

Getting to know the unknown in procurement

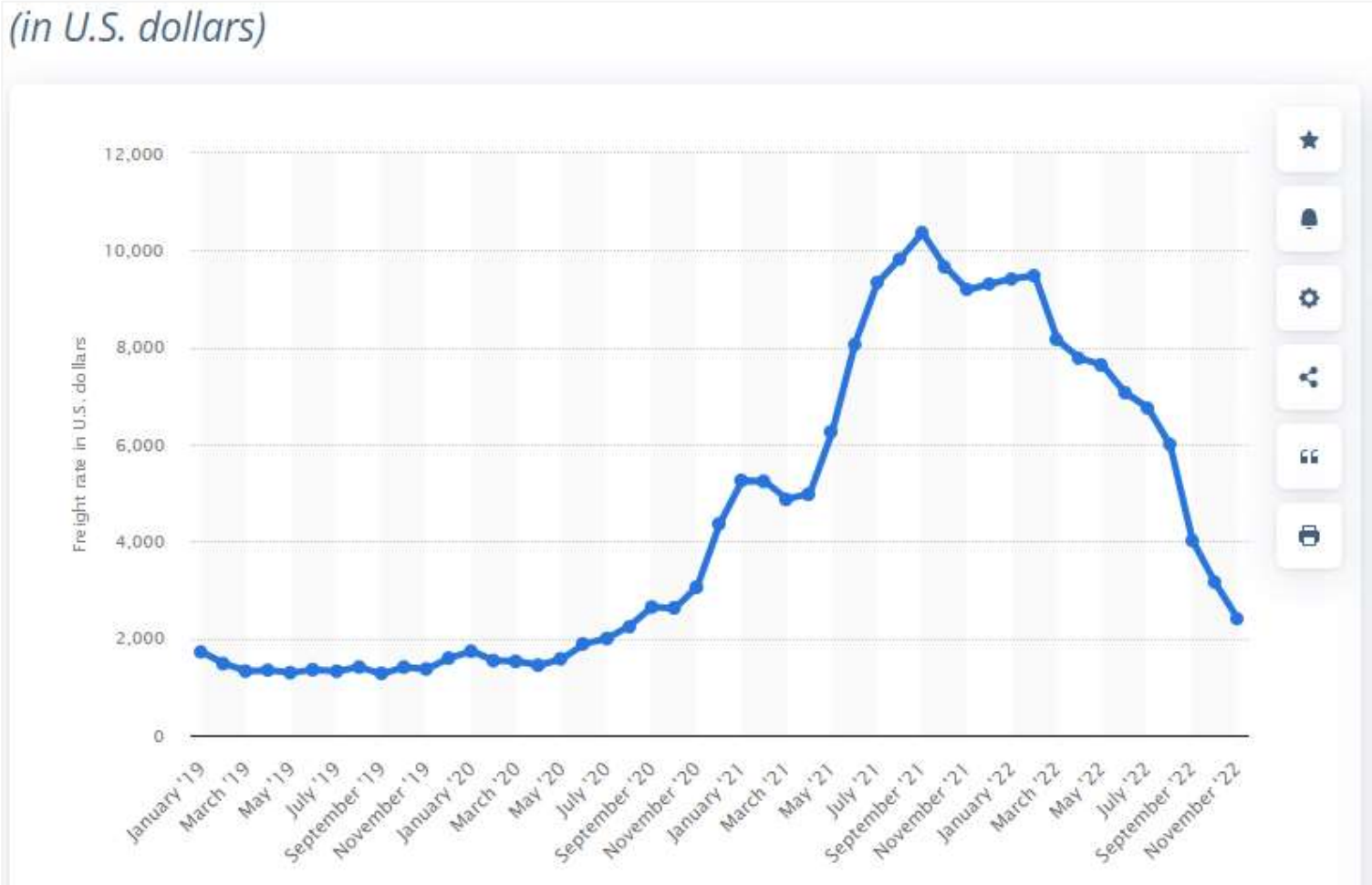
Mercateo Conference

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Attila Gulyás

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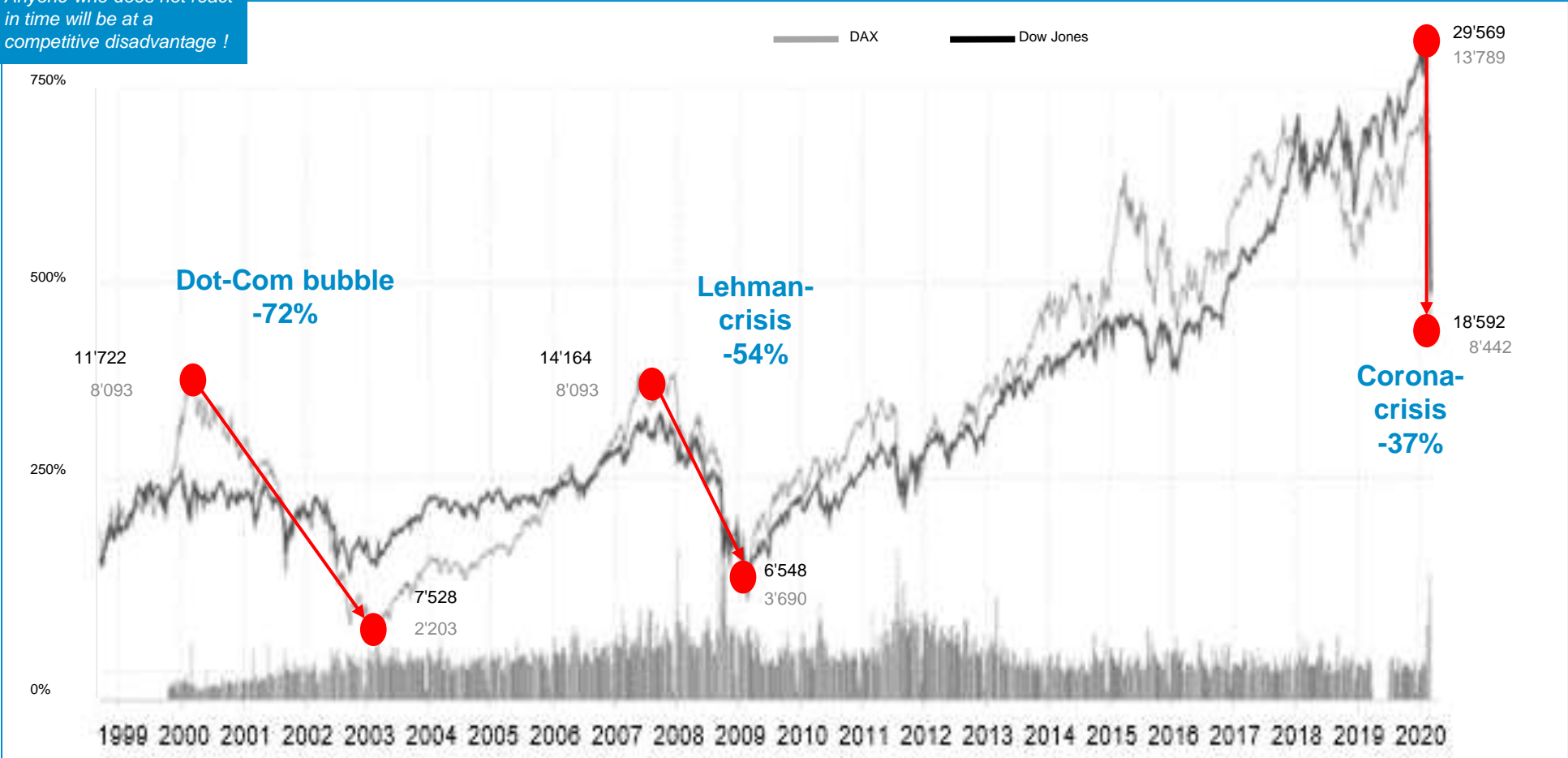
We live in a VUCA world

Global container freight rate index from January 2019 to November 2022



Recently we have already seen the different effects of crises, the last one ended not long ago

Anyone who does not react in time will be at a competitive disadvantage !



Quelle: Macrobond & Horvath Research

And it seems, we are in the next one right now

Inflation hits record high in Hungary last year

POLAND CZECH REPUBLIC SLOVAKIA HUNGARY ROMANIA SEE

13
Jan
2023



by Property Forum | [ECONOMY](#)

Consumer prices were 24.5% higher on average in December 2022 than a year earlier which is a new record, compared to the last decade. The highest price rises were measured for electricity, gas and other fuels as well as food over the last twelve months. Prices increased by 14.5% on average in 2022 compared to the previous year, Hungarian Central Statistical Office reports.

Latest news

- VGP records 18.4% hike of rental income in 2022
- Office space completion costs to rise in forthcoming years
- First Polish warehouse gets BREEAM Outstanding certificate
- CA Immo starts renovation of Saski Crescent in Warsaw
- GTC Hungary to use only clean energy from 2023
- KGAL reports strong results for 2022
- Hungarian fund management firm Diófa appoints new leader
- Colliers appoints Head of Workplace Advisory Services in Hungary
- Cube Office Park in Gdańsk gets a green makeover

