# 8 Translation risk management – error prevention and near-misses management

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## 8.1 Risk management – basic principles and goals

Every company or organization – regardless of whether it is operating on a national or international level – is exposed to risks, different kinds of risks. Their effects can be more serious or less serious, the worst case being a threat to the very existence of the company or organization. Risks do not disappear if you ignore them. Therefore, it makes sense to systematically determine which risks are acceptable and which risks should be reduced i.e. to perform risk management. The aim of risk management is not to eliminate all risks, because this is impossible and would eliminate opportunities. The aim of risk management is to find an optimal balance of risks and opportunities for the company or organization on the basis of risk assessment results.

So, what does translation have to do with risk management?

Translations can pose risks. These risks vary according to the situation, i.e. different documents involve different risks for the translator, the client (translation service provider (TSP) or manufacturer or event organizer) and the end user (e.g. operator of a machine who reads translated operating instructions). In addition to these risks inherent in the product itself (including any translations), there are also process risks that arise from the activity of translating and not directly from the text. An example of a product risk would be if an operator of a chainsaw could injure his leg because the operating instructions contain a translation error. This can lead to the manufacturer and the translator having to pay damages. An example of a process risk would be the delayed delivery of a translation, which could result in the translator's fee being lost.

Risk management is closely related to quality management, but sometimes no clear distinction is made between them. There are, however, substantial

differences between these two management instruments. How do risk management and quality management differ?

## 8.2 Risk management vs. quality management and project management

Quality management focuses on achieving the best possible translation quality for the client. The optimum translation quality should be negotiated between the client and the TSP and recorded in a translation brief.

Risks, on the other hand, cannot be negotiated with a client; the parties must identify, assess and deal with them adequately. However, clients and TSPs can discuss the seriousness of a risk and what measures should be taken to contain it. Risk management also involves external risks (e.g. market developments, changes in legislation, national or global crises) that are not relevant to quality management. Risk management deals with potential damage and opportunities and provides decision criteria that can be used to select measures for achieving translation quality according to the relevant risks. (Richinger/Müllener n.d.)

Although risk management can be among the responsibilities of a project manager, it should not be confused with project management. In project management, you think about how you can complete your project within the set time with the available resources. Again, risk management offers the decision criteria, which can be used as the basis for project management.

Risk management, therefore, constitutes a kind of framework for all other management tasks.

## 8.3 Risk management according to ISO 31000

ISO 31000:2018-02 is an international standard for the design of risk management systems in organizations (in other words companies). According to ISO 31000 the whole organization is responsible for risk management, which extends to all units of the organization.

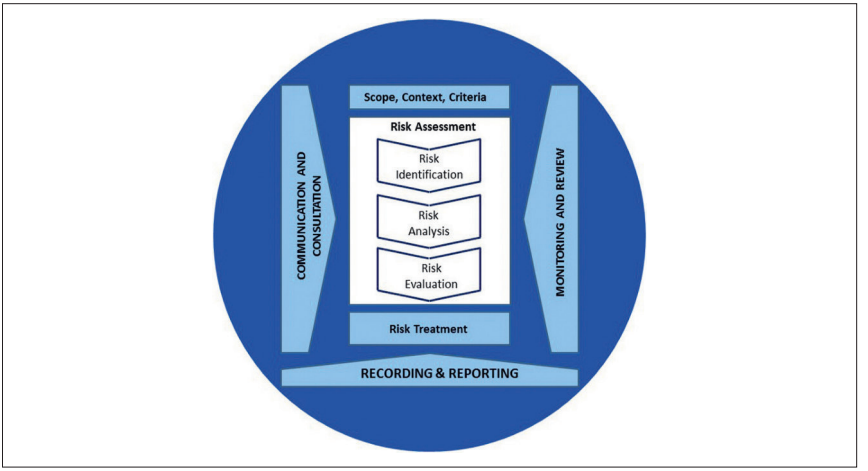


Fig. 1: Risk management process according to ISO 31000 (adapted from ISO 31000:2018-02)

For this section, only risk treatment is relevant, i.e. the measures necessary to reduce risks to an acceptable level. Various strategies are available, which are explained for the translation sector in the following section.

