

## On Consequences of Awareness of Unknown Alternatives in Decision Making in Business Environments

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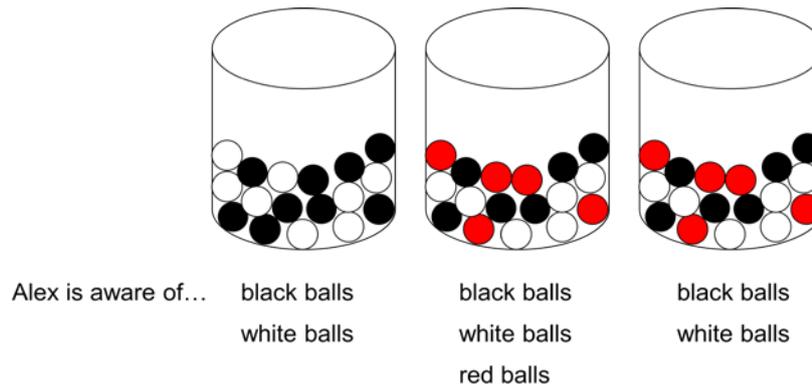
**Abstract.** The assessment of alternatives and likelihoods of consequences of decisions requires time, effort and experience in daily and business lives whereby limited information processing capabilities hinder information from reaching human brains. As key factor of the Conscious Competence Model, people are seldom aware of their lacking consciousness putatively leading to unintended consequences of actions. With conscious and unconscious competence or incompetence, the model finds people to be aware of their skills only to a certain degree. Discussing insights from decision theory, this study examines if decision outcome is improvable by converting unconsciousness into consciousness and investigates the measures that can help performing this change of awareness.

**Keywords:** unconsciousness, decision making, unknown alternatives, business decisions

### 1. The Conscious Competence Model

Decision making is a natural human activity describing the process of human thoughts and reactions reflecting past and possible future events. For about 300 years, the process of decision making has been multilaterally researched within different scientific disciplines (Oliveira 2007). Aiming at the evaluation of putative consequences of options (Oliveira 2007), some scientists assume decisions to be consciously controlled and fully rational (Newell & Shanks 2014). However, researchers have shown that people are quite limited in their scopes of view not always acting entirely rational (Feinberg 2005; Nielsen & Sebald 2011). As many of our business decisions such as time management, prioritization of tasks or planning of projects require time and effort, the complex and precise elucidation of facts is an enormous task for human minds (Dijksterhuis et al. 2006). Therefore, it is not surprising that only a small fraction of information reaches the conscious minds (Hilbig et al. 2010; Wunderle 2013).

Facing unknown facts due to the missing information processing capabilities of individuals, decisions can result in unintended and unpredictable consequences (Finkelstein et al. 2009; Foote et al. 2012) as not all relevant factors of a decision scenario are taken into account (Halpern 2001). Focusing on these rather unaware aspects of decisions, Li (2008a) explores unawareness and its effects providing insights about consequences that might result from unknown aspects within decision making processes. The examined error susceptibility of choices under unawareness is demonstrated in figure 1 emphasizing the discrepancy between awareness (of proband Alex) and the real determinant of a scenario (white, black and red balls).



**Figure 1:** Consequences of Unawareness (own figure in accordance with Li (2008a)).

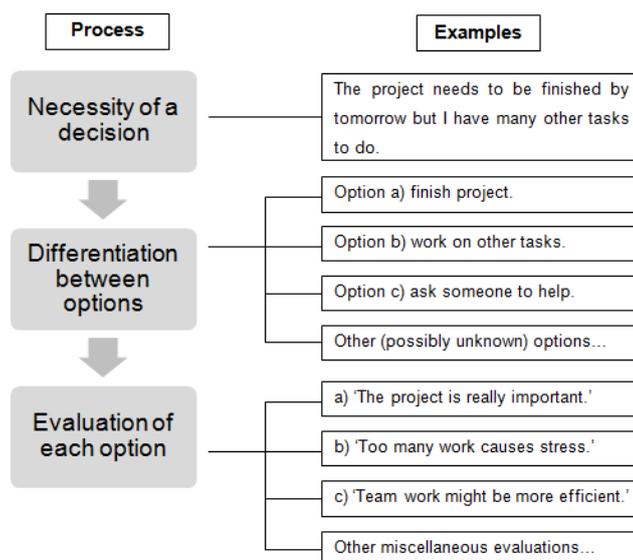
*‘... [I]magine there are red, black and white balls in an urn, but Alex is unaware of the red balls. Although Alex cannot bet on either “the ball is red” or “the ball is not red,” he could, and presumably would, bet on the event “the ball is either black or white,” (Li 2008a).*

The presented scenario from Li (2008a) points out the importance of awareness in terms of decision making. Supporting these investigations, table 1 shows the individual levels of awareness of competence that people can pass. These stages – also known as four stages of learning – describe different phases of knowledge and awareness from unconscious incompetence to conscious competence.

