

Trust-Building Risk Communication in the Post-Trust Era

On the Importance of Accountable Risk
Communication for the GM Food Producing Industry

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1. Introduction

In the 1990s, several food safety scares in many Western countries caused the public to lose confidence in the ability of governmental food safety regulators to effectively prevent similar events from occurring in the future (Eldridge et al., 1998; Gaskell & Bauer, 2001; Poortinga & Pidgeon, 2005; Gaskell et al., 2003). This profound loss of confidence in public food safety regulators signalled a change in the European societal climate away from the trust-era toward the post-trust era¹ (cf. Frewer et al., 1996; Peters et al., 1997; Frewer et al., 1998; Hunt & Frewer, 2001; Gaskell et al., 2003; Löfstedt, 2004; Rosati & Saba, 2004; Löfstedt, 2005). Within this new societal climate stakeholders² no longer blindly rely on regulators but instead themselves demand insights into the regulatory process to see that they are not being exposed to any unacceptable risks. To better accommodate this wish, a new regulatory model³ has emerged, which is characterised by horizontal relationships among the various stakeholders and a dispersion of responsibilities (Majone & Everson, 2001; Löfstedt, 2004; van Asselt & Vos, 2008; Dutch Scientific Council for Government Policy, 2009; Löfstedt et al., 2011; Renn et al., 2011; Drott et al., 2012). Drott et al. (2012), however, argue that this new and complex institutional arrangement is merely able to guarantee piecemeal accountability of the regulatory processes. For the novel food producing industry, this, coupled with the perceived inability of governments to effectively regulate risks, has the effect that it can no longer derive its trust indirectly from the trust in government agencies or the overall institutional arrangements.

This situation is all the more important in the GM food³ sector, which particularly in Europe suffers from substantial trust problems (Gaskell & Bauer, 2001; Poortinga

1 While in today's post-trust era, most regulators as well as the entire regulatory system have lost the trust of the public in many European countries, there continue to be some exceptions. For instance, government regulators and 2 Stakeholders here are defined as "[persons] with an interest or concern in something" (Oxford Dictionary, 2012a). In the post-trust society, this group primarily consists of the government, related businesses, non-governmental organisations (NGOs), the media and the general public, more specifically of consumers and clients. See also Regester and Larkin (2005, Figure 2.1.) for an illustrative overview over relevant stakeholders.

2 It is debatable if this can be referred to as a model in the strict sense of the concept. In this context, a model is "a simplified description ... of a system to assist ... predictions" (Oxford Dictionary, 2012b). Renn et. al (2011) refer to it as the 'risk governance framework', thus avoiding the term model. 'Framework' is defined as the basic structure of a system (Oxford Dictionary, 2012c). However, the degree of concretisation or simplification is a question of margin. For our purposes, for the ease of our argumentation, we ignore this question henceforth and stick to the term 'model'.

3 'Genetically modified food' means food containing, consisting of or produced from GMOs"; 'genetically modified organism' or 'GMO' means a genetically modified organism as defined in Article 2(2) of Directive 2001/18/EC, excluding organisms obtained through the techniques of genetic modification listed in Annex I B to Directive 2001/18/EC (Art. 2(6) & Art. 2(5) of Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed).

& Pidgeon, 2005; Gaskell, 2007). More specifically, the GM food sector has recently been described as the “[a]chilles’ heel of biotechnology”⁴ (Gaskell et al., 2010, p. 7) and correspondingly is still targeted by large anti-GM food demonstrations. These protests, furthermore, receive relatively strong media coverage, which in turn further amplifies the critical perception of the public, which at best feels “uneasy” about GM food (ibid.). This stance also has substantial implications for the GM food producing industry, as, for instance, BASF - one of two firms that possess GM crops authorised for cultivation in the European Union - recently declared its withdrawal from the European market due to a persistent “lack of acceptance for this technology in many parts of Europe” (Keating, 2012). BASF’s withdrawal from the European market once more illustrates that European consumers seem to distrust the GMO producers as well as the institutional arrangements, which are in place to assure them of the products’ safety.

In light of this, we argue that GM food producers, whose business relies heavily on the trust of their stakeholders,⁵ have to take on a more proactive role to regain the lost trust. It is within this context that we seek to investigate how this very task may be accomplished. In more detail, we attempt to determine *how GMO producers can communicate their products risks so as to re-gain the trust of the public in today’s post-trust era*. In this context, we hypothesise that *accountable risk communication can potentially help GMO producers in building a trust relationship with the public*. We framed the term *accountable risk communication* to allude to the fact that GMO producers should communicate the risks of their products to the public in a *transparent, inclusive* as well as *responsive* manner.

Given this focus, the paper is centred on the topic of trust in risk communication. In the first section of this paper, we provide a theoretical framework focused on three parts. We commence by firstly conceptualising trust in the context of risk communication. In so doing, we provide a working definition of trust and investigate the determinants of trust, in particular in the case when business has the role of a risk communicator.⁶ Secondly, we conceptualise accountability and introduce the concept of ‘*accountable risk communication*’. Thirdly, we illustrate a link between ‘*accountable risk communication*’ and trust in the communicator. It is from this theoretical discussion that we derive our central

4 Whereas fifty-three percent of Europeans thought that biotechnology and genetic engineering have a positive effect, only twenty-three percent thought the same of GM food products (Gaskell et al., 2010, p. 16 & p. 37).

5 Otherwise a lack of trust can result in increased inspections by risk assessment agencies, risk amplification by the media, and fewer purchases by consumers and customers.

6 Throughout the paper, we will assume the perspective of business (i.e. the GMO producer or risk producer) as risk communicator. Hence, determinants of trust will be attuned to the specific case of business.

hypothesis outlined above. In addition, we conceive of an evaluation tool that can be used to assess the accountability of GMO producers' risk communication. In the second section of this paper, we present an empirical case study that adopts this theoretical framework to assess in how far the GM food producer Monsanto Company communicates risks of its GM food products in an accountable manner. These cases allow us to see whether our model can be applied to real-life examples of risk communication and to see whether there is a correlation with trust. Using the case study we, moreover, intend to illustrate the relevance of *accountable risk communication* for the GM food producing industry.

2. Towards a Trust-Building Risk Communication: A Framework for Business

We depart from the assumption that business' main interest is to make profits. In order to attain this goal, business needs to sell their products. In the field of GM food products, consumers have to be assured that they are not exposed to unacceptable levels of risk. Therefore, risk communication is crucial for the GM food producing industry, as it impacts on consumers' decisions on whether to accept or reject genetically modified food products. However, it is a consistent finding that risk communication will not be effective if the communication source is not trusted by the receiver (Slovic, 1993; Frewer et al., 1996; Löftstedt, 2006). Hence, trust is indispensable for business if it effectively wants to communicate that their GM products only feature acceptable levels of risks. A significant amount of research has already been conducted to illustrate the significant and positive correlation of trust in institutions responsible for managing risks (not only related to GM food) and the acceptability of risks on part of the wider public (Pijawka & Mushkatel, 1992; Bord & O'Connor, 1992; Flynn et al., 1992; Freudenburg, 1993; Jungermann et al., 1996; Siegrist, 1999; Siegrist et al., 2000; Poortinga & Pidgeon, 2005). The general consensus is that the causal relationship runs from trust to acceptability of risks.⁷ As already outlined in the introduction, business is faced with the problem that in wide parts of the Western

7 However, this consensus has been challenged by Eiser et al. (2002) who found empirical evidence that acceptability of risk can also be the determinant of trust, not the result of trust. This reversed causality is referred to as "associationist view of trust" (Eiser, 1994 quoted in Poortinga & Pidgeon, 2005). The evidence is, however, mixed; some cases affirm the associationist view while others confirm the old consensus (cf. Eiser et al., 2002). Poortinga and Pidgeon (2005) provide additional evidence for Eiser's associationist view. However, they also cannot falsify the consensus view that trust causes acceptability of risks.

world, public trust in industry has declined (Frewer et al., 1996; Peters et al., 1996; Hunt & Frewer, 2001; Gaskell et al., 2003; Kjaernes, 2004; Rosati & Saba, 2004).

Consequently, faced with a general climate of distrust, producers of GM food products have to rebuild trust themselves. With this goal in mind, we firstly, however, require a thorough understanding of trust and its determinants. To this end, the first part of this section provides a conceptualisation of trust. This includes a distinction between different dimensions of trust and a composition of the most relevant determinants of trust.

Conceptualising Trust for Business

Renn and Levine (1991) suggest a particularly useful definition of trust in the realm of risk communication:

“Trust in communication refers to the generalized expectancy that a message received is true and reliable and that the communicator demonstrates competence and honesty by conveying accurate, objective, and complete information.”