## 8.4 Translation risk management

Translation risk management not only considers the risks that arise for translators as a result of their work, but also the risks a translation may entail for the user and the client. Depending on the situation, these risks can vary greatly, so that the measures for minimizing risk must also be adapted individually. The individual steps of translation risk management are explained in detail in Canfora/Ottmann (2015) and Canfora/Ottmann (2019).

An important aspect we would like to highlight here, though, is that risk management can be integrated into existing quality management structures and could be implemented for TSPs with ISO 17100 certification (see Fig. 2) (Canfora/Ottmann 2019; Reinartz/Michel 2016).

In order to incorporate translation risk management in an ISO 17100-certified translation process, the basic framework conditions for risk management have to be implemented in the organization as a whole and communicated to all actors in the translation process.

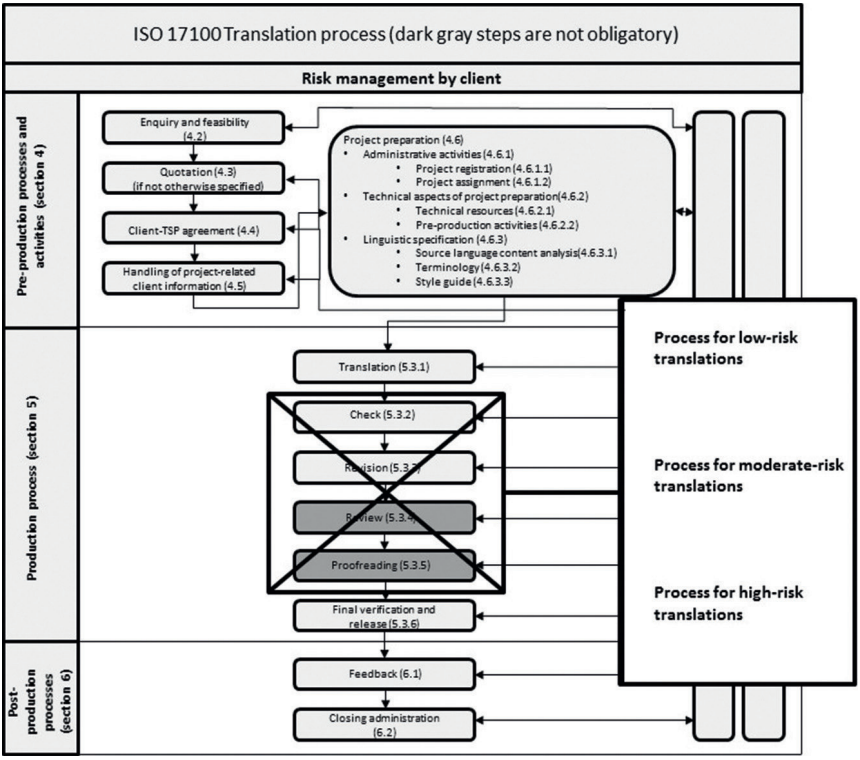


Fig. 2: Translation risk management within the framework of ISO 17100 processes (adapted from Reinartz / Michel 2016)

Once risk categories have been established, dedicated processes have to be defined for each risk category so that project managers can choose the appropriate risk-based process for individual translation jobs. (Canfora/Ottmann 2019)

### 8.4.1 Risk strategies

Organizations can apply various strategies for risk treatment (see ISO 31000: 2018-02, section 6.5.2).