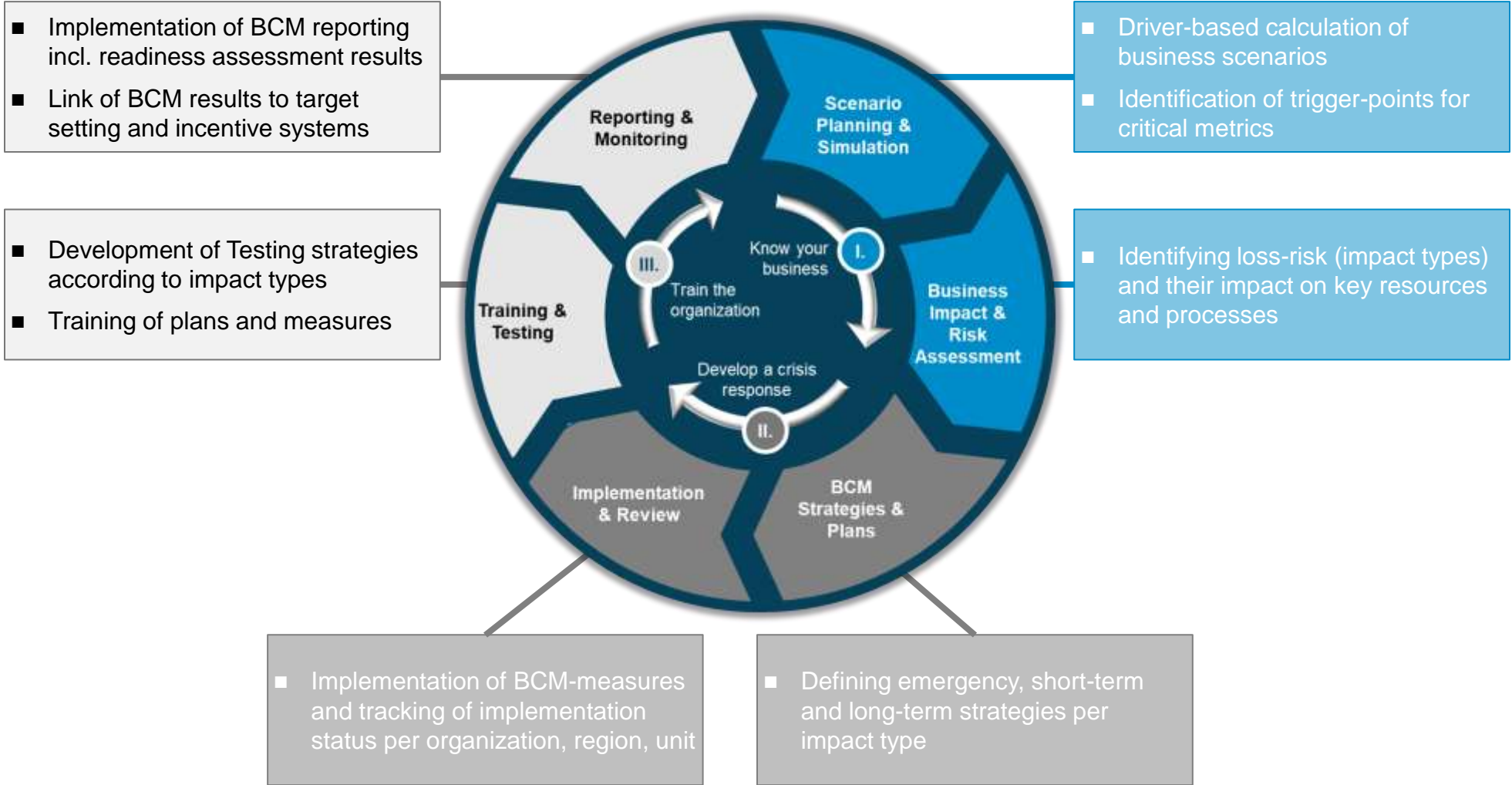
We asked ChapGPT, and found that even the machine knows ...



Business continuity planning has advantages for companies, especially in regards to scenario modeling and supply chain management. Scenario modeling allows companies to test their response and recovery strategies for potential disruptions, while effective supply chain management minimizes the impact of disruptions and ensures continued availability of necessary goods and services. These benefits help companies protect their operations and ensure business continuity.



The implementation of BCM follows a three-phase process starting with gaining a deep understanding of business



Scenario analysis integrated into SCM supports the identification of risk impacts on resources and processes



Data (ERP and other), e.g.

- Business needs
- Capacity data
- Cost data
- Product-level margin data
- BOM list
- Location data

Identifying risks and their impacts

- Supply chain network**
- Product portfolio**
- Service level**
- Processes**
- Inventory**

Building a model

- Selection of target variable(s)
- Incorporating risk impacts
- Taking into account elements of the value chain
- Other factors in the simulation e.g. assumptions, market information, demand, prices, etc.

Run business cases, scenarios and channel them into BCM

Forecasted value & measurement for uncertainty

Methodology results in the determination of...

- ...Critical indicators and areas
- ...Bottlenecks
- ...Their impact on the effectiveness of the organisation

...With particular attention to the following elements...

Capacities	Working capital
Costs	Service quality
Production volume	IT

It is always a task to strengthen the defending capability in business



Examples

Die identifizierten Handlungsfelder werden für die weitere Umsetzung bewertet und priorisiert

Problemlösungswertung identifizierter Handlungsfelder

Ansatzpunkte zur Weiterentwicklung

Logistik-SCM

Logistik-SCM-Organisation

Logistik-SCM-Controlling

IT-Prozesse und -Systeme

It is worth separating the things that are certain from the uncertain ones when making decisions



