumer does not need to be treated differently when it comes to exterior and interior design elements.* • … • …	→ Global branding and marketing efforts allow for economies of scale but which level of local adaptation with respect to communication channels, social acceptance of message etc. has to be implemented for each campaign in China? → Does it make sense to identify themes that allow virtually a global marketing campaign with minor adaptations or should campaigns primarily be developed locally? → How important are design aspects to strengthen brand loyalty?	…
…	→ …	…

Source: Moser, Institutions-Resources Matrix Primer, 2013

In step 2a, a specific functional focus is then chosen and for each insight about potential implications on the corporate or BU level that matter for the functional focus, the consequences for the functional strategy are evaluated.

Step 2b: Functional Strategy → Resources on Functional Level *(Marketing/Branding)*

Consequences for **YOUR** ***Functional*** Strategy *Mark/Brand*	***Physical Assets***	***Human Resources***	***Technologies***	***Organizational Structures***	***Relationships***	……
Global branding and marketing efforts allow for economies of scale but which level of local adaptation with respect to communication channels, social acceptance of message etc. has to be implemented for each campaign in China? …	Where is the marketing personnel located? - Shanghai and/or Beijing or also other cities? Can we centralize certain special functions in a major city in China or even at headquarters? …	What experiences and backgrounds should the marketing personnel in China have? Are the backgrounds diverse enough? Do we have sufficient understanding in marketing in headquarters about 'no-gos' in the Chinese market? …	What kind of social media channels do have the most potential to reach out to our target group(s)? Do we have the systems to monitor and quickly leverage new developments? …	How does marketing at headquarters interact interact with marketing in China? Which processes ensure that global marketing campaigns are aligned with / adapted to specific Chinese consumer requirements? resp. How can local campaign developments and their experiences support headquarters in trying to reach economies of scale across regions? …	Who are important idea and intelligence providers for marketing campaigns in China? Can the brand MINI benefit from experiences of BMW? Who is responsible for sharing of lessons learned? …	
…	…	…	…	…	…	…

Source: Moser, Institutions-Resources Matrix Primer, 2013

In step 2b, the consequences for the functional strategy are then analyzed concerning implications on the different resource categories. Finally, the investment requirements for those adaptations in each resource category are assessed that are expected to be implemented.

Step 3: Consequences for Resources → Required Investments (Money, Time, HR)

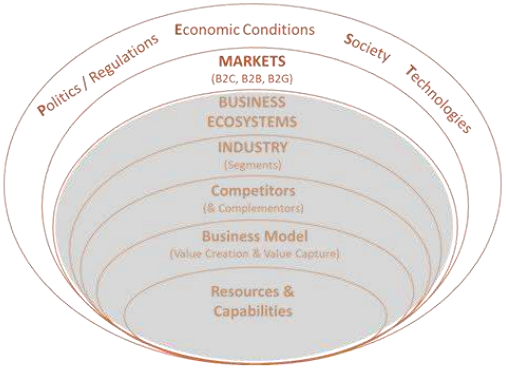
Resources	***Investment*** $$$	***Investment*** Time	***Investment*** HR	……
Physical Assets	…	…	…	…
Human Resources	…	…	…	…
Technologies	…	…	…	…
Organizational Structures	…	…	…	…
Relationships	…	…	…	…
…	…	…	…	…

Source: Moser, Institutions-Resources Matrix Primer, 2013

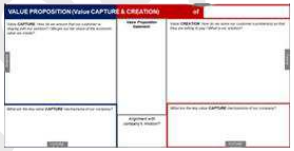
Appendix: Working Sheets

FORECAST Canvas of *Our COMPANY*

Focus: PESTEL & Markets



Future developments in the ***BUSINESS CONTEXT & MARKETS*** *the company is investing in & serving*
The most widely used analysis frame-work is PEST(EL) which is actually nothing else than a simple checklist in order to identify relevant developments in the political, economic, socio-cultural, technological, environmental (nature) or legal environment or other market trends.

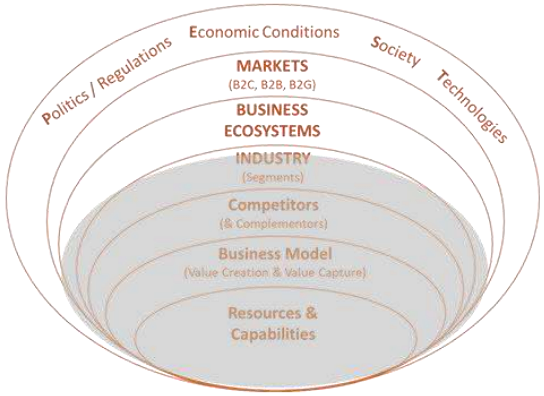


Developments in PESTEL Context and Markets	Affecting which Value Creation and/or Value Capture Mechanism?	How much?
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5

