Chapter 6

Exploring failure management strategies in the international context

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6.1. The design of the study on failure perception among employees of business organisations

The traditional focus of economic and business theory on optimisation (Dunn & Liang, 2011) in frequently unknown/uncertain relations is worthy of a revision from a different perspective, where failure is normal, unavoidable and unproblematic as long as learning from failure is quick and ubiquitous. In an environment of open change, reactive or proactive behaviour will not be sufficient to adapt to unpredictable events which do not fit into the pattern of experience-based manageability. It will require creative leadership (Sohmen, 2015) instead – creative to develop answers to unknown questions and leadership to implement them.

In this context, our study aims to understand how international companies perceive failure – whether it is considered to be unambiguously negative or can be, under some circumstances, tolerated or even treated as an opportunity to improve a business. The comprehension of the attitudes toward failure and reactions to it will help to fill in a research gap identified by the authors, which consists in a focus on either fatal failures (the stream on research on bankruptcy reasons, predictions, organisational and individual outcomes) or methods of optimising business operations to prevent failure (research in the areas of controlling, quality management, etc.) leaving the field of individual or organisational responses to smaller or larger mistakes unaddressed.

To obtain a broader research perspective, information from Brazilian, Estonian, Finnish, German, Polish, and Scottish enterprises of various sizes and operating in different industries will be considered. By doing so, it will be possible to understand whether there exist commonly-shared strategies to deal with failure, whether the ways of dealing with failure are conditioned by national cultures, industry or size of a business, or whether this problem is addressed differently depending on the organisation. In this context, more general attitudes that international companies have towards failure will be analysed, and also whether internal factors such as participative management or creativity encouragement or national cultures may play a role in failure management.

This chapter refers to the results of the study on failure perception among employees of business organisations from six countries, including Brazil (BR), Estonia (EE), Finland (FI), Germany (DE), Poland (PL), and Scotland (SC). To get a broader picture of the analysed subject, the authors did not focus on any specific sector nor size of business. Moreover, it was decided that getting an unbiased perspective on failure management practices implies resignation from surveying owners or managers of companies who – even if anonymity was guaranteed – could have been reluctant to share examples of failure in their organisations. Instead, the authors

ask for the opinions of employees of various levels of the organisational hierarchy who had the necessary knowledge and experience to recognise the importance of failure and judge practices related to failure management in organisations where they worked. The employees were contacted during various post-graduate programmes run at six universities, including the University of Economics in Wrocław, University of Applied Sciences in Mainz, the Federal University of the State of Rio de Janeiro, Robert Gordon University in Aberdeen, Haaga-Helia University of Applied Sciences in Helsinki, and Estonian Business School in Tallinn, or *via* business associations. The employees were provided with short questionnaires either in paper form or *via* the online surveying systems. The questionnaires were provided in the native language of each country included in the study, based on the standard English version. Native speakers validated the translations.

To guarantee comparability of answers received, the survey included an introduction which defined what kind of failure the research referred to. Consequently, the failure was described as a situation in which a person surveyed or one of their colleagues "might have made unintentionally a decision – neither trivial nor highly complex – which has caused [their] organisation a financial loss – neither marginal nor mortal in relation to the institution's total situation."

The survey included nine statements (listed below together with corresponding variables) on failure management practices with the employees' feedback to be provided using the 5-point Likert scale, i.e. (1) 'I strongly disagree', (2) 'I disagree', (3) 'I neither agree nor disagree', (4) 'I agree', (5) 'I strongly agree'. The first three statements concerned acceptance (including conditional) of making failure, the fourth statement represented a neutral attitude to the examined issue, whereas statements (5)–(7) indicated the lack of acceptance of failure (including consequences of making such failure to employees). Statements (8)–(9) referred to possible relationships between ways of dealing with failure and participative management style or fostering employees' creativity.

1. (*FDEV*) Failure is accepted since this is an intrinsic part of a development and learning process.
2. (*FTWI*) Failure is accepted, but never the same failure happening twice.
3. (*FFIN*) Failure is accepted, provided that it has little or no financial impact on the organisation.
4. (*FREG*) My organisation has developed regulations for failure management.
5. (*FCON*) Failure is not accepted, and it leads to intensifying control activities.
6. (*FEMP*) Failure is not accepted, and it is reflected in employees' records and payments.
7. (*FNON*) Failure is not accepted, and there is no place in the organisation for those who fail.

8.   (*FPMA*) My organisation uses a participative management style.
9.   (*FCRE*) My organisation encourages employees to be creative.

The survey also included the tenth open question, where employees were asked to describe how specific failure has been managed in their company. Besides, respondents were asked to identify the size of the organisation (by indicating the number of employees) and the main area of its business activity (using the OECD taxonomy).

This study also groups the examined objects into the following four size classes: (SIZ1) small companies: 1–49 FTE employees, (SIZ2) middle-sized enterprises: 50–249 FTEs, (SIZ3) large companies: 250–4999 FTEs, and (SIZ4) very large enterprises: more than 5000 FTEs. In terms of business activity, the following four domains will be considered: (SEC1) – R&D intensive industries (Galindo-Rueda & Verger, 2016), (SEC2) – production, including *inter alia*: food industry, heavy industry, manufacturing and construction, (SEC3) – services, including *inter alia*: trade and transportation, professional and technical activity, entertainment, sports, and (SEC4) – finance and insurance.

With the said structure of the questionnaire, the authors intended to collect quantitative and descriptive data, which could be used to address the following four research questions.