(Renn & Levine, 1991, p. 179, in italics in the original)

This definition provides insights into the required qualities a communicator should possess – competence and honesty – as well as into the character of the communicated information itself – accuracy, objectivity and completeness. Further, Renn and Levine distinguish trust from the concepts of confidence and credibility, which are oftentimes used interchangeably. Confidence, however, is different in that it is defined as a “more enduring experience of trustworthiness over time” on a subjective or personal level. In other words, trust refers to the perceived truthfulness and reliability of a particular message from a risk communicator whereas confidence refers to the perceived truthfulness and reliability of all safety information coming from that same source. Lastly, credibility is defined as the “degree of shared and generalized confidence” in a communication source. Thus, a communication source gains credibility if many persons share confidence in it. Thus it is no longer a personal judgment anymore, but a collective perception.⁸ Figure 1 shows the different dimensions of trust in form of an inverted pyramid:

⁸ A critical question in this regard is how many persons have to share a perception of confidence in a communication source for credibility to be assigned to that source. As there are always some sceptics, we would hold a safe majority to be a critical mass.

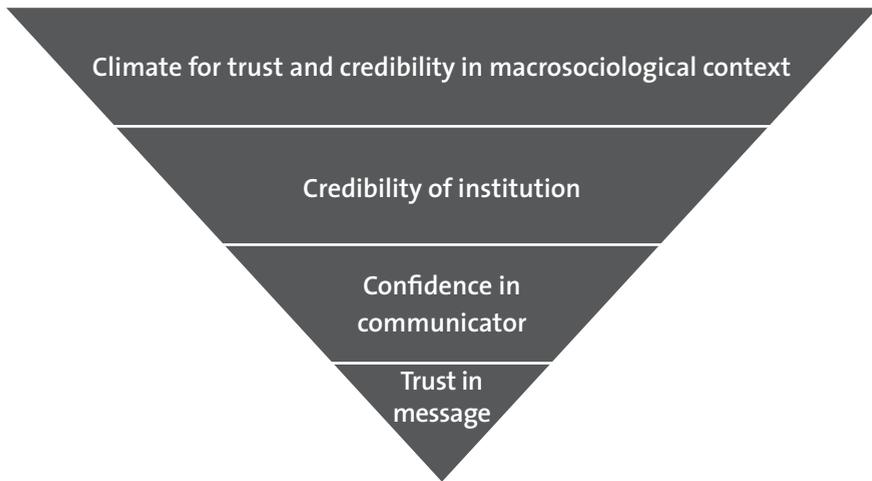


Figure 1 Inverted Pyramid of Trust. (Adapted from Renn & Levine, 1991, p. 181)

Looking from top to bottom of the inverted pyramid, the dimensions of trust are reduced in complexity and abstraction. Given this situation, it is comparatively easy to influence lower dimensions of trust through effective risk communication efforts, as those dimensions are more graspable. If the risk communicator succeeds in continuously communicating risks effectively, he can also attain confidence and eventually also credibility. While affecting these higher dimensions is a more intricate task, it is nevertheless one worth pursuing, as the higher the dimension of confidence and credibility, the higher will also be the initial trust in a message to start with. This is to say that the different dimensions of trust are mutually reinforcing, from the top of the pyramid to the bottom and vice versa. We, furthermore, need to highlight that nowadays risk communicators operate in the post-trust era, which means that the highest dimension of the pyramid presupposes a general climate of distrust and scepticism. Renn and Levine (1991), however, point out that it is beyond the scope of possibilities, and thus also not the task of risk communicators to affect this climate. Therefore, they have to accept that the negative macro-sociological context negatively impacts on the lower dimensions of trust, which in turn makes them harder to achieve. The only way forward in this situation is to focus very strongly on the lowest dimension of the pyramid in order to consistently work against the negative effect of the highest dimension and to eventually attain the status of a credible institution. In light of this, risk communicators need to understand how to build trust with risk communication messages and this in turn requires a clear understanding of the determining components of trust.

After having thoroughly studied the works of several reputable trust and risk communication authors (Renn & Levine, 1991; Kasperson et al., 1992; Covello, 1992; Peters et al., 1997; Löfstedt, 2005), we have found what appear to be consistent overlaps between the different (selected) accounts. We propose to use the determinants offered by Renn and Levine as it is, in our view, the most comprehensive and complete framework and it, moreover, relates directly to trust in risk communication. The determinants inherent in this account are graphically depicted in Figure 2.

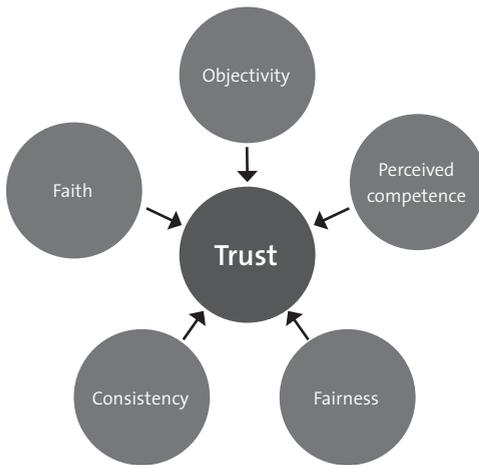


Figure 2 Determinants of Trust. (Adapted from Renn & Levine, 1991)

Renn and Levine further elucidate the five proposed determinants of trust:

- Competence is equated with perceived “technical expertise”.
- Objectivity is the perceived lack of information bias.
- Fairness is given if all relevant points of view are adequately represented and acknowledged.
- Consistency is provided if the arguments and behaviour of the communicator are predictable on account of past communications.
- Faith is attributed to the communication source if the receiver perceives of “good wil” in providing the risk communication (p. 179-80).

Renn and Levine have proposed these five determinants of trust in risk communication without explicitly having a particular type of risk communicator in mind. These five

determinants therefore represent a rather general set of determinants of trust, which do not incorporate specific particularities of certain communicators. In light of this, we argue that the perceived particularities of communicators, such as the allocated role or position in society, have at least some impact on the qualities expected from the communicator for him to be trusted. A regulator, for instance, has arguably a different role, and thus also agenda, in society than a private company. In short, the relevant determinants of trust might differ from one type of communicator to the other. This paper focuses on business as the risk communicator. While we deem consistency, fairness, and competence⁹ to be relevant and suitable determinants of trust for business as well, we question the applicability of objectivity and faith. We by no means posit that it is impossible for business to earn a reputation for being reasonably objective and good-willed. We rather doubt that it has a significant impact on trust if business fails to be perceived as objective or if it fails to be seen as “good-willed” (cf. definition of faith). In other words, we question the relevance of objectivity and faith as constituent factors of trust in business as a risk communicator.

The issue with both objectivity and faith relates to the widely held stereotype that business’ main interest is the maximisation of profits (Peters et al., 1996). Taking this perception into account, is it then really expected from business that they are objective, that is, without bias in their risk communications? Moreover, does it mean that business loses public trust if it is not perceived as pursuing “good will” in their risk communication? Or is it, maybe, something else, which is expected of business for it to earn the trust of their stakeholders?

Starting with objectivity, it lies in the very nature of business that they pursue a vested interest: they *want* to convey the safety, and not the potential hazards, of their products in order to sell it to trusting customers. It is arguably not in their interest, *per se*, to give an objective account of the risks regarding their products. Of course, they do not want to sell toxic junk to their customers, as they would then put their reputation at risk (Regester & Larkin, 2005). If possible, business will try to minimise potential hazards of their products so that there is less objective reason to question the safety of them. However, in a product field with a lot of uncertain risks such as that of GM food products, it is impossible to reduce these uncertain risks to negligibility. Therefore, risk communication becomes all the more important. The GM food producer is very likely to be optimistic about these

9 Consistency, fairness, and competence crucially depend on the case at hand and thus have to be evaluated on a case-by-case basis. For competence (or correspondingly expertise), however, we are informed by past empirical research that industry in general scores fairly high (Peters et al., 1996).

uncertain risks as well as potential benefits (if not, the company's *raison d'être* would be severely hampered) and is also interested in conveying its subjective optimism to outsiders. Hence, it is in the interest of the GMO producer to understate the salience of these uncertain risks and to emphasise the potential benefits instead. Hence, its account is necessarily subjective, that is biased towards positive information.

With a view to faith, GMO producers do not pursue, *per se*, "good will" when they communicate product risks. Again, they clearly have a vested interest, which is private. The public will not be naive about this. On the contrary, as Terwel et al. (2009) show for the case of companies involved in the storage of carbon dioxide, if business pretends that it does not have commercial interests it will negatively affect public trust in it. It simply would not be credible. However, as Regester and Larkin (2005) note, "there is a growing expectation [among stakeholders] that organisations should perform and behave in a more open, socially caring and responsible way" (p. 16). Corporate social responsibility necessitates that business, instead of focusing on internal objectives only, also needs to incorporate bigger societal values and public demands into its decision-making, what Regester and Larkin (2005) call "outside-in thinking" (*ibid.*). Consequently, some good will on the part of business is, indeed, more and more expected in today's complex societies. However, as Regester and Larkin further point out, rather than conveying faith (i.e. perceived genuine good will) business needs to show that they are accountable to the concerns of their stakeholders.