Donald Rumsfeld
former Secretary of Defense, USA

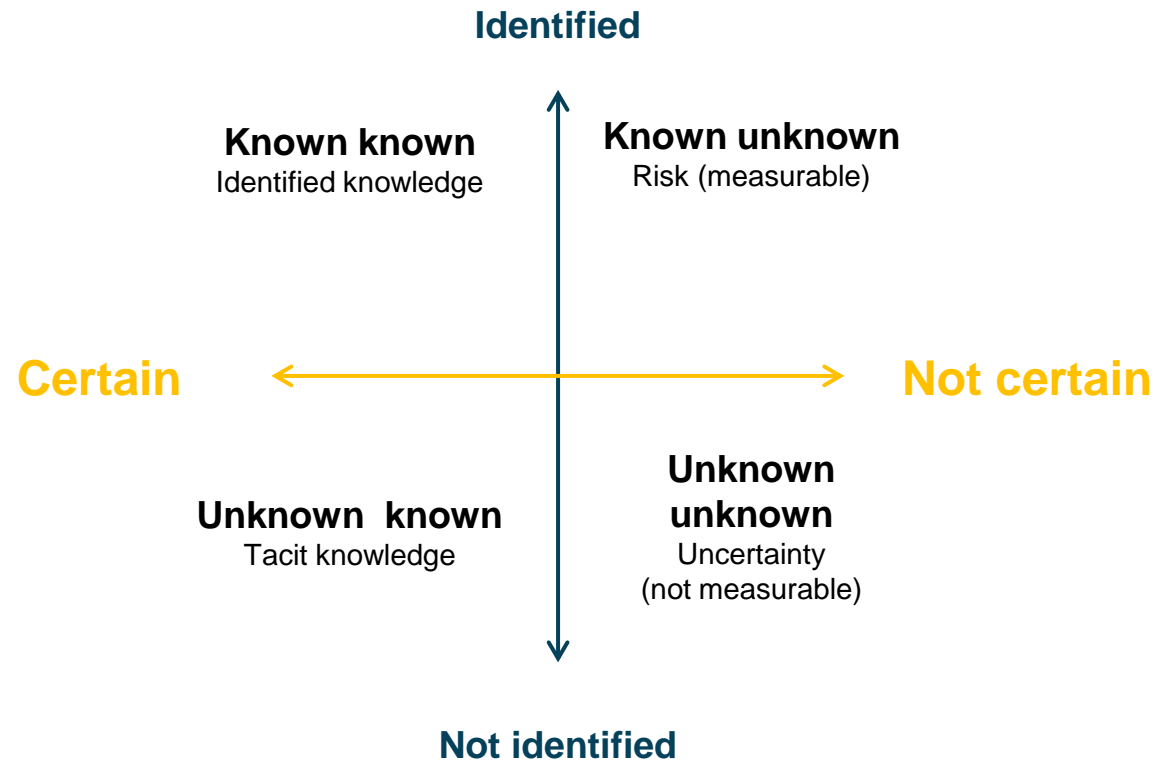
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Reports that say that something hasn't happened are always interesting to me, because as we know, there are **known knows**; there are things we know we know.

We also know there are **known unknowns**; that is to say we know there are some things we do not know.

But there are also **unknown unknowns**—the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tends to be the difficult ones.

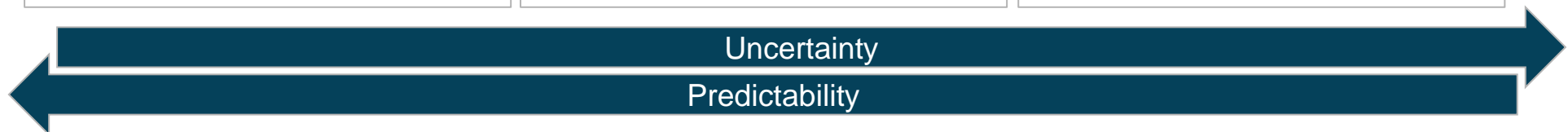
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There are things that can be predicted well and things that are not


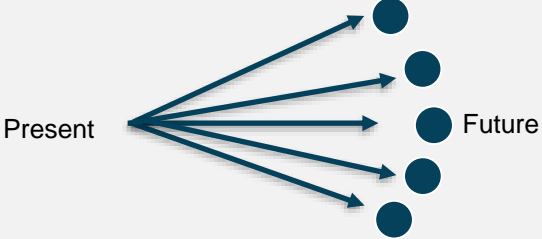
Levels of wildness *

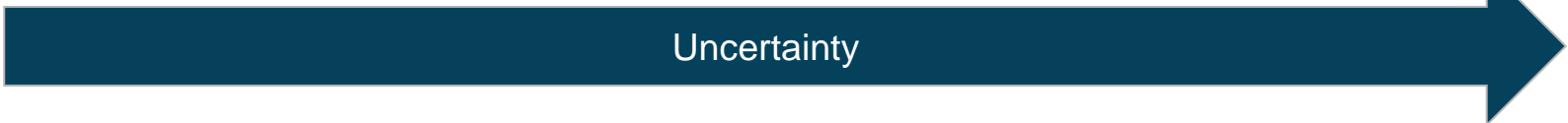
MEDIOCRISTAN	HALF-WILD WORLD	EXTREMISTAN
Well predictable events.	Maximum moderately predictable events.	Unpredictable events.
Only small deviations from the average. There is a typical value.	Perhaps there is a typical value.	There are huge deviations from the average. There is no typical value.
Examples		
<ul style="list-style-type: none"> ▪ Height distribution ▪ IQ distribution 	<ul style="list-style-type: none"> ▪ Market co-movements ▪ Website traffic 	<ul style="list-style-type: none"> ▪ Stock market crashes ▪ Innovations



