

Assessment framework for standardisation activities



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Authors:	Dirk Stolk, Marcel van der Lee and Peter Petiet (TNO), Christopher Liedtke and René Lindner (DIN), Jolien van Zetten (NEN), Antti Karppinen (SFS) and Susan Anson and Inga Kroener (TRI)
Responsible Project Partners	TNO (lead), DIN, NEN, SFS and TRI

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Project Contact

GEOWISE GEOWISE Oy, Mr. Pertti Woitsch, Rälssitie 7 A, 01510 Vantaa, Finland

ResiStand Project

Standardisation is a powerful tool to achieve better interoperability. However, it needs to overcome a lack of interest and modest participation from stakeholders. Also, promising research results are not always used as the basis for new standards.

The overall goal of ResiStand is to find new ways to improve the crisis management and disaster resilience capabilities of the European Union and individual Member States through standardisation.

ResiStand contributes to an improved disaster resilience by identifying and analysing the drivers, constraints and expectations of three main stakeholder communities: Standardisation Organisations, End-Users and Suppliers, consisting of researchers, industry and SMEs.

Based on this information, gaps in standardisation are identified and a prioritised roadmap for new initiatives will be created. The roadmap will be complemented by a critical evaluation of standards as a tool to improve disaster resilience.

ResiStand aims at implementing a pre-standardisation process that supports the development of standards. The feasibility of the process will be tested by developing a new work item. The aim is that stakeholders will continuously utilize this “ResiStand Process” in the future, and that the project delivers a better understanding of the potential of standards for contributing to an improved disaster resilience.

ResiStand will support the management of increasing threats to society such as armed conflicts, terrorism, pandemics and natural disasters, which have increasingly cross-border, even global consequences due to the on-going globalisation.

Protection of citizens through anticipation, preparedness, response and adaptation to crisis situations – i.e. maintaining disaster resilience – will be more efficient. Collaboration between national, European and international stakeholders will be improved by unified processes and management systems as well as by technical, procedural, operational and semantic interoperability.

Executive Summary

This document describes the initial version of the ResiStand Assessment Framework (RAF) that will provide support in determining the feasibility and impact aspects of a new standard in the pre-standardisation phase.

Context

The specific aim of ResiStand Task 1.3 is to develop an assessment framework that will allow for an appropriate assessment of standardisation initiatives in the domain of disaster resilience and crisis management to ensure that the efforts invested in the production of standardisation deliverables are justified. To that purpose, this framework should contain success criteria for feasibility and impact aspects of standardisation, thus resulting in an improved methodology that includes advancements in the assessment of a proposed standardisation activity with respect to the expected impact with respect to improved disaster resilience, the ethical, legal and social aspects on European, Member State and international level with respect to the implementation of the proposed standard, the foreseen time frame and resources required for establishing the standard, and the organisational and institutional aspects to be considered for the implementation of the proposed standard.

Approach and results

The RAF has been developed in an iterative way. At the task's kick-off meeting a brainstorm took place on possible assessment aspects. Combined with a brief literature study this resulted in a first sketch of the framework. Next current assessment practices have been analysed in more detail and assessment needs have been identified. These results were input for the development of the initial full version of the RAF, which has been updated after an internal review by consortium partners, especially by those partners who will use it at later stages of the project.

Applicability

The current version of the assessment framework is ready to be verified in the next stage of ResiStand. The verification concerns a review of project external standardisation bodies providing comments on suitability and appropriateness of the assessment topics within the RAF, and results from a workshop within Task 5.1 on the potential of standardisation and drivers and constraints of stakeholders (first half of 2017). Besides, it can be used internally (i.e. by the consortium) on the background during the workshops with various groups of stakeholders in work packages WP3 and WP4 (January – March 2017) as a kind of practical review. Findings from these activities will be used to update the RAF during the summer of 2017 (WP5).

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List of Abbreviations

CEN	European Committee for Standardisation
CEN/BT	CEN Technical Board
CENELEC	European Committee for Electrotechnical Standardisation
CWA	CEN Workshop Agreement
EC	European Commission
EN	European Standard
ESO	European Standards Organisation (<i>these are CEN, CENELEC and ETSI</i>)
ESS	European Standardisation System
ETSI	European Telecommunications Standards Institute
FPA	Framework Partnership Agreement (<i>between EC and CEN states</i>)
GPDR	General Data Protection Regulation (<i>of the European Union</i>)
ISO	International Organisation for Standardisation
MS	Member State (<i>of the European Union</i>)
NSB	National Standards Body
NWIP	New Work Item Proposal
RAF	ResiStand Assessment Framework
RCF	ResiStand Conceptual Framework
SDO	Standards Developing Organisation
SOTA	State-of-the-art
TC	Technical Committee
TR	Technical Report
TS	Technical Specification
UNISDR	United Nations International Strategy for Disaster Reduction
WG	Working Group (<i>within a Technical Committee</i>)
WP	Work Package (<i>of ResiStand</i>)

1 Introduction

This chapter provides an overview of the background and the purpose of ResiStand Task 1.3 – ‘Improved assessment framework for standardisation activities’, the approach of the activities within this task and the structure of the report.

1.1 Background and purpose

The overall goal of ResiStand is to find new ways to improve the crisis management and disaster resilience capabilities of the European Union and of individual Member States with means of standards, thus increasing society’s disaster resilience. A key challenge of ResiStand is to provide a pre-standardisation process that supports Standards Developing Organisations (SDO) in acquiring and processing information:

- on the demand side: standardisation needs by end-users or practitioners;
- on the supply side: opportunities of standardisation for industry and research.

It should allow end-user-driven identification of standardisations needs and at the same time facilitate the faster and more successful introduction of innovative products or services to the market. ResiStand approaches the standardisation process through the concept of stakeholder communities, which have their own role, motivation and effect in the process (Figure 1). ResiStand will address and survey all these communities – needs of end-users, opportunities created by the suppliers and activities of standardisation organisations – in order to collate them into a roadmap for future standardisation activities. The project will also study the drivers, constraints, expectations and new ideas towards standardisation of the stakeholder communities.

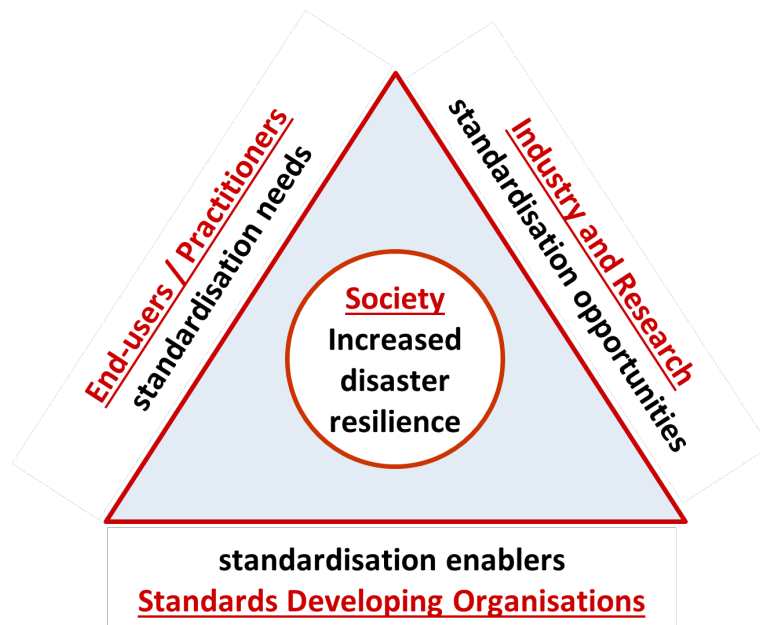


Figure 1: Stakeholders involved in standardisation

The overall goal of ResiStand will be achieved through three objectives that are presented in Figure 2.¹ This document is related to the second objective; namely, to gain more understanding of the potential of certain standardisation initiatives.



Figure 2: The three objectives of ResiStand

The specific aim of ResiStand Task 1.3 is to develop the initial version of the ‘ResiStand Assessment Framework’ (RAF) that will allow for an appropriate assessment of standardisation initiatives in the domain of crisis management and disaster resilience, in order to ensure that the efforts invested and priorities set in the production of standardisation deliverables are justified. The RAF should contain success criteria for feasibility and impact aspects of standardisation, thus resulting in an improved methodology that includes advancements in the assessment of a proposed standardisation activity with respect to:

1. the expected impact with respect to improved disaster resilience,
2. the ethical, legal and social aspects on European, Member State and international level with respect to the implementation of the proposed standard,
3. the foreseen time frame and resources required for establishing the standard, and
4. the organisational and institutional aspects to be considered for the implementation of the proposed standard.

In WP5 (‘Preparation and Roadmapping standardisation activities’) the RAF will be updated by insights gathered on the potential of standards in Task 5.1 (‘Critical evaluation of the potential of standards for significant contribution to improving disaster resilience’) and will be applied in Task 5.3 (‘Assessment of proposed and planned standardisation activities and roadmapping for future standardisation activities’) to evaluate promising standardisation items that are identified in Task 5.2 (‘Identification of standardisation gaps’). The RAF will become part of the ResiStand Process that will be developed in WP6 (‘Towards a sustainable process’).

1.2 Approach

This task started – complementary to the review performed in Task 1.2 (‘Review and analysis of the processes and outcomes of national, European and international Programming Initiatives for Standardisation’) – with a brief review of other past and current best practices, related to the assessment of the feasibility and the impact of standardisation activities and deliverables with the potential to improve disaster resilience. A number of assessments performed by SDOs and other organisations proposing or contributing to standardisation work have been analysed. Experiences from specific activities, such as Programming Initiatives, have been taken into account. In addition a desktop study was performed to

¹ These objectives are described in the “ResiStand Handbook” (deliverable D1.1, chapter 3).

determine criteria that describe the impact of standardisation to improve crisis management and disaster resilience, and to characterise ethical, legal and social aspects. Also a first tentatively set of drivers and constraints of the various groups of stakeholders towards standardisation have been identified in this way. These drivers and constraints will be further complemented and detailed within Task 5.1.

This initial version of the ResiStand Assessment Framework has been developed in an iterative way. At the task's kick-off meeting (July 2016) a brainstorming exercise took place, focusing on possible assessment aspects. A first sketch of the framework was developed in September. During October to November, current assessment practices and assessment needs were identified. Combined with the results from a literature study, these results served as input to the further development of the RAF in December. Finally, the RAF has been updated after an internal review by consortium partners in January, especially by those partners who will use it at later stages of the project.

1.3 *Structure of this report*

Chapter 2 of this report focuses on current practices: experiences, lessons identified and some preliminary understanding of drivers and constraints involved in the processes of initiating, developing and implementing standards. Chapter 3 deals with ethical, legal and social aspects that should be taken into account in relation to standardisation. Chapter 4 describes impact and feasibility assessment aspects of standardisation in general and from the various stakeholders' perspectives in particular. The developed ResiStand Assessment Framework is described in Chapter 5. Chapter 6 briefly lists the main results and describes how to apply the RAF in ResiStand onwards and especially within the scope of WP5.

2 Current standardisation practices

General standardisation activities, as well as those more concentrated on crisis management and disaster resilience are an important source of information with regard to developing the ResiStand Assessment Framework. In this chapter, relevant experiences, whether they are top-down experiences coming, for example, those deriving from European mandates, or bottom-up experiences such as national approaches, have been identified and synthesised into recommendations. Therefore, this chapter describes current assessment practices, as well as other experiences and developments related to standardisation activities.

2.1 *Types of standardisation activities*

Standardisation activities often imply the development of a standard and/or a standardisation document (the focus of ResiStand). However, they sometimes concern the development of a roadmap or an analysis of existing standards. These activities can be triggered in several ways. The initiation can be done by the existing Technical Committees (TCs) dealing with standardisation of disaster resilience – such as CEN/TC 391 “Societal and Citizen Security” and ISO/TC 292 “Security and resilience”² –, by standardisation requests coming from higher political level – such as mandates of the European Commission³ –, or by research and innovation projects.

If a standardisation deliverable is foreseen this can be initiated through one of the following paths:

- New Work Item Proposal⁴ (NWIP)
 - On a national level;
 - On a European and/or international level⁵ coming from national delegations or from liaisons.

With an NWIP, TC members can initiate the development of a European Standard (EN), Technical Specification (TS) or Technical Report (TR). Within Europe, NWIPs can be based on either national documents being developed into ENs, TSs or TRs, on ISO documents to become ENs, TSs or TRs (either one-on-one or adapted) or on the development of a European standard without a national or ISO standard being the basis for it.⁶

² More detailed information on CEN/TC 391, ISO/TC 292 and other relevant TCs is available in ResiStand deliverable D2.1 “Overview of standardisation committees and organisations, including the stakeholders involved, for disaster resilience”.

³ Ibid.

⁴ Or a national variation of an NWIP.

⁵ See also CEN-CENELEC Internal Regulations Part 2 - Common Rules For Standardization Work, especially clauses 3, 4 and 11.

⁶ To propose an NWIP at the European level, a form must be completed by the originator of the proposal. Two different versions of the form are available. One is to be used if the subject falls within the scope of an existing TC. In this case, the TC will decide whether or not to put the work item on its work programme. The other form is to be used if the subject does not fall within the scope of an existing TC. In that case, CEN/BT will decide whether or not to establish a new TC for the subject. In completing both forms, the originator is required to indicate that they have read Annexes 1 and 2 during the proposal. Annex 1 covers the “Principal

- CEN Workshop – and national variations⁷ – coming from research and innovation projects, or from specific consortia (e.g. industry or research). The outcome of a CEN Workshop is a CEN Workshop Agreement (CWA). In comparison to the full consensus of the standards developed through NWIPs, the development of a CWA, or a national variation, only requires partial consensus.

2.2 Standardisation activities

2.2.1 Assessment process

Most commonly, within the existing standardisation structures, standardisation projects are initiated through NWIPs. CWAs are mainly used to capture results of research projects. For both methods of initiating standardisation projects, certain aspects should be considered before the project can start.

For each NWIP, it is decided within a TC whether the standard should be developed. To this purpose three criteria are used:

- A simple majority of the votes cast approves the proposal;
- A 71% (weighted) majority of the votes cast approves the proposal;
- At least five TC member countries have to nominate experts to actively contribute to the standardisation project (development of an EN, TS or TR).

TC members base their decision on the information in the NWIP-form, which is provided by the initiator. This form includes, among others, a description of the scope of the foreseen standard and a rationale for the development. Furthermore, it includes the outcome of the analysis whether the initiated standard is related to EC Directives, existing standards, other TCs, etc. and whether other TCs shall be involved in the development.⁸ If the TC decides to accept the NWIP, and the subject falls within the scope of an existing Working Group (WG) within that TC, that WG will develop the standard. A new WG will be established if the subject does not fit within the scope of an existing WG. For the establishment of a new TC – in case the proposed subject does not fit within the scope of an existing TC – the CEN Technical Board (CEN/BT) takes a decision. The criteria for this decision are:

- A two-third majority of the votes cast approves the proposal;
- At least five members have to express commitment to participate.

For CWAs initiation, no voting is required.⁹ The initiator has to self-assess the proposal regarding the following aspects and prerequisites:

- If the CWA conflicts with a European standard, the CWA cannot be developed.
- If the CWA aims to define requirements related to safety, it is upon the CEN Technical Board (CEN/BT) to decide.
- If the CWA is within the scope of an existing Technical Committee, the TC is consulted; in case the TC does not agree on the CWA development, CEN/CENELEC BT has to decide.

categories of market needs” and includes consumer protection and welfare, environment, and health and safety. Annex 2 focuses on “Principal categories of stakeholders” which includes consumers and organisations representing interests of specific societal groups (e.g., those requiring particular consideration such as disabled people). Furthermore, both forms require the originator to indicate whether the proposed work item “is actively or probably in support of European regulation / legislation or established public policy?”, and if so, to provide information on which ones.