RQ1: Is failure management policy formalised in companies?
RQ2: Does failure management policy depend on adopting a participative manage-
        ment style or encouraging creativity in a company?
RQ3: Do country-specific factors influence failure management policies?
RQ4: Is failure management policy different in companies of various industries or
        sizes?

Concerning the research question RQ1, the authors decided to test the hypothesis of whether there existed three distinguished failure management policies, labelled as 'failure penalising', 'failure analysing' and 'failure enabling' approaches with possible control factors representing influences of organisational culture (corresponding to RQ2), national culture (RQ2), or an organisational profile (RQ4).

Regarding RQ1, the authors expect the following behaviours to be observed in companies (see Table 6.1).

Regarding the participative management style, the authors found their expectations based on conclusions drawn from a study evidencing that in companies which apply a participative management style, employees not only understood the relationship between their work and business results better but also preferred to be paid for the results (Dyczkowska & Dyczkowski, 2018, pp. 212–213). Therefore, a higher

Table 6.1. Distinctive features of the assumed failure management strategies

Features Failure strategy	The acceptance of failure		The consequences of failure	
	any	non-costly, non-repeating	organisational	individual
Penalising	low	low	low	high
Analysing	moderate	moderate	high	moderate
Enabling	high	high	moderate	low

Source: own elaboration.

commitment, self-control, and avoidance of situations adversely affecting the overall business performance should be observed. In addition, one should note that the risk of business failure depends on the innovation of a given business in the market perspective (uncertainty regarding the acceptance of the offer by a new customer group), production (uncertainty regarding new technologies used) and management (uncertainty regarding the competences and information necessary to operate on the new market), and in particular the flow of information in those three areas (Shepherd, Douglas, & Shanley, 2000, p. 407). Therefore, the participative management style may impact the company's ability to cope with failure, because in this situation information flow in the organisation is strengthened. In the case of the supposed link between business failure and creativity promotion, the authors refer to the statement that the promotion of creative activities significantly increases readiness for entrepreneurial behaviour and influences how people function at work (Eickhoff, Trigo, Turnbull, & Dyczkowski, 2014, pp. 97–98).

The authors' assumption of the potential impact of national culture on the ability to learn from failure results from the conclusions of a study that compared levels of failure acceptance in individual countries with the scope of information that was collected in public registers about collapsing enterprises (Simmons, Wiklund, & Levie, 2014, p. 494). It was evidenced that in the case of Germany or the UK, a slightly negative attitude toward business failure was expressed, but also a lot of information about failure was accumulated. In Finland, the view was similar, but the failure record was much shorter (similarly in Portugal, which could give some hint on Brazil, which was not included in the study). On the other hand, in Central and Eastern Europe, mistakes were not stigmatised, and the fact of making a failure was not 'carefully cared for' in the public files.

The theoretical justification for considering a company-specific profile – including its size and sector – results from the research on the bankruptcy of enterprises, which indicated that in addition to the risk factors associated with the situation of a given economy, those arising from activities in a specific sector appear valid (Everett

& Watson, 1998, p. 371; Honjo, 2000, pp. 578–579), as well as factors related to the enterprise itself, such as the size of the unit measured by financial resources and employment, and the competences of founders (Headd, 2003, p. 59). It is also essential to draw attention to groups of enterprises with specific activity profiles. It should be noted that national or local programs supporting business activity primarily enhance the results of technology-intensive enterprises. At the same time, infrastructural investments improve the conditions for the functioning of low-tech companies (Chen & Williams, 1999, p. 1563). Finally, the company's size may be important since, in the case of small enterprises, the risk of bankruptcy increases, particularly when they expand their operations (Assadian & Ford, 1997, p. 20).

Until July 2019, the authors obtained 418 questionnaires from six countries, including Brazil (71), Estonia (47), Finland (90), Germany (43), Poland (126) and Scotland (41). However, for the sake of balancing the final sample in terms of national cultures, the authors decided to form subsamples of Brazilian, Finnish and Polish groups by randomly selecting 60% of companies from Brazil, 50% of those from Finland and every third Polish organisation in each of the 16 groups formed by industry and size classes (rounding the results up in case of fractions). Thus, the final sample analysed in this chapter included the following number of objects: Brazil (48), Estonia (47), Finland (46), Germany (43), Poland (48) and Scotland (41) – that is 273 companies in total. It is important to mention that by using the Mann-Whitney U test, it was validated that Brazilian, Finnish and Polish companies selected to the sub-sample did not differ statistically in any of the nine close-ended statements included in the questionnaire from the rest of the surveyed organisations from those countries. The final structure of the research sample is indicated in Table 6.2.

Table 6.2. Structure of the final research sample

Industry \ Size	Small	Medium-sized	Large	Very large	Total
R&D intensive	10	10	11	18	49
Manufacturing	16	14	18	19	67
Services	37	22	35	21	115
Finance	5	11	19	7	42
Total	68	57	83	65	273

Source: own elaboration.

The database of 273 surveys was processed using statistical tools (Statistica) and text mining software (KH Coder). Before answers to open questions were analysed, they had been translated using computer-aided tools (DeepL, Google Translate)

to English and manually corrected by the authors – native speakers – if needed. This method helped to keep consistency in translation (word selection), which otherwise could have been influenced by the authors.

