

Task 1.

- Describe briefly a decision-making problem where you are faced with exogenous uncertainties.
 - Slides 21-22 but way simpler, 3-5 investment projects (actions) and 3-5 scenarios
 - Remember to explain why the scenarios could affect the actions

A Healthcare company wants to know which projects to include in their portfolio of investments.

j	Action title	GDPR requirements change	A pandemic starts	Weak supply of nurses or doctors
		$x^j(s_1)$	$x^j(s_2)$	$x^j(s_3)$
1	Demand prediction	9	3	6
2	Mobile app development	3	7	7
3	Expand to new areas	8	6	3

Why are some of the values for some projects significantly decreased in certain scenarios?

- GDPR requirements changing could be a challenge/obstacle for mobile app development. Mobile apps in healthcare are usually less safe in terms of data, thus everything that is done in mobile setting must be under high scrutiny. This could in worst case lead to not being able to do the said projects at all.
- A pandemic would make demand prediction quite hard/impossible due to increased uncertainty. This can lead to quite much worse outcomes in regard to the value the prediction demand can provide. Also, in the scenario where the supply of nurses/doctors is low, the value of being able to predict demand can be hindered. Though, this is always not the case, as with good demand prediction they company could more accurately assign nurses/doctors to smooth out the demand peaks.
- A weak supply of nurses or doctors would make expanding to new areas harder, as without supply the demand can be hard to meet.

Task 2.

- List at least three (3) reasons why the framework should be used in project portfolio selection
 - There are multiple good reasons listed in the paper

Reasons for using this framework:

- Highly interactive method, and it can be used to show consistencies and progress in the decision makers information cycle.
- The concepts of non-dominated action portfolios and (incomplete) ordinal information on scenario probabilities could be readily explained to managers and experts without a strong mathematical background.
- Illustrations we saw in the presentation were helpful in communicating how the incomplete information on scenario probabilities affects the action specific decision recommendation.

4. Takes into account the risk preferences and probabilities even if no complete information is available.
5. The framework can also utilise the specification of risk constraints, e.g. CVaR or modified CVaR shown in the paper.