⁷ See also CEN-CENELEC Guide 29 about CEN/CENELEC Workshop Agreements.

⁸ See also <http://boss.cen.eu/startingnewwork/propnewwork/pages/default.aspx>

⁹ Similar procedures apply on national variations of CWAs. These national variations can be uplifted to become a CWA, or other standardisation deliverable within CEN/CENELEC or ISO/IEC.

- If the CWA aims to define requirements related to management system aspects, CEN/CENELEC BT decides.
- If the CWA aims to define requirements related to conformity assessment, specific internal regulations are taken into account.

2.2.2 Experiences regarding standardisation activities

Where the previous section describes experiences regarding the current assessment of possible standardisation activities, below the experiences regarding the standardisation activities itself are described. This section includes only those experiences relevant for the decision-making regarding the initiation of new standardisation activities.

Identification of and consensus on standardisation needs

The following issues have been identified as crucial when evaluating the actual need for a standardisation activity:

- The acceptance of international NWIPs depends on criteria mentioned in the previous sub-section. One should be aware that in case NWIPs are not accepted, national standards may be developed. Resulting national standards will be hard to harmonise later on.
- The transformation of national standards to European or international ones is sometimes difficult due to lack of commitment of NSBs that might not be interested in these specific topics.
- The burden on the decision on developing a standard falls on some stakeholders who's opinion might change in time.
- In several (novel) topics there is a limited awareness of stakeholders to develop standards on these topics.
- Agreement on the details of the standardisation work differs a lot from topic to topic.
- In the security domain often standards are asked to be confidential which is against the open process of standardisation.

Time and/or money

Sufficient time and financial resources needed to conduct the mandates' work are crucial and are some of the main issues in standardisation activities. There are currently some initiatives aiming to shorten the timeframe for developing a standard on national European levels. For example, in Germany, DIN has introduced the project 'Standardisation 18.0'¹⁰ in order to shorten the time period of developing a standard from 36 to 18 months. Furthermore, within mandated standardisation, there has been a tendency to shorten the timeframe. The Framework Partnership Agreement (FPA) 2014 between the EC and CEN states that all mandated standardisation work from year 2020 will only be financed by the EC when they do not last longer than eighteen months.

Clarity on subject and scope

The amount of work, as well as the scope of the envisaged standards, may be clearer when the initiator and the relevant experts are involved from the very beginning. New topics often include several TCs, which sometimes hinders the agreement on the development of the respective standards (e.g. topics like Smart Cities or Industry 4.0 need to be mentioned here). This is especially the case when the standardisation work is mandated through an authority and not all stakeholders (such as executive bodies) have been involved in the development of these. In this instance, a complete understanding of the topic might be missing, which can result in an unclear scope in relation to the standardisation activities. This probably is an important reason why the acceptance of mandates is often time-consuming.

¹⁰ In German: 'Normung 18.0'

Stakeholder involvement

Involving the ‘right’ stakeholders at the ‘right time’ for the ‘right level of involvement’ is challenging, in particular, for topics in the area of security/disaster resilience, these concurrent issues are even more difficult to cover with an even wider range of stakeholders (that are possibly only partially interested in the work). TC members represent experts from various European countries that are active in a specific area of standardisation. However, these experts represent only a part of the stakeholder community; sometimes specific groups of stakeholders are missing, such as end-users. Therefore, in the mandate work, a wider stakeholder involvement is included. However, despite or even because of the broad involvement of stakeholders, specific standardisation needs that resulted from the work were not always shared later by the experts involved in standardisation.

In many cases, only a limited number of experts are available to address the requests coming from TC members, as well as coming from the EC through mandates. For mandates, the researchers or innovative companies working on these mandated topics are on the one hand not aware of the standardisation opportunities and, on the other hand, do not have that many incentives to take part. It is particularly difficult to engage practitioners for standardisation work on the topic of disaster resilience and crisis management. For researchers, the exploitation of their results is often their first priority. By bringing research results to standardisation, the results will go through the whole consensus-process, which may change the content. This may be a constraint for researchers to get involved. However, through liaisons with research projects also insights from these actions can be obtained. Therefore, this instrument (use of liaisons) is becoming more popular. In addition, support by the board of the National Standards Bodies (NSB) can be helpful to ensure to some extent the transfer of the outcomes of research and innovation projects to required standardisation (e. g. in Germany, DIN supports research projects on the topic security, especially disaster resilience and crisis management in this way).

Furthermore, it should be noted that:

- The involvement of national authorities in standardisation is challenging due to the different views and interests that participating countries might have;
- In general, the awareness of stakeholders that they can actively influence the content of standards themselves is limited.

Follow-up difficulties

ResiStand deliverable D1.2 (“Lessons identified and learned from past Programming Initiatives”) identified that there is often a gap between the end of the mandate work and the uptake of follow-up actions and recommendations. Funding through mandates is mostly done for topics that need this start-up support. In most cases only the required actions are fulfilled. After the mandate the problem is to take on responsibilities and to answer the question: ‘Who is doing what?’. In particular, the possibility to take up recommendations developed through these mandates is limited due to reasons of topic novelty as well as the limited availability of time, budget and experts.

For non-mandate work, the continuation of involvement is an issue as well. After five years, standards need to be reviewed while the participating stakeholders often have been changed.

2.3 Recommendations for improvement

The previous section shows that a number of challenges exist in relation to the improvement of assessment procedures to overcome problems arising during the development and the follow-up stages of standardisation activities. Below suggestions for improvement are described, based on the challenges identified above. These suggestions for improvement concern also a more structured assessment of the impact of proposed standards and the feasibility of the corresponding standardisation process.

From current experiences, it can be concluded that fulfilling certain conditions is quite essential for enabling successful development and implementation of new standards. Therefore, it is important that these are incorporated in the ResiStand Assessment Framework and are implemented by its application in the pre-proposal stage.

It concerns the following conditions:

1. Clear scope and execution framework, supported by a clear timeframe and budget, early involvement of all parties during the preparation phase prior to standardisation work
2. Awareness among all stakeholders about benefits, supported by clear communication at national level about benefits of standardisation
3. Support on prioritisation of standardisation needs by end-users to assure that standardisation activities are focussed on the most important issues
4. Critical mass of experts to assure that all essential points of view will be taken into account during identification of and consensus on standardisation needs
This can e.g. be achieved by using several options to include experts in standardization (TCs, research projects, workshops, etc.), by simplifying the process to include experts within the initiating and commenting phase of a standard, and by ensuring consistent involvement of different stakeholders (including different views) through working in subgroups thus strengthening end-user involvement.
5. Top level commitment of stakeholders (government, industry, research) to standardisation to assure resources and follow-up
6. Short development time to keep experts involved and to keep up with innovation developments
A key challenge is to keep the motivation; if the standardisation work will not be done in a proper and short period, experts will lose their interest.¹¹
7. Sufficient funding to execute the standardisation work and its follow-up
8. Promotion in support of follow-up by SDOs, research consortia and the European Commission

¹¹ In fact a three-years development period has turned out to be too long for most participants.

3 Ethical, legal and social issues

This chapter describes ethical, legal and social aspects that should be considered in the implementation of new standards in general and in the field of disaster resilience in particular. Relevant aspects should be considered as part of the assessment process during the pre-proposal stage.

3.1 General perspective

A standardisation request on European level, formerly known as standardisation mandate, is a request from a European institution such as the European Commission to the European Standardisation Organisations (ESO) to develop a standard on a specific issue. Typically, European legislation defines essential requirements that, for example, a product has to match and asks the ESOs to develop a standard that supports the compliance with those essential requirements. Within the ResiStand deliverable D1.2 several European mandates related to safety and security have been assessed.¹²

As there are no comprehensive ethical, legal and societal criteria, the next section provides an overview of ethical, legal and social principles and issues that could be taken into account in the development, assessment and implementation of standards in the area of disaster resilience.

3.2 Relevant aspects

Working in the area of disaster resilience and ethics entails working under a range of codes of conduct, regulations, and standards. Under an ethical relativist stance, morality varies between people and societies according to their cultural norms. Under a 'universalist' or 'objectivist' moral theory, there are fundamental principles that are unchanging throughout time and space. This section takes a universalist approach to providing an overview of the ethical, legal and social issues to be taken into account when developing, assessing, and implementing standards in the area of disaster resilience:

"People have a basic right to safety and it is a fundamental obligation of all governments to ensure that their citizens are protected to a reasonable degree from known risk, and that citizens are informed and warned of any risks known to governmental officials that threaten public safety. [...] To respect the equal dignity of all human beings, recognising a basic right to life and subsistence. [...] The obligation to respect human autonomy." [13]

3.2.1 Over-arching principles

The following list provides an overview of over-arching universal ethical principles. These principles derive from the European Convention on Human Rights 1953 and the Universal Declaration on Human Rights 1948:

- *Dignity*

Article 1 of the Universal Declaration on Human Rights 1948 states that *"All human beings are born*

¹² The five assessed mandates are: M/419 (Standardisation mandate addressed to CEN for the development of a series of standards on supply chain security), M/487 (Programming mandate addressed to CEN, CENELEC and ETSI to establish security standards), M/509 (Programming mandate to CEN, CENELEC and ETSI on protective textiles and personal protective clothing and equipment), M/512 (Standardisation mandate to CEN, CENELEC and ETSI for Reconfigurable Radio System) and M/530 (Standardisation request to the European standardisation organisations as regards European standards and European standardisation deliverables for privacy and personal data protection management).

free and equal in dignity and rights". Public authorities are required to refrain from tampering or interfering with an individual's private sphere. Furthermore, Article 1 states that not only should dignity be "*respected*" but also "*protected*", which means that public authorities are also required to take steps in order to bring about the conditions for individuals to live in dignity [14]. Dignity means that citizens should be enabled to live in dignity and security and be free of exploitation and physical or mental abuse [9]. Dignity means that individuals should be treated fairly regardless of age, gender, racial or ethnic background, disability or other status, and be valued independently of their economic contribution [10].

- *Autonomy*
Refers to individual freedom or an individual's right to make decisions without being coerced. It is the concept of social, political and ethical morals that give individuals the rational right to make their own informed choices.
- *Informed consent*
Consent must be meaningful. Under the EU General Data Protection Regulation (GDPR) consent must be "*any freely given, specific, informed and unambiguous indication of his or her wishes by which the data subject, either by a statement or by a clear affirmative action, signifies agreement to personal data relating to them being processed*". Article 7 of the EU Data Protection Directive states that: "*Member States shall provide that personal data may be processed only if: (a) the data subject has unambiguously given his consent*".
- *Trust*
In this context, trust refers to transparent policy-making processes, governance, technological development, and so on.
- *Fairness*
"*The terms justice and fairness are often used interchangeably [...] fairness [is] [...] action that pays due regard to the proper interests, property and safety of one's fellows. ... Parties concerned with fairness typically strive to work out something comfortable and adopt procedures that resemble rules of a game. They work to ensure that people receive their 'fair share' of benefits and burdens and adhere to a system of 'fair play'.*"[11]
- *Security*
The right to security is associated with liberty and refers to an expansion on rights based on prohibitions of torture and unusual punishment.
- *Responsibility (accountability)*
Responsibility (accountability) lies with the policy/project/data controller/etc. and refers to responsibility in relation to liability, equality, property, privacy, autonomy, and so on.
- *Avoidance of harm*
Aims to prevent harm to individuals.
- *Justice (right of inspection and redress)*
"*Fair, equitable, and appropriate treatment in light of what is due or owed to persons.*" [8]
- *Solidarity, non-discrimination and benefit sharing*
Refers to actions to achieve an inclusive society.
- *Reducing inequality*
Refers to actions to reduce inequality.

Further to the over-arching ethical principles to be taken into account, the following list provides an overview of the potential privacy issues to be incorporated, which derive from the GDPR and ISO 29100:2011 (Privacy Framework):

- *Consent and choice*
Presenting to the individual the choice of whether to allow the processing of their personal data, including obtaining explicit, freely given and informed consent.
- *Purpose legitimacy and specification*
Ensuring that the purpose complies with applicable law, is specified and communicated to the individual prior to the processing of personal data.

- *Collection limitation*
Limiting the collection of personal data to that which is strictly necessary for the specified purpose.
- *Data minimisation (necessity)*
Minimising the data that is processed.
- *Use, retention and disclosure limitation*
Limiting the use, retention and disclosure of data to that which is necessary to fulfil the specified and legitimate purposes.
- *Accuracy and quality*
Ensuring that the personal data processed is accurate, complete and up-to-date.
- *Openness, transparency and notice*
Providing data subjects with clear, accessible information about the data controllers' policies, procedures and practices with regard to processing personal data.
- *Individual participation and access*
Providing data subjects with the opportunity to access and review their personal data.
- *Access and correction*
Allowing data subjects the opportunity to challenge the accuracy of the data held on them and have it amended, corrected or approved, given the specific context.
- *Accountability and governance*
The adoption of concrete and practical measures for the protection of personal data.
- *Information security*
Protecting personal data with appropriate information security controls, policies and procedures.
- *Privacy compliance*
Verifying and demonstrating that processing meets data protection and privacy safeguarding requirements.
- *Conditions for special categories of data (e.g. public interest)*
More stringent conditions for special categories of data, e.g. sensitive data.
- *Individuals' rights in relation to the processing of personal data:*
The right to be informed, the right of access, the right to rectification, the right to erasure, the right to restrict processing, the right to data portability, the right to object and rights related to automated decision making and profiling.
- *Breach notification*
Data controllers and data processors must inform Data Protection Authorities of data breaches under certain circumstances.
- *Transfer of data*
Requirements of data transfer for data controllers and processors. Transfer of personal data to third countries (outside of the European Economic Area) are restricted.

3.2.2 Principles related to disaster resilience

General ethical principles

More specifically to disaster resilience and crisis management, the following general ethical principles may be taken into account: Solidarity, Joint responsibility, Non-discrimination, Humanity, Impartiality, Neutrality, Co-operation, Territorial sovereignty,¹³ Prevention, Fairness, Respect for person and Limiting harm.

One should note that when developing standards for disaster resilience, it is not only citizens that need to be taken into account, but environments, buildings, technologies and so on. For example, when developing goods and technologies, there is the potential for misuse whereby dual-use technologies designed for one purpose are used for another (e.g., terrorist acts, to develop weapons of mass destruction, or are used to

¹³ Rights and responsibilities of countries towards citizens, e.g. the protection of citizens

severely violate human rights).¹⁴ Furthermore, in terms of procedures, the following principles may apply: Reasonable, Open and Transparent, Inclusive, Responsive and Accountable [15].

The following subsections relate to principles for the various disaster management phases (see [1]).

Principles related to Mitigation and Preparedness

There are also further relevant ethical principles that may be taken into account more specifically for disaster resilience and preparedness, which can include: Individual liberty, Protection of the public from harm, Proportionality¹⁵, Privacy, Duty to provide care, Reciprocity, Equity, Trust, Solidarity and Stewardship¹⁶.

The following list includes a range of ethical principles that may be applied prior to disasters, and therefore in planning for disaster response, which can include the development, assessment, and implementation of standards in that area: Introduction of prevention measures, Importance of good quality healthy environment, Education, training and awareness raising, Participation – public input at national and local level, Freedom of expression, Access to justice, Disaster prevention at the workplace, Disaster prevention in recreation and tourist areas, Disaster prevention in public places – schools and hospitals, Special prevention measures for the most vulnerable groups, Organisation of and participation in emergency drills and Preventive evacuation of populations [12].

Principles related to Response

Following on from the planning stage, there are also a number of ethical principles to be applied during disasters that can be considered in the assessment of standards focusing on the response phase: Humanitarian assistance, Information and participation during disasters, Compulsory evacuation of populations, Respect of dignity, Respect of persons, Emergency assistance for the most vulnerable persons, The importance of rescue workers, Measures to safeguard and rehabilitate the environment and Necessary measures to safeguard and restore social ties [12].