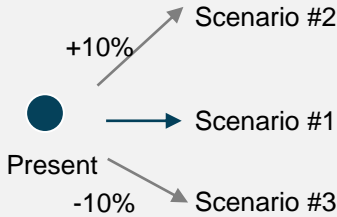
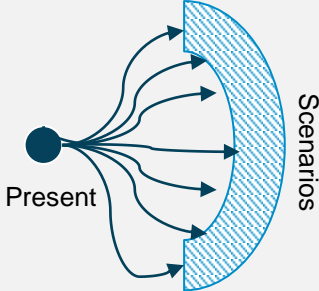
* Own editing based on László Mérő

Use forecasting approach for well predictable things but think is scenarios otherwise

	Forecasting	Scenario modelling
Input - output		
Target	Forecast the expected value.	Identify potential values and risks. It is a compass for decision-making.
Typical forward-looking horizon	Short distance	Medium / long distance
Typical decision level	Operative	Tactical / strategic
Nature of analysis	Fact-based	Narrative-based



Scenarios can be made by using deterministic and probabilistic modelling approaches

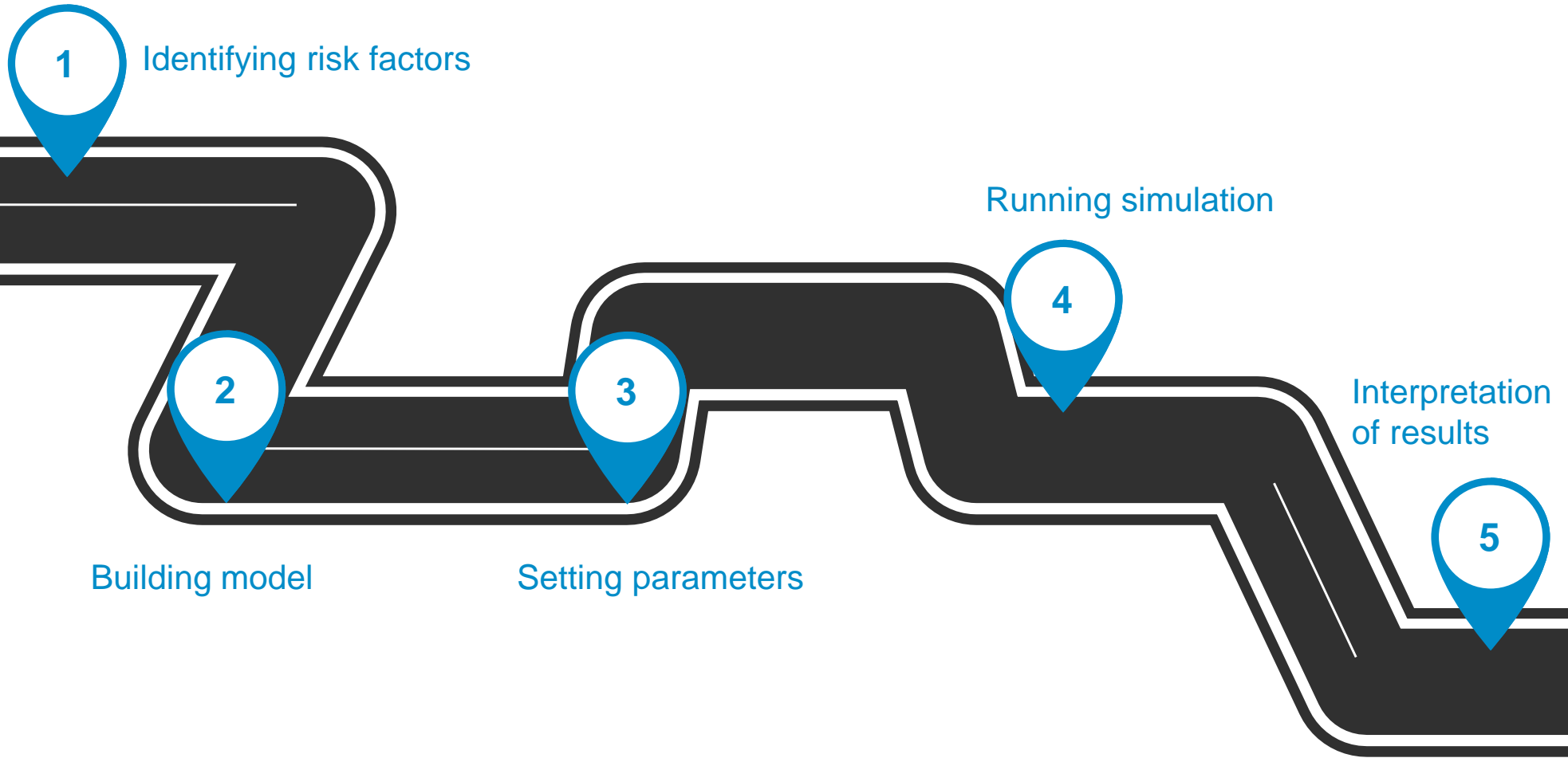
	Deterministic scenario modelling	Probabilistic scenario modelling
Input - output		
Number of scenarios	Some (usually 3-5)	Many (usually 10.000-100.000)
Model type	Deterministic and static	Stochastic and static / dynamic
The way of generating scenarios	Based on expert input, "what-if" approach	Using computer generated random numbers
Modelling complexity	For modelling not complex relationships	For modelling complex relationships
Application example	<ul style="list-style-type: none"> - Simulation of HR costs (HR area), - Simulation of utilities costs (non-production dependent) (CFO area) 	<ul style="list-style-type: none"> - Simulation of corporate cash flow (CFaR) (CFO area) - Simulation of the cost of raw materials of a product portfolio (Procurement)