6.2. Failure management strategies

Figure 6.1 presents the distribution of all opinions on the nine closed-ended statements included in the survey. The first three statements represent failure enabling situations, the fourth neutral approach to failure, another three – failure disabling situations, whereas the final two depict certain aspects of organisational cultures.
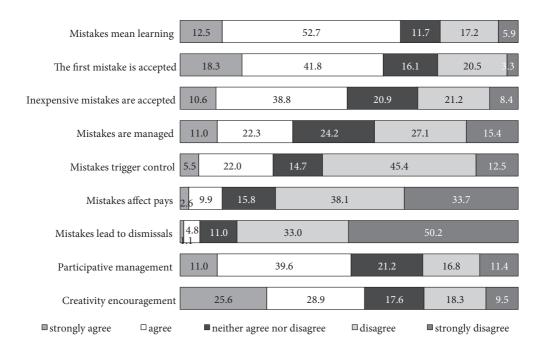

	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
Mistakes mean learning	12.5	52.7	11.7	17.2	5.9
The first mistake is accepted	18.3	41.8	16.1	20.5	3.3
Inexpensive mistakes are accepted	10.6	38.8	20.9	21.2	8.4
Mistakes are managed	11.0	22.3	24.2	27.1	15.4
Mistakes trigger control	5.5	22.0	14.7	45.4	12.5
Mistakes affect pays	2.6	9.9	15.8	38.1	33.7
Mistakes lead to dismissals	1.1	4.8	11.0	33.0	50.2
Participative management	11.0	39.6	21.2	16.8	11.4
Creativity encouragement	25.6	28.9	17.6	18.3	9.5

Figure 6.1. Failure management attitudes in international companies (percentage)

Source: own elaboration.

One can note that in the final research sample ($N = 273$) of international companies, the failure enabling situation prevailed. Nearly two-thirds (65.2%) of respondents agreed with the statement that 'failure is accepted since this is an intrinsic part of a development and learning process', and only 23.1% contradicted it. A lower share of respondents (60.1%) confirmed that in their organisations failure was accepted, but never the same failure happening twice or that 'failure is accepted, provided that

it has little or no financial impact on the organisation (49.5% of positive statements). Taking all failure-enabling situations together, as much as 87.5% of the respondents confirmed the existence of at least conditional acceptance of failure in their organisations, and only 6.6% disagreed with all three options.

In the case of a neutral attitude to failure management, it was examined whether an organisation developed a failure management standard that could help prevent or recognise them early and mitigate adverse outcomes. It turned out that 33.3% of respondents approved of the statement that 'my organisation has developed regulations for failure management'; however, more (42.5%) contradicted it.

Concerning failure disabling situations, the most common was when 'failure is not accepted, and it leads to intensifying control activities' (27.5% of affirmative statements). However, some respondents reported that 'failure is not accepted, and it is reflected in employees' records and payments (12.5%) or that 'failure is not accepted, and there is no place in the organisation for those who fail' (5.9% of confirmatory answers). Taking all three failure disabling options, as much as 31.9% of the respondents reported the existence of any of the negative failure attitudes, whereas 49.5% of the answerers disagreed with all three statements.

Finally, two elements of organisational cultures were investigated, which might have had an impact on failure-related policies. Firstly, the authors assumed that the participative management style should help to solve problems resulting from failure or even prevent those failures. In that case, 50.6% of respondents supported the statement that 'my organisation uses a participative management style', but 28.2% disagreed. Secondly, the authors checked whether creativity was encouraged among employees, which should have increased the level of failure acceptance. Consequently, 54.5% of answerers confirmed that 'my organisation encourages employees to be creative, but 27.8% opposed.

6.3. Factors influencing failure management strategies

To test the hypothesis on the existence of different failure management strategies, the clustering approach using Ward's agglomeration method and squared Euclidean distances were adopted, as seen in Figure 6.2 (for the transparency sake, the *Y*-axis does not include labels of cases). It referred to statements 1–7 of the questionnaire, corresponding to positive, neutral and negative attitudes to failure. The adoption of Ward's method gave the flexibility of selecting the ultimate number of clusters to examine (Valadkhani & Ville, 2010, p. 2884), depending on cut-off distance values, and – as seen – scenarios with two up to five groups seemed to be reasonable.

The authors validated all the foregoing scenarios and decided to consider the version with four failure management strategies, even though they had assumed three different policies ('failure penalising', 'failure analysing' and 'failure enabling') beforehand. The reason is that in two- and three-cluster versions, there exist considerable imbalances in the numbers of objects qualified to particular groups (88:185 and 46:42:185, respectively), whereas already at five clusters, differences between reactions to statements 1–7 of the survey proved to be statistically insignificant in case of few variables (the division into four groups did not have this limitation). Moreover, the division into four clusters made it possible to confirm the existence of the pre-assumed 'failure penalising' and 'failure analysing' strategies and distinguish between two types of 'failure enabling' approaches. The final division will be later referred to as follows: FM1 (with 42 objects), FM2 (with 46 objects), FM3.1 (with 96 objects) and FM3.2 (with 89 objects), sorted from the most to the least cohesive clusters (i.e., according to linkages distances in descending order).
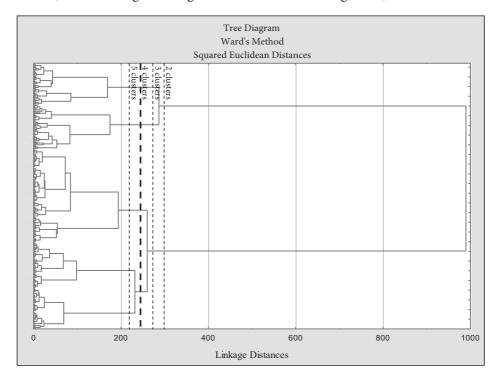

Figure 6.2. Clustering based on seven failure management variables

Source: own elaboration.