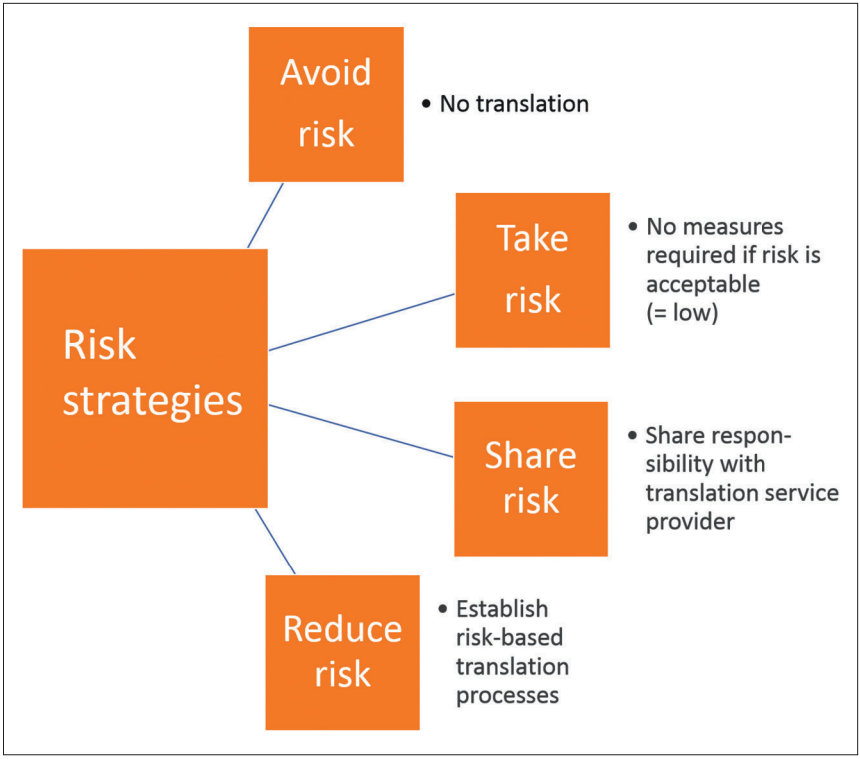


Fig. 3: Risk strategies in the translation sector

#### 8.4.1.1 Avoid risk

If a risk must be avoided at all costs, the probability of occurrence must be reduced to zero. For example, a company may decide to no longer sell a certain product. In the case of translations, this strategy implies that no translations are commissioned.

#### 8.4.1.2 Take risk

If a risk is acceptably low, no measures need to be taken. Still, the first steps – risk identification, analysis and evaluation – are needed to determine whether a risk is acceptable or risk-mitigating measures have to be taken.

#### 8.4.1.3 Share risk

If a risk is not acceptable, one can try to share it with other actors in the process (e.g. an insurance company or other contracting parties).

#### 8.4.1.4 Reduce risk

The last strategy is reducing the risk, which means reducing either the consequences or the likelihood of occurrence. There are two risk reduction options that interest us here: risk-based processes and error prevention with the help of root-cause analysis.

Risk-based processes in the sense of quality assurance measures to reduce risks are described in detail in Canfora/Ottmann 2015 and Canfora/Ottmann 2019. In this section, we will concentrate on error prevention.

Error prevention with the help of root-cause analysis is a strategy that is not recommended for all types of translation, because it is very complex, time-consuming and expensive. It should be reserved for safety-critical translations. Safety-critical translations entail risks that may endanger the life and limb of users, meaning the potential damage is very high. At the same time, however, these kinds of damage occur extremely rarely (Canfora/Ottmann 2018). For such risks, it is not sufficient to introduce risk-based processes; measures must be taken to ensure that errors with a potentially catastrophic outcome do not occur in the first place.

A suitable solution for such an error prevention strategy is near-misses management (e.g. Johnson 2003; Phimister et al. 2003).

## 8.5 Near-misses management

Near-misses management originates from the field of occupational health and safety. In an empirical study (Canfora/Ottmann 2018), it was found that

the frequency and causes of occupational accidents in safety-critical areas are comparable to the frequency of accidents caused by translation errors. The methods that have proven to be effective for accident prevention in the field of occupational health and safety can therefore also be applied to safety-critical translations.