Source: Roger Moser

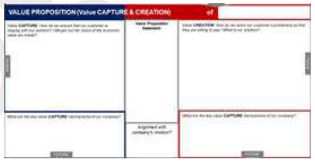
FORECAST Canvas of *Our COMPANY*

Focus: Business Ecosystems



Future developments in the ***BUSINESS ECOSYSTEMS*** *the company is embedded in*

The Business Ecosystem approach is not easy to evaluate because it is a broad concept with multiple analogies from natural ecosystems but missing parameters to measure whether a company actually plays the desirable roles of a keystone player or dominant player – or a niche player multiple ecosystems.



Developments in the Business Ecosystem

Affecting which Value Creation and/or Value Capture Mechanism?

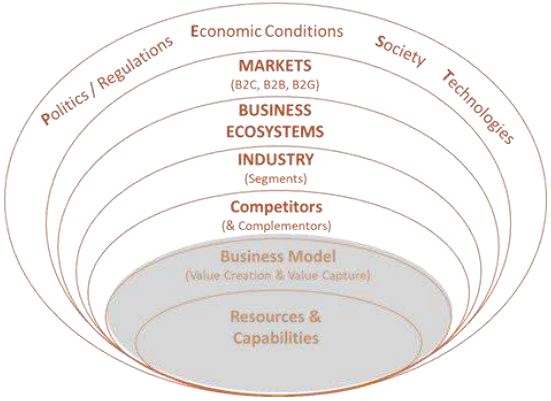
How much?

		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5
		1 — 5

Source: Roger Moser

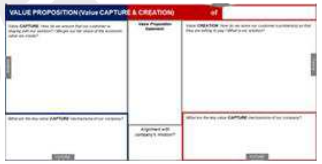
FORECAST Canvas of *Our COMPANY*

Focus: Industries / Competitive Environment



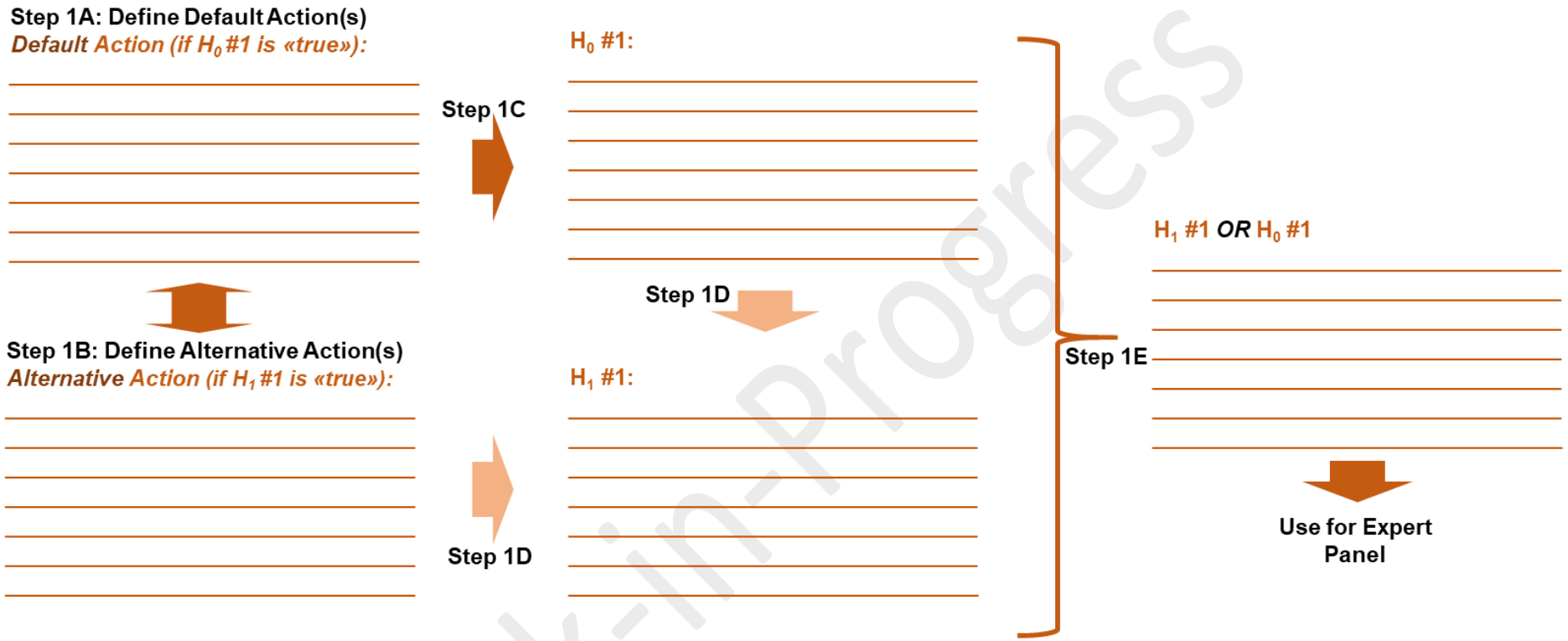
*Future developments in the **INDUSTRIES & COMPETITIVE ENVIRONMENT** the company is positioned in*