The agglomeration method led to distinguishing four groups of objects for which the average values of the seven failure-related variables were calculated, as seen

in Figure 6.3. One should note that there exist substantial differences in attitudes to failure between companies qualified to various clusters.

In class FM1 (red colour), there exists no acceptance of failure (values of the first three variables reflect answers from 'disagree' to those hovering between 'disagree' and 'neither agree nor disagree' to the three statements on failure acceptance – 1–3). Moreover, a similar situation applies to the introduction of failure management practices. Therefore, failure under this strategy seems to be neither accepted nor effectively dealt with. The only consequence of a failure is that it may trigger intensified control (variable value exceeds 'neither agree nor disagree' level and heads towards 'agree' response). However, no specific indication of negative consequences for employees is mentioned. One can say that companies qualified to the FM1 class follow the assumed behaviour under failure penalising strategy – bureaucratic approach (see Table 7.1) except for moderately high rather than a low organisational reaction to failure and moderately low rather than high individual consequences of it.
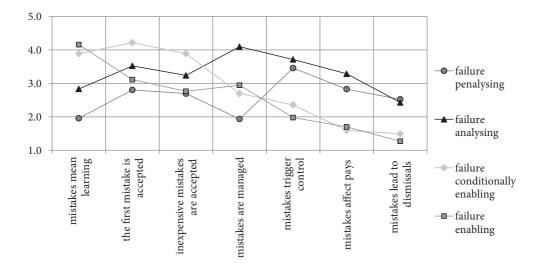

Figure 6.3. Identified failure management strategies

Source: own elaboration.

Class FM2 (blue colour) – is characterised by moderately high acceptance of failure, which appears only once or has little financial impact (reactions to statements 2–3 of the survey hover between 'neither agree nor disagree' and 'agree' levels). However, the perception of an ability to learn from failure is already shifting towards a negative zone. The main characteristic of this failure management approach is that failures are well managed and, to some extent, intensify control. Consequences to employees

(influence on their pay) may also appear, presumably depending on the type of failure, but there is no substantial prejudice against those who commit a failure. This approach matches the assumed failure analysing strategy – managerial approach (see Table 6.1) very well, with few discrepancies considering moderately high rather than moderate acceptance of one-time failure.

Finally, the authors assumed the existence of a third failure management strategy labelled 'failure enabling'. The agglomeration process led to the conclusion that this strategy has two sub-types, which should be distinguished.

The class FM3.1 (light green colour) is characterised by the acceptance of failure as a part of the learning process (variable corresponding to statement 1 of the survey reached the 'agree' level on the Likert scale). However, the representatives of the companies included in this cluster also agreed that failure should not be repeated and should not generate significant financial consequences for the organisation. And the two latter areas are where significant discrepancies to class FM3.2 (indicated with dark green colour) appear, where opinions on one-time and non-costly errors are neutral (hovering around the 'neither agree nor disagree' zone). In both approaches, failure may or may not be a subject of internal regulations, and their appearance is unlikely to result in intensified control. Finally, negative consequences to employees involved in failure situations are uncommon in those two approaches. It can be concluded, therefore, that both approaches match the pre-assumed 'failure enabling strategy'. However, in the case of companies grouped into cluster FM3.1, it can be said that despite their general acceptance of failure as a part of a learning process, a lot of attention is paid to situational factors (un-/repeated and in-/expensive failure). This suggests that contrary to FM3.2, this approach should be labelled as a 'failure conditionally enabling' strategy. Moreover, one can argue that more cautious acceptance of business failure in the case of FM3.1 class with moderate organisational and low individual impacts of it might be seen as a positive signal since in the failure enabling approach, there exists a risk that learning effects of failure are overestimated, and financial or organisational consequences underestimated or even neglected.

The differences between the four clusters concerning the seven variables (statements) related to failure management presented in Figure 6.3 proved to be statistically valid based on the rank ANOVA (see Table 6.3). It should be added that the *post-hoc* tests on bilateral differences between particular failure management strategies pointed out a few interesting similarities between the examined approaches. Firstly, 'failure enabling' and 'failure conditionally enabling' policies do not differ in terms of levels of failure management regulations in companies, nor respecting consequences of failure on employees' salaries. This suggests that differences are in attitude towards failure rather than handling it. Secondly, 'failure penalising' and 'failure analysing' approaches converge when it comes to intensifying post-failure control and the

possibilities of making employees who fail redundant. Thus, the 'managerial approach' also sees failure as a negative phenomenon, the consequences of which need to be mitigated sometimes with painful measures. The difference is that the ultimate goals are to learn and improve, and – ideally – to avoid failure, hence the emphasis on failure management regulations. Finally, it appears that 'failure penalising' and 'failure enabling' approaches do not differ in their perception of non-repeating and non--costly failure. As already suggested, this may imply a tendency to underestimate the consequences of minor failure if the focus is on the learning process. A 'conditionally enabling' approach seems more sensible in this respect.