The difference between accountability and faith is, indeed, evasive looking at the outcome in terms of the behaviour or action warranted on part of business. The difference lies in the motivations for these actions. While faith presupposes that deeds are, *per se*, done out of a genuine goodwill, accountability implies that the actor behaves in a way that accommodates the concerns and interests of stakeholders because he faces a sanction if he fails to do so. In our view, the latter is a more appropriate description of what motivates business to "outside-in thinking" or corporate social responsibility. The sanction for business for not behaving in this manner is loss of reputation, and consequently loss of the "tacit acceptance of society to continue to operate" (Regester & Larkin, 2005, p. 16). In conclusion, we deem objectivity and faith to be less appropriate determinants of trust in business. However, in scenarios where private actors have no genuine motivations, *per se*, to be objective and care for the concerns of those affected by their actions, it is still possible to hold these private actors accountable for the consequences of their actions. It is in this context that we wonder if accountability might substitute for objectivity and faith as a determinant of trust for business when it assumes the role of a risk communicator. We accordingly position the following first preliminary hypothesis: *Accountability is a constituent factor for trust in business.* If this holds true, business should pursue a strategy

aimed at proactively rebuilding trust through establishing a perception of accountability. In light of this, we need to proceed by acquiring an understanding of accountability and its constituent factors and link it to the realm of risk communication.

Accountability and Risk Communication

In order to conceptualise accountability, we, in parallel with the work of Drott et al. (2012), build upon the accountability conceptualisation by Bovens (2007). In more detail, Bovens (2007) frames accountability as an account-giving relationship and outlines seven interrelated conditions, which all need to hold for overall accountability to exist: “(1) there has to be a relation between an actor and a forum, (2) where the actor is obliged to inform about, (3) explain and justify his conduct to the forum, (4) so that the forum can interrogate the actor, (5) question the legitimacy of his conduct (6) and pass judgment on the actor’s conduct (7) which might lead to sanctions of some kind” (p. 10). At this point, however, we have to highlight that Bovens designed this conceptualisation with a political and/or regulatory environment in mind (Joss 2001; Drott et al., 2012). Correspondingly, in the ensuing subsections some of the conditions are altered to better match them to the field of risk communication.

The focus on risk communication in this context is warranted, as business needs a vehicle of how to convey a perception of accountability. Especially in the context of today’s post-trust era, in which there exists uncertainty about the risks inherent in GM food products, risk communication becomes ever more important for business. Given this situation, how does effective risk communication look like? More specifically, how must risk communication be designed when one aims to rebuild or maintain trust? Linked to our preliminary hypothesis set out above - *accountability is a constituent factor for trust in business* - we now propose to build a synthesis between the concept of accountability and some streams in risk communication. In other words, we adopt the preliminary hypothesis to the realm of risk communication. In light of this, we argue that despite the necessity for some very minor phrasing and content adjustments, Bovens’ accountability conditions have a substantial overlap with some recurrent themes in the field of risk communication. To further specify this overlap, we conducted a thorough literature review (Fischhoff, 1995; Leiss, 1996; NRC, 1996; Löfstedt, 2004; Löfstedt, 2005; World Health Organisation, 2005; Jung, 2006; Löfstedt, 2006; Risk Regulation Advisory Council, 2009; International Risk Governance Council, 2005; Sellnow, 2009; Boudier, 2010; Smillie & Blissett, 2010), and in the process identified what we believe to be three central themes for requirements of ‘effective’ risk communication in the post-trust era: *inclusiveness*, *responsiveness* and *transparency*. To better illustrate the overlap of Bovens’ accountability conceptualisation with these

themes in risk communication, we proceed by breaking down Bovens' conceptualisation into its seven constituent conditions and allocating them to the respective theme in the risk communication literature.¹⁰

Inclusiveness

The first central theme that we have discovered is best captured by the term 'inclusiveness'. We equate inclusiveness in risk communication to the inclusion of stakeholders, offering them the opportunity to voice their concerns and questions. It describes a process, in which the communicator proactively creates venues for stakeholder input and/or listens to their concerns. One could refer to this process as stakeholder participation or deliberation, an issue dealt with widely in the literature (e.g. Leiss, 2001; Löfstedt, 2004; Löfstedt 2006; Smillie & Blissett, 2010).¹¹ It needs to be clarified that inclusiveness only describes the degree of participation, which is needed for the communicator to draft his message in the most effective way. It has the aim of "understanding [...] the target audience" (Jung, 2006, p. 820) in order to deliver a suitable message. Fischhoff (1995) refers to a necessity of treating the recipient nicely and, moreover, making him a partner (p. 142), which describes a process of actively accommodating him and including him in the process (cf. Leiss, 1996). Inclusive risk communication today is a part of the best-practice for governmental risk regulators (Risk Regulation Advisory Council, 2009), but also forms part of best-practice suggestions for business (Smillie & Blissett, 2010).

Moreover, this theme appears to be represented in what Bovens found to be the first criterion for accountability: 1) there has to be a relation between an accountor (actor) and an account-holder (forum).¹² While this is clearly the most basic requirement for an interaction to take place, we further argue that also Bovens' fourth condition can be allocated here: (4) the account-holder can interrogate the accountor. However, we deem it more appropriate to rephrase the statement to saying (4) the account-holder can ask

10 As previously already announced, we, in the process, also argue in favour of adjusting the phrasing of some of the seven constituent conditions to better match them to our non-institutional application.

11 Löfstedt discusses the desirability of stakeholder participation (2004). Yet, in this context we are to draw a general connection between the concepts of risk communication and the accountability concept. Therefore, we are not engaging in a normative theoretical discussion at this point. The same logic applies for our risk communication discussions below.

12 Willems (2010) highlights that Bovens' use of the terms 'actor' and 'forum' in the context of P-A theory lacks clarity and instead advocates in favor of Mulgan's (2000) accountor and account-holder terminology. Therefore, actor is henceforth replaced by accountor and forum is replaced by account-holder. In the context of risk communication, the risk communicator represents the accountor and the public stakeholders the account-holder respectively.

questions to the accountant. The underlying rationale is that we do not believe there to be many cases, in which a stakeholder can actually interrogate a company regarding its conduct. However, the possibility to pose questions, especially those focusing on comprehension issues, is a requirement for inclusiveness (Fischhoff, 1995; Sellnow, 2009).

Transparency

The second theme, 'transparency', may appear to seamlessly overlap with inclusiveness. We nevertheless argue in favour of including transparency as a stand-alone theme. It describes the adequate and open provision of information to the recipients by a communicator. Fischhoff (1995) already described the evolution of transparency from a mere delivery of raw information to an explanation of the data, and, finally, also the presentation of a comparison of present risks to past or already familiar risks. It follows from this that transparency in risk communication is not merely a gesture to open up the process of risk communication to public scrutiny, but a proactive task of explaining and justifying the communicator's conduct within the process. That is what we referred to as *adequate* provision of information above. Löfstedt (2006) states that by "placing deliberations on the internet, making actual correspondence ... publicly available, and encouraging scientists to participate" (p. 876) transparency can be ensured. Sell now (2009) circumscribes the same thinking with 'accessibility'. In this context, he highlights that if risk communication is hard to grasp for laymen, communicators ought to simplify the message.

The essence of transparency set out above appears inherent in Bovens' second criterion (2), which prescribes an obligation on the side of the accountant to provide information to the account-holder. In our context, *obligation* should not be read too literally. Rather than being (legally) proscribed to do so,¹³ business will provide information voluntarily because it wants to serve the perceived public demand for transparency. Moreover, Bovens' third condition (i.e. the accountant explains and justifies his conduct to the account-holder) aligns with what we referred to as adequate provision of information.

Responsiveness

Our third theme, 'responsiveness', also firstly needs to be distinguished from inclusiveness. Inclusiveness means that the communicator accommodates his stakeholders and listens

13 Admittedly, cases exist, where regulation obliges communicators to provide information - e.g. risk assessments and labelling requirements - but this cannot be generalised for every risk communication act of a GMO producer. In the context of our transparency conceptualisation, we therefore argue in favour of dropping the obligation aspect, so that information provision for business is largely voluntary.

to their concerns. Responsiveness, further, means that the communicator acts upon them. Hence, responsiveness presupposes inclusiveness. We thus refer to *responsiveness as the ability of the communicator to respond to his stakeholders' concerns and feedback as well as to actively forge and steer the debate surrounding the risk issues*. This need for active engagement with stakeholders has developed as an unavoidable consequence of the post-trust era. In a society where the communicator's conduct is closely scrutinised, a disengaging demeanour quickly creates an impression of lacking concern and care, especially for business (Sellnow, 2009). Therefore, business has to respond to voices from the public in order to be perceived as fully engaged and to be taking issues seriously. Löfstedt (2005) and Löfstedt et al. (2011) point out that it is more beneficial for communicator's level of trust to proactively engage with the public than to be a passive object of their evaluation.¹⁴ Fischhoff (1995) and the NRC (1996) go as far as to state that reactive risk communication creates distrust. Today, it is widely acknowledged that responsiveness - in the literature often referred to as 'two-way communication' - is central to nourishing trust relationships (Löfstedt, 2005; Boudier, 2010).

