Use of AMA for Risk Mitigation

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IOR OpRisk Forum

Köln, 16. Mai 2013

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Abstract and Contents

An Advanced OpRisk Model can help save regulatory capital. It may be imposed upon a complex firm by the regulators. It can help provide transparency and attribute risk cost within the organisation. **And it can provide an additional, quantitative basis for risk control and mitigation measures decisions.** These decisions will thus be able to tie in the cost of controls and mitigants with the potential risk capital cost and risk profile. Evidently, the model must be able to robustly and reliably include the effects of risk mitigating measures. The modeling must be based on a solid risk assessment, a thorough understanding of the effects of current or planned mitigating measures, and ideally be consistent with an overall **"risk convergence"** view over the whole relevant business.

- Risk mitigation and OpRisk quantification – overview
- Use of a model for exploring the use and impact of risk mitigation approaches
- Inclusion of risk mitigation in the model

Risk Mitigation

Accept
- Risk appetite
- Risk bearing capacity
- BCP

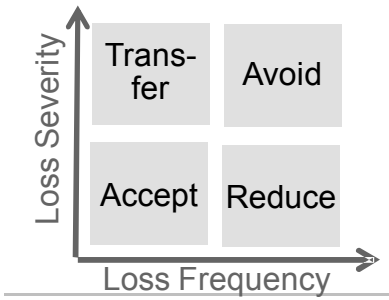
Reduce
- Implement controls
- Diversify

Avoid
- Restrict business
- Modify processes
- Outsource part of value chain

Transfer
- Outsource
- Insure
- Other (ART)

For all methods of Risk Mitigation:

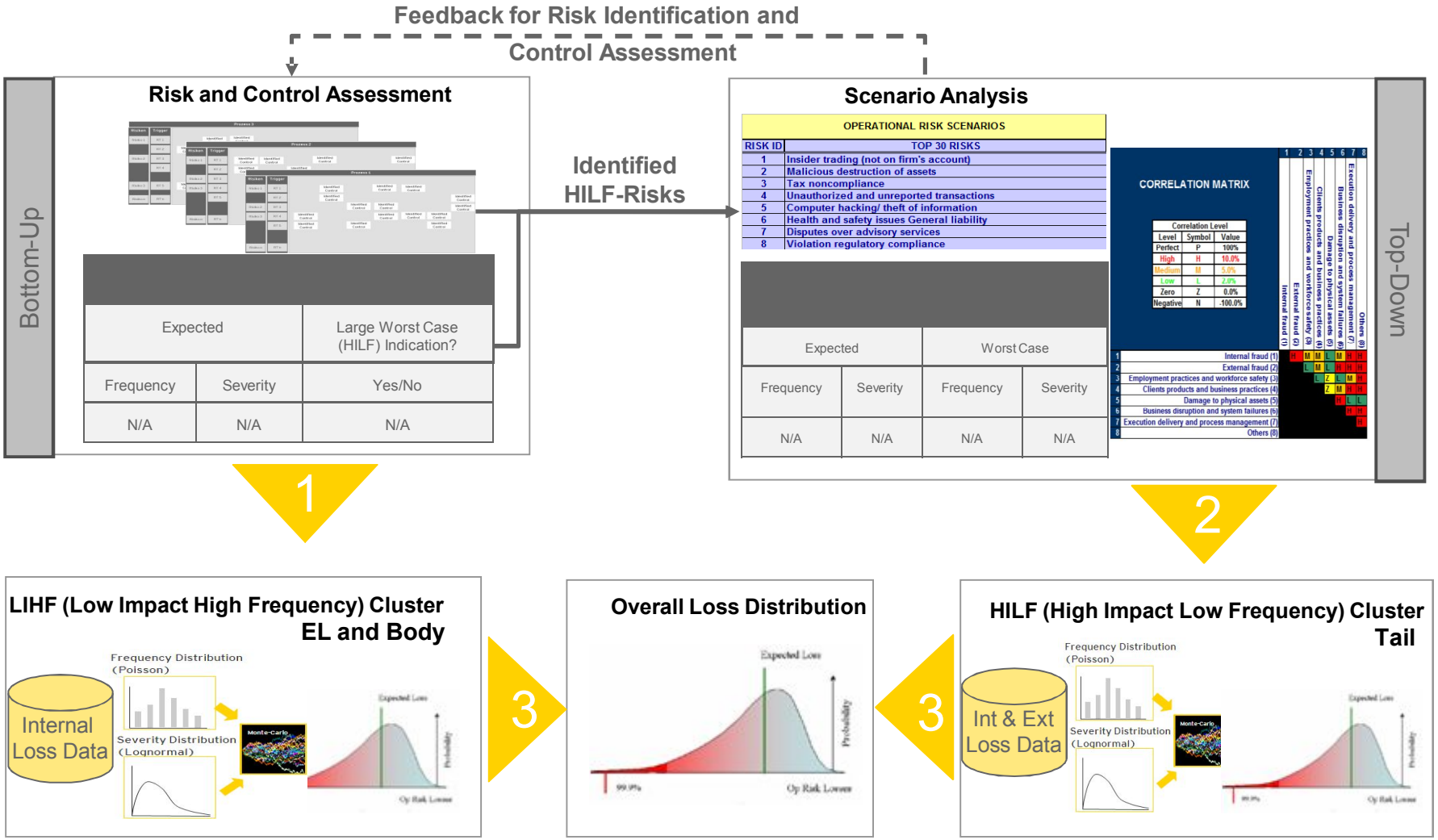
- Analyse Cost vs Benefits (cost is easier to determine than risk reduction benefit)
- Don’t be bound up in EL while your real intention is UL
- Consider additional operational and counterparty and reputational risks