Principles related to Recovery

Finally, the following list contains an overview of the ethical principles to be applied after disasters during the recovery phase: Strengthening resilience to the effects of disasters, Necessary measures, Protection of economic, social and cultural rights and Protection of civil and political rights [12].

3.3 Synthesis

Although the principles outlined in the previous section are all important, and where possible the majority should be taken into account when developing standards, realistically there is a limit to the amount of principles that can be embedded into any standard. In addition, several issues with respect to mitigation, preparedness, response and recovery will be covered by the incentives and needs of practitioners to improve their disaster resilience and crisis management capabilities, as will be described in the next chapter. Therefore, a selection has been made consisting of the following important ethical, legal and social principles that should be taken into account in the pre-proposal phase of standard development:

- *Dignity*

This principle is the backbone of ethical and human rights legislation. It is a fundamental principle of

¹⁴ European Commission, “Commission proposes to modernise and strengthen controls on exports of dual-use items”, 28 September 2016 (http://europa.eu/rapid/press-release_IP-16-3190_en.htm)

¹⁵ Restrictions and actions should not exceed what is necessary based on actual level of risk and needs of the community.

¹⁶ Good decision making regarding resources to achieve the best outcome for society and the individual.

several countries' constitutions (e.g. the German Constitution) and is the principle most frequently included in human rights legislation. In moral terms, dignity is a fundamental principle in understanding what constitutes the fair and ethical treatment of individuals.

- *Avoidance of harm*

This principle is a core principle of a range of ethical and human rights legislation. This principle transcends disciplinary boundaries and a wide range of roles and practices (medicine, research ethics, risk and resilience planning). This principle also forms the basis of ethical practice for Libertarians. The 'do no harm' principle is embedded in a range of ethical practices and regulation.

- *Non-discrimination*

This principle is a core principle for ethics, human rights and civil liberties. It forms the basis of not discriminating against people for their age, sex, race, national origin, physical or mental disability, medical condition, pregnancy, marital status, or sexual orientation, and providing equal treatment regardless of any of those reasons listed previously.

- *Privacy*

Privacy is recognised as a universal human right, with various international guidelines, accords and frameworks providing the basis for national laws, policy frameworks and international agreements globally. These guidelines include: the Universal Declaration on Human Rights 1948; the OECD Guidelines on the Protection of Privacy and Trans border Flows of Personal Data 1980; the Council of Europe's Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data 1980; the European Data Protection Directive 95/46/EC; and the APEC Privacy Framework 2004. A right to privacy is explicitly stated under Article 12 of the Universal Declaration of Human Rights: *"No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks"*. In the EU, all Member States are signatories to the Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR) and the EU Charter of Fundamental Rights (CFR). The right to privacy is enshrined in Article 8 of the ECHR and Article 7 of the CFR, which also incorporates a specific right to data protection in Article 8. This states:

1. *Everyone has the right to the protection of personal data concerning him or her.*
2. *Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data, which has been collected concerning him or her, and the right to have it rectified.*
3. *Compliance with these rules shall be subject to control by an independent authority.*

- *Duty to provide care*

This principle is heavily related to the principle of dignity. It requires all individuals to be provided with security, physical safety, access to food and clean water, hygiene, temporary housing, clothing, and, if necessary, emergency medical and psychological care.

4 Impact, drivers and constraints

As presented in Figure 2, one of the key issues in understanding the potential of standardisation is to assess the feasibility and impact of proposed standardisation activities in a better and more structured way. To that purpose this chapter deals with the societal impact of standardisation from a general (societal) point of view as well as from the perspectives of the involved stakeholder groups, including a preliminary understanding of their main drivers and constraints that determine the feasibility of new standardisation initiatives.

4.1 Impact on disaster resilience

The overall goal of ResiStand is to find new ways to increase disaster resilience, including improvement of crisis management, of the European society through standardisation. Therefore, according to UNISDR's definition of resilience¹⁷, these new ways should lead to an *“improved ability of society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions”*. These abilities correspond with the activities that are carried out in the four phases of the so-called Disaster Management Cycle: Mitigation, Preparedness, Response and Recovery.¹⁸



Figure 3: Disaster Management Cycle

In other words: to increase (or improve) disaster resilience of a society, its capabilities have to be improved in at least one of the four disaster management phases. This implies also that increased resilience can be achieved in several ways, which is the case in practice. Based on political decisions some countries prefer to invest on mitigation¹⁹ while other countries focus their efforts on disaster preparedness and response. The vulnerability of the environment for certain types of disasters is another important aspect to be kept in mind. Therefore, the ‘environment’ (the country’s policy and/or vulnerability for certain types of hazards) in which

¹⁷ UNISDR Terminology on Disaster Risk Reduction (2009)

¹⁸ See annex 1 or the “ResiStand Handbook”, chapter 4 (ResiStand deliverable D1.1)

¹⁹ E.g., the Netherlands with respect to floods

standardisation activities take place are an important issue; end-users (or practitioners) of some countries will be interested and engaged while others are not.

4.2 Perspectives of various stakeholders

As described in Section 1.1, three types of stakeholders are involved in developing standards. All of them will benefit from increased disaster resilience. Nevertheless, they also have their own interests. To that purpose insight is needed into their drivers, constraints and expectations of proposed standards. This is also needed because they influence the feasibility of the development.

4.2.1 Demand side – End-users' perspective

By their professional activities end-users (or practitioners in disaster resilience) directly influence society's resilience. Their overall goal is to increase disaster resilience by improving capabilities that will lead to:²⁰

- Reduced vulnerability of society by measures that prevent and/or limit the impact of disasters
- Better preparedness of involved organisations and of society to respond and recover
- Increased number of saved lives and less adverse effects in case of a disaster
- A more efficient way to reconstruct and restore normal life

The community of end-users²¹ is very diverse in a number of aspects, and so will be of interest in the development of new standards. The involvement of end-users in the various phases of disaster management and in specific tasks within these phases varies. Besides, end-users may represent various levels varying from local to national or even worldwide, and from operational to political level. In addition, end-users work in different environments – with country-specific issues such as culture, type of relevant hazards, etc., thus serving only a specific part of society. These background aspects should be taken into account when assessing the feasibility of a standardisation proposal, in particular, with respect to who is participating in developing and implementing the standard, and who he/she represents (e.g., is there governmental commitment?).

In advance of the results from workshops that are scheduled within WP3 (February – March 2017)²² and the insights that will be gathered in Task 5.1 (critical evaluation of the potential of standards), the following categories of drivers for end-users have tentatively been defined:

1. Improved disaster resilience capabilities through standardisation due to better compatibility, interoperability, safety, repeatability and/or quality to perform one or more operational and/or supporting tasks; for an overview of these tasks one is referred to the “ResiStand Handbook” (deliverable D1.1);
2. Increased efficiency due to cost reduction in general – e.g. due to more (SME) suppliers/equal opportunities – but maybe also due to economies of scale as a consequence of e.g. international applicability/international use, cross-organisation applicability (requiring less procurement costs per organisation), multiple-hazard applicability (requiring less procurement due to multiple-use options of equipment and less skills to be trained), and multi-purpose parts or components that can be exchanged into other components or systems.

²⁰ Ibid.

²¹ Within ResiStand the following types of end-users are distinguished: Fire brigade, Police, Emergency Health Care, Civil Protection, Coast guard / Border security, Search and Rescue, Command centre, Dispatch centre (112), Policy / Governmental (authorities), Military, Public services (public works), Critical Infrastructures, Monitoring institutes, NGOs, Volunteer organisations and International agencies (EU, UN, ...). See also: “ResiStand Handbook”, ResiStand deliverable D1.1.

²² The results of these workshops will be reported by the end of April 2017 in ResiStand deliverable D3.3.

However, there are also some constraints on the demand-side:

- As stated in Chapter 2, end-users in the disaster resilience domain tend to have a lack of awareness and interest in standardisation activities;
- End-users (practitioners) might consider the costs to develop and to implement new standards as too high;
- The opinion of end-users on standardisation might be biased by their government because of national interests such as loss of autonomy (independency) and support (protection) of national industries.

4.2.2 Supply side – Industry (incl. SMEs) and Research institutes’ perspective

Also, the community of suppliers is diverse. Suppliers vary in several aspects such as their type of business (industry and/or research), their size (SMEs versus big companies or institutes), their geographical market (national, worldwide) and their fields of expertise (e.g., ICT/ telecom, sensors, protective equipment, training, logistics, economics, etc.). Therefore, the background of participating suppliers, including the commitment of the management in case of large organisations, should be considered when assessing the feasibility of a standardisation proposal.

In advance of the results from workshops that are scheduled within WP4 (February – March 2017)²³, the following categories of drivers of suppliers have tentatively been defined:

1. Business or market opportunities: profit and business continuity as a result of increasing sales on their current market (e.g., because of customer satisfaction), getting access to new markets (dual use of results) or cost reduction (increased efficiency of business processes);
2. Technological progress: innovation and reputation as a result of knowledge development, and of applying knowledge, thus being able to deliver consistent and state-of-the-art quality products and services, therefore improving competitiveness of the industrial sector.

On the other hand, there are also some constraints on the supply side. These concern considerations like threats and disadvantages such as:

- Investment costs related to perform standardisation activities (development and implementation);
- Loss of unique knowledge (monopoly);
- The fact that the quality of the results of the standardisation process is not guaranteed;
- Standardisation might open the door to certification, which is not always an incentive because it might result in additional un-wanted regulations.

4.2.3 Standardisation bodies’ perspective

SDOs are associations, supporting the needs of stakeholders related to getting agreement. These agreements are laid down in standards for products and services that incorporate quality, safety, environmental, interoperability and accessibility requirements. Therefore, the perspective of the SDOs regarding new standardisation proposals reflect the perspective of the stakeholders: the end-users and suppliers as shown in Figure 4.²⁴

²³ The results of these workshops will be reported by the end of April 2017 in ResiStand deliverable D4.4. Furthermore, full reports on the industry’s and the research community’s participation in standardization will be published as ResiStand deliverables D4.2 and 4.3, respectively.

²⁴ Note: The work of SDOs is funded by their members, the stakeholders participating in standardisation. Stakeholders fund the development of standards which they consider necessary to be developed.

It should be remarked that safety and security standardisation in general has become broader over the past decades due to developments in e.g. migration and terrorist threats. In the future, new challenges related to standardisation may occur. SDOs take these challenges into consideration to define how to anticipate.²⁵

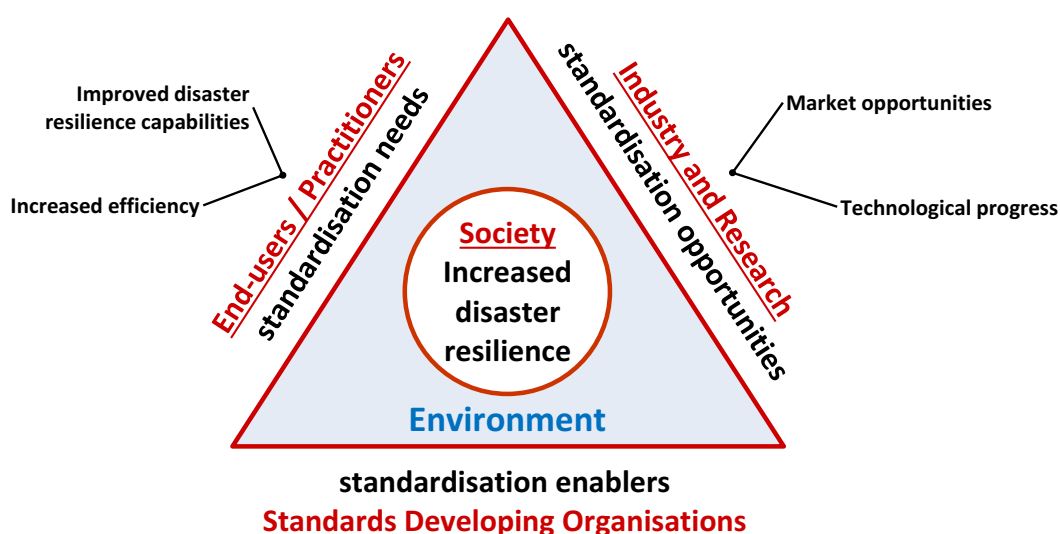


Figure 4: Preliminary understanding of drivers and expectations of stakeholders

4.2.4 Vision on standardisation in Europe

In addition to the perspectives of the various stakeholders that are described in previous sub-sections, it is worthwhile mentioning the vision that was formulated by the Expert Panel for the Review of the European Standardisation System (EXPRESS).²⁶ This panel included European, national and international SDOs, industry, SMEs, academia and public authorities from EU member states. The vision, outlined below, represents a consensus-based and strongly supported conclusion from twelve months of study. Topics that concern impact and feasibility are underlined.

“By 2020, the European Standardisation System (ESS) will deliver a standardization system for Europe capable of meeting the needs of business, society and public authorities and of responding to the rapidly changing needs of the world, including the development and convergence of technologies, the improvement of product safety and welfare for citizens, and the challenges of climate change and energy management. The substantial quantified financial benefits of standardization will have been maintained and enhanced.

Through its close connections to Member States and to the wider international standardization system, the ESS will be an effective centre of influence ensuring market relevance, avoidance of duplication and a proven added value of standardization. The ESS will be characterized by close cooperation between the ESOs, fora and consortia and their stakeholders. Key stakeholders, SMEs, larger businesses, societal representatives and policymakers will all be engaged in an effective, efficient and coordinated system for standardization, fit to support both the societal and economic needs of Europe and able to ensure innovation, growth and competitiveness for Europe in the world.”

²⁵ A reference to the future analysis of standards and standardisation experiences relevant to disaster resilience that will be published as D2.2 in April 2017.

²⁶ “Standardisation for a competitive and innovative Europe: a vision for 2020”; EXPRESS report (EXP384); 2010

4.3 Trends

Trends in society and technique may influence disaster resilience and crisis management in the near future. The influences that trends might have on disaster response can be various. One trend can complicate disaster response, e.g. the increase of cascading effects of incidents, whilst another trend might provide opportunities to improve disaster response, e.g. progress in sensor technology. Therefore, in assessing standardisation proposals, it is important to consider trends that are foreseen for the next five years. In fact, it is beneficial if a proposed standard anticipates trends in society and disaster management; on the other hand the proposed standard should not hinder technological progress.

The initial version of the RAF considers four categories of trends. The identified trends result from literature analysis, brainstorm sessions within the FP7 project DRIVER and a workshop during the international conference on Situation Assessment (Ispra, June 2014). In addition, trends have been discussed with several representatives from the European Commission (DG ENTR, REA and ERCC, November 2014).²⁷

The four categories of trends are:

- The increasing vulnerability of society as a result of aging of the population, increasing urbanisation in coastal areas and along main rivers, increasing international mobility (due to globalisation) and of hyper-connectivity, including interlinkage between the real world and the virtual world;
- Changes in crises, disasters and their impact because of increasing numbers of natural disasters due to climate change (forest fires, extreme rainfall, etc.), physical attacks (sabotage, suicide attacks) and cyber incidents/attacks, and because of the increase of cascading effects due to the growing number of interdependencies (of e.g. critical infrastructures);
- Developments in disaster resilience and crisis management because of a strengthened involvement of the civil society (building on civil society resilience is required because public services are decreasing), developments towards Network-Enabled Capabilities of emergency services and crisis partners (requiring information sharing/network governance), the increasing need for analysis tools (big data) and the increasing importance of social media (for purposes to communicate with citizens, and also to meet society's needs for transparency);
- Developments related to progress in all kinds of technologies, such as sensing, command & control, communication, surveillance, simulation, physical protection and logistics (see also Annex 1, Section A.1.4).

In Section 5.4 the trends within these categories are listed.

²⁷ Recently, the World Economic Forum published "The Global Risks Report 2016" (11th edition). For the updated version of the RAF the relevance of (recent insights in) trends and risks that are mentioned in this report will be investigated.