Table 6.3. Validation of differences between failure management strategies

Variable	Rank ANOVA		Bilateral difference testing (p)					
	$H_{3.273}$	p	FM1 vs. FM2	FM2 vs. FM3.1	FM3.1 vs. FM3.2	FM1 vs. FM3.1	FM2 vs. FM3.2	FM1 vs. FM3.2
FDEV	139.155	***0.000	***0.000	***0.000	**0.012	***0.000	***0.000	***0.000
FTWI	69.760	***0.000	***0.004	***0.003	***0.000	***0.000	**0.034	0.145
FFIN	55.580	***0.000	**0.043	***0.005	***0.000	***0.000	**0.033	0.713
FREG	70.530	***0.000	***0.000	***0.000	0.119	***0.001	***0.000	***0.000
FCON	97.233	***0.000	0.340	***0.000	***0.006	***0.000	***0.000	***0.000
FEMP	96.303	***0.000	*0.056	***0.000	0.387	***0.000	***0.000	***0.000
FNON	80.695	***0.000	0.910	***0.000	**0.016	***0.000	***0.000	***0.000

***Significance level 1%; **significance level 5%; *significance level 10%.

Source: own elaboration.

All the above-mentioned observations support the hypothesis that distinguished failure management policies existed, labelled as 'failure penalising', 'failure analysing' and 'failure (conditionally) enabling' exist. It is, therefore, reasonable to check whether the assumed control factors, including organisational culture, national culture, and organisational profile, were influential. Results of statistical testing are seen in Table 6.4.

Table 6.4. Validation of factors influencing failure management strategies

Variable	Rank ANOVA		Bilateral difference testing (p)					
	$H_{3.273}$	p	FM1 vs. FM2	FM2 vs. FM3.1	FM3.1 vs. FM3.2	FM1 vs. FM3.1	FM2 vs. FM3.2	FM1 vs. FM3.2
1	2	3	4	5	6	7	8	9
FPMA	28.577	***0.000	***0.000	0.636	0.738	***0.000	0.475	***0.000
FCRE	13.691	***0.003	***0.002	0.465	0.622	***0.002	0.708	***0.002
BR	6.449	*0.092	0.081	**0.017	0.533	0.792	0.068	0.811

1	2	3	4	5	6	7	8	9
DE	10.003	**0.019**	0.068	**0.026**	0.173	0.689	***0.003**	0.149
EE	1.613	0.657	0.908	0.844	0.318	0.953	0.341	0.396
FI	15.632	***0.001**	**0.011**	**0.021**	***0.003**	0.585	0.889	***0.002**
PL	6.050	0.109	**0.017**	0.112	0.816	0.204	0.170	0.153
SC	1.337	0.720	0.731	0.758	0.661	0.454	0.508	0.267
SIZ1	4.518	0.211	0.115	**0.049**	0.235	0.815	0.276	0.462
SIZ2	1.187	0.756	0.956	0.970	0.327	0.911	0.475	0.503
SIZ3	6.620	*0.085	0.322	**0.037**	0.716	0.350	**0.019**	0.221
SIZ4	2.068	0.558	0.638	0.749	0.524	0.379	0.421	0.173
SEC1	3.985	0.263	0.265	0.773	0.534	0.123	0.447	**0.048**
SEC2	0.090	0.993	0.811	0.783	0.906	0.998	0.859	0.921
SEC3	2.714	0.438	0.124	0.514	0.868	0.242	0.607	0.196
SEC4	1.803	0.614	0.457	0.412	0.526	0.953	0.181	0.647

***Significance level 1%; **significance level 5%; *significance level 10%.

Source: own elaboration.

First, while looking into organisational culture represented by participative management style and creativity encouragement, companies which differed in those two respects were allocated to different clusters. Companies which penalised failure were characterised by values of participative management and creativity encouragement variables at levels of 2.33 and 2.74, respectively. Only 23,9% of companies from cluster FM1 agreed that participative management was present in their organisation, whereas 60.9% disagreed with this statement. In the case of creativity encouragement, 34.8% supported the existence of such an attitude in their organisations, while 50.0% were of the opposite opinion. The companies included in the other three clusters incorporated both participative management and creativity encouragement into their organisational cultures, and there was no substantial difference between the three approaches. Participative management was present in more than half of those units (55.8–64.3%), and the same concerned creativity encouragement (55.2–61.9%). Thus, one can state that lack of participative management and no motivation for employees to be creative lead to penalising failure later on.

When considering the national cultures of companies included in the final research sample, one can note that organisations from Finland and Germany (and, to some extent, Brazilian ones) were differently represented in the clusters. In the case of Finland, 50.0% of companies were qualified to cluster FM3.1, and thus, enabled failure, provided that it does not repeat and is not costly. On the contrary, only 6.5%

of Finnish organisations applied the 'failure analysing strategy'. The share of failure unconditionally enabling organisations from Finland was also low (15.2%), in contrast to the German sample, where this was the most frequent scenario (48.8%) of cases. Finnish companies were also frequently labelled as 'failure penalising' (28.3% of cases). It is worth noting that only 1 German company was qualified to cluster FM2 ('failure analysing'), contrary to the Brazilian sample with 27.1% of such organisations. This is surprising since management control (controlling) is an integral part of the German corporate culture. In the case of Estonian and Scottish samples, there were no valid differences between qualifications to particular clusters, and in the Polish sample, only 'failure penalising' and 'failure analysing' strategies were differently represented. The foregoing observations suggest that national culture may play a role in failure management strategies, but it is much less relevant than organisational culture. Still, the observed differences confirm the author's decision to keep the right n balance in the research sample by subsampling surveys from the overrepresented nations.