**Table 1:** The Conscious Competence Model (own table in accordance with Robinson (1974)).

	<b>Incompetence</b>	<b>Competence</b>
<b>Unconscious</b>	1. People do not know how to do something – being unaware of their incompetence.	4. The skills have become natural to people – they are not even conscious about their competence.
<b>Conscious</b>	2. People know their incompetence but still do not know how to do something.	3. People improve their skills and are aware of their new learned competences.

Even though the structure and environment of decision scenarios is quite complex, the general process of decision making – shown in figure 2 – is simply delineated by a three-step approach demonstrating the realization of possible options as first step (Kalra et al. 2014). The second step considers the impact of cognitive skills with the identification of possible courses of actions. Although subjects with lower cognitive skills are supposed to act more intuitively, it is also assumed that both individuals with low and high cognitive skills have ‘probability skills’. When considering economic decision making, people never seem to be worse off with more alternatives (Besedes et al. 2009) though Kahneman (2012) describes too many options as a critical event fatiguing the human brain. Finalizing the decision making process, all identified options are to be evaluated according to very individual standards of decision-makers.



**Figure 2:** *The General Decision Making Process (own figure in accordance with Kalra et al. (2014)).*

Beside the evaluation of individual options within decision making processes, deciders have to estimate probabilities of future events to handle uncertainty consisting of unknown options, consistencies and consequences in a more and more globalized and complex (business) environment (Binswanger & Salm 2013; Bracha & Brown 2010; Karelaia & Reb 2014; von Neumann & Morgenstern 1947). Exploring uncertainty, many scientists use the Knightian definitions of risk and ambiguity as base for their own researches (see e.g. Bergheim 2014; Knight 1921). Including situations where individuals are confronted with problems in choosing an appropriate action, uncertainty is clearly defined providing no unique outcome of a decision. Even though people know the determinants of a decision and its effects, they do not know all probabilistic structures with certainty (Dominiak 2010). Although risky situations, on contrast, are characterized by assessable probabilistic structures, individuals have some freedom in choosing their beliefs about likelihoods of happenings (Bracha & Brown 2010). People thereby estimate and calculate the expected payoffs and use these as decision criteria for their choices (Bergheim 2014). The attitudes that people possess towards ambiguity are not always stable and constant – they are likely to fluctuate (Lahno 2014).

## 2. Turning Unawareness into Awareness

When exploring unawareness, not only the handling but also the modifications of unconsciousness play an important role. In this context, the occurring question centers the investigation of measures that may lead to the awareness of a subject. Only some interventions seem to overcome unawareness as it is not possible for people to simply ‘think’ unknown options. Even if it is not possible to simply recognize unaware alternatives taking hitherto unknown aspects into account, it is potential to reason about the mere fact that one is unconscious (Walker 2011). The awareness of events can be achieved by different ways. If a decider knows about the awareness of another one, she is equally aware of the alternative pointed out by a simple example by Feinberg (2005):

*'If Alice is aware that Bob is aware of... [a planned bidding], then Alice must be aware of the ..[bidding] as well...'* (Feinberg 2005)

Modifying unawareness of individuals, awareness can be achieved if an individual knows an aspect or is informed about her lack of knowledge (Li 2008a; Li 2008b; Modica & Rusticchini 1994; Modica & Rusticchini 1999). An update of the own level of awareness can evoke based on 'messages' that contain new – heretofore unknown – information. People will then automatically try to include these new insights into their knowledge thereby expanding their levels of awareness (Nielsen & Sebald 2011; Schipper 2012). A similar process of gaining enhanced awareness proceeds if people reflect upon the strategies of others. The collected information will be adapted to the own strategy of a subject and thereby converts unawareness into awareness (Oliveira 2007). This approach is closely related to the simple observation of events – likewise turning unknown into known aspects – although some researchers denote this intervention to be the only one leading to awareness (Feinberg 2004). The mere observation of events can convincingly lead to knowledge of aspects. Unconsciousness is hence something that can barely be removed without any external help. However, third parties can deliberately influence a decider's level of awareness (Schipper 2012) by showing her – or don't showing her – new alternatives.

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Gesellschaft für  
Arbeitswissenschaft e.V.

**ARBEIT(s).WISSEN.SCHAF(F)T**  
Grundlage für Management & Kompetenzentwicklung

64. Kongress der  
Gesellschaft für Arbeitswissenschaft

FOM Hochschule für  
Oekonomie & Management gGmbH

21. – 23. Februar 2018

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**GfA Press**

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**Bericht zum 64. Arbeitswissenschaftlichen Kongress vom 21. – 23. Februar 2018**

**FOM Hochschule für Oekonomie & Management**

Herausgegeben von der Gesellschaft für Arbeitswissenschaft e.V.

Dortmund: GfA-Press, 2018

ISBN 978-3-936804-24-9

NE: Gesellschaft für Arbeitswissenschaft: Jahresdokumentation

Als Manuskript zusammengestellt. Diese Jahresdokumentation ist nur in der Geschäftsstelle erhältlich.

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**Screen design und Umsetzung**

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