Certain conditions have to hold for the communicator to be responsive to the concerns of stakeholders. It appears that these conditions correspond to Boven's fifth to seventh condition for accountability. For accountability, (5) the account-holder has to have the right to question (the legitimacy of) the accountor's conduct. Boven's originally refers to legitimacy (here put in parentheses), a recurrent theme in the political/regulatory domain but less so in business. As our focus is on business, we decided to avoid this concept. Upon questioning the accountor's conduct, (6) the account-holder must further be allowed to pass judgment on the conduct in question. In the context of risk communication, the ability of stakeholders to question and judge the communicator's conduct are necessary inducements for the communicator to be responsive to the stakeholders' concerns as well. However, these inducements would not be effective if judgments (positive or negative) are not (7) followed by sanctions (also positive or negative) of some kind. In the context of risk communication and our focus on business, the sanction could be, for instance, the awarding of more trust to the communicator or, in case of negative judgment, distrust.

To summarise, this section has conceptually related accountability with our three central themes for effective risk communication. This synthesis can be seen in the following Table 1, which groups Boven's seven conditions under the headings of the three themes.

¹⁴ Focusing on the regulator, Löfstedt et al. (2011) state that only a proactive risk communication strategy can break the "vicious circle of risk aversion" (Boudier, 2008, p. 47). As the aim of this intervention is also to establish trust, we deem it appropriate for the risk-producer too.

| Inclusiveness | Transparency | Responsiveness |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • (1) there has to be a relation between an accountant and an account-holder • (4) the account-holder can ask questions to the accountant | <ul style="list-style-type: none"> • (2) the accountant informs about • (3) explains and justifies his conduct to the account-holder | <ul style="list-style-type: none"> • (5) the account-holder can question the accountant's conduct • (6) and pass judgment on the actor's conduct • (7) which might lead to sanctions of some kind |

Table 1 Accountability in Risk Communication. (Adapted from Bovens, 2007)

In derivation from this synthesis, we suggest that

- If business *includes* all relevant stakeholders in the process of risk communication and actively listens to their concerns and points of view;
- and is *transparent* in the process in that it informs stakeholders about its conduct, and moreover explains and justifies it;
- and *responds* timely and appropriately to the voiced concerns, showing that it takes them seriously and acts upon them;
- then the risk communication conveys the *accountability* of the communicator.

Correspondingly, we shall refer to risk communication, which fulfils all three themes as *accountable risk communication*. Next, we argue why, according to our central hypothesis, accountable risk communication is trust-building risk communication.

'Accountable Risk Communication' is Trust-Building Risk Communication

There are several reasons why accountability, conveyed by an appropriately designed risk communication – *accountable risk communication* – might build trust in the risk communicator as well as the conveyed message. In this, it might compensate for objectivity and faith, which, as argued before, are less appropriate determinants of trust in business.

For a start, we have previously argued that the public does not expect business to be objective or to pursue a “good will” per se. The public correspondingly also knows that business has a subjective interest and is rather concerned with profits than with the provision of public goods. However, subjectivity and profit motive must not mean that business cannot be trusted. In short, objectivity and faith are not, it is argued, necessary determinants of trust. Accountability, by contrast, is not in conflict with business profit-maximising interest. On the contrary, displays of accountability on part of business serves its profit motive in that it prevents negative sanctions (or enables positive sanctions) that impact its profitability. For example, earning a positive reputation of

trust (positive sanction) on part of its customers or the regulator may lead to increased sales or a lightened regulatory burden respectively. Both would increase profits. Without accountability, however, stakeholders have no assurance that their concerns and points of view are taken into account. This will reduce the trust they assign business.

Also when looking at the three selected constituent themes of accountability one-by-one, one can discern in how far accountable risk communication helps in building trust. For instance, if business is open about its interests (transparency), stakeholders have less room for speculation about improper motives. If business is transparent in its risk reports, stakeholders have less reason to speculate about incompleteness and information bias. Moreover, by involving stakeholders more into various processes, business can deflect some criticism, that is, responsibility becomes shared between all involved actors. Then, if business responds to stakeholders' interests and concerns, they can show that they are genuinely concerned about their needs, which in turn helps to build a closer and mutually beneficial and trusting relationship. Generally, if accountability is perceived to be high, the impact of scandals might be reduced because mistakes could be seen as genuine mistakes, and not as the result of improper motives and/or greed.

Based on the above reasons, we arrive at our central hypothesis that *accountable risk communication can potentially help GMO producers in building a trust relationship with the public*. In this logic, accountability is therefore considered to one of the most crucial assets at the disposal of business if it aims to build trust through risk communication. Figure 3 illustrates this relationship of accountability, the three themes of risk communication, and trust in business.

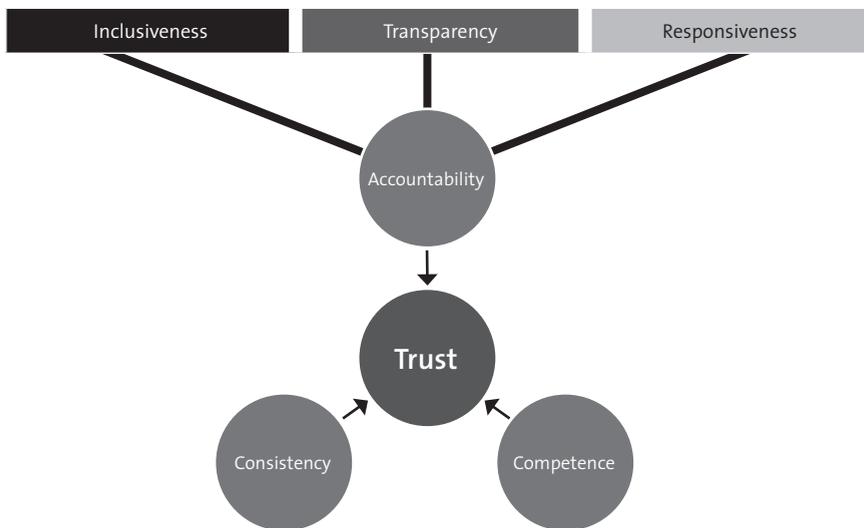


Figure 3 Relationship of Accountability, Risk Communication, and Trust in Business

In this model, objectivity and faith have been replaced by accountability. Moreover, fairness (which does not show up in Figure 3) was not taken into focus as a pressing problem for business. In fact, a perception of fairness in risk communication - acknowledgement and inclusion of all relevant points of view - might still be achieved by business. We do not argue either that fairness is not a relevant determinant of trust in business. However, there are large overlaps with our proposed determinant of accountability, in particular with inclusiveness. In order to avoid redundancies, fairness will be implied by accountability (in particular inclusiveness). Consequently, we are left with competence, consistency, and accountability as the three principal determinants of trust in business.

If one, however, would like to use the above deduced results to assess the practice of a risk communicator, one would firstly have to further operationalise the concept of *accountable risk communication*. Therefore, we deem it useful to further relate the *accountable risk communication* concept to examples of risk communication practices. This will be done within the following methodology section.

3. Methodology

In order to answer our research question of *how GMO producers can communicate their products risks so as to re-gain the trust of the public in today's post-trust era*, we initially set out on a systematic literature review of the concept of trust as well as the studies of risk communication. After an analysis of the determinants of trust, we encountered a potential link between trust in risk communication and the concept of accountability. Therefore, we determined as our preliminary hypothesis that *business can potentially establish a trust relationship with the public through accountable conduct*. Building on this, we incorporated risk communication in our approach and formulated as second hypothesis that *risk communication is a suitable means for illustrating an actor's accountable conduct and thus can potentially help in establishing trust*. In light of the links between the three concepts, we in the next step argued in favour of synthesising them into one theoretical framework. Correspondingly, we also merged the two previous hypotheses into one central hypothesis: *accountable risk communication can potentially help business in building a trust relationship with the public*.

In this context, we, however, also have to highlight a substantial limitation of our research. While we were capable of conceptually arguing in favour of synthesising trust, accountability and risk communication into one framework, we are unable to directly and empirically validate the causal links inherent in the central hypothesis (i.e. in the

two preliminary hypotheses). This limitation, in turn, also has substantial implications for our case study design. Given that we cannot validate the causal links, we can only investigate whether our prescribed model can be applied to analysing real life cases of risk communication and, more importantly, whether there appears to be a correlation between accountable risk communication and certain levels of trust. To this end, we firstly, however, need to bring our framework closer to practice by interlinking it to actual risk communication practices.