The most widely used analysis framework is PORTER's FIVE FORCES to understand how specific developments – often triggered by developments in the business context – are affecting the attractiveness (i.e. the distribution of power) of industries & industry segments. In addition, there exist several approaches to understand how competitors might change their tactics and business model in the future.



Developments in the Industry / Competitive Environment	Affecting which Value Creation and/or Value Capture Mechanism?	How much?
		1 5
		1 5
		1 5
		1 5
		1 5
		1 5
		1 5
		1 5

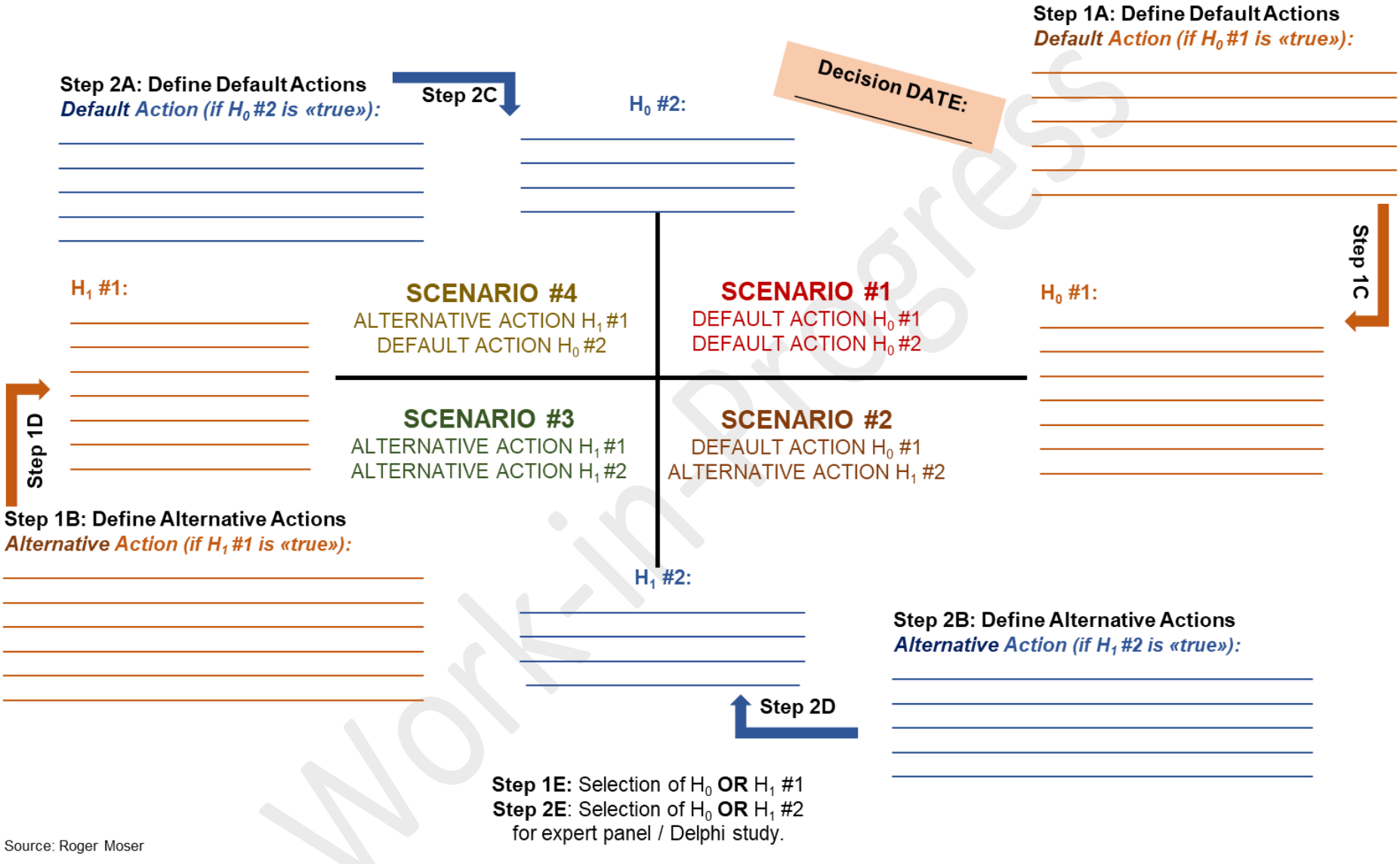
Source: Roger Moser



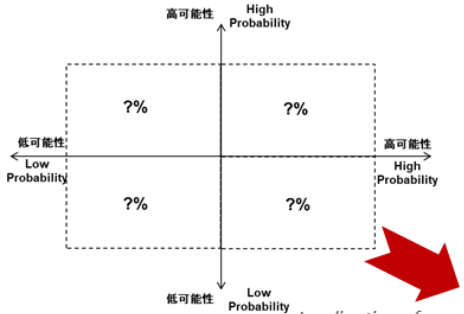
Step 1A: Define **Default** Action(s): The **default** action is the action that you will implement if you don't receive any further intelligence.
Step 1B: Define **Alternative** Action(s): The **alternative** action is simply the action that you will implement if you don't implement the **default** action.
Step 1C: Formulate* the H_0 (null hypothesis): H_0 should be formulated in such a way that if H_0 is confirmed, then the default action is implemented because it makes most sense.
Step 1D: Formulate* the H_1 (alternative hypothesis): H_1 should be formulated in such a way that it is true if H_0 is rejected.
Step 1E: Select H_0 or H_1 for the Expert Panel / Delphi study based on what experts will prefer to assess and comment.

** Please refer to our guide about how to formulate hypotheses for Delphi / expert panel studies.*

Source: Roger Moser



Source: Roger Moser



Implications from the
MOST LIKELY Scenario only!

Industry Players

Customers

Suppliers

Government

Society

Appendix: Institutions-Resources Matrix

Institutions-Resources Matrix:
A Tool for Transforming Future Outlooks into Strategic Flexibility

The Institutions-Resources Matrix supports your transformation of likely und unlikely but relevant developments in the future into strategic flexibility at the competitive and functional level. The input as future outlooks can come from different sources and the framework how you organize the analysis depends on your specific strategic challenge (e.g. market entry strategy development, (re-)evaluation of your current strategy in a specific industry segment/country combination or market expansion project etc.). Key to the application of the Institutions-Resources Matrix is the subsequent analysis of possible consequences of future developments on the competitive position of the company (step 1) followed by an identification of the challenges on a functional level (e.g. marketing, distribution, production etc.). Finally, the possible consequences for the activity system of a function have to be transformed into necessary changes for the various resources of the function.