A detailed explanation of near misses in the translation sector with examples can be found in Canfora/Ottmann (2018).

### 8.5.1 What exactly are near misses?

In the 1950s, Heinrich (1959) investigated the frequency and extent of industrial accidents in the USA. He found that there was a fixed relationship between fatal accidents and less serious accidents (Heinrich's Law). His findings were later confirmed in a major study by Bird (1974). Heinrich also found out that every major accident is preceded by a certain number of near misses.

According to Heinrich, near misses are nothing but hazardous situations that only coincidentally did not turn into major accidents (see also Johnson 2003, 24). An example from everyday life would be a near-accident with your car, e.g. when the car in front of you abruptly brakes and it is only by chance that you react fast enough to avoid a collision. Now, think back: How often did you brake just in time to prevent an accident and how often did you really have an accident? This is the relation between near misses and real accidents.[58]

Near misses could lead to damage and are only prevented by chance. Near misses are therefore precursors of real accidents.

The more severe the consequences of an accident, the lower its likelihood of occurrence. This means that there are generally very few fatal or major accidents, slightly more minor accidents, more minor incidents and far more near misses. (Heinrich 1959)

All categories of incidents, regardless of their impact, have the same root causes (Heinrich 1959). This means that fatal accidents and near misses have the same root causes (Reason 2000). It therefore makes sense to look for the cause of near misses and prevent them from happening.

58 See also Reason's "Swiss Cheese Model" for a comprehensive explanation (Reason 2000).

Accidents, especially major incidents, are usually not caused by a single fault, but typically by a combination of technical and human error. Going back to our above example with the car, this means that if you are not as attentive as you should be while driving – e.g. you take a short look at your mobile phone – and the driver in the car in front of you just realizes that he or she has taken a wrong turn and therefore brakes more abruptly than would be expected, and finally the road has become slippery due to sudden rain, this would be a combination of instances, all together leading to an accident. The more factors you add to this scenario the more likely you will end up in an accident and the more severe the outcome of the accident will be.

#### 8.5.1.1 Major incidents in the translation sector

What interests us here is the question of whether there are incidents with severe or fatal outcome in the translation sector. In an empirical study, a database with accidents due to translation errors has been compiled, examples of which shall be presented here (Canfora/Ottmann 2018, 190 and 199):

Orthopaedic surgeons in a German hospital had erroneously implanted components for total knee replacements without cement, although these specific implants had been designed for cemented use only. The knee prosthesis is available in two different versions, for use with or without cement. When delivered, the original package was labelled in English with a German instruction inside the package. Later, at the hospital, a sticker with the German translation of "without cement" (instead of "with cement") was added to the package labelling of the cemented version. Thus, the components for cemented use only were sorted into the shelves designated for cementless components and were used for the wrong cases. 47 patients with falsely implanted total knee arthroplasties were reported to the authorities. Most of them had to undergo a second operation. (Fakler et al. 2007)

A clinical trial in Rennes followed a multinational project with laboratories in several countries, thus reports, tables etc. had to be translated. In the trial, the test doses administered were too high so that one test person died and four more suffered severe brain injuries. One of the causes could be traced back to the Investigator Brochure, which contained many mistakes, inaccuracies, transposed numbers or incorrect translation of source documents, making understanding difficult in several aspects. The official report of the investigation says:

> Concerning the source documents used, there is a foreword to the BIA 10-2474 Investigator Brochure, written by Bial, which contains incorrect translations and transcription errors, especially in the tables and figures. This, in several places, gives rise to ambiguity and comprehension difficulties, including with respect to important information (see chapter 6). This deserves to be highlighted, as the Investigator Brochure is a document used as reference during pre-approval phases of a health care product, as recalled by international rules and recommendations. (ANSM 2016)

These examples show that even translation errors can lead to serious accidents with fatal consequences. However, as predicted by Heinrich (1959), these serious accidents are very rare. Nevertheless, measures must be taken to prevent them, for example through near-misses management.