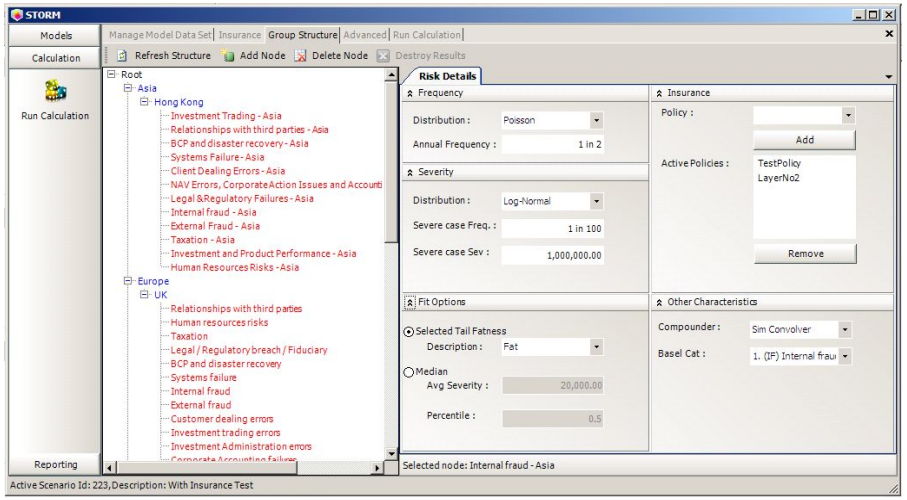
Risk Mitigation and the Model

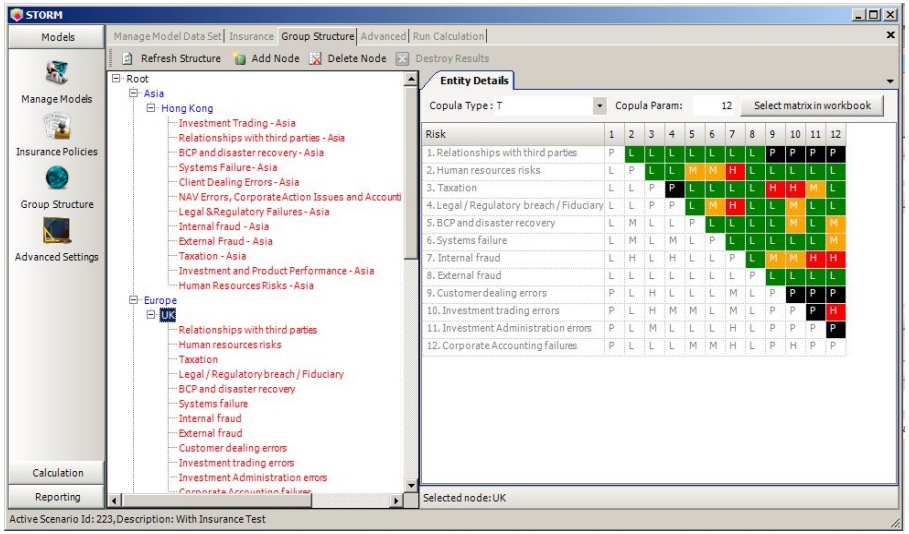
Accept	Reduce	Avoid	Transfer
Risk appetite Risk bearing capacity BCP	Implement controls Diversify	Restrict business Modify processes Outsource part of value chain	Outsource Insure Other (ART)
The model will yield the loss distribution and corresponding risk capital, including attribution to BLs	The model will yield the benefits from controls and diversification (must input data on controls and correlations)	The model can help to quantify the effects – if set up appropriately	The model can include insurance and thus enable impact analysis; in principle, ART can also be modeled