Finally, it should be pointed out that there were only minor indications that objects of different sizes or belonging to particular industries may apply different failure management strategies. In the case of size classes, small companies more often were qualified as conditionally accepting failure (42.6% of cases) rather than analysing it (8.8%). In contrast, large ones had the highest representation among failure penalising organisations (19.3%) and the lowest among failure (unconditionally) enabling ones (26.5%). Considering industry affiliation, one notes only one statistically valid difference, namely that companies from R&D intensive industries where the most often applied 'failure enabling' strategy, and the least frequently 'failure penalising' one, which corresponds well with intuitive feeling considering their focus on innovative processes, which may do not finish with an operational or commercial success.

All the observations made in this section that research questions RQ1 and RQ2 may be answered positively, and RQ3 should receive a partly positive response. In contrast, in the case of RQ4, most evidence speaks against such an assumption, suggesting that failure management is more individual than a sectoral issue.

6.4. Narrative analysis of exemplary fail situations

To deepen knowledge of failure management policies in international companies, the results of the quantitative analysis were supported by the content analysis, employing text mining algorithms. The authors processed 17 021 words of answers to the open question included in the 273 responses processes. The original non-English answers were translated using computer-aided tools and verified by the authors – native speakers – if needed. This method was applied since, in the case of human-

-made translation, the interpreting people could have influenced the word selection and sentence structures, and the interpretation could have been less consistent than the computer-aided one. However, the authors' revision helped eliminate apparent errors in automatic translation.

The aforesaid body of the text was then processed with KH Coder text-mining software both considering the whole text sample, as well as answers included in questionnaires which were qualified to the four clusters – failure penalising, analysing, and (conditionally) enabling ones. In the first case, the authors looked for groups of related topics (see Figure 6.4) which frequently repeated in the description of failure occurring in companies. The second approach led to comparing word frequency lists in the four clusters (see Table 6.5).
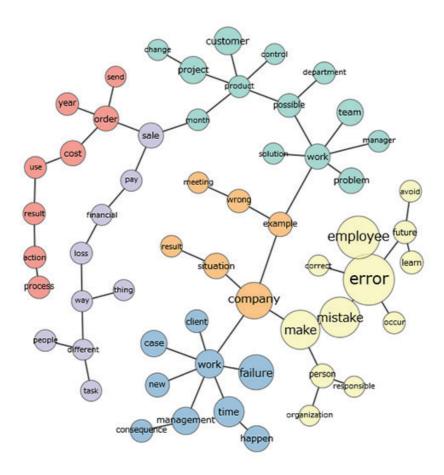

Figure 6.4. Topic groups related to failure

Source: visualisation created in KH Coder.

Figure 6.4 presents the so-called shortest spanning three based on Jaccard's correlation coefficient for the group of 59 most common words – appearing at least 18 times in all the 273 surveys selected to the final research sample – and the top 150 co-occurrence relations of those words in paragraphs of the same answer. It should be noted that the 59 most common words already correspond to over 30% of the whole analysed word corpus (except for the 'stop words'), and thus they make a core context of the failure management discourse.

The analysis enabled to distinguish six thematic modules, presented below – with examples of statements excerpted from surveys matching such topics.

1. 'Employee error' (yellow colour) – which addresses the situational context of errors occurring when employees performed their duties, with possible ways of correcting the errors or learning how to avoid unwanted situations in the future. On the other hand, it was essential to identify people responsible for making a failure, also considering their roles in organisations.

    Posting error with customer invoice. Staff is advised that an error has happened. The employee must correct the error or carry out the reversal postings. Employees will be supervised a bit more, but only if the error occurs more than once.

    (*large German producer*)

    All the failure have been examined with root causes analysis with a clear action plan (usually proposed by the **person responsible** for the failure) what should be done differently to **avoid** such types of **errors** in the **future**.

    (*medium-sized Estonian company from R&D intensive industry*)

2. 'Failure at work' (dark blue colour) – which describes the consequences of failure at work from the perspective of internal and external stakeholders (management and clients), with an emphasis on the time when the failure happened and whether it is a new case of failure or it has been repeated.

    I **work** in a field of short-term contracts, so repetitive **failure** almost always ends up with no renewal of contracts and employees having to look elsewhere for **work**.

    (*medium-sized Scottish service provider*)

    The person who made the error was, to some extent, affected by the **consequences** of the error. Errors were not accepted by higher **management** and were not considered as a process of learning or development.

    (*large Polish service provider*)

3.   'Project control' (light blue) – which on the one hand, pays attention to failure which appears in projects run by a company and their impact on customers, and on the other one looks at inefficiencies in teamwork and possibilities to develop solutions to identified problems and to introduce changes with the involvement of managers.

In the company in which I have been working the **problem** was time management of the **project team** (programmers). To **change** this situation, all employees completed training with the SCRUM methodology, and its elements have been implemented.

(*small Polish company from R&D intensive industry*)

Project overrun, resulting in increased costs and potential lost revenue as a **product** was late to market. **Changes** were made to **project** management **control**, with larger **projects** having a higher degree of monitoring and to a certain extent, **control**.

(*very large Scottish service provider*)

4.   'Financial loss' (violet colour) – where, in particular, current sales revenue losses were targeted in the context of possible other ways of performing tasks by various people in the company.

The employee sent for three months the invoice to the contractor with the old price. Unfortunately, the contractor refused to **pay** the difference – the result of what was a monetary **loss** from the **sales** of services.

(*large Polish service provider*)

The choice of a subcontractor was a mistake. I explained the criteria I used to make a choice. I was not made feel guilty, but together we looked for a better **way** of acting the next time, and I was helped with seeing the situation **differently**.

(*small Finnish service provider)*

5.   'Cost' (red colour) – indicating problems in fulfilling customer's orders which lead to increased costs, but also where adverse results could be used to improve specific business processes.