5 Improved assessment methodology

This chapter describes the assessment methodology that has been developed to improve the current practices to assess the feasibility and impact of proposed standards in the domain of crisis management and disaster resilience. This methodology takes into account the experiences from current practices and the aspects that are described in previous chapters. For those parts that deal with the assessment of the potential impact, the methodology has been strongly inspired by the ISO methodology 2.0.

5.1 Expected Benefits – Value chain

In 2013, ISO published a methodology, including a set of tools “to measure the economic benefits of standards” that can be applied to all sectors “in order to identify the contributions that standards make to their performance”: ISO methodology 2.0.²⁸ Although this methodology is primarily meant to determine the economic benefits of standardisation for individual companies, – as stated in the ISO report – it can also be used to determine non-economic impact. To determine the benefits of standardisation for practitioners, industry and research organisations – as stated in Sub-sections 4.2.1 and 4.2.2 – in a structured way, ISO methodology 2.0 has been adapted in ResiStand to the domain of disaster resilience and crisis management.

The core of the ISO methodology 2.0 is the so-called ‘value chain’ to map the impact of standards as presented in Figure 5 (source: [3]). Within ResiStand we distinguish two main groups of stakeholders: end-users or practitioners on the one hand and industry and research organisations on the other hand.

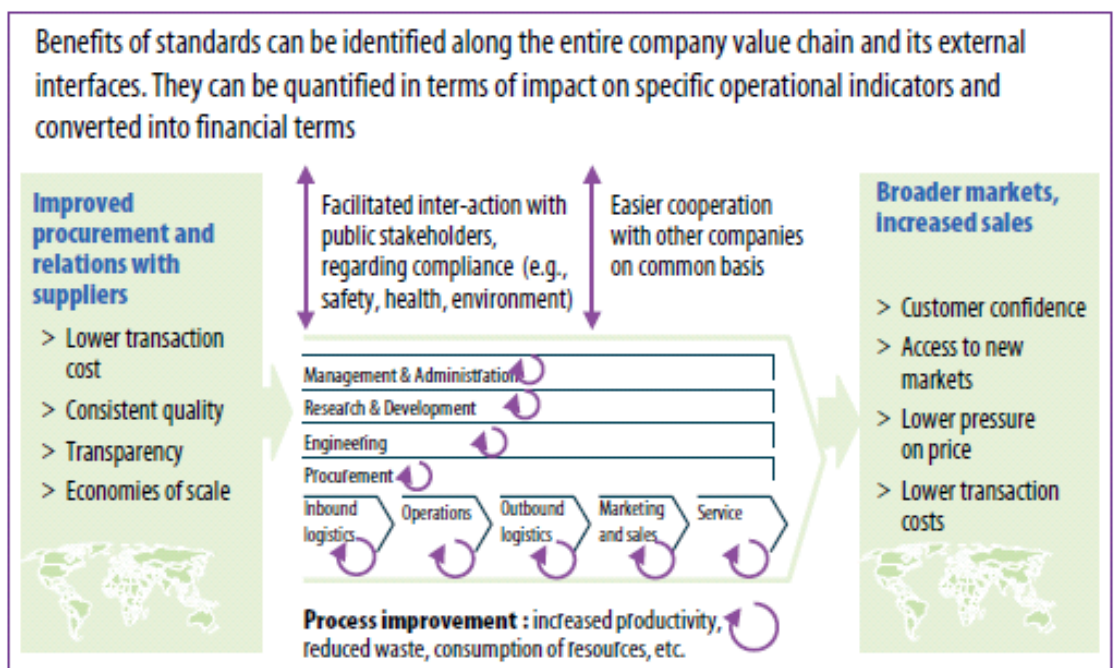


Figure 5: ISO methodology 2.0 at a glance

²⁸ “Economic benefits of standards, ISO methodology 2.0” (2013)

In Figure 6 the value chain has been adapted to the end-user situation. The red pentagon in the middle represents the processes of a practitioners' organisation related to its disaster resilience and crisis management capabilities. The potential benefits to the individual capabilities can be mapped by systematically investigating the expected improvement of these in case the standard has been applied. Also savings of these processes, resulting from having the standard, can be determined.²⁹ Next, the overall improvement on disaster resilience and crisis management (as a result of improved capabilities) can be determined (rectangle on the right). Because their benefits are similar to those of other organisations, the other three rectangles are the same as the ones in Figure 5.



Figure 6: Value chain of end-user/practitioner organisations

Figure 7 shows the value chain of an industry or research organisation.

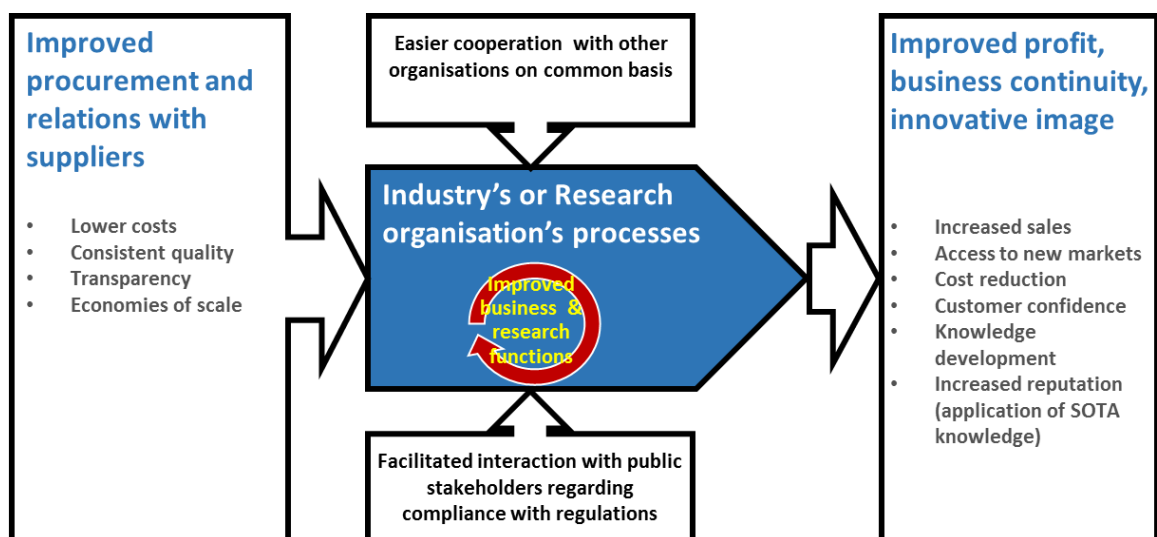


Figure 7: Value chain of industry and research organisations

²⁹ In compliance with the RCF, the assessment concerns the costs of personnel, equipment/technology and infrastructure that are directly related to these processes.

5.2 Aim and overview of the ResiStand Assessment Framework

The aim of the RAF is to support organisations in assessing the impact of a possible standardisation project and the feasibility of developing and implementing it. With the help of the RAF they will be enabled to systematically map the potential benefits of the standard, to check whether the standard is compliant with essential ethical, legal, social issues, and to consider the organisational conditions under which the standard will be developed and implemented. It should be noted that the RAF does not replace existing procedures and forms or business plans, which are in place to evaluate standardisation requests. The RAF complements these to provide insight into the impact and feasibility of a standardisation activity in an early stage, in which organisations consider to formulate a proposal, thus to submit e.g. an NWIP to a standardisation committee. In addition, the RAF can be used to compare various standardisation proposals.

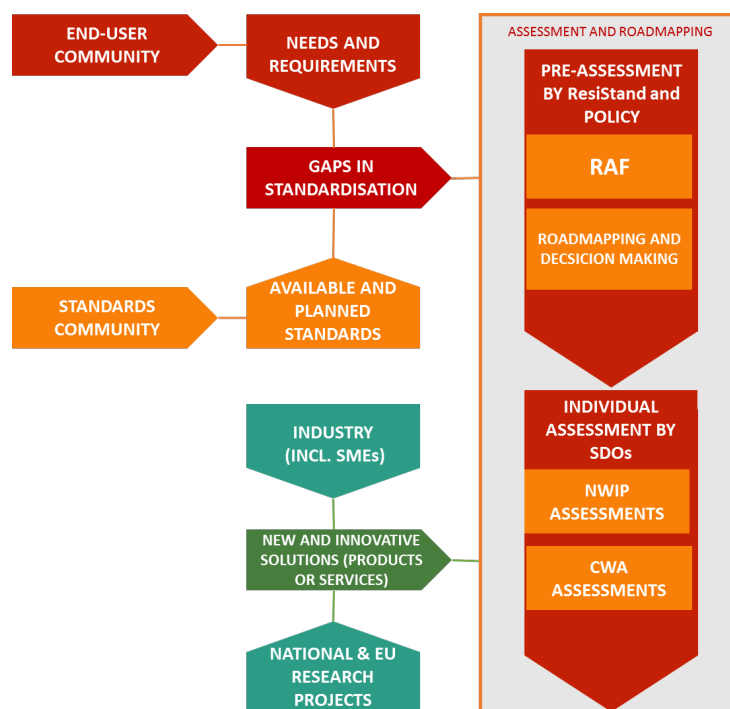


Figure 8: Position of the RAF in the decision process

The assessment method consists of the following sections:

1. *Intake*
Description of the proposed standardisation activity (the initiators, the objectives of the standard, its scope and its target groups), an overview of the (types of) organisations that will be involved in the development of the proposed standard, related standardisation issues and legislation initiatives, and a check on the consideration of ethical, legal and social issues
2. *Trends*
Investigating whether trends in society, disasters and crises, and disaster resilience and crisis management, as well as technological trends, are anticipated by the proposed standard
3. *Impact end-users*
Mapping of potential benefits for end-users or practitioners from improved disaster resilience capabilities and savings due to the standard
4. *Impact industry (SME) / research*
Mapping of economic benefits (market and business continuity opportunities) and of technological progress for industry and/or research organisations
5. *Feasibility*
Investigation of the conditions for developing and implementing the standard (foundation, development perspectives, implementation perspectives, considerations of drawbacks)

6. *Impact overview*

Summary of impact of the standard for society, the practitioners, industry and research

In Sections 5.3 to 5.8 the various RAF sections are described, including several examples. In addition, Annex 2 provides several enlarged (A3 size) screenshots of an Excel tool in which the RAF has been implemented.

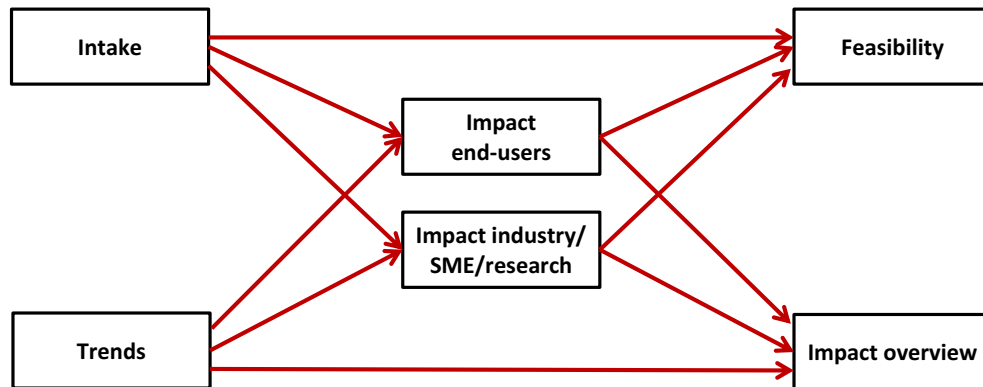


Figure 9: Overview of RAF sections

5.3 *RAF – Intake*

The intake concerns an overall description of the proposed standard and the involved stakeholders as well as a check on the consideration of several essential prerequisites related to ethical, legal and social issues.

Proposed standardisation activity

The first section requests information that characterises the goal and the scope of the proposed standards. Questions concern the:

- Title or short name
- Description of the standard
- Type of standard according to ISO/IEC Guide 2:2004³⁰
- Objectives that the initiators of the proposal want to achieve by establishing the standard
- Scope of the standard
- Geographical coverage of the standard (national, European or worldwide)
- Description and size of the target groups that will use or take advantage of the standard (the potential reach of the standard)

Stakeholders that are committed to be involved in the proposal development

This section asks for a description of which stakeholders already intend to be involved in the development of the standard. This section therefore provides some insight of the representative nature of the stakeholders in comparison to the target groups that are described in the previous section. This section therefore also provides insight in relation to how valuable the network of participants is.

Questions concern the:

- Involved practitioner (end-user) organisations
- Involved industry, SMEs and/or research organisations
- Familiarity of involved practitioner, industry and research organisations with standardisation³¹

³⁰ Options are: Basic standard, Terminology standard, Testing standard, Product standard, Process standard or Service standard.

- Involved SDOs
- Countries that are represented by these organisations

If the measure of representation and experience is low, it is likely that the proposal will be rejected because of feasibility reasons.

Uniqueness and compliance with policy

The proposed standardisation activity should meet the following requests:

- The standardisation activity is unique (there should be no overlap or conflict with other standards)
- The standardisation activity is compliant with and supports European policy demand for standards

To that purpose a checklist should be filled in. If these requests are not met, it is likely that the proposed standardisation activity will be rejected.

Ethical, legal and social issues

The proposed standardisation activity should meet the following request:

- The standardisation activity is compliant with European legislation

If this request is not met, it is likely that the proposed standardisation activity will be rejected.

In alignment with Section 3.3 the proposed standardisation activity should not conflict with the following fundamental principles:

- Dignity
- Avoidance of harm
- Non-discrimination
- Privacy
- Duty to provide care

To that purpose a checklist should be filled in, including a description/justification of why the proposed standard does not conflict with this set of principles. If the proposed standardisation activity conflicts with one of these principles, it is likely that it will be rejected.

³¹ Remark: Standardisation is an open process; 'new' stakeholders can get involved during the development (by joining committee or commenting on drafts).

Intake		ResiStand
Proposed standardisation activity		Free text
Title, short name of the standard	Example	
Description of the standard	...	
Initiating organisation(s)	..	
Type of standard (ISO/IEC Guide 2:2004)	Basic standard
Objectives that one wants to achieve	The main goals of the proposed standards are ...	
Scope of the standard (incl. explanation)	The scope is ...	
International dimension	European	
Target groups to use the standard	...	
Description of the size of the target groups	...	
Involvement of stakeholders in the proposal development		Free text
Involved practitioner (end-user) organisations	Civil protection organisations of ..., ... and ...; Police units of ..., etc.	
Involved industry and/or research organisations	TNO, DAPP, TRI, ...	
Familiarity of involved organisations with standardisation	Only some are familiar; most have only limited experience	
Involved SDOs	DIN, NEN and SFS	
Involved countries	DE, IT, UK, NL, FI, ...	
Uniqueness and compliance with policy		Comments
Unique standardisation initiative? (i.e. no duplication or conflict)	Yes	Checked
Compliant with European policy requests for standards ?	Yes	See requests from ... (2015), ... (2016), etc.
Ethical, legal and social issues		Comments
Compliant with European legislation?	Unknown	Has to be checked
Is the proposed standard conflicting or not conflicting the following principles:		
a) Dignity <i>This principle is the backbone of ethical and human rights legislation. It is a fundamental principle of a number of countries' Constitutions (e.g. the German Constitution) and is the most universally found principle in human rights legislation. In moral terms, dignity is a fundamental principle in understanding what constitutes the fair and ethical treatment of individuals.</i>	Non-Conflicting	
b) Avoidance of harm <i>This principle is a core principle of a range of ethical and human rights legislation. This principle transcends disciplinary boundaries and a wide range of roles and practices (medicine, research ethics, risk and resilience planning). This principle also forms the basis of ethical practice for Libertarians. The 'do no harm' principle is embedded in a range of ethical practices and regulation.</i>	Non-Conflicting	
c) Non-discrimination <i>This principle is a core principle for ethics, human rights and civil liberties. It forms the basis of not discriminating against people for their age, sex, race, national origin, physical or mental disability, medical condition, pregnancy, marital status, or sexual orientation, and providing equal treatment regardless of any of those reasons listed previously.</i>	Non-Conflicting	
d) Privacy <i>Privacy is recognised as a universal human right, with various international guidelines, accords and frameworks providing the basis for national laws, policy frameworks and international agreements globally.</i>	Non-Conflicting	
e) Duty to provide care <i>This principle is heavily related to the principle of dignity. It requires all individuals to be provided with security, physical safety, access to food and clean water, hygiene, temporary housing, clothing, and, if necessary, emergency medical and psychological care.</i>	Non-Conflicting	

Figure 10: RAF Intake

5.4 RAF – Trends

In this section of the RAF, the relevance of the standard in relation to all kinds of trends is considered. As described in Section 4.3, the RAF distinguishes four categories of trends. The presence of relevant trends can be considered as an indicator for determining the overall relevance of the proposed standard.