Elements of OR Model: RCSA and Scenarios



EY STORM:
Statistical Tool for OR Modeling





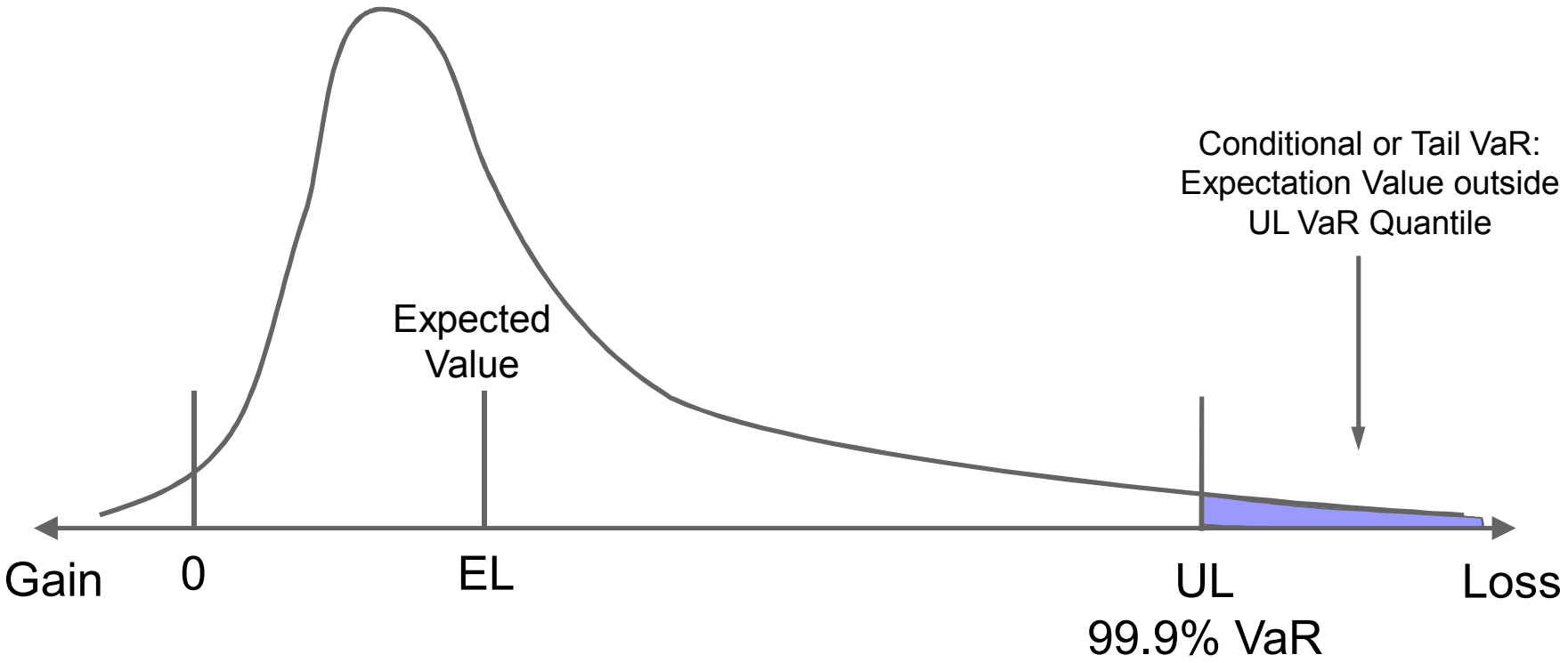
Key Features

A practical multi-purpose operational risk quantification framework, developed for our clients:

- Effective method to combine **external consortium data** with internal scenario assessment to produce a robust capital calculation with limited internal data
- **Simple and user friendly graphical tool** for creating, validating and managing scenarios, by translating them into loss distributions and facilitating a meaningful comparison with reference data
- **Aggregation** of loss distributions across risk types, and business unit based on a range of widely used copula models
- **Allocation of diversified capital** (net and gross of insurance) back to organizational unit and risk type based on contributions to VaR.
- **Comprehensive reporting** of diversified and undiversified capital allocation at various levels, as well as useful statistics, e.g. around the effectiveness of insurance

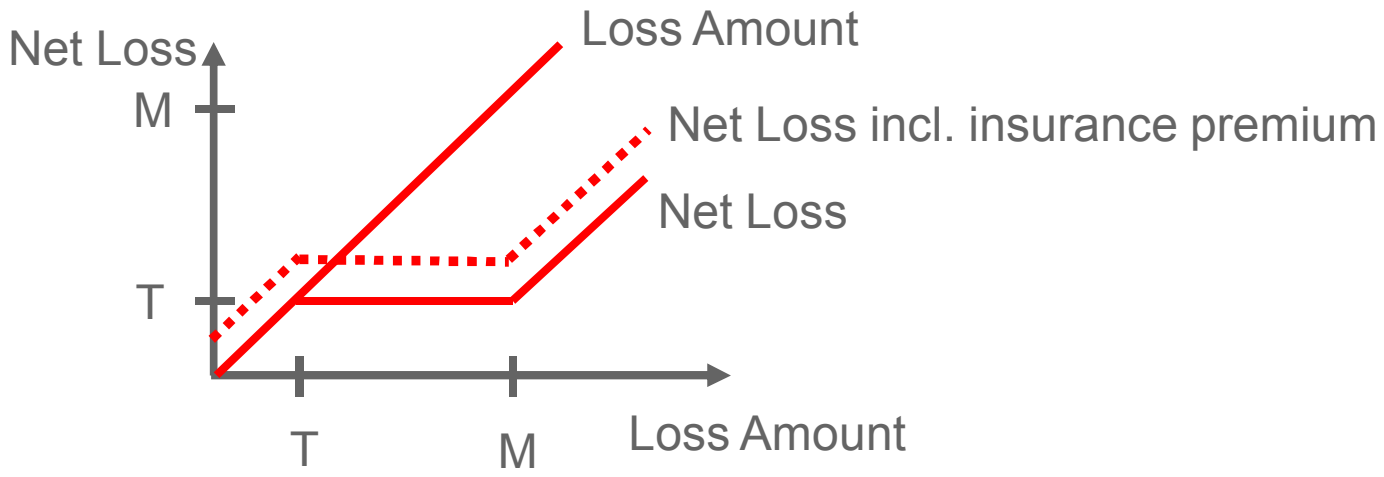
Model Output: Yearly Loss Distribution

– not to scale –



Insurance Payoff Profile

- In the simulation, should consider
  - (i) payment threshold amount (T, retention),
  - (ii) maximum insurance payment amount (M),
  - (iii) cost of insurance (premium, P, greater than E[payment]),
  - (iv) possibly cost of recovery (e.g. legal dispute), cost of future insurance,
- and relate these to your EL and UL.