With this goal in mind, we related our framework to a number of best-practice-models of risk communication. From the outset, we have to emphasise that one has to be very cautious in generalising findings on risk communication (best) practices. In risk communication, although the evolution of risk communication increasingly moves towards “prescriptive guidelines and principles [for] real life situations” (Bouder, 2010, p. 276), there still does not exist a comprehensive best-practice model or framework as ‘effective’ risk communication depends on specific situational factors (Löfstedt, 2004; Löfstedt, 2005; Löfstedt, 2006; Bouder, 2010). Consequently, when trying to evaluate business conduct in terms of transparency, responsiveness and inclusiveness, we have to take into account “contextual factors and situational variables” (Löfstedt, 2005; Selnow, 2009, p. 20). These factors concern the character of the risk communicator in question, the issue he is communicating, the level of certainty involved, the structure of the audience, and the general social climate (cf. Smillie & Blissett, 2010). In very simple terms, it has to be assessed “who is communicating what to whom” under what circumstances, in order to arrive at a tool, which Leiss (1996) referred to as a “code of good risk communication practice” (p. 94). This is to say that specific situational variables appear to be of key importance in creating such a code.

In spite of all this, we deem a practical test of our theoretical results in form of a case study beneficial because it allows us, for a start, to see if our theoretical framework is applicable to real-life acts of risk communication. To this end, we outlined two cases of risk communication by Monsanto Company (hereafter referred to as Monsanto) in an ex-post analysis. We believe our choice to focus exclusively on Monsanto to be warranted, as the company is one of the largest GM food producers in the world. More specifically, Monsanto has a 90 percent global market share in GM seeds, which has made the name company name almost synonymous with GMOs (Haerlin & Busse, 2009; Vector Strategy Group, 2010). Given its role as a figurehead of the GMO producing industry, Monsanto, moreover, is confronted with strong distrust from the public, as evidenced by numerous anti-Monsanto interest groups, websites and demonstrations (Buffin & Jewell, 2001; Ho & Cummins, 2005; Sueddeutsche, 2009; McMahon, 2011; Adams, 2011).

Based on these circumstances, we can delineate a specific situation: Monsanto, a GMO producer, is communicating the risks of its products to the public at large (including direct customers, final consumers, scientists, interest groups and the regulator). The impacts of Monsanto's products on the environment as well as human and animal health are still disputed and thus uncertain. It can, moreover, be stated that the general climate towards both the company and its products is characterised by a low degree of trust.

| | |
|-----------------|------------------------------------------------------------------------------------------------|
| Who? | Monsanto - GMO producer (business) |
| What? | Product risks and safety (GMOs; herbicides) |
| To whom? | Customers, consumers (incl. consumer groups), regulator, interest groups (heterogeneous group) |
| Certainty? | Uncertain |
| Social Climate? | No trust (post-trust era) |

Table 2 Monsanto's Effective Risk Communication Strategy

Given this situation, how could Monsanto's effective risk communication strategy look like? Löfstedt (2005) states that "industry should 'test for trust' and, if distrusted, uncover why and act appropriately" (p. 11). Correspondingly, Monsanto's risk communication, thus, needed to tackle the origin of the distrust towards them. In this regard, Peters et al. (1997) state that "industry, according to a common stereotype, is commonly perceived to care and be concerned only about profits, and minimally about public health and safety" (p. 54). Moreover, their findings suggest that fighting this "negative stereotype" is often the most successful strategy to build trust. With a view to Monsanto, this task, however, is complicated by the uncertainty regarding GM food products and the heterogeneity of its audience. Before we move on to the case study, we further specify 'accountable risk communication' into concrete guidelines which also serve as check boxes of our following evaluation tool.

Transparent Risk Communication

A crucial factor adding to the distrust towards the GM food industry in general is the uncertainty surrounding GMOs, especially with regard to possible long-term risks. In situations involving high uncertainty, transparency in risk communication is required (Fischhoff, 1995). Transparency in this context also requires honesty about the unresolved uncertainties. This is to say that Monsanto should refrain from neglecting or even covering up scientific uncertainty about risks. Due to this uncertainty, risk assessments simply

cannot be unequivocal and, therefore, a top-down message will always appear weak if it tries to claim the contrary (i.e. complete certainty about risks, or worse, unequivocal safety). The advised strategy in this case is, therefore, to be transparent about one's results. Whilst the drafted message should thus admit the lack of certainty, it should also contain an element of assurance. In this regard, Sellnow (2009) coins phrases such as "[w]e do not yet have all the facts" or "[o]ur understanding of these factors is always improving", which are easily understandable and transmit insecurity as well as assurance at the same time (p. 23; cf. Fischhoff, 1995). Moreover, Monsanto should desist from concealing their interests and delivering messages in an overly praising tone. Instead, Monsanto should also communicate potential negative aspects and counter-positions so as to illustrate the entire picture and not only potentially misleading pieces of it (McGuire, 1985; Lee, 1986; Renn and Levine, 1991; Sellnow, 2009). Finally, apart from merely providing scientific data, Monsanto should also ensure the accessibility of this data in terms of understandability, by addressing different stakeholders with an adequate level of scientific complexity. This is to say that specific recipient groups have to be addressed with specific messages, without substantially altering their content (Sellnow, 2009). In order to create this message, feedback concerning understanding problems has to be incorporated and messages adapted accordingly (ibid.).¹⁵

Responsive Risk Communication

Löfstedt (2005) argues that in situations of high trust, deliberative strategies can lead to distrust. However, in today's post-trust era, the overarching problem facing Monsanto is the high degree of *distrust* in the wider societal climate. In this climate, proactive deliberation, or two-way communication, is advisable (ibid, p. 125; cf. NRC, 1996) because only this way Monsanto can discern and target concerns of the public, that lead to distrust, directly and effectively. For this, Monsanto should listen and incorporate all the feedback it can acquire through the deliberation process. This is to say Monsanto should engage in a true two-way communication process. Moreover, within this dialogue, Monsanto should also ensure the timeliness and the quality of its response. Stakeholders will feel that Monsanto does not take their concerns seriously if it lets too much time pass until it responds (cf. World Health Organization, 2005). The same rationale holds for the quality of the response. More specifically, the response should result from a comprehensive engagement with

¹⁵ A negative example for this situation can be found in the Brent Spar case, where Löfstedt (2005) found that a strategy of not deliberating with the public led to unintended results in a situation where there was distrust and scientific uncertainty.

stakeholders in which Monsanto processes the input from stakeholders (Regester and Larkin, 2005). Renn and Levine (1991) even go further stating that insights gained from this deliberation actually have to be transposed into a correction at the source. The deliberative process can in fact help to “change public expectations or to correct misperceptions [...], but it will not cover the gaps between expectations and perceived performance” (p. 197).¹⁶

Inclusive Risk Communication

Monsanto is also confronted with the problem of a heterogeneous audience. Several distinct stakeholders are interested in Monsanto’s risk communication, including customers (mainly farmers), final consumers (at retail level), scientists, interest groups (e.g. consumer groups or environmentalists), the regulator, the media and in all likelihood also further stakeholders. This heterogeneous group naturally also has a wide range of distinct interests, points of view, and concerns, which in turn means that Monsanto cannot simply draft one single message that has the same desired effect on every stakeholder (Smillie and Blissett, 2010). In order to deal with this heterogeneity, Monsanto has to include stakeholders in the process preceding the risk communication so as to learn what they care about and what their points of view are.¹⁷ In this way, misunderstandings and communication problems can be remedied more directly and flexibly. To reach this goal, Monsanto must create venues for risk- stakeholders to express themselves (Sellnow, 2009). Ideally, Monsanto should adopt ways to create sympathies (cf. Renn & Levine, 1991) so as to forge a relationship with its stakeholders as partners, rather than just recipients of top-down messages. Finally, Monsanto should try to convey a perception of inclusiveness that shows concern and care towards its stakeholders (cf. Peters et al., 1997).

In sum, the three criteria of accountable risk communication - inclusiveness, transparency, and responsiveness - can be translated in very concrete guidelines of how to design the risk communication process. It depends on situational variables which of the three criteria must be checked. In the case of Monsanto, the situational variables (heterogeneity of audience, uncertainty around risks, climate of distrust) warrant adoption of all three criteria. Figure 4 provides a concise overview over the required qualities for accountable risk communication. It groups Boven’s seven conditions for accountability under the three themes of inclusiveness, transparency, and responsiveness, and translates them into concrete guidelines. It is intended to be used as an evaluation tool to assess the

¹⁶ A best-practice example can be found in the CXY Chemicals case (Leiss, 1996).