### 8.5.1.2 Near misses in translation

Near misses in translation are all errors found in a translation that could lead to severe damage. Remember, we are only considering safety-critical errors, since near-misses management for errors other than safety-critical errors is too time-consuming and costly. Safety-critical errors are all errors in a translation that could lead to injuries or even death, for example certain errors of meaning, numerical errors or terminology errors. Other errors in translations, such as punctuation errors, spelling mistakes or the like, which cannot lead to injuries or death, are not safety-critical errors. The following is a fictitious example for a safety-critical translation error in the instructions for the cleaning of an insulin pump:

| | |
|---|---|
| **Warnung:** Vergewissern Sie sich, dass das Infusionsset nicht mit Ihrem Körper verbunden ist, bevor Sie den Schlauch des Infusionssets füllen. | **Warning:** Make sure the infusion set is connected to your body before you fill the infusion set tubing. |

In this example, the word “not” is missing in the translation, which poses a severe risk for the patient.

Examples of safety-critical errors that have not been detected by the relevant quality assurance measures, but are detected at various other points in the translation process, include:

- Error detected during a quality assurance measure intended to find other errors, e.g. translation error detected by layout artist or during layout check.
- Error in the source text detected by the translator or reviser.
- Error detected accidentally by the client before the translation is published or used.

Near-misses management is a widely used instrument used for error prevention for occupational accidents. Near-misses management comprises several phases outlined in the following section.

## 8.5.2 Phases of near-misses management

The course of action in near-misses management includes the following phases or steps (Phimister et al. 2003):

- Identify near misses
- Report near misses
- Compile the data in a data base (Critical Incident Reporting System)
- Classify incidents according to the extent of the potential damage
- Analyse the root causes
- Develop and determine measures
- Inform all parties involved

The individual phases are not discussed in detail in this section. Further details can be found for example in Phimister et al. (2003).

## 8.5.3 Near-misses management for safety-critical translations

First, the following data should be collected in a Critical Incident Reporting System (CIRS) for translations: Translators, revisers, reviewers, project managers and clients report all safety-critical errors they detect in translations or source texts. For this to be effective, two preconditions are required: a fast, easy to use and intuitive reporting system and procedure with clear responsibilities as well as a reporting culture focusing on strengthening the system,

not putting the blame on those who have been made out as the originators of the error. (Reason 2000)

In addition, it is of utmost importance to implement all chosen measures as fast as possible. If employees in an organization are required to report errors, error prevention measures should kick in quickly, because otherwise the staff will lose interest in reporting more errors, thinking it to be a waste of time.

So, what can we do to prevent near misses from happening? Once we have installed a functioning CIRS, we should look at the root causes of each reported error.

### 8.5.4 Root-cause analysis

For root-cause analysis, there is a generally recognized procedure from a safety-critical sector (clinical settings): the London Protocol (Taylor-Adams/Vincent 2004). The London Protocol assumes that "contributory influencing factors" exist which can lead to "at-risk behaviors" and "unsafe conditions". These in turn can lead to accidents in an unfavorable scenario. In the clinical sector, a lot of effort has been put into finding the causes of these contributory influencing factors (Fig. 4) and to take measures against them – successfully.

| Factor types | Contributory influencing factor |
|---|---|
| Patient factors | Condition (complexity and seriousness)<br>Language and communication<br>Personality and social factors |
| Task and technology factors | Task design and clarity of structure<br>Availability and use of protocols<br>Availability and accuracy of test results<br>Decision-making aids |
| Individual (staff) factors | Knowledge and skills<br>Competence<br>Physical and mental health |
| Team factors | Verbal communication<br>Written communication<br>Supervision and seeking help<br>Team structure (congruence, consistency, leadership etc.) |
| Work environmental factors | Staffing levels and skills mix<br>Workload and shift patterns<br>Design, availability and maintenance of equipment<br>Administrative and managerial support<br>Environment<br>Physical |
| Organization and management factors | Financial resources and constraints<br>Organizational structure<br>Policy, standards and goals<br>Safety culture and priorities |
| Institutional context factors | Economic and regulatory context<br>National health service executive<br>Links with external organizations |