Probabilistic scenario modelling demo in 5 steps

Use case

Let's simulate the **expected costs of raw materials** for a given product portfolio until the end of the year.

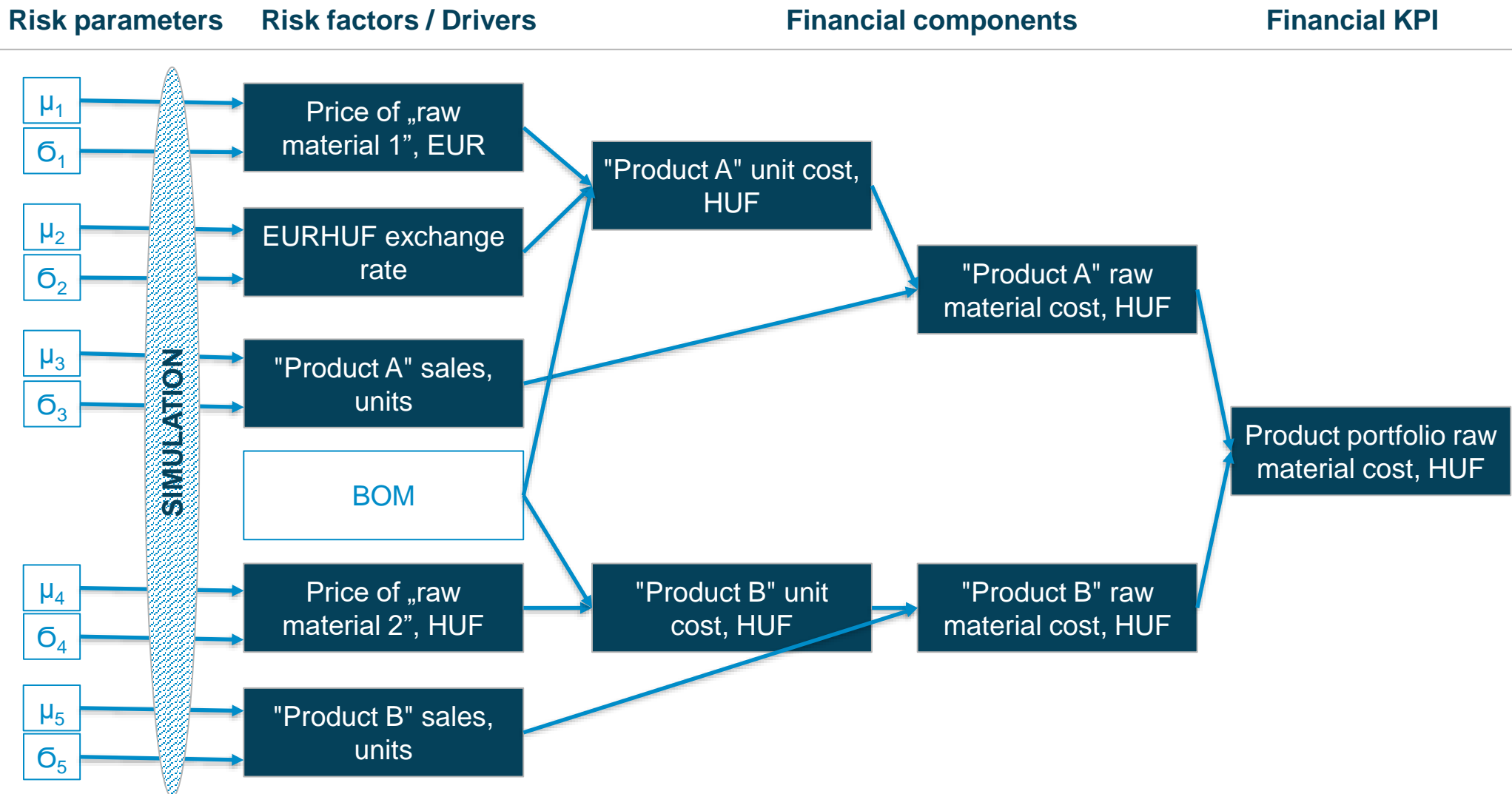
2 products account for 90% of the category, these are the ones we run the test on. The remaining 10% are tied to the simulated values.