¹⁷ The specific context hereby seems to give an answer on whether stakeholder participation is beneficial or not - a controversy studied by Löfstedt (2004; 2005).

accountability of risk communication of GM food producers. In the following case study, we apply it to two cases involving Monsanto as risk communicator.

| Heterogeneous audience | Uncertain risks | Post-trust climate |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • (1) there has to be a relation between an accountor and an account-holder • (4) the account-holder can ask questions to the accountor • Give risk-stakeholders opportunity to express their concerns • Show concern and care for stakeholders • Create sympathies | <ul style="list-style-type: none"> • (2) the accountor informs about • (3) explains and justifies his conduct to the account-holder • Show openness and honesty about motives & interests • Ensure accessibility of information • Explain with an adequate sense of audience • Do not appear overly certain (i.e. acknowledge uncertainties) • Communicate pro & con, instead of merely positive aspects | <ul style="list-style-type: none"> • (5) the account-holder can question the accountor's conduct • (6) and pass judgment on the actor's conduct • (7) which might lead to sanctions of some kind • Search proactively for a dialogue • Enable two-way communication (listen & respond) • Ensure timeliness and quality of responses • Correct wrongs (e.g. bad management) |

Figure 4 Accountable Risk Communication Framework

In light of the highly contested nature of GMOs, we put great emphasis on conducting research in an unbiased manner. While we are aware that such research is virtually impossible, we nonetheless tried to apply triangulation to both lessen the effects of biases and in order to crossvalidate our findings using different sources as well as methods. More specifically, we predominantly conducted qualitative research and therefore relied heavily on desktop research, document analysis and primary sources from both Monsanto and (independent) scientists. With a view to triangulation, we also contacted Monsanto itself as well as a number of relevant stakeholders asking them for an interview and additional information. However, no party agreed to provide us with any additional information or to give us an interview (free of charge).

4. Case Study

Introduction to Monsanto

The purpose of this section is to empirically test whether the risk communication of Monsanto is accountable in order to, then, ideally gain an insight into whether there is a correlation between accountable risk communication and building trust. With this goal in mind, the first case revolves around Monsanto's Roundup business model. This model is based on a bundling of so-called Roundup Ready GM crops and the Roundup herbicide, whose active ingredient is glyphosate (Monsanto, 2012). The rationale underlying this bundling is that the glyphosate-based herbicide systemically and non-selectively destroys all plants in its application area (ibid.). At the same time, however, the Roundup Ready crops have been genetically engineered so as to be resistant to glyphosate, which thus renders the two products compatible (ibid.). This means that in practice, farmers, upon planting Roundup Ready crops, can broadly apply the Roundup herbicide to destroy all unwanted weeds, whilst leaving the Roundup Ready crops unharmed.¹⁸

In recent years Monsanto has further enhanced this business model by incorporating additional DNA-sequences into the Roundup Ready crops, which are designed to increase the plants' yields as well as their resistance to certain insects and extreme weather conditions (ibid.). These advances, thus, also fall in line with Monsanto's corporate goals for sustainable agriculture, which are centred around "producing more,¹⁹ conserving more,²⁰ improving lives²¹" (ibid.). In Europe and elsewhere, despite these socio-economically beneficial goals, however, one can observe strong opposition to Monsanto as well as to their GMOs and herbicides, as Monsanto is widely claimed to be "evil" and its products to be potentially dangerous (Whitman, 2000; Regester & Larkin, 2005; Sueddeutsche, 2009; McMahon, 2011). Especially in this context, it should therefore be in the interest of Monsanto to focus on establishing a trust relationship with the public. In light of the fact that Monsanto's primary business model is based on both herbicides as well as GM crops, we argue that Monsanto's risk communication pertaining to either of the two products should have repercussions for

18 The novelty inherent in this model is that in the past not only more but also different types of herbicide had to be used to achieve the same result.

19 It is Monsanto's goal to double yields in its core crops by 2030 (Monsanto, 2012).

20 This doubling shall, moreover, occur with the use of one third fewer resources such as land, water and energy per unit (ibid.).

21 By increasing both yields and productivity, Monsanto also aims to raise farmers and "many more people" from poverty to prosperity (ibid.).

Monsanto as one entity. This is to say that if Monsanto manages to build trust in one certain business area, this perceived trust would also spill over to other business areas it operates in. The same spillover effect, however, would also hold true for distrust. Given this situation, we proceed by analysing two instances of Monsanto's risk communication with the aim of evaluating whether said risk communication has been done in an accountable way and thus potentially could have led to trust.

Monsanto's Roundup Advertising

In the 1990s, Monsanto introduced a refined version of its Roundup pesticide product and correspondingly advertised for it through various broadcasting and print media channels both in the US as well as in the EU. These advertising campaigns were all aimed at highlighting the benefits of the new herbicide: “[t]his is Roundup, the first biodegradable herbicide. It destroys weeds from the inside, down to the roots, while leaving [...] the soil [...] pollution free”. Or “Roundup can be used where kids and pets’ll play” (Monsanto, 1996). Other claims of the same marketing campaign include it is “safer than mowing” and it is “environmentally friendly” (ibid). A close reading of these advertising claims illustrate that Monsanto put great emphasis on differentiating its new product on the basis of its alleged safety, as there appear to be no adverse effects to the environment, humans and animals. While advertising campaigns usually do not fall under the category of risk communication, we believe that given the nature of this marketing campaign, it can, in this instance, be argued that Monsanto engaged in direct risk communication to potential consumers. In line with the purpose of this section, we therefore proceed by analysing whether Monsanto's risk communication has been transparent, responsive and inclusive.

With a view to transparency, it is important to evaluate whether Monsanto not only informed consumers about the benefits of its new product, but also *explained* and *justified* its claims. In this respect one has to highlight that the new product was a herbicide, that is, a product aimed at *poisoning* plants. While the active ingredient in Roundup, glyphosate, is primarily toxic to plants, it is nonetheless to some degree also toxic to humans, animals and the environment. Correspondingly, a number of scientific reports testify that even small amounts of glyphosate are *highly* toxic to humans, animals and can have adverse long-term effects on the environment (Buffin & Jewell, 2001, p. 7; Bellé, 2001; European Commission, 2002; Engdahl, 2010). In light of these scientific findings, one can thus argue that Monsanto failed to explain and justify its advertising claims in a fair and open manner. Especially, the claim that Roundup “can be used where kids and pets’ll play” creates a false sense of security for parents and is thus very questionable.

It is also in this context that Monsanto has been found guilty of false and misleading

advertising in two cases before a court in New York (1996)²² and numerous instances in France (2007, 2008 and 2009).²³ In the former case, the New York State attorney general sued Monsanto for claiming that its Roundup products were “safer than table salt” and “practically non-toxic” to birds, fish and mammals (Vacco, 1996). Monsanto was ordered to “cease and desist from making any of the specific statements” about the safety of its products (Ruling on the matter of Monsanto Company (1996), pursuant to executive law § 63(15), New York). In the latter case, the French environmental association *Eau et Rivières de Bretagne* had sued Monsanto in 2001 for making false claims about Roundup (BBC, 2009; Le Monde, 2009). In 2007, Monsanto was fined €15,000 by France’s criminal court in Lyon²⁵ for claiming that Roundup is “biodegradable” and that it “leaves the soil clean” (BBC News, 2009), whilst the EU classifies its active ingredient as “dangerous for the environment” (European Commission, 2002) and toxic for aquatic organisms (ibid.; Le Monde, 2009; Huff, 2012). In 2008, the court of appeal in Lyon confirmed this judgement²⁴ (BBC, 2009, Le Monde, 2009). Yet, although Monsanto appealed the decision, in a final ruling France’s Supreme Court (*Cour de Cassation*) decided to reject Monsanto’s claims thereby making the fine of €15,000 legally binding²⁵ (ibid.). It can thus be argued that the misleading information by Monsanto is in itself a central factor why Monsanto’s conduct, in this case, cannot be considered transparent. In addition, we can conclude from Monsanto’s bold claims, that the company pursued an overly certain and reassuring communication strategy with an unequivocal message. Although we must consider that the object of analysis is a marketing campaign - a type of communication, which per se is designed to be unequivocal - one can nevertheless question why Monsanto focused its advertising on the one characteristic of its product, which was controversial. Instead, Monsanto could have honestly focused on the benefits of their herbicide in conjunction with its own GM crops. However, Monsanto chose to follow a different path, in which it tried to cover a potential weakness behind overly assuring statements.

With a view to responsiveness, we can observe that Monsanto failed to engage in a meaningful two-way communication with the public concerning the claims they have

22 Case (1996): False Advertising by Monsanto Regarding the Safety of Roundup Herbicide (Glyphosate). Attorney General of the State of New York. Assurance of discontinuance pursuant to executive law § 63(15).

23 Case 1 (2007): TC Lyon No 0077764, 26 January 2007 (France Nature Environnement, 2008).
Case 2 (2008): CA Lyon No 1012/07, 29 October 2008 (ibid.).
Case 3 (2009): Ccass No D 08-87,757 F-D No 5358, October 2009 (Eau et Rivières de Bretagne, 2009).²⁵
TC Lyon No 0077764.

24 CA Lyon No 1012/07.

25 Ccass No D 08-87,757 F-D No 5358.

made in their advertising campaign. While we did come across responses from Monsanto, we deem them to be very top-down in nature as well as very time-delayed. With regard to the first claim that Roundup “can be used where kids and pets’l play”, Monsanto did not immediately publish supporting scientific data. More precisely, the marketing campaign was launched in 1996 and the first official Monsanto document claiming that Roundup has no adverse effects on children living on a farm, on which Roundup is used, was only published in May 2005 (Monsanto, 1996; Monsanto, 2005). Moreover, as the two previously outlined court cases show, consumer and interest groups already even legally questioned these claims immediately in 1996 in New York and then in 2001 in France. While one could argue that Monsanto’s document is based on a scientific study, which was already published in 2000, it would still leave four years in which Monsanto had put forward a claim without having any kind of supporting scientific data to engage in a fruitful and sincere public discussion (Williams et al., 2000, in Monsanto, 2005).