Besides, the required changes can be analyzed concerning necessary investments (money, timeframe) to better plan future budgets and decisions for major investments.

Step 0: Select a framework suitable for your strategic analysis requirements (institutional and industry level focus) and collect the necessary information about potential future developments for each perspective (e.g. policy or technology developments, changes in the "rules of the game" in your industry, etc.). You can rely on multiple sources – an "Expert (Delphi) Panel" study is just one (good) option).

Step 1a/b: Analyze in detail the consequences of the identified potential future developments for the competitive strategy level of your company and write them down.

Step 2a: Analyze the consequences of the identified potential changes in your competitive strategy on the key functions of your company (given your strategic interests).

Step 2b: Analyze the consequences of the identified potential changes for each function for its resources (physical assets, human resources, technologies, organizational structures, relationships).

Step 3: Assess the required investments (money, time) for the most likely consequences for the resources for each function and add up the total investments required for each function and the company to keep its strategic flexibility.

Institutions-Resources Matrix

Institutions-Resources Matrix - Analysis Worksheet 1.1	**Organization:** **Time Frame:**
Analyst(s):	**Strategy Summary:**

Step 1: Institutions (Business Context Changes) → Competitive Strategy

Institution / Industry Change (Potential Future Developments)	Consequences for **YOUR** Competitive Strategy	Add on: Consequences for **YOUR COMPETITORS'** Competitive Strategy
Policies		
Consumers		
Technologies		
Other developments in industry or institutional environment		
…		

Step 2a: Competitive Strategy → Functional Strategy

Consequences for **YOUR** ***Competitive*** Strategy	Consequences for **YOUR** ***Functional*** Strategy _____	Consequences for **YOUR** ***Functional*** Strategy _____

Step 2b: Functional Strategy → Resources on Functional Level

Consequences for **YOUR** ***Functional*** Strategy _____	***Physical Assets***	***Human Resources***	***Technologies***	***Organizational Structures***	***Relationships***	……

Step 3: Consequences for Resources → Required Investments (Money, Time)

Resources	***Investment*** _____	***Investment*** _____	***Investment*** _____	……
Physical Assets	$$$ / Time			
Human Resources				
Technologies				
Organizational Structures				
Relationships				
…				