In one project, we did not plan an important component and, therefore, it was not part of the customer's payment for the **order**. Consequently, we had to cover additional **costs**.

(*large German producer*)

Mistakes lead to re-analysis of the **process** within the fiscal **year** cycle so that the planning of future **actions** is strengthened by the accumulated experience.

(*large Brazilian service provider*)

6.   'Company meeting' (orange colour) – linking results of a problematic situation with a company's standing, as well as emphasising that examples of wrong practices should be discussed in meetings.

> In our **company**, we encourage employees to think outside the box and search for new and sleek solutions to our daily challenges. Naturally, this approach leads to occasional failure and setbacks on timelines. We analyse during our biweekly retrospectives what went **wrong**, sharing our experiences and updating our processes to incorporate our experiences.
>
> (*small Estonian company from R&D intensive industry*)

> The **company** has not won a bid in which it invested a discrete amount of money. The first reaction has been to find the scapegoat in a newly arrived Board officer. Only because the Board officer insisted for clarifying the **situation**, a **meeting** has been set in which lack of management, lack of communication and lack of a legal responsible have been highlighted.
>
> (*medium-sized Scottish producer*)

Table 6.5 lists the top 20 most frequent words included at least 40 times in descriptions of how failure was addressed in the examined companies, together with their corresponding frequency ranks in bodies of text extracted from surveys qualified to four failure management strategies. Yellow colour indicates those cases where the ranks differ by more than ten positions from an average rank in the four clusters. In contrast, red cells demonstrate a 30-position deviation from that average. Consequently, relative changes in emphasis of narration about failure are pointed out. The words in bold, where the differences were the most prominent, were supplemented with examples extracted from the surveys.

Table 6.5. Differences in prioritising topics depending on the adopted failure management strategy

			Frequency rank in a cluster			
Item	Token	Total frequency	failure penalising	failure analysing	failure conditionally enabling	failure enabling
1	2	3	4	5	6	7
1	error / noun	172	2	1	3	1
2	employee / noun	129	2	2	1	5
3	mistake / noun	117	11	8	1	2
4	make / verb	111	4	6	4	3
5	company / noun	98	4	4	5	4
6	failure / noun	90	1	3	8	8
7	time / noun	65	11	5	6	11

1	2	3	4	5	6	7
8	work / verb	56	19	15	14	7
9	customer / noun	53	8	19	56	5
10	management / noun	51	4	12	9	25
11	project / noun	50	19	15	6	16
12	case / noun	46	19	10	14	13
13	team / noun	46	19	44	11	10
14	happen / verb	44	19	19	10	15
15	problem / noun	42	19	32	14	11
16	situation / noun	42	8	24	14	16
17	cost / noun	40	63	10	11	21
18	order / noun	40	141	6	33	25
19	sale / noun	40	40	142	43	8
20	work / noun	40	141	9	43	13

Source: own elaboration.

The first notable difference in narration refers to 'customers'. In the 'failure enabling' strategy, customers were mentioned the most frequently, unlike in the 'failure conditionally enabling' one. From the two examples below, one can sense a difference in attitude toward the customer, where in the first case, their opinion is superior to any actual problem, and in the other, the point is to solve the problem and, thus, satisfy the customer.

> Once reported by the **customer**, it is clear, regardless of our judgment, that the matter becomes relevant.
>
> (*small Brazilian service provider, 'failure enabling' strategy*)

> A software product for a **customer** was not processed on time. Consequences were that the employee should call and appease the **customer** immediately. The delay should be excused, and the product processed as quickly as possible.
>
> (*small German service provider, 'failure conditionally enabling' strategy*)

The second major difference concerns 'cost', which is much more often referred to under 'failure analysing' and 'failure conditionally enabling' strategies than in 'failure penalising' one. The examples below show that in the failure analysing strategy, it is crucial not only to eliminate the error but to do it efficiently, considering the cost and benefits of that operation, while in the 'failure penalising' approach, failure is disturbing and the main point is to regain the peace of mind – or minimising psychological cost – even by incurring unnecessary expenses.

> An error appeared because a person on maternity leave forgot to pass the relevant information on the realisation of a specific order. To avoid such situations in the future, a procedure was set to deal with similar orders. In addition, a warning alert was implemented when this type of orders appears. These measures required a low **cost** and were effective enough.
>
> (*large Polish company from R&D intensive industry, 'failure analysing' strategy*)

> Within project management of large IT service organisations, there is a tendency to apply more resources to fight the fire and correct the issue regardless of **cost**, as opposed to understanding the driving forces behind the failure.
>
> (*very large Scottish service provider, 'failure penalising' strategy*)

The third meaningful difference in emphasis within failure-related narration is that associated with 'orders', which are frequently referred to in the 'failure analysing' approach, but very seldom in 'failure penalising' one. The statements below exemplify different attitudes to failure around orders. In the 'failure analysing' approach, the reaction to problems is neutral – to identify them, measure effects and eliminate/ mitigate. The 'penalising' strategy failure is more emotionally addressed. So, it is not quite a negative outcome, but the decision itself which is criticised.