What is more, in this and other documents Monsanto makes no efforts to discuss the claims of other scientific studies, which claim almost the exact opposite to be true with regard to the safety of Roundup (Buffin & Jewell, 2001; European Commission, 2002; Ho & Cummins, 2005; Huff, 2012; EPA, 2012). Furthermore, Monsanto also refrained from transcribing the scientific findings to make them easier to comprehend for consumers but instead only quoted very technical elaborations (Monsanto, 2005). We would, therefore, argue that the quality of the response with regard to Roundup’s safety to humans was heavily compromised by a substantial time delay, a lack of real engagement and the very technical nature of the response. Moreover, a similar pattern can be observed with regard to Monsanto’s second claim of biodegradability. There, again, was a substantial time delay, as Monsanto only published a document substantiating its biodegradability claim in October 2005. While in this instance, Monsanto succeeds in presenting the results in a relatively easy to comprehend fashion, it again makes no references to the very contested nature of the presented findings, namely, the public debate and the legal court case surrounding these contested claims (Vacco, 1996; Buffin & Jewell, 2001; BBC, 2009; Reuters, 2012). With a view specifically to the French court cases, we can, moreover, state that Monsanto failed to correct a “wrong”. After having been sentenced for misleading advertising by the court in Lyon, Monsanto unsuccessfully continued to appeal the decision up until to the French Supreme Court. This behaviour illustrates that Monsanto failed to admit any misconduct on its side and, furthermore, also made no attempts to show any kind of remorse.

With regard to inclusiveness, we can observe that Monsanto adapted a two-fold approach. Given the fact that the risk communication in question is a marketing campaign, it was directed at a relatively wide target group including private households as well as

commercial farmers. At the same time, however, Monsanto appears to have tried to avoid a scientific debate. To this end, Monsanto based itself on as few scientific reports and tests as possible to justify its product-lines and to keep its investments low (Glickman & Rifkin in Robin & Garrel, 2007). These scientific reports were, moreover, predominantly conducted in-house, which allowed Monsanto to keep a close eye on the outcomes as well as the dispersion of the same (ibid.). According to an EPA reviewer this situation culminated in a “routine falsification of data” (Cox, 1995; Margulis, 2009) in test results, which led Sellnow (2009) to exclaim that such behaviour represents a clear denial by Monsanto to include the public (p. 26).

In sum, we thus find that Monsanto did not communicate the product risks of its Roundup herbicide in an accountable manner as neither transparency, responsiveness nor inclusiveness was given. More specifically, we deem the shortcomings in regard to transparency and responsiveness to be very substantial. While this particular instance does not allow us to verify whether our hypothesis is accurate, we can nonetheless conclude that Monsanto did not seem to put much emphasis on communicating product risks in an accountable manner in this case. This in turn potentially might hint at one cause for Monsanto’s lack of trust. At the same time we need to highlight that Monsanto itself appears to some extent overconfident with regard to how much public trust it actually enjoys. In response to having been sentenced for misleading advertising pertaining to its Roundup products in France, a Monsanto France spokesperson confidently claimed that “[t]here is a relationship of trust between our products and their users and we believe that consumers will continue to use Roundup” (TerraDaily, 2007). This alleged relationship of trust is very important for Monsanto, as the business model, *inter alia* based on this herbicide, accounts for half of Monsanto’s overall revenue (Caval aro, 2009). Interestingly enough, however, in the year between the first ruling and Monsanto’s appeal to the higher instance, sales of Roundup herbicide decreased. More specifically, in the fourth quarter of 2008, Monsanto had to post a loss of \$233 million, primarily due to lower than expected sales of Roundup (BBC News, 2009). While we do not claim that Monsanto’s unaccountable risk communication was the key cause for this decline in sales, we nevertheless want to highlight the possibility that it was a contributing factor and thus may represent a sanction for Monsanto’s conduct.

Dr Pusztai’s GM Snowdrop Lectin Potatoes

The second instance of risk communication that we like to highlight does not immediately pertain to one specific Monsanto product, but rather the science underlying all of Monsanto’s products. In this instance, the British Ministry of Agriculture in 1995

contracted a team of scientists at the Rowett Research Institute of the University of Aberdeen to research the safety of genetically modified food. To this end, the team under the leadership of Dr Pusztai did not test a marketed GMO product, or one intended to be marketed, but instead single-handedly genetically modified a potato to produce an insecticidal protein. In order to then test whether this genetically modified potato could potentially have adverse health effects, the team designed an experiment set-up with three distinct groups of rats. The first test group of rats was fed the genetically engineered potatoes and the first control group was fed natural potatoes. The second control group was fed natural potatoes, which, however, had been laced with the same insecticidal protein that the GM potatoes had been engineered to produce. Ten days into the study Dr Pusztai's team discovered that the group of rats that had been fed the GM potato showed signs of stunted growth and defects in their immune systems.²⁶ As, however, neither of the two control groups exhibited any of these symptoms, Dr Pusztai and his team concluded that it was not the insecticidal protein that caused these adverse health effects, but rather the generic process of genetic engineering (ibid.; Smith, 2010).

Upon completion of their research in 1998, Dr Pusztai gave an interview to the BBC, outlining his findings and thus informing the British public (Regester & Larkin, 2005). While Dr Pusztai's findings did not concern a particular Monsanto product, it nevertheless questioned the very basis of, the at the time very novel field, of biotechnology and thus also Monsanto's most promising business area (Slovic, 1993). Correspondingly, Monsanto also very actively participated in the debate surrounding biotechnology to illustrate both the safety and the benefits, which it can bring about. However, due to the fact that other scientists expressed their concern about Dr Pusztai's findings, the publishing journal *The Lancet* repudiated the study for some time (Guardian, 2008; Healthwatch, 1999; Monsanto, 2012). We deem Dr Pusztai's findings to be one part of this debate and therefore also believe it to be of great salience in the context of this section's purpose. In the following we thus proceed by analysing the transparency, responsiveness and inclusiveness of Monsanto's risk communication as part of this debate.

With regard to transparency, we again need to investigate whether Monsanto provided, explained and justified information concerning this case. In this particular instance we can observe that Monsanto generally already puts great emphasis on informing the public about the debate surrounding the safety of genetic engineering as well as about the resulting products. To this end, Monsanto has also established a section

²⁶ The symptoms included smaller brains, livers and testicles, partial atrophy of the liver and damaged immune systems (Rowett, 1998).

on its website where it discusses the general safety of GMOs, the science underlying them, the regulatory food safety requirements, but also the critical claims of Dr Pusztai (Monsanto, 2012). Monsanto does this in a very layman-friendly fashion and with a view to this particular case, also provides an easy to follow summary of the key findings in Dr Pusztai's study (*ibid.*). This is to say that Monsanto both informs about and explains Dr Pusztai's research. At the same time, however, Monsanto outlines five crucial flaws in Dr Pusztai's research design that, in turn, put the results of the entire research in question.²⁷ Monsanto justifies this particular act of risk communication by referring to the *Lancet* and thus basing these elaborations on the work of a highly esteemed scientific journal (*ibid.*). In addition to this, by relying on the most up-to-date scientific findings and by outlining that Monsanto complies with all regulatory requirements, it, moreover, also makes a strong case for justifying its general conduct (*ibid.*). In sum, we can thus conclude that in this case of risk communication Monsanto succeeds in fulfilling the transparency criteria.

Moving on to the responsiveness criteria, we argue that in this instance Monsanto did engage in a two-way communication, specifically with Dr Pusztai and through him also with the public at large. The rationale underlying this argument is that we believe Monsanto to be one of the initiators of the debate surrounding the safety of biotechnology, as the company was among the first to market a GM crop in Europe (Europa, 2004). To this end, Monsanto, in line with regulatory food safety requirements, provided evidence on the safety of both the process of genetic engineering and the ensuing products. This information, as outlined in the previous paragraph, was also made readily available to the public. However, after Dr Pusztai had gone public with his findings, which question the truthfulness of this evidence, he was portrayed as a whistleblower and "hero" for protecting the public from potentially very dangerous GMOs (Guardian, 2008). This highly positive portrayal, however, is arguably also based on Dr Pusztai's self-framing as a protector of the public: "I find it's very unfair to use our fellow citizens as guinea pigs" (*ibid.*).