Fig. 4: Framework of contributory factors influencing clinical practice (reprinted from: Taylor-Adams/ Vincent 2004, 214)

In other safety-critical sectors, there are other contributory influencing factors, different from those in the clinical sector. Examples of contributory influencing factors in safety-critical translations are listed in the following table (Tab. 1).

| Factor types | Contributory influencing factors |
|---|---|
| Client factors | Complexity and importance of translation<br>Clarity of instructions in translation brief<br>Time and budgetary constraints<br>Language, locale and communication<br>Willingness to cooperate<br>... |
| Work environmental factors | Staffing levels and skill mix<br>Work schedule and working time arrangements<br>Functionality, availability and validity of tools (CAT tools, QA checker etc.)<br>... |
| Individual (staff) factors | Translator's qualification<br>Translator's skills and competences<br>Translator's health<br>Translator's social and family environment<br>... |

Tab. 1: Examples of contributory influencing factors in safety-critical translations

The other factor types and contributory influencing factors from the London Protocol can be derived accordingly for safety-critical translations.

In order to be able to identify the contributory influencing factors and take effective countermeasures, a distinction must be made between errors and violations, since errors happen unintentionally, but violations represent a deliberate violation of existing rules and must therefore be treated differently (Reason 1995, fig. 5).

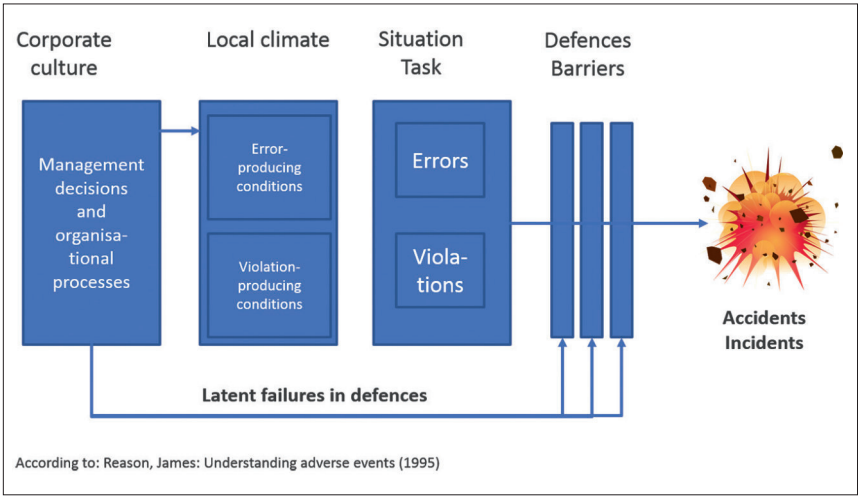


Fig. 5: Stages of development of organizational accidents (adapted from: Reason 1995)

An event can have very different root causes. If you really want to find them, you have to "get to the bottom of it". One method to find these root causes is the "Five Whys Technique" (Serrat 2009), i.e. you have to ask "Why?" up to five times to find the root cause of the problem. Fig. 6 shows possible root causes of an error in a safety-critical translation.