Step 1: Identify risk factors by product

Cost factor	Risk factor 1	Risk factor 2	Risk factor 3
Product A	EURHUF exchange rate	Price of „raw material 1”, EUR	„Product A" sold quantity
Product B		Price of „raw material 2”, HUF	"Product B" sold quantity

Step 2: Build the model, which links risk factors to financial KPI



Step 3: Set the risk parameters



Inputs for setting parameters

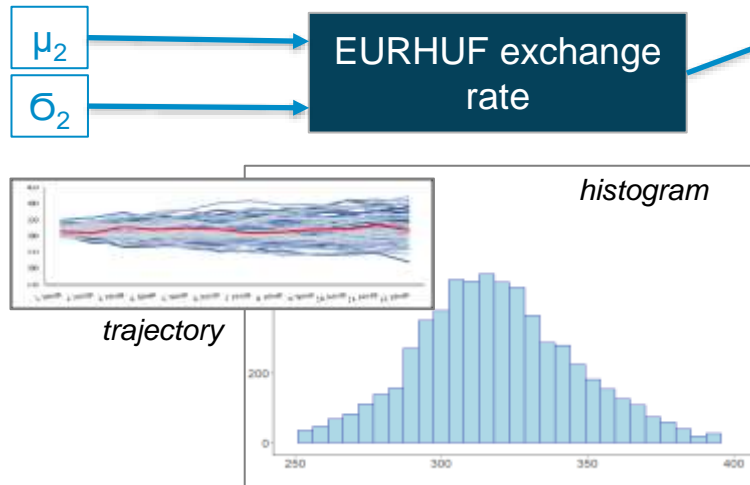
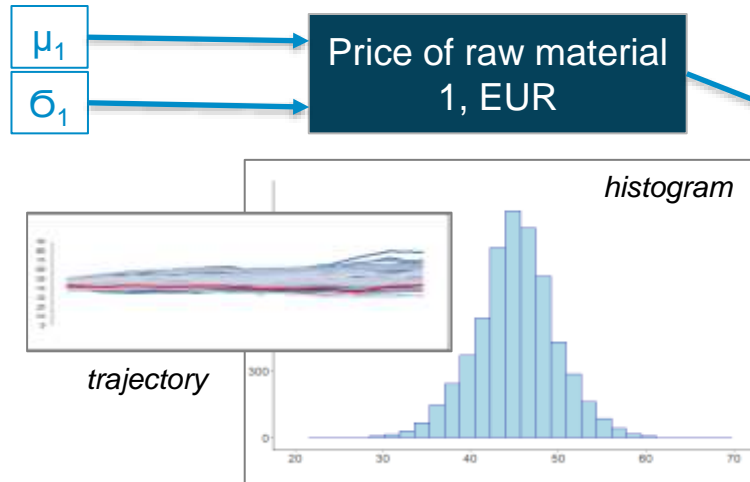
Risk parameters



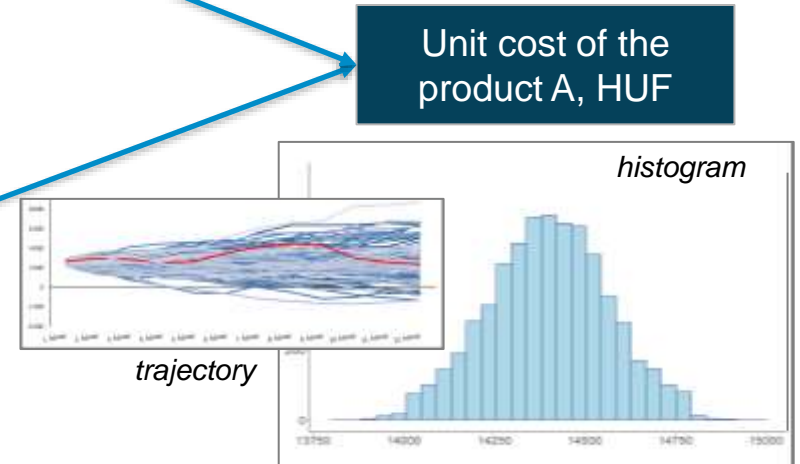
* Risk inputs can be provided by different methods, as well, than the one used in the example (e.g. on a probabilistic basis).