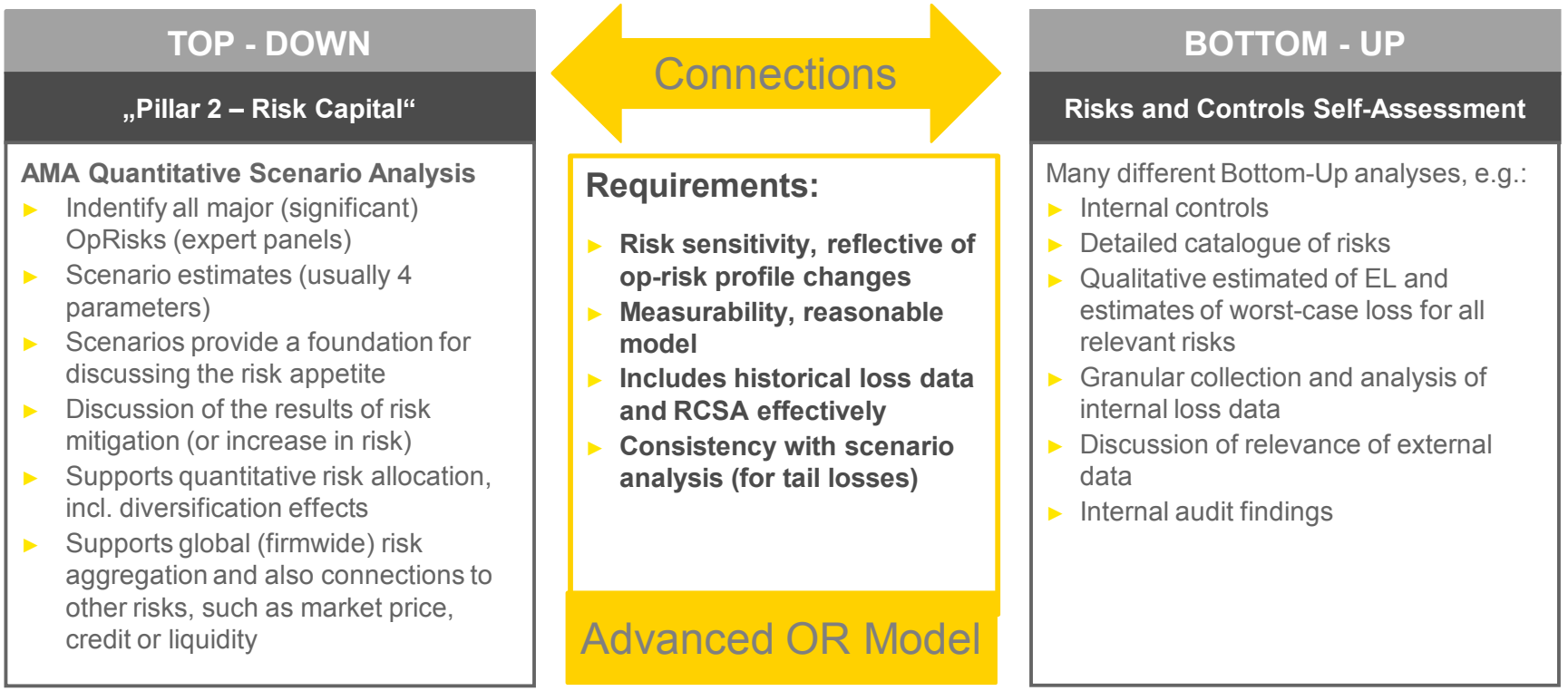
Include Insurances in the Model

- Superimpose the insurance payoff function on the loss estimation in your LDA and/or scenario based simulation
- Tricky points:
  - Timing and cumulation of losses in the simulation
  - Specifics of the insurance contract(s): which losses are insured and how is the maximum payment reached; are there break events (e.g. in case of new supervisory measures or insolvency of insured institution); how do multiple insurances „cooperate“
  - Timeframe of insurance contract(s): until when is the contract valid, will it be renegotiated, is renewal to be expected
  - Payment uncertaincies (*e.g.* delay of payments, insolvency of insurer, contract cancellation clauses, legal risks)
  - Regulatory requirements (*e.g.* linkage between insurer and insured company may not be material, cap at 20% or less)

Include New Controls in the Model

- Adapt the internal data for LDA
  (adapting the external data is not really possible, it is assumed these are gross data)
- Include new controls (or generally, changes in processes or business) in RCSA and in scenarios estimation, best through individual re-estimation with new controls informed expert judgment
- Possibly some of this rapidly possible through BEICF setup (business environment and internal control factors model inputs)

Consistency of Mitigation Inclusion



Key Points on AMA and Risk Mitigation

- Your model is only as good as the quality of the input, as well as how accurately the model describes your particular situation / business processes
- Some of the benefits of AMA lie in the processes around setting up the model, providing, consolidating and validating the data
- The model will make key risk drivers transparent and quantifiable (important input to this are good scenario self-assessments)
- The model will point out interrelations between events and mitigants
- Careful: Correlations are an input to the model, not an output
- Is it worth the effort?
  What are the project costs, what are the benefits in terms of external and internal reputation of the ORM unit and acceptance of OpRisk figures and capital allocation, how to measure the benefit of all prevented OpRisk losses

Thank you for your interest

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