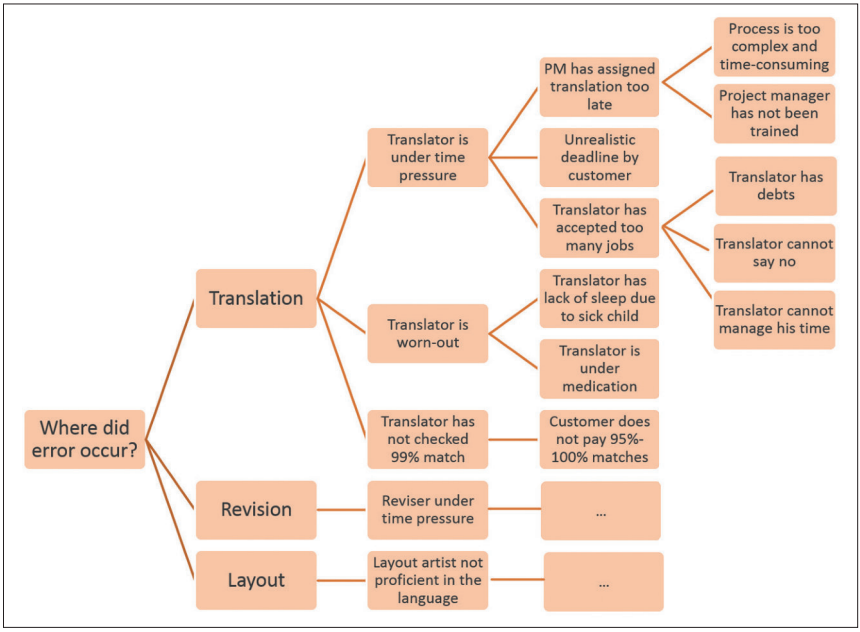


Fig. 6: Possible causes of an error in a safety critical translation

The number of "Why" questions is not limited. The search ends when the process step causing the error is uniquely identified and can no longer be divided further. Once the root cause is known, specific measures that address each specific problem can be developed and implemented (Fig. 7).

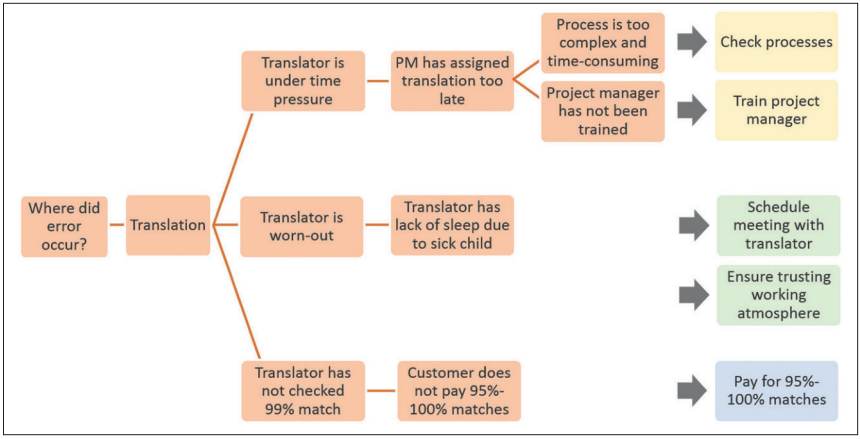


Fig. 7: Specific measures for each root cause identified

In the example above, one possibility is that the project manager has assigned the translation too late and caused the translator to work under pressure. If the cause is that the translation assignment process is too complicated and time-consuming, this process will have to be streamlined. If it turns out that the project manager was unsure about how to proceed with translation assignments, the appropriate measure will be to train the project manager.

If the cause is that the translator was worn-out due to lack of sleep because of a sick child at home, you could schedule a meeting with the translator and make it clear that such problematic situations should be communicated so that the job can be assigned to another translator, if needed. Generally, it would be a good idea to ensure a trusting working atmosphere.

If the cause is that the translator did not check the 99% match because 95%-100% matches are not paid for, you should establish an agreement with your client about how to treat 95%-100% matches. If they have to be checked, the translator must be paid for it.

Near-misses management only works if the actors are willing to admit their mistakes and violations (Reason 2000), i.e. we need a new error culture for safety-critical translations. When searching for the causes of safety-critical errors, it is therefore important not to punish individuals for their mistakes, but to understand the error detected as a symptom of a hidden gap in the defence mechanism of the entire translation process. In order to prevent safety-critical errors, both the client and the TSP should therefore ensure a working atmosphere in which all parties involved can be sure that they will not be sanctioned for admitting mistakes.

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