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- 27 1. Due to the fact that Dr Pusztai failed to clarify in his study that the GM potato he developed was substantially equivalent to the normal, unmodified test potatoes, any test result is irrelevant. In fact, the possibility is high that the by Dr Pusztai developed GM potato was not substantively equivalent to the non-GM potatoes (Monsanto, 2012).
2. The gen-modified potato used by Dr Pusztai was not a commercially available product and thus not approved for consumption by the government (*ibid.*).
3. Dr Pusztai inserted a so called "snowdrop lectin", which was obtained from a toxic plant and, moreover, is not a feature of any commercial GMO product. Hence, it was not surprising that he observed changes in the rats, which were fed the GM potatoes (*ibid.*).
4. The number of rats that had been used in Pusztai's study was too small to get objective research results (*ibid.*).
5. The diet of the test group and the control groups was not the same, thus the results may potentially be due to nutritional impacts and not toxicity (*ibid.*)

As having previously already said that GM food was a highly novel phenomenon at the time when Dr Pusztai communicated his findings, the public perception of GM food was ambivalent at best. Given this situation, the GM food producing industry initiated a large advertising campaign in the UK in order to create a greater acceptance for GM foods (ibid.). Dr Pusztai's findings, however, heavily compromised the effectiveness of this advertising campaign and arguably also positioned GMOs in a more negative light. Monsanto therefore had a very strong incentive to engage with Dr Pusztai's claims and thus to show concern and care for the debate. By also outlining Dr Pusztai's position on their website, Monsanto gives voice to critical scientists and therefore does not exclusively focus on communicating positive information regarding biotechnology. As also already outlined in the transparency paragraph, Monsanto's response was of high quality in that it presented Dr Pusztai's claims fairly and openly. The ensuing repudiation by Monsanto was arguably also of high quality, as it is based on the findings of scientists researching for *The Lancet*. At this point, we, however, have to highlight one limitation in our analysis. As Monsanto fails to provide a date for when it first engaged with Dr Pusztai's findings, we cannot evaluate the timeliness of the response and we thus omit it from our analysis. With a view to responsiveness, we can, in sum, say that Monsanto, given its strong incentive to engage in a debate, succeeded in communicating risks in a responsive fashion.

Continuing onwards to the inclusiveness dimension, we have to highlight that the two preceding conditions already very strongly hinted at the fact that Monsanto generally takes the concerns of scientists and consumer groups seriously. We can thus state that Monsanto actively incorporates critical voices of important risk-stakeholders. Besides, food safety agencies, independent scientists, doctors and consumer organisations are highly important actors for guiding the public debate on whether or not GM food is safe. This argument is based on the fact that, in contrast to GM food producers, the public has strong confidence in these actors (Gaskell et al., 2003). By actively incorporating and even making claims of these groups easily available to the public by featuring them on its website, Monsanto potentially creates sympathies among some stakeholders. This is to say that the inclusive as well as transparent and responsive nature of Monsanto's risk communication in this particular case leaves relatively little room for opponents to criticise Monsanto.

As Monsanto fulfilled all the necessary conditions for accountable risk communication, we would thus argue that this represents a positive example of risk communication on the side of Monsanto. This one act, however, stands in stark contrast to Monsanto's tarnished reputation and its failed attempt in the mid 1990s to expand and establish itself in the European Union (Pearce, 2009). This discrepancy can be best explained with reference to the inverted hierarchical pyramid of trust (Figure 1). More specifically, we argue that one

accountable risk communication act alone is insufficient to seriously affect the (dis)-trust relationship between Monsanto and the public. Any profound positive changes to this relationship would require that Monsanto continuously communicates its products in line with the guidelines inherent in the accountable risk communication framework.

With a view to the larger picture, Monsanto's failure to establish itself in the EU can also be explained by the fact that the company tried to simply copy a functioning business model from the United States' market without paying attention to the local peculiarities of the EU. While NGOs and certain consumers in the United States also voiced their reservations concerning GM food products, these groups largely remained at the fringe of society (Regester & Larkin, 2005). Monsanto correspondingly could refrain from engaging in any serious debates with these stakeholders without experiencing any repercussions. In the EU, however, these critical voices quickly gained the attention of the media and GM food products became a hotly debated topic (ibid). Unfamiliar with this situation, Monsanto neglected the concerns of numerous stakeholders and instead predominantly relied on GMO - friendly governments and regulators to defend its position (ibid). As Europe had largely already progressed into the posttrust era, these institutions, however, were incapable of ensuring the public of the acceptability of GM food product risks. In a further attempt to appease the public, Monsanto thus initiated a \$1.5 million marketing campaign in the United Kingdom to convince the public of the safety of its products (ibid). This campaign, however, was very top-down in nature and failed to touch upon the concerns of consumers, supermarket chains, NGOs and other stakeholders.

It was only in 1999 that the Chairman of Monsanto, Bob Shapiro realised the company's shortcoming: "because we thought it was our job to persuade, too often we have forgotten to listen (Regester & Larkin, 2005, p. 57). In sum, we can conclude that while Monsanto in parts appears to have succeeded in communicating the risks of its products in an accountable manner, the overall strategy for entering the European market was flawed. Monsanto failed to realise both the shift in the European societal climate towards the post-trust era as well as the ensuing need to listen and engage with all relevant stakeholders. Our accountable risk communication framework has correspondingly been specifically designed to address both these factors and should thus constitute a relatively powerful tool for businesses in a similar situation to establish a trust relationship with the public.

Conclusion

In this paper, we set out to answer the research question of *how GMO producers can communicate their products risks so as to re-gain the trust of the public in today's post-trust era*. Building on the general conceptualisation of trust in risk communication offered by Renn and Levine (1991), we derived a set of determinants of trust in risk communication for the specific case when a GM food producer is the risk communicator. We argued that, because of its specific role in society, business is not expected to be objective nor to pursue, *per se*, good will in order to be trusted. Instead, we hypothesise that for business, accountability is a determinant of trust. In the context of risk communication, accountability is conveyed by three broad qualities: inclusiveness, transparency, and responsiveness. These three broad themes can be translated into specific prescriptions for business on how to design an accountable risk communication. We suggest that by designing an accountable risk communication process, GM food producers can potentially rebuild trust in today's post-trust era.

The case study on two examples of Monsanto's risk communication has shown that our framework of accountable risk communication can be applied and tested on real life acts of risk communication. According to our evaluations using the framework tool, Monsanto failed to engage in accountable risk communication when it tried to market its Roundup herbicide in Europe and the US with false advertising claims. However, its risk communication concerning GM food in general, in the context of a scientific debate incited by Dr Pusztai, has been largely accountable. While our case study shows the applicability of our theoretical framework, it does not provide empirical evidence, which would validate our central hypothesis that accountable risk communication helps in rebuilding trust. This causal link, however, cannot be established by two cases alone. Moreover, we were unable to find empirical data that could show the impact of Monsanto's risk communications on public trust towards the company. However, Monsanto's bad general reputation as well as the low acceptability of risks with a view to GM food in Europe correlates with a general poor risk communication performance on part of Monsanto, which epitomises the whole GM food industry (Regeester & Larkin, 2005). However, claiming a causal relationship out of this correlation, without further evidence, would be premature. Frewer et al. (1996) provide only mixed evidence. Their findings show that most trust is assigned to communication sources with "moderate degrees of accountability" while those with "too much accountability" are distrusted (p. 208). One confined empirical study alone, especially an outdated one, we argue does not suffice to validate the causal link between accountability in risk communication and trust in the risk communicator.

Even if we assume that *accountable risk communication* does help in building trust, we have to be modest in our expectations concerning the impact of one particular good risk communication. To gain credibility, a company needs to show a continuity of trust-building risk communication. It takes a lot of time and effort to build trust, especially when starting in today's general climate of distrust. Moreover, all the arduously earned trust can be lost in a matter of days due to a scandalised example of bad risk communication. This "fragility of trust" is due to what Slovic (1993) has called the "asymmetry principle" (p. 184), which states that negative (trust-destroying) events "carry much greater weight than positive" (trust-building) events (*ibid.*).

It is further questionable if trust in the risk communicator is at the root of the problems of the GM food industry. The low acceptability of GM food is certainly also the product of a polarised debate about GM food, which concerns general questions of values and worldviews. Renn and Levine (1991) argue that it is an impossible task for a risk communicator to affect this general normative debate in his favour because "there is no clear medium of communication available" for this level of debate (p. 210). Poortinga and Pidgeon (2005) even find that "communication efforts that are aimed at *directly* increasing trust may not be universally effective in solving risk controversies" (p. 207; cf. Fischhoff, 1995). At the same time, however, they argue, in line with our findings, that "trust will be increased only through understanding and addressing the underlying concerns" (*ibid.*). In this regard, "one must start with listening to the concerns of the public before giving them new information" (*ibid.*; cf. Bier, 2001). Through following the guidelines inherent in the *accountable risk communication* framework, businesses can prevent scenarios such as the one experienced by Monsanto from occurring. Therefore, we deem *accountable risk communication* to be a promising approach for business to adopt and for researchers to further investigate. Particularly the causal link between accountable risk communication and trust needs empirical validation. This would require a wide array of cases and statistical evaluation, which we are unable to provide at this point.

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