Increasing vulnerability of society

Checklist whether the standard anticipates/takes into account (Yes or No):

- Aging of the population
- Increasing urbanisation in coastal areas and along main rivers
- Increasing international mobility (due to globalisation)
- Hyper connectivity, including linkages between the 'real world' and the 'virtual world'

Changes in crises, disasters and their impact

Checklist whether the standard anticipates (Yes or No):

- Increasing number of natural disasters due to climate change (forest fires, extreme rainfall, etc.)
- Increasing number of physical attacks
- Increasing number of cyber incidents/attacks
- Increase of cascading effects due to interdependencies (of e.g. critical infrastructures)

Developments in disaster resilience and crisis management

Checklist whether the standard anticipates (Yes or No):

- Increasing involvement of society
(building on societal potential is required because the size of public services is decreasing)
- Towards Network-Enabled Capabilities of emergency services and crisis partners
(requiring information sharing/network governance)
- Increasing need for analysis tools (big data)
- Increasing importance of social media
(for purposes to communicate with citizens, and also to meet the society's needs for transparency)

Technological trends

Will the standard allow developments and innovations and/or will create a technological step forward?

Checklist whether the standard anticipates – and does not hinder – trends (Yes or No) related to technological progress in:³²

- Sensing technology
- Command, Control and Communication technology
- Surveillance technology (including the use of unmanned vehicles)
- Protection of the public in general
- Simulation technology
- Physical protection of objects and subjects
- Crisis logistics

In addition, the user can define other technical trends he would like to consider.

³² The classification of technologies originates from the ResiStand Handbook (D1.1, chapter 4).

Trends that are anticipated by the proposed standard			ResiStand
Vulnerability of society	Y/N/?	Comments	
Aging of the population	No		
Increasing urbanisation (along the coast and rivers)	Yes	Urbanisation is considered ...	
Increasing international mobility (due to globalisation)	Yes	
Hyperconnectivity (including interlinkage physical and virtual world)	Yes	The standard will assist operators of critical infrastructures ... etc.	
Crises and disasters	Y/N/?	Comments	
Increasing number of natural disasters (due to climate change)	Yes	ijk jj lj 'pipoi pi p	
Increasing number of physical attacks	No		
Increasing number of cyber incidents/attacks	Unknown	To be checked	
Increase of cascading effects (due to interdependencies)	Yes	etc.	
Disaster resilience and crisis management	Y/N/?	Comments	
Increasing involvement of society (building on societal potential)	Yes	...	
Towards Network-Enabled Capabilities (info-sharing/network governance)	No		
Increasing need for analysis tools (big data)	No		
Increasing importance of social media (communication, transparency)	Yes	...	
Technical trends	Y/N/?	Comments	
Progress in sensing technologies	No		
Progress in command, control and communication	Yes	...	
Progress in surveillance, including unmanned vehicle technology	No		
Progress in protection of the public in general	Yes	...	
Progress in simulation technology	No		
Progress in physical protection of objects and subjects	Unknown		
Progress in crisis logistics	No		
Other technical developments	Unknown		

Figure 11: RAF Trends

5.5 RAF – Impact for end-users/practitioners

In this section of the RAF the impact of the standard for practitioners is considered. As described in Sub-section 4.2.1, the RAF distinguishes two main categories of impact: impact on disaster resilience and crisis management as a result of improved capabilities, and indirect impact because of increased efficiency (cost savings, etc.) as described in Section 5.1.

Impact on disaster resilience and crisis management

To express the expected impact of the proposed standard on improvement of disaster resilience the following questions need to be answered:

- For which types of natural, technological and intentional disasters will the standard be relevant? This concerns 12 Yes/No-questions; i.e. one question per type of disaster according to the ResiStand Conceptual Framework (RCF).³³
- To what extent is it expected that the proposed standard will contribute to an improvement of each of the 34 disaster resilience and crisis management capabilities separately?

³³ Geophysical disasters, Meteorological disasters, Climatological disasters, Hydrological disasters, Biological disasters, Extra-terrestrial disasters, Industrial disasters, Transport disasters, Miscellaneous disasters, Critical Infrastructure disasters, Physical attacks and Non-physical (ICT-related) attacks; source: “ResiStand Handbook” (ResiStand deliverable D1.1).

This concerns 34 multiple-choice questions; options are: No difference, Little improvement, Moderate improvement and Strong improvement. Each question deals with one specific capability as described in the RCF. Together these capabilities cover the four phases of the disaster management cycle: Mitigation, Preparedness, Response and Recovery.

- What will be the expected overall improvement on disaster resilience and crisis management, once the standard has become established?

This concerns 5 multiple-choice questions; options are: No difference, Little improvement, Moderate improvement and Strong improvement. Each question deals with one impact criterion from UNISDR,³⁴ that is:

- Reduction in loss of life, injury, disease and/or improvement of physical, social, mental well-being
- Reduction in damage to property and/or destruction of assets
- Reduction in loss of services
- Reduced social, economic disruption
- Reduced environmental degradation

Increased efficiency of practitioners' organisations

Like other organisations, practitioners also aim for efficiency, which, due to savings, might indirectly contribute to the additional improvement of disaster resilience and crisis management.³⁵ To this end, the following multiple-choice questions are asked:³⁶

- What potential cost savings are expected from having the standard to execute the various operational and supporting disaster resilience and crisis management task, with respect to the following cost categories:³⁷
 - Personnel: employment costs, recruitment costs?
 - Material and/or Technology: costs of equipment, tools and of ICT?
 - Other assets: finance, real estate/infrastructure?
- What potential benefits are expected from the standard, related to procurement:
 - Lower procurement costs (lower prices)?
 - More consistent quality?
 - Improved transparency?
 - Economies of scale?
- What potential benefits are expected from the standard, related to:
 - Interaction with public stakeholders, regarding compliance (e.g., with respect to safety, health and environmental issues)?
 - Cooperation, interoperability with other organisations, companies, suppliers, etc. apart from disaster resilience and crisis management issues?

³⁴ "UNISDR Terminology on Disaster Risk Reduction"; United Nations; 2009

³⁵ For instance, one might think of issues like economies of scale (cost advantages due to size, output, or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output; Wikipedia) and of improved transparency in supplier relationships and contracting.

³⁶ Options are: No difference, Little improvement, Moderate improvement and Strong improvement.

³⁷ The requested cost features are aligned with the ResiStand Conceptual Framework (see annex 1 or the "ResiStand Handbook" (D1.1)).

Impact - Practitioners		ResiStand	
Disaster Resilience and Crisis Management			
What potential effects are expected for the considered standard proposal when operational?			
	UNISDR impact criteria	Expected potential effect	
	Reduction in loss of life, injury, disease and improvement of physical/social/mental well being	Strong improvement	
	Reduction in damage to property, destruction of assets	No difference	
	Reduction in loss of services	No difference	
	Reduced social, economic disruption	Moderate improvement	
	Reduced environmental degradation	Little improvement	
To what extent will the proposed standard contribute to an improvement of the following Capabilities/Tasks?			
Phase	Capability or Task	Contribution	Explanation
Mitigation			
Operational Tasks			
Risk Assessment	Risk identification <i>Better finding, recognising and describing risks</i>	No difference	
	Risk analysis <i>Better comprehend the nature of risks</i>	No difference	
	Risk evaluation <i>Process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable.</i>	No difference	
Exposure Reduction	Property protection <i>Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area</i>	No difference	
	Natural resource protection <i>Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems</i>	No difference	
Supporting Tasks	Trend analysis <i>Investigation of the evolution of risks</i>	Little improvement	
	Monitoring and review <i>Ensuring controls are effective and efficient, obtaining further information to improve risk assessment, analysing lessons learned, detect changes in internal and external context, identify emerging risks.</i>	No difference	

Figure 12: RAF – Impact, practitioner perspective

Only the first questions are presented in the figure above. Annex 2 provides a complete overview.

5.6 RAF – Impact for industry and research organisations

In this section of the RAF the impact of the standard for industry (including SMEs) and research organisations is considered. As described in Sub-section 4.2.2, the RAF distinguishes two main categories of impact: business opportunities (profit, business continuity) and impact on innovative capacity, and indirect impact because of increased efficiency (cost savings, etc.) as described in Section 5.1

In this section, only multiple-choice questions are asked; for each question the options are: No difference, Little improvement, Moderate improvement and Strong improvement.

Business and innovation opportunities

- What potential effects are expected to increase profits and to improve business continuity?
 - Increasing sales on the existing market because the market-share will increase (competitive advantages)
 - Access to new markets, e.g. because the developed standard offers opportunities (e.g. dual use)
 - Improved profit margin
 - Cost reduction as a result of cheaper procurement, production and/or sales

- Increased customer satisfaction³⁸
 - Increased or more consistent quality
- What potential effects are expected to increase innovative reputation?
 - Knowledge development
 - Valorisation of knowledge

Increased efficiency of industry and research organisations³⁹

- To what extent will the proposed standard contribute to an improvement of the following internal business functions?
 - Inbound Logistics
*The activities of receiving, storing, and disseminating incoming goods or material for use*⁴⁰
 - Production / Operations
Processing, quality assurance and HSE (health, safety and environment)
 - Outbound logistics
*The movement of material associated with storing, transporting, and distributing goods to its customers*⁴¹
 - Marketing and Sales
Market analysis and research, marketing activities, client development, contracting, sale
 - Service
Customer care and technical support
 - Management & Administration
General management, financing, accounting, controlling, ICT, HR, etc.
 - Engineering / Construction
Efficient engineering, design and construction
 - R&D
Efficient R&D, knowledge management, research, product development
 - Procurement
Efficient procurement activities, screening/selection of suppliers, negotiating, contracting
- What potential effects are expected for procurement and relations with suppliers?
 - Lower transaction costs
*The cost of participating in a market*⁴²
 - More Consistent Quality
Consistent and predictable results are achieved more effectively and efficiently
 - Improved Transparency
Transparency in supplier relationships and contracting
 - Economies of Scale
*Cost advantages due to size, output or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output*⁴³
- What potential effects are expected on the interaction with public stakeholders regarding compliance with regulations?
- What potential effects are expected on the interaction or collaboration with other industrial and/or research organisations?

³⁸ Trust of customers defined as the perception of confidence in the exchange partner's reliability and integrity (Garbarino, 1999).

³⁹ The aspects of increased efficiency are adopted from ISO methodology 2.0.

⁴⁰ www.businessdictionary.com

⁴¹ Ibid.

⁴² Source: Wikipedia

⁴³ Ibid.

Impact - Industry & Research Organisations		ResiStand		
What potential effects are expected to increase profits, improve business continuity and develop innovation?				
Expected potential effect	Expected potential effect	Explanation		
Profit – business opportunities Business continuity Innovation	Increasing sales on existing market <i>increased market share</i> Access to new markets <i>e.g. by dual use</i> Improved profit margin Cost Reduction <i>As a result of cheaper procurement, production and sales</i>	<input type="text" value="Moderate improvement"/> <input type="text" value="Little improvement"/> <input type="text" value="Little improvement"/> <input type="text" value="No difference"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	Customer satisfaction/image/reputation <i>Trust of customers defined as the perception of confidence in the exchange partner's reliability and integrity (Garbarino, 1999)</i> Consistent quality	<input type="text" value="Moderate improvement"/> <input type="text" value="Moderate improvement"/>	<input type="text"/> <input type="text"/>	
	Knowledge development Valorisation of knowledge	<input type="text" value="Little improvement"/> <input type="text" value="Strong improvement"/>	<input type="text"/> <input type="text"/>	
	To what extent will the proposed standard contribute to an improvement of the following Internal Business Functions?			
	Impact on Business Functions (ISO Methodology 2.0, Standard Impacts Map)			
	Contribution			
	Explanation			
		Inbound Logistics <i>The activities of receiving, storing, and disseminating incoming goods or material for use.(http://www.businessdictionary.com)</i> Production / Operations <i>Processing, Quality Assurance and HSE (health, safety and environment)</i> Outbound logistics <i>The movement of material associated with storing, transporting, and distributing goods to its customers</i> Marketing and Sales <i>Market analysis and research, Marketing activities, client development, Contracting, Sale</i> Service <i>Customer care and technical support</i> Management & Administration <i>General management, financing, accounting, controlling, Legal, Facility management, Risk, IT, HR.</i> Engineering / Construction <i>Efficient engineering, Knowledge management, Design, Construction.</i> R&D <i>Efficient R&D, Knowledge management, Research, Product development</i> Procurement <i>Efficient procurement activities, Screening and selection of suppliers. Negotiating and contracting</i>	<input type="text" value="Unknown"/> <input type="text" value="Moderate improvement"/> <input type="text" value="Unknown"/> <input type="text" value="Little improvement"/> <input type="text" value="Moderate improvement"/> <input type="text" value="No difference"/> <input type="text" value="Moderate improvement"/> <input type="text" value="Strong improvement"/> <input type="text" value="No difference"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
		What potential effects are expected for procurement and relations with suppliers?		
		Expected potential effect		
Expected potential effect				
Explanation				
		Lower transaction costs <i>The cost of participating in a market (Wikipedia)</i> More Consistent Quality <i>Consistent and predictable results are achieved more effectively and efficiently</i> Improved Transparency <i>Transparency in supplier relationships and contracting</i> Economies of Scale <i>Cost advantages due to size, output, or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output.(Wikipedia)</i>	<input type="text" value="Unknown"/> <input type="text" value="Little improvement"/> <input type="text" value="Little improvement"/> <input type="text" value="Moderate improvement"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
		What potential effects are expected on the inter-action with public stakeholders regarding compliance with regulations?		
		Expected potential effect		
		Expected potential effect		
Explanation				
	Facilitated inter-action with public stakeholders, regarding compliance <i>E.g. safety, health, environment</i>	<input type="text" value="Strong improvement"/>	<input type="text"/>	
	What potential effects are expected on the inter-action or collaboration with other parties?			
Expected potential effect				
Expected potential effect				
Explanation				
	Easier cooperation with other organisations/companies on common basis <i>Improved interoperability</i>	<input type="text" value="Little improvement"/>	<input type="text"/>	

Figure 13: RAF – Impact, industry and research perspective

5.7 RAF – Feasibility

The feasibility of a successful development and implementation of the standard depends on several determining factors. These concern the foundation or start-up conditions, the development and implementation perspectives and the way in which potential drawbacks and constraints are tackled.

Foundation

The aim and the scope of the proposed standard should be clear to all involved stakeholders. In addition the standard should have priority from end-users' perspective (expected impact), there should be consensus by both practitioners and industry/research on what should be achieved. Support of government and policy (end-users) and of top management of suppliers (industry) is required.