Step 4: Run the simulation

Trajectories and histograms of the results of 10,000 simulations

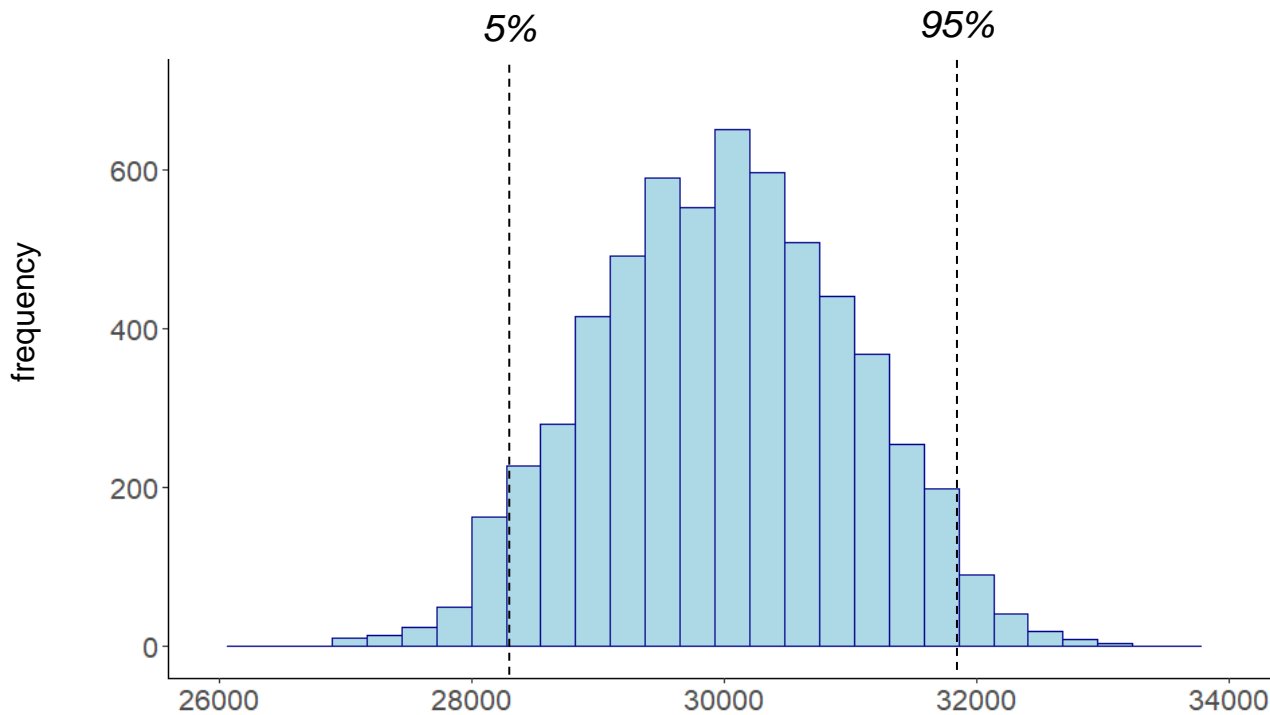


The risk factors reinforce each other.



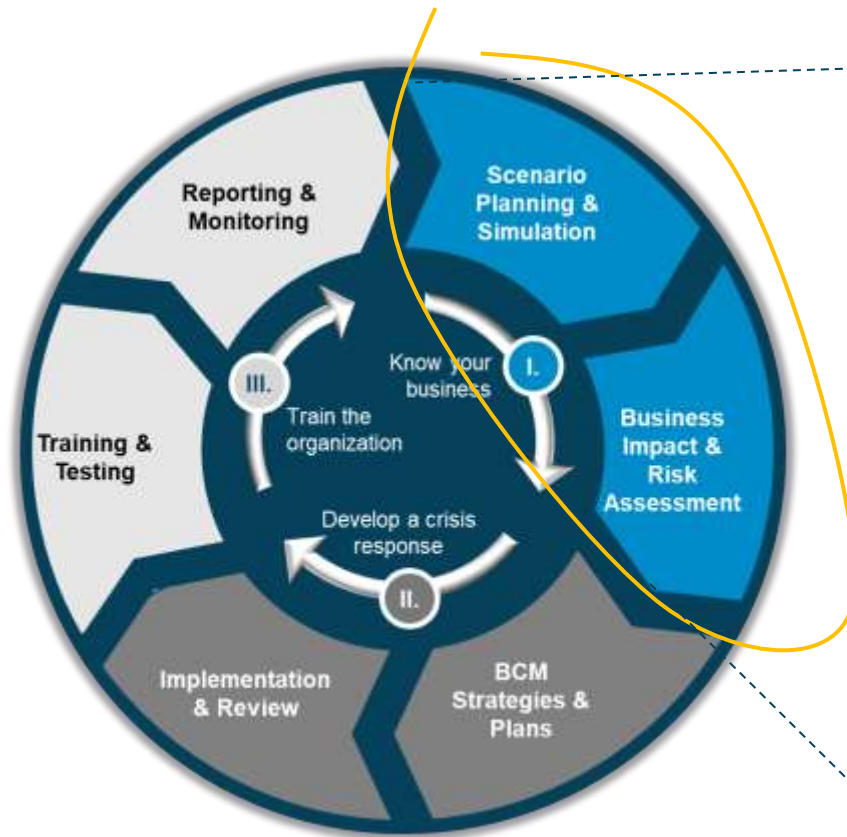
Step 5: Interpret the results

Best case	Realistic case	Worst case
There is a 5% probability that the cost will be below 28 billion HUF.	90 % probability that the cost will be between 28 and 32 billion HUF.	There is a 5% probability that the cost will be over 32 billion HUF.



Product portfolio raw material cost, million HUF

The implementation of BCM follows a three-phase process starting with gaining a deep understanding of business



Key steps in scenario modelling

- Identify risk factors
- Link risk factor to financial KPIs by building a model
- Set parameters of risk factors
- Run the simulation
- Evaluate the business impacts and the measured risks compared to your risk appetite

Contact us



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