To that purpose, the following checklist – consisting of yes-no questions – is used:

- Could all relevant categories of stakeholders (practitioners, industry/research and SDOs⁴⁴) be involved in developing the standard?
- Are SDOs involved in developing the standard proposal?⁴⁵
- Is the scope of the standard clear to all involved stakeholders?
- Consensus exists among all involved stakeholders on the required output?
- Does the standard respond to prioritised needs in the disaster resilience domain?
- Are all stakeholders aware of the (quantified) benefits of the standard?
- Governmental (end-users/practitioners) and top level (industry/research) commitment (engagement) exists to develop and implement the standard?
- Is the lead time to develop the standard shorter than 1.5 years?

In addition, a rough estimation of the need for funding for developing the standard is requested; options are: low, medium or high.⁴⁶

Development perspectives

Based on recommendations from current experiences, for being successful in developing standards it is important to meet a number of conditions (see also Section 2.3). Therefore, the following yes-no questions are asked:

- Is the timeframe clear in which development will take place?
- Is there sufficient funding to develop the standard?
- Is a critical mass of committed experts available within the development team to assure that standardisation activities are focussed on most important issues?
- Is the composition of the development team well-balanced (background, public-private, nationality)?
- Background support by practitioners' organisations or platforms (sounding board) exists?
- Background support by relevant industry/research organisations or platforms exists?

⁴⁴ In fact, only in case of a non-technical standard participation of industry is not required.

⁴⁵ Involvement of SDOs in an early stage will be beneficial because of their experiences with initiating standards.

⁴⁶ This corresponds with the CEN/CENELEC process that was used to assess standardisation proposals in the domain of Protective Personnel Equipment (2014). *“Low: it is possible to start the project but funding is desirable for delivering results in short time; Medium: funding is needed as (1) results may not be obtained without funding and/or will take substantially longer (e.g. arranging inter-laboratory testing) and (2) the number of available experts will be limited; High: Funding is essential as without funding the project will not go through because results cannot be obtained (e.g. financing of inter-laboratory testing) or number of available experts will be too limited.”*

Implementation (or follow-up) perspectives

The uptake perspectives, once the standard has been developed, should be as clear as possible; in addition legal, ethical and societal aspects of implementation should be well considered (see also Section 2.3). The following yes-no questions are used to check these aspects:

- Has funding for implementation of the standard already been arranged?
- Have promotion arrangements in support of implementation already been developed?
- Have measures been taken to prevent high costs to adapt to the proposed standard?

Drawbacks and constraints

In this section drawbacks for each of the three stakeholder groups can be described, as well as if and how these drawbacks are tackled. This should be done in free text format. To this purpose – as a kind of checklist – the drawbacks that are described in Sub-sections 4.2.1 and 4.2.2, can be used.

Feasibility		ResiStand
Foundation	Y/N/?	Explanation
All relevant categories of stakeholders involved in developing the standard	Yes	But still some additional practitioners would be beneficial.
Sufficient SDOs involved in developing the standard	Yes	DIN, NEN and SFS are ...
Clear scope of the standard among all stakeholders	Yes	All partners signed a pre-proposal text that sounds very promising
Consensus on the output (what should be achieved)	No	Still some minor discussions.
Responding the needs in the disaster resilience domain	Yes	It fully responds to the need expressed by ... in their manifest ... (2016)
Awareness among all stakeholders about (quantified) benefits	No	Not yet.
Governmental / Top level commitment	Yes	Quite some letters of intent have been signed.
Duration of development less or equal then 1.5 year	Unknown	Planning process is on-going.
Costs of development	Medium	...
<p>low: it is possible to start the project but funding is desirable for delivering results in short time.</p> <p>medium: funding is needed as (1) results may not be obtained without funding and/or will take substantially longer (e.g. arranging inter-laboratory testing) and (2) the number of available experts will be limited.</p> <p>high: Funding is essential as without funding the project will not go through because results cannot be obtained (e.g. financing of inter-laboratory testing) or number of available experts will be too limited.</p>		
Development perspectives	Y/N/?	Explanation
Clear time-frame	No	Planning process is on-going.
Sufficient funding for development	No	Not clear yet.
Availability of a critical mass of experts within development team	Yes	Sufficient partners are familiar with standardisation development and ...
Development team well balanced	Yes	However some additional practitioners from 1 or 2 other countries would be ...
Background support by practitioners	Yes	The ResiStand End-User Community supports the proposed standard ...
Background support by relevant industry / research	No	Negotiations are on-going.
Implementation / follow-up perspectives	Y/N/?	Explanation
Funding for implementation reserved	No	Not yet.
Promotion arrangements in support of implementation foreseen	Yes	TRI has arranged Europe-wide support at national levels ...
Measures taken to prevent high costs to adapt the proposed standard	No	To be done.
Ethical, legal and social aspects covered	Yes	
Drawbacks and constraints	Y/N/?	Explanation
Drawbacks of practitioners tackled?	Yes	...
Drawbacks of industry and research tackled?	No	
Other drawbacks tackled?	Yes	No other drawbacks are foreseen because ...

Figure 14: RAF Feasibility


5.8 RAF – Impact overview

The RAF provides insight to decision makers into the applicability and feasibility of proposals for future standards, and to support the comparison between standardisation proposals. It does not, however, produce

a decision as to proceed or not, or to give a ranking of the various proposals. This remains a task for decision makers themselves. Combined with the 'RAF – Feasibility' this overview presents the main assessment results of the proposed standard. Both serve as input to a follow-on multi-criteria decision process in which is decided to formulate a proposal, or in which an informed choice is needed from different standardisation options.

The RAF overview slide presents a summarised view of the most important topics concerning the expected impact of the standard for society, the practitioners and industry/research. No additional input is requested because the contents are either copied from other overviews on impact or trends, or result from processing data provided in other overviews. For instance, by combining impact results in the same category of capabilities. Figure 15 shows an example of a part of the RAF Impact overview⁴⁷ (see Annex 2 for the entire overview). To indicate results, such as fulfilment of requirements or expected impact, colours are used:

- Green indicates positive results
fulfilment or relevance: **Yes**; improvement: Moderate (++) or Strong (+++)⁴⁸
- Yellow indicates slightly positive results
Little or some improvement (+)
- Grey indicates neutral results
No difference (0)
- Red indicates negative results
fulfilment or relevance: **No**
- White indicates that the results are unknown (?).



Profit, business continuity, innovative image		Expected improvement
Increasing sales on existing market		++
Access to new markets		+
Improved profit margin		+
Cost Reduction		0
Customer satisfaction/image/reputation		++
Consistent quality		++
Knowledge development		+
Valorisation of knowledge		+++

Anticipated trends		Anticipated
Technical trends - progress in:		
sensing technologies		No
command, control and communication		Yes
surveillance, incl.unmanned vehicle technology		No
protection of the public in general		Yes
simulation technology		No
physical protection of objects and subjects		Unknown

Figure 15: Partial presentation of RAF Impact overview

It should be noted that the focus of the development of the initial version was to collect all questions that are or might be relevant for assessing the impact and feasibility of a proposed standardisation activity, and to provide an overview of positive, neutral and negative assessment. An issue that will be investigated next period concerns whether it is required to introduce threshold scores and weights for the various criteria in support of the decision making process.

⁴⁷ The scores directly correspond with answers that are provided by the user in other RAF sections.

⁴⁸ Next period it will be investigated whether it is required that also worsening (-) can be indicated in the RAF.

6 Conclusion

6.1 Key results

The initial version of the ResiStand Assessment Framework was developed during the second half of 2016. Activities began with review of other past and current best practices related to the assessment of the feasibility and the impact of standardisation activities and deliverables with the potential to improve disaster resilience. Experiences from specific activities have been taken into account, thus serving as an important source of input to ensure the applicability of the assessment framework. In addition, a desktop study was performed to determine criteria that describe the impact of standardisation to improve crisis management and disaster resilience, and to characterise ethical, legal and social aspects. Drivers and constraints of the various groups of stakeholders have been tentatively identified in this way.

The initial version of the RAF itself has been developed in an iterative way. A first sketch of the framework was developed in September. During the period October to November current assessment practices and assessment needs were identified. Combined with results from a literature study, these results served as input to the further development of the RAF in December. Finally, the RAF has been updated after an internal review by consortium partners in January.

The RAF is described in this deliverable. In addition, for internal purposes, an Excel version of the initial RAF has been developed. The RAF consists of six sections:

1. 'RAF – Intake' in which the proposed standardisation activity is described, and in which a check is performed on conformity with e.g. ethical, legal and social issues;
2. 'RAF – Trends' in which is indicated which trends are anticipated by the standardisation activity;
3. 'RAF – Impact end-users' in which potential benefits for end-users (practitioners) are presented;
4. 'RAF – Impact industry, SME, research' in which potential benefits for suppliers (industry, SMEs and/or research organisations) are presented;
5. 'RAF – Feasibility' in which the conditions for developing and implementing the standard are listed;
6. 'RAF – Impact overview' in which the potential impact of the standard is summarised.

6.2 Applicability and way ahead

The current version of the assessment framework is ready to be verified in the next stage of ResiStand. Besides, it can be used internally (i.e. by the consortium) on the background during the workshops with various groups of stakeholders in WP3 and WP4 (January – March 2017) as a kind of practical review.

The verification concerns a review of project external NSBs providing comments on suitability and appropriateness of the assessment topics within the RAF, and results from a workshop within Task 5.1 on the potential of standardisation and drivers and constraints of stakeholders (first half of 2017).

As the focus of the development of the initial version was to collect all questions that are or might be relevant for assessing the impact and feasibility of a proposed standardisation activity, and to check ethical, legal and social aspects, it might turn out that some questions can be skipped. However, it might also turn out that additional questions are required. Another issue will be to investigate whether to introduce threshold scores and weights for the various criteria in support of the decision process.

These activities will be input for an update of the RAF in the summer of 2017. The updated version will be applied in the second half of 2017, in order to assess preliminary identified standardisation activities resulting from the gap analysis in Task 5.2 in order to produce a roadmap in Task 5.3.

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Annex 1 Abstract of the ResiStand Conceptual Framework

This annex contains elements of the ResiStand Conceptual Framework (RCF) that are most relevant for the ResiStand Assessment Framework. For the complete version of the RCF one is referred to the “ResiStand Handbook” (ResiStand deliverable D1.1, Chapter 4).

A.1.1 Basic concepts

Hazards and Threats

The terms hazard and threat differ in meaning, although the ISO definitions are quite similar. A threat is to be considered as the actual danger of a hazard (*“Threat is hazard translated into movement”*⁴⁹), whereas, hazards include latent conditions that may represent future threats⁵⁰.

Crisis and Disaster

A crisis and a disaster are emergency situations with (potentially) high negative impact. In case of a crisis there is much uncertainty that disrupts core activities. In case of a disaster there are widespread losses (casualties, damage) while in addition the affected community, region or country cannot effectively respond and recover on its own. We will mainly use the term disaster in the following.

Classification of disasters

We distinguish three generic groups of disasters: natural disasters, technological disasters and intentional disasters. The primary triggering event determines to which type a disaster is classified.⁵¹

- **Natural disasters** are triggered by a naturally occurring event. This group is sub-divided by the International Disaster Database EM-DAT⁵² into five sub-groups:
 - *Geophysical disasters*
Earthquake, Volcanic eruption and Mass Movement
 - *Meteorological disasters*
Storm, Tornado
 - *Climatological disasters*
Extreme precipitation, Extreme temperature, Drought and Wildfire
 - *Hydrological disasters*
General (river) flood, Flash flood, Coastal flood and Landslide
 - *Biological disasters*
Epidemics/Pandemics, Insect infestation and Animal stampede
 - *Extra-terrestrial disasters*
Asteroids, Meteoroids and Comets

⁴⁹ <http://www.bruce-news.com/hazard-threat.html>

⁵⁰ UN-Disaster Preparedness for Effective Response

⁵¹ Note that a disaster can consist of several types of events/incidents, but that it is mostly classified according to the initial event. For example, a large explosion caused by a wildfire is classified as a natural disaster.

⁵² <http://www.emdat.be>

- **Technological disasters** are triggered by either an unintentionally human induced event or by a technological failure. This group is sub-divided by EM-DAT into three sub-groups; to the purpose of ResiStand we added a specific sub-group on Critical Infrastructure failures:
 - Industrial disasters
Chemical spill, Explosion, Fire, Gas leak, Poisoning and Radiation
 - Transport disasters
Air crash, Road accident, Rail accident, Accident on Water
 - Miscellaneous disasters
Explosion, Collapse of buildings/infrastructures, Fire in a large building
 - Critical Infrastructure disasters
Major failure in supply of Drinking water, Energy, Telecom/ICT
- **Intentional disasters** that are triggered by a malicious event (i.e. an act of terror or crime):
 - Physical attacks
Bomb attack and CBRN-attack
 - Non-physical attacks
ICT-related attacks like Cyber-attack and Large-scale cyber-crime.

Disaster characteristics

The development of a disaster (event) – supposed there would be no disaster response at all – is determined by three categories of characteristics:

- **Disaster event characteristics**, which describe the type, the location, the size and the duration of the disaster event.
- **Characteristics that can be influenced** which describe the population (the society) that might directly or indirectly be affected by the disaster and assets that can be saved by response measures; it concerns among others aspects like the number of immediate involved citizens, the population density and composition of the population, the awareness of the population on how to react in case of a disaster and the sense of technology (i.e. combination of the availability of technical means such as cars, mobile phones, etc. and the ability of the population to use these means), but also vehicles, goods and other properties that can be saved by measures during a disaster event.
- **Characteristics that cannot be influenced** by response measures, such as the weather, the type of terrain (sea, delta, flat, mountain, forest, desert), the type of land-use (urban, rural, industrial, agricultural), the transport infrastructure (high standard, low standard, rudimentary, ...) and the presence of vulnerable or critical objects (hospitals, railroad station).

Effects of disasters

The effects of a disaster are divided into two categories:

- **Impact** (direct consequences in short and long term) such as numbers of fatalities, injured/ill people, costs, impact on basic necessities and social and political stability; UNISDR⁵³ defines disaster impact as: *“The consequences of a disaster may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.”*
- **Cascading events** that may lead to additional incidents or disasters, and additional impact (indirect consequences in short and long term). E.g., the Japan-tsunami/-earthquake in 2011, which resulted in floods, nuclear incidents, pollution, etc., can be considered as a cascade of consecutive disaster

⁵³ UNISDR Terminology on Disaster Risk Reduction (2009)

events. Therefore, in ResiStand a disaster is considered as a cascade of one or more separate disaster events (2nd order, 3rd order, etc.), that result from one initial ‘triggering disaster event’.

A.1.2 Disaster management and resilience

The disaster management approach can be illustrated by the so-called Disaster Management Cycle⁵⁴, which consists of four phases: Mitigation⁵⁵, Preparedness, Response and Recovery. The disaster resilience level is determined by the combination of all capacities within society to respond to and to recover from a disaster in a timely and efficient manner. The required capacities are determined within the mitigation phase and are established in the preparedness phase.



Figure 16: Disaster Management Cycle

These phases are described in detail (including the main tasks related to each of the phases) in the following Section A.1.3. Within the general Resilience discussion, which is on-going since several years, a cycle describing the different phases of Resilience has been developed as well in several versions. These cycles usually consist of phases titled “Understand Risk”, “Anticipate / prepare”, “Absorb / withstand”, “Respond / Recover” and “Adapt / learn”. Although these phases set a different focus and provide another perspective to disaster management as a whole, they are partly overlapping with and covered by the above described Disaster Management Cycle. Therefore, for the ResiStand Conceptual Framework that serves the ResiStand CSA, these Resilience aspects are considered to be included and addressed in the Disaster Management Cycle and its related tasks.

A.1.3 Disaster Management Phases and related tasks

This section contains a description of the disaster management phases within the RCF. For each of these four phases, the core objective is given, the main operational tasks as well as supporting tasks have been identified and it is briefly described in what the phase should result in.

⁵⁴ Center for Excellence in Disaster Management & Humanitarian Assistance (<https://www.cfedma.org/Training/DMHA101/Disaster-Management-Overview-Definitions>)

⁵⁵ It should be noted that in literature often the term Prevention is used instead of Mitigation. However, within the RCF we use the term Mitigation which is more adequate in the context of the overall resilience concept and the acceptance of the fact that disaster risks cannot be eliminated.

A.1.3.1 **Mitigation**

Objective: To take measures to limit and reduce the impact of crisis/disasters⁵⁶

Resulting in: Reduced vulnerability

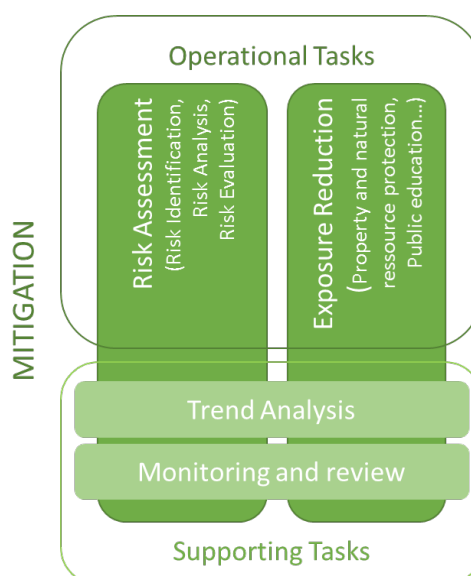


Figure 17: Mitigation Tasks of RCF

Operational Tasks:

- *Risk assessment*, consisting of
 - Risk identification: Process of finding, recognizing and describing risk. (ISO 31000)
 - Risk analysis: Process to comprehend the nature of risk and to determine the level of risk. (ISO 31000)
 - Risk evaluation: Process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable. (ISO 31000)
- *Exposure⁵⁷ reduction*, consisting of
 - Property protection (incl. critical infrastructures): Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. (FEMA⁵⁸)
 - Natural resource protection: Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. (FEMA⁵⁸)
 - Public education and awareness raising: Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. (FEMA⁵⁸)

⁵⁶ Based on ISO 22300 in which Mitigation is defined as "Measures taken to prevent, limit and reduce impact of the negative consequences of incidents, emergencies and disasters."

⁵⁷ People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses (UNISDR 2009)

⁵⁸ "Integrating historic property and cultural resource considerations into hazard mitigation planning" (FEMA 386-6; 2005)

Supporting Tasks:

- *Trend analysis*: Investigation of the evolution of risks. (in line with ISO 17666)
- *Monitoring and review*: Ensuring controls are effective and efficient, obtaining further information to improve risk assessment, analysing lessons learned, detect changes in internal and external context, identify emerging risks. (ISO 31000)

A.1.3.2 Preparedness

Objective: To develop and maintain the organisation structure and the capabilities to carry out response and recovery activities in case of a disaster⁵⁹

Resulting in: Improved response and recovery capabilities

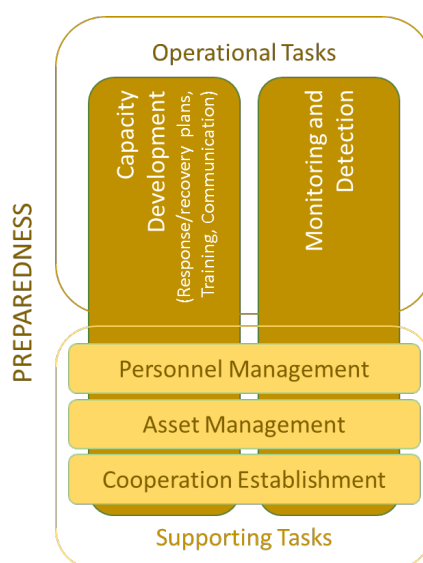


Figure 18: Preparedness Tasks in RCF

Operational Tasks:

- *Capacity development*⁶⁰, consisting of
 - Response and recovery planning: Develop, compile and maintain procedures and information in readiness for use in an incident (response and recovery). (ISO 28002)
 - Training: Activities designed to facilitate the learning and development of knowledge, skills, and abilities, and to improve the performance of specific tasks or roles (in disaster response and/or recovery). (ISO 22300)
 - Preparedness communication: Communicating, consulting and/or instructing the public how to be well-prepared for a crisis/disasters and how to behave when a crisis/disaster event occurs.
- *Monitoring / Detection*: Determine the status of an environment to alert personnel (i.e. emergency services) to the presence of an incident and to allow control (response) actions to be initiated. (based on ISO 14004 and ISO 10418)

⁵⁹ Based on ISO 22300 in which Preparedness is defined as “Activities taken in order to prepare incident (disaster) response”.

⁶⁰ The process by which people, organisations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions. (UNISDR 2009)

Supporting Tasks:

- *Personnel Management*: Activities to provide enough and skilled personnel that is required to carry out certain response and recovery tasks: Establish workforce and Education of knowledge and skills to perform certain response or recovery tasks.
- *Asset Management*: Activities to provide equipment, tools, ICT and other assets that are required to enable to respond to and recover from disasters: Procurement of infrastructure, equipment, (ICT) tools and supplies that are needed to respond/recover, Maintenance of the infrastructure, equipment and (ICT) tools, and Warehousing of relief goods.
- (International) *Cooperation*⁶¹ Establishment between emergency services and with third parties

A.1.3.3 **Response**

Objective: To save lives and to limit adverse effects⁶²

Resulting in: Reduced negative consequences of a crisis/disaster

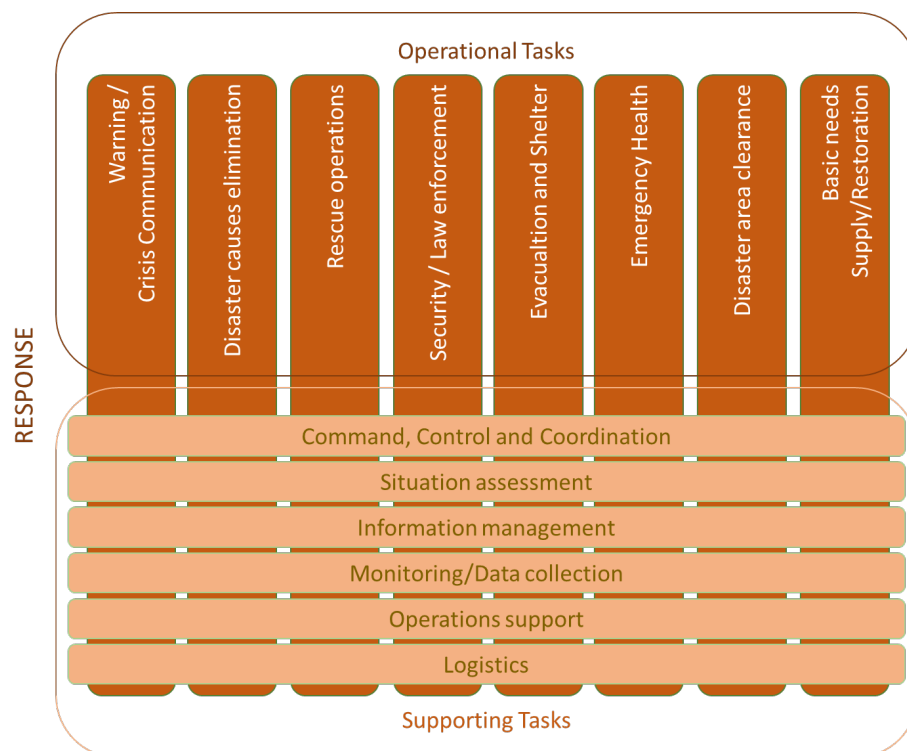


Figure 19: Response Tasks in RCF

⁶¹ Process of working or acting together for common interests and values based on agreement. Note: The organisations agree by contract or by other arrangements to contribute with their resources to the incident (disaster) response but keep independence concerning their own hierarchical structure. (ISO/PAS 22399)

⁶² Based on ISO 22300 in which Response consists of "Actions taken in order to stop the causes for the imminent hazard and to mitigate the consequences of potentially destabilizing or disruptive events and to recover to a normal situation".

Operational Tasks:

- *Warning/Crisis communication:* Providing information on the threat or disaster, including realistic guidelines on which safety measures one should take, and – with respect to volunteer management – how one could assist in disaster response.
- *Disaster causes elimination:* On-site activities to stop or to contain the cause of the disaster; depending on the disaster it might be Firefighting, Flood control, Stop spill of hazardous materials, and Containment of hazardous materials.
- *Rescue operations:* On-site activities to save lives; it concerns: Search and Rescue (SAR), Triage of victims, Decontamination of persons, Stabilisation (first treatment), and Ambulance transport to safe areas or (field-) hospitals.
- *Security/Law enforcement:* Securing areas/persons, Identification of persons, Forensics, Maintain public order, and Traffic management (both in-going and out-going the affected area).
- *Evacuation and Shelter:* This concerns (a controlled) Evacuation of persons and animals from a certain area or building, and the provision of Shelter to the evacuees, including provision of nutrition and sanitation to evacuees and reunification of evacuees with their relatives.
- *Emergency Health Care:* Off-site activities to save lives; it concerns: Health service in regular hospitals, Health service in field hospitals, Quarantine and isolation, Mass prophylaxis/vaccination, and Psychological care.
- *Disaster area clearance:* This concerns Debris clearance, Decontamination of objects (contaminated area, infrastructure and/or vehicles), Water management (draining and pumping), and Animal destruction of (potentially) infected animals.
- *Basic needs Supply/Restoration:* This concerns the supply and/or restoration of basic products and services, or alternatives, which are of vital importance to survive: Provision of drinking water and sanitation, Provision of food, Provision of energy, and Provision of ICT/Telecom.

Supporting Tasks:

- *Command, Control and Coordination:* Decision-making, planning and tasking activities at the various coordination and command levels that are involved in managing a certain disaster event (including volunteer management and collaboration with third parties while responding to the disaster situation)
- *Situation assessment:* Development of operational information through enrichment of collected data, including the development of a Common Operational Picture and Threat assessment.
- *Information management:* Storing (log-keeping) and sharing of information such as collected data, assessments made and decisions taken.
- *Monitoring/Data collection:* Collection of data by Physical monitoring (surveillance) and Data-mining.
- *Operations support:* Supply of basic services to first responders on-site or nearby the location of the incident to enable their response activities. It concerns Provision of Communication/ICT to first responders, Provision of Energy to first responders, and Guarantee Safety and Security to first responders.
- *Logistics:* Transport of personnel and materiel, including supply of relief goods (vaccines, food, tents, etc.), fuel and spare parts, to support sustained disaster response operations.

A.1.3.4 **Recovery**

Objective: To reconstruct and restore normal life in an efficient way⁶³

Resulting in: Short-term and long-term restoration of facilities, livelihoods and living conditions

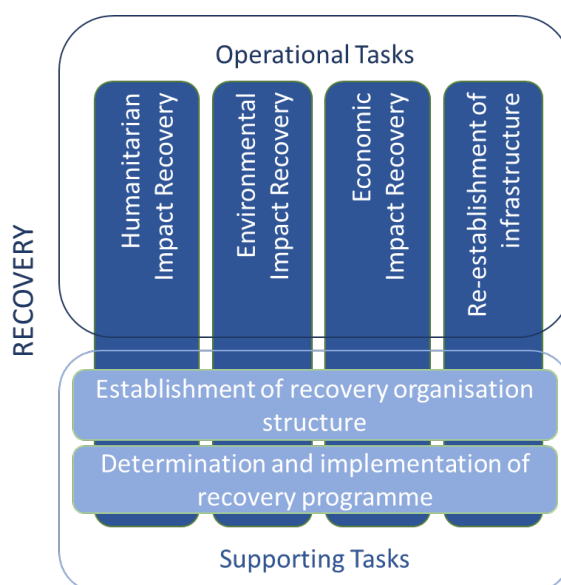


Figure 20: Recovery Tasks in RCF

Operational Tasks⁶⁴:

- *Humanitarian impact recovery:* Provision of public health and safety services and Provision of food and shelter for those displaced. This covers for example physical impacts (including individuals' health, housing and financial needs), psychological impacts, and deaths.
- *Environmental impact recovery:* Clearance of pollution and decontamination, dealing with waste and Restoration of natural resources and habitats.
- *Economic impact recovery:* Economic and business recovery and Recovery from financial impact on authorities.
- *Re-establishment of infrastructure:* Re-establishment of transport routes and Restoration of interrupted utilities and other essential services.

Supporting Tasks:

- *Establishment of recovery organisation structure:* One or more recovery organisation structure(s) has/have to be established both on the short-term as well as on the long-term. Recovery structures and processes have to be established, based on the general organisation structures that are developed in the preparedness phase.

⁶³ Based on UNISDR 2009 in which Recovery is the "restoration and improvement, where appropriate, facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce risk factors".

⁶⁴ The four categories of operational tasks are drawn from "HM Government, Emergency Response and Recovery, Non statutory guidance accompanying the Civil Contingencies Act 2004 UK-Emergency Response and Recovery"; the core tasks within these categories are also coming from the "National Response Framework" (FEMA, 2008).

- *Determination and implementation of recovery programme*: Based on an impact assessment a recovery programme has to be established on policy level, and has to be implemented in accordance to policy-decisions.
-

A.1.4 The Performance Reference Model

In general, organisations can be described by means of a business reference model. In the RCF we use the “Federal Enterprise Architecture” as defined by the federal government of the United States⁶⁵: the “Performance Reference Model (PRM)”. According to the PRM four main assets are defined for each public organisation: Personnel, Technology (including equipment, tools and ICT), other fixed assets (such as buildings) and Tasks. In Figure 21 the PRM has been adjusted to a disaster management organisation. The ‘Outcomes’ of such an organisation represent the results in relation to the four phases of disaster management. The ‘Tasks’ that a disaster management organisation performs, are in fact the ones that have been described in Section A.1.3.

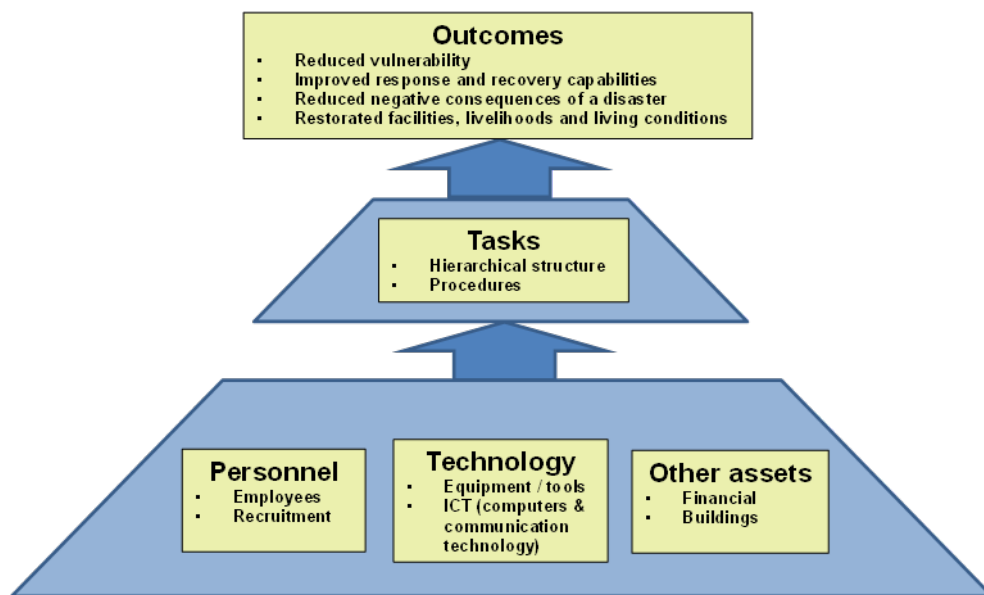


Figure 21: Model of a disaster management organisation

Note that the PRM can be used to represent the complete set or a group of disaster management organisations, but can also be used to represent only one sub-unit of a specific disaster management organisation. Therefore, this basic model of a disaster management organisation is applicable to each phase and to each organisational level from an individual emergence response unit, up to (inter)national organisations involved in disaster management.

In line with the Performance Reference Model, ‘Technology’ is – together with ‘Personnel’ and ‘Other fixed assets’ – an essential source of input to execute disaster management ‘Tasks’. Interoperability of equipment/tools and ICT-systems is required to effectively operate within and between disaster management organisations. It is obvious that the range of existing technologies is very broad. Within ResiStand we primarily focus on the ones that have been identified by ISO as most promising ‘candidates’ to solve existing security related standardisation gaps by standardisation initiatives. These are: Sensing

⁶⁵ <https://www.whitehouse.gov/omb/e-gov/FEA>

technologies; Command and control, communication and coordination; Surveillance; General public protection; Simulations; Physical protection and Crises logistics. These are described in detail below.

Sensing technologies

This domain includes all elements that enable the sensing of an oncoming threat. The threats can be based on intentional/unintentional actions or based on a natural cause. This domain relates to technological capabilities ranging from the sensing and detection of large magnitude, and highly visible, events such as landslides, earthquakes and tsunamis, to the sensing of minor, low-profile incidents such as the insertion of a contaminant into the water supply or air supply. Sensing technologies also include the detection capabilities of the threat and the detection capabilities needed for search and rescue operations. (ISO/TR 22312:2011)

Command and control, communications and coordination

This domain basically includes all support capabilities needed to carry out the actions involved in managing a societal security incident and encompasses the relevant elements. (ISO/TR 22312:2011)

Surveillance

This domain focuses on the utilisation of commonly used surveillance products such as cameras, video networks, digital signal processing, TV monitors, etc., and addresses them in the context of societal security. This domain addresses the world of video surveillance as a system with the purpose of contributing to improving the protection of the public and its assets. (ISO/TR 22312:2011)

General public protection

This domain includes standards for technological capabilities that are not focused on a specific group or occupation but are meant to benefit the general public and improve their security. There is a gap in producing security related standards that are focused on improving the security of the general public. Standardisation is generally dominated by interested parties that can afford the costs involved. Societal security focuses on society which, in general, means the general public and its assets. (ISO/TR 22312:2011)

Simulations

This domain is related to the common practices and codes of practice for the simulation capabilities needed for the variety of security related elements needed by different stakeholders. It is common practice to use simulation based on operational research methods to make operational and other analyses and create the requirements for security related equipment and systems. Simulations can also be used to determine the optimal deployment of sensors and preventive measures. (ISO/TR 22312:2011)

Physical protection

This domain includes the capabilities needed for physical protection which can include critical infrastructure, VIPs, resources, etc. (ISO/TR 22312:2011).

Crisis logistics

This domain relates to the technical capabilities needed to efficiently manage logistical efforts through best practices, suitable and adequate equipment, and also the interoperability of this equipment and systems. The logistics include, transport, deployment, storage and resources, i.e. energy, water. It would be a fair assumption that logistical complexity increases proportionately with the magnitude of the incident. It is also fair to assume that in a large-scale incident, the parties involved in responding and managing the incident will be from different jurisdictions. (ISO/TR 22312:2011)

Annex 2 Impression of the ResiStand Assessment Framework

This annex shows several screenshots from the initial version of the RAF. It concerns examples of the RAF sections 'Impact end-users' and 'Impact overview'. For reasons of readability, these pages can be best printed out on A3 size.

Impact - Practitioners		ResiStand	
Disaster Resilience and Crisis Management			
What potential effects are expected for the considered standard proposal when operational?			
	UNISDR impact criteria	Expected potential effect	
	Reduction in loss of life, injury, disease and improvement of physical/social/mental well being	Strong improvement	
	Reduction in damage to property, destruction of assets	No difference	
	Reduction in loss of services	No difference	
	Reduced social, economic disruption	Moderate improvement	
	Reduced environmental degradation	Little improvement	
To what extent will the proposed standard contribute to an improvement of the following Capabilities/Tasks?			
Phase	Capability or Task	Contribution	Explanation
Mitigation			
Operational Tasks	Risk Assessment		
	Risk identification <i>Better finding, recognising and describing risks</i>	No difference	
	Risk analysis <i>Better comprehend the nature of risks</i>	No difference	
	Risk evaluation <i>Process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable.</i>	No difference	
	Exposure Reduction		
	Property protection <i>Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area</i>	No difference	
	Natural resource protection <i>Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems</i>	No difference	
Supporting Tasks	Trend analysis <i>Investigation of the evolution of risks</i>	Little improvement	
	Monitoring and review <i>Ensuring controls are effective and efficient, obtaining further information to improve risk assessment, analysing lessons learned, detect changes in internal and external context, identify emerging risks.</i>	No difference	

Figure 22: RAF – Impact, practitioner perspective (1 of 4)

Response			
Operational Tasks	Warning/Crisis communication <i>Providing information on the threat or disaster, including realistic guidelines on which safety measures one should take, and – with respect to volunteer management – how one could assist in disaster response.</i>	Strong improvement	
	Disaster causes elimination <i>On-site activities to stop or to contain the cause of the disaster; depending on the disaster it might be Firefighting, Flood control, Stop spill of hazardous materials, and Containment of hazardous materials.</i>	No difference	
	Rescue operations <i>On-site activities to save lives; it concerns: Search and Rescue (SAR), Triage of victims, Decontamination of persons, Stabilisation (first treatment), and Ambulance transport to safe areas or (field-) hospitals.</i>	Unknown	
	Security/Law enforcement <i>Securing areas/persons, Identification of persons, Forensics, Maintain public order, and Traffic management (both in-going and out-going the affected area).</i>	Little improvement	
	Evacuation and Shelter <i>This concerns (a controlled) Evacuation of persons and animals from a certain area or building, and the provision of Shelter to the evacuees, including provision of nutrition and sanitation to evacuees and reunification of evacuees with their relatives.</i>	Little improvement	
	Emergency Health Care <i>Off-site activities to save lives; it concerns: Health service in regular hospitals, Health service in field hospitals, Quarantine and isolation, Mass prophylaxis/vaccination, and Psychological care.</i>	Moderate improvement	
	Disaster area clearance <i>This concerns Debris clearance, Decontamination of objects (contaminated area, infrastructure and/or vehicles), Water management (draining and pumping), and Animal destruction of (potentially) infected animals.</i>	No difference	
	Basic needs Supply/Restoration <i>This concerns the supply and/or restoration of basic products and services, or alternatives, which are of vital importance to survive: Provision of drinking water and sanitation, Provision of food, Provision of energy, and Provision of ICT/Telecom.</i>	Little improvement	
Supporting Tasks	Command, Control and Coordination <i>Decision-making, planning and tasking activities at the various coordination and command levels that are involved in managing a certain disaster event (including volunteer management and collaboration with third parties while responding to the disaster situation)</i>	Little improvement	
	Situation assessment <i>Development of operational information through enrichment of collected data, including the development of a Common Operational Picture and Threat assessment.</i>	Moderate improvement	
	Information management <i>Storing (log-keeping) and sharing of information such as collected data, assessments made and decisions taken.</i>	No difference	
	Monitoring/Data collection <i>Collection of data by Physical monitoring (surveillance) and Data-mining.</i>	Moderate improvement	
	Operations support <i>Supply of basic services to first responders on-site or nearby the location of the incident to enable their response activities. It concerns Provision of Communication/ICT to first responders, Provision of Energy to first responders, and Guarantee Safety and Security to first responders.</i>	No difference	
	Logistics <i>Transport of personnel and materiel, including supply of relief goods (vaccines, food, tents, etc.), fuel and spare parts, to support sustained disaster response operations.</i>	Unknown	

Figure 23: RAF – Impact, practitioner perspective (2 of 4)

Recovery				
	Operational Tasks	Humanitarian impact recovery	Little improvement	
		<i>Provision of public health and safety services and Provision of food and shelter for those displaced. This covers for example physical impacts (including individuals' health, housing and financial needs), psychological impacts, and deaths.</i>		
		Environmental impact recovery	Unknown	
		<i>Clearance of pollution and decontamination, dealing with waste and Restoration of natural resources and habitats</i>		
		Economic impact recovery	No difference	
		<i>Economic and business recovery and Recovery from financial impact on authorities.</i>		
		Re-establishment of infrastructure	No difference	
		<i>Re-establishment of transport routes and Restoration of interrupted utilities and other essential services.</i>		
	Supporting Tasks	Establishment of recovery organisation structure	No difference	
		<i>One or more recovery organisation structure(s) has/have to be established both on the short-term as well as on the long-term. Recovery structures and processes have to be established, based on the general organisation structures that are developed in the preparedness phase.</i>		
		Determination and implementation of recovery programme	Little improvement	
		<i>Based on an impact assessment a recovery programme has to be established on policy level, and has to be implemented in accordance to policy-decisions.</i>		
What potential cost savings are expected for the end-user/practitioner organisation?				
	Personnel Costs	Employment costs	No difference	
		Recruitment costs	Unknown	
	Technology Costs	Costs of equipment/tools	Unknown	
		Costs of ICT	Moderate improvement	
	Other assets costs	Costs/revenues of internal financial organisation	No difference	
		Costs of real estate	No difference	

Figure 24: RAF – Impact, practitioner perspective (3 of 4)

For which disaster types do you expect a potential improvement in applying the proposed standard (Yes/No/Unknown)?					
Disaster Type		Expected potential improvement	Explanation		
Natural disasters	Geophysical disasters <i>Earthquake, Volcanic eruption and Mass Movement</i>	<input type="text" value="Yes"/>			
	Meteorological disaster <i>Storm, Tornado</i>	<input type="text" value="No"/>			
	Climatological disasters <i>Extreme precipitation, Extreme temperature, Drought and Wildfire</i>	<input type="text" value="Yes"/>			
	Hydrological disasters <i>General (river) flood, Flash flood, Coastal flood and Landslide</i>	<input type="text" value="Yes"/>			
	Biological disasters <i>Epidemics/Pandemics, Insect infestation and Animal stampede</i>	<input type="text" value="Yes"/>			
	Extra-terrestrial disasters <i>Asteroids, Meteoroids and Comets</i>	<input type="text" value="No"/>			
	Technological disasters	Industrial disasters <i>Chemical spill, Explosion, Fire, Gas leak, Poisoning and Radiation</i>	<input type="text" value="Yes"/>		
		Transport disasters <i>Air crash, Road accident, Rail accident, Accident on Water</i>	<input type="text" value="Yes"/>		
		Miscellaneous disasters <i>Explosion, Collapse of buildings/infrastructures, Fire in a large building</i>	<input type="text" value="Yes"/>		
		Critical Infrastructure disasters <i>Major failure in supply of Drinking water, Energy, Telecom/ICT</i>	<input type="text" value="Yes"/>		
		Intentional disasters	Physical attacks <i>Bomb attack and CBRN-attack</i>	<input type="text" value="Yes"/>	
			Non-physical attacks <i>ICT-related attacks like Cyber-attack and Large-scale cyber-crime.</i>	<input type="text" value="Yes"/>	
What potential effects are expected for procurement and relations with suppliers?					
	Expected potential effect	Expected potential effect	Explanation		
	Lower procurement costs	<input type="text" value="Little improvement"/>			
	More Consistent Quality <i>Consistent and predictable results are achieved more effectively and efficiently</i>	<input type="text" value="Moderate improvement"/>			
	Improved Transparency <i>Transparency in supplier relationships and contracting</i>	<input type="text" value="No difference"/>			
	Economies of Scale <i>Cost advantages due to size, output, or scale of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output.(Wikipedia)</i>	<input type="text" value="Little improvement"/>			
What potential effects are expected on the inter-action or collaboration with other parties?					
	Expected potential effect	Expected potential effect	Explanation		
	Facilitated inter-action with public stakeholders, regarding compliance <i>E.g. safety, health, environment</i>	<input type="text" value="Little improvement"/>			
	Easier cooperation with other organisations/companies on <i>Improved interoperability</i>	<input type="text" value="Little improvement"/>			

Figure 25: RAF – Impact, practitioner perspective (4 of 4)

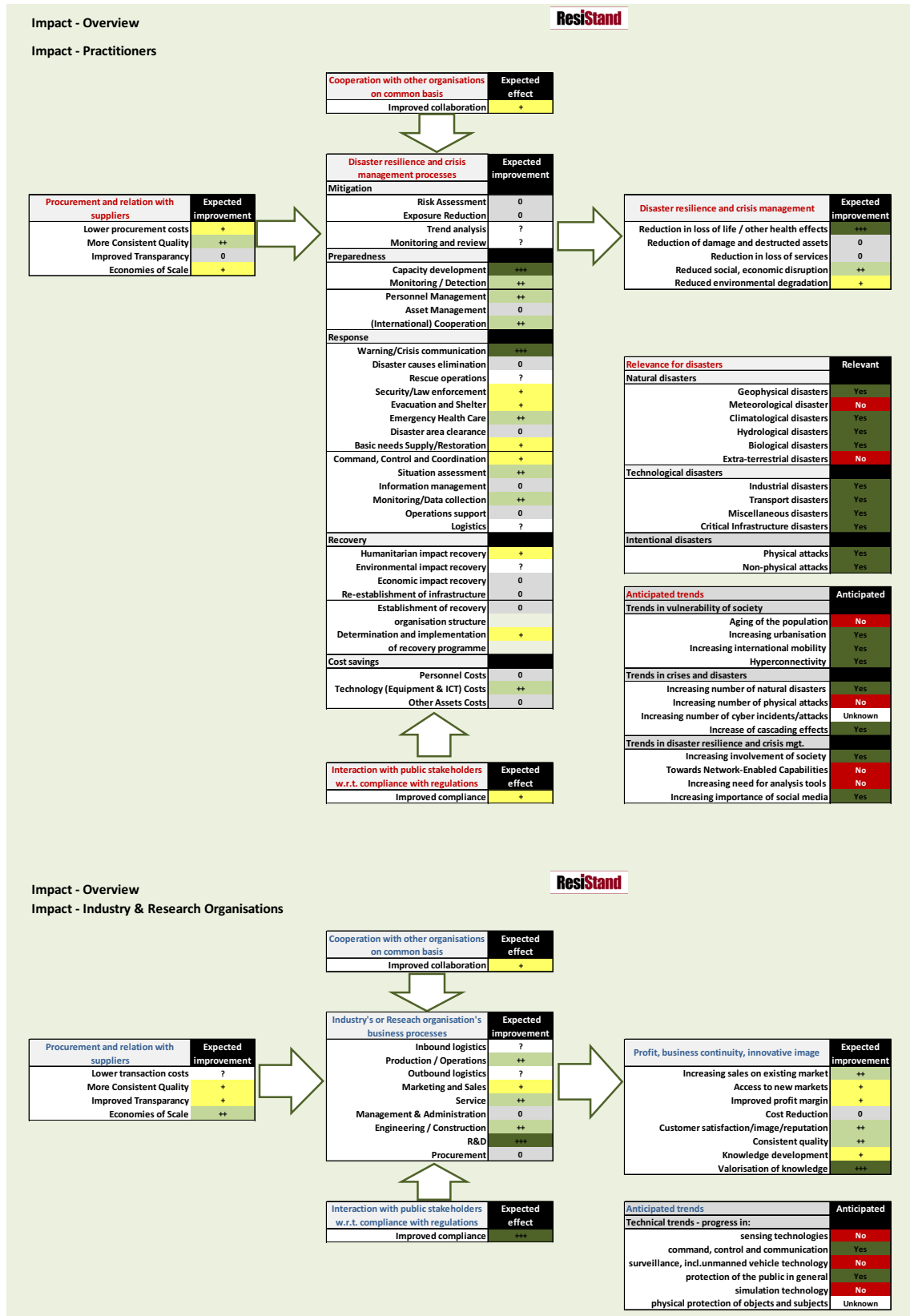


Figure 26: RAF – Impact overview