> Each **order** had a pre-defined work time on its execution in the production, and in the case of exceeding the upper limit of by 5%, the company could not include it on the customer's invoice. With the growing costs which the company had to cover, an application to record **orders** in production was installed.
>
> (*large Polish company from R&D intensive industry, 'failure analysing' strategy*)

> In 2015, the owner of the company decided to purchase luxury campers. An **order** was made from the top Italian coach manufacturer with an average price of approximately 95-97 thousand euro. It seems that the owner's decision was made promptly, was not thoughtful, emotional rather than rational.
>
> (*small Estonian service provider, 'failure penalising' strategy*)

The fourth area of discrepancies observed within the top 20 most frequent words included in failure management discourse is that related to 'sale', which was often addressed under the 'failure enabling' approach, and nearly absent in 'failure analysing' one. As one can see based on the descriptions below, sales-related failure in the 'enabling' strategy was solved by looking for a consensus with internal stakeholders, even though the initial intentions of the company were good, whereas in the 'failure analysing' approach – as already noticed – problems are mostly spotted based on financial numbers, and such figures would be referred *to validate the implemented solutions.*

> The company was trying to give some confidence regarding the salary and decided to bring in fixed salary system. After a couple of months, it was clear that the **sales** suffered because of it. After the company-wide discussions, the company decided to secure a certain amount of wage and give the possibility to earn more depending on the results.
>
> (*small Estonian producer, 'failure enabling' strategy*)

> After 12 months of **sales** and marketing investments, product X still has a marginal market share of 0.2 ppt of the total market. At that time, the project's loss was already estimated at $0.5 million – mainly development costs and inventory due to the minimum production volume.
>
> (*very large Estonian producer, 'failure analysing' strategy*)

The final difference observed is that related to 'work', which is often recalled in the failure-related context under 'failure analysing' and 'failure enabling' strategies, but not in 'failure penalising' one. An example of the analytical approach to failure is to apply statistics of failure performed by employees, and thus improve the processes, whereas in the 'penalising' strategy, the atmosphere and emotions at a workplace are of the primary importance.

> The statistics have been introduced, which made it possible to track the number of mistakes and eliminate them in the future. Each employee specifically checks their **work** which also has an impact on the improvement of certain processes.
>
> (*large Polish financial institution, 'failure analysing' strategy*)

> I have **worked** in different travel-related tasks for 30 years and for the first time, I have experienced how it feels to be managed by an unfair superior.
>
> (*medium-sized Finnish service provider, 'failure penalising' strategy*)

One should point out that besides contextual dissimilarities in the description of how companies addressed failure under the four failure management policies, the statistical testing of differences in frequency rank lists between the clusters demonstrated valid differences in descriptions included in the 'failure penalising' cluster and all other clusters (all at 5% significance levels) for the list of top 59 words included in the text mining presented earlier, but also between 'failure penalising' and 'failure analysing' strategies based on all words included in the examined corpus. All that evidence that not only qualitative representations of failure management strategies but also narrative examples of failure and ways to address them differed substantially, and indicate the existence of specific failure management attitudes in larger groups of international companies.

6.5. The conclusions of the empirical study

Even though this chapter was developed within the orientation phase of an international failure management research, based on a survey among employees from six countries: Brazil, Estonia, Finland, Germany, Poland, and Scotland, the research generated meaningful results. Firstly, it was determined that failure stimulated the learning process in most of the examined companies. However, it was also common to accept failure, provided that it would not happen again or had a little financial impact. Secondly, it was determined with the application of cluster analysis, based on reactions to seven failure-related statements, that there existed three entirely different general attitudes to failure, which remain in a match with the assumed failure management strategies, including 'failure penalising' (representing bureaucratic approach), 'failure analysing' (reflecting managerial approach), and 'failure enabling' (representing entrepreneurial approach), the latter with a sub-strategy labelled as 'failure conditionally enabling' one.

The failure penalising strategy means that even a potential failure is perceived negatively and cannot lead to further success. The learning mechanism may be turned off or not working effectively, so there is little possibility of using failure to limit the risk of losses in the future. Taking such a path may be the result of risk aversion and reflect the organisation's low level of entrepreneurial spirit. In the study, the authors noted that failures were neither accepted nor effectively dealt with under the failure penalising strategy. The only consequence of failure was that they triggered institutionalised control; however, with no specific positive or negative consequences to employees. One can say that companies qualified to that cluster were unwilling to acknowledge failure.

In the case of a failure analysing approach, business failure was seen as a problem that can be coped with. The idea is to report a problem, run corrective actions and reduce losses. When the problem is under control, further action may take place. This is a loop that ends when all problems are resolved. It is an optimisation approach, characteristic for controlling. The research demonstrated that this strategy was characterised by a moderately high acceptance of failure – particularly those which appear only once – however, a positive attitude to learning from failure was not yet present. It was observed, though, that failures were effectively managed and could have resulted in consequences to employees, which depended on the types of failure.

Finally, the enabling strategy means that failure is perceived as one of two options leading to development. The emphasis is on learning and turning problems into opportunities. It is a genuinely entrepreneurial approach that replaces the 'think, think, think, act' pattern with the 'think, act, think, act, ...,' approach. The research

confirmed that failure in this strategy was accepted as a part of the learning process and a priori implied no negative consequences to employees. However, the authors received a signal that, in some cases, failure was not enabled because of expected positive effects in the future but because potential adverse outcomes could have been neglected, contrary to the failure analysing approach. In this place, a sub-type of the third strategy, called 'failure conditionally enabling', introduced a modification where learning from failure was not done at any cost. One-time and uncostly lessons were preferred, which justified a lenient attitude to the consequences of failure.

The authors also observed that participative management and creativity encouragement were the two essential factors influencing failure management policies. National culture also played a role but to a smaller extent. On the contrary size of companies and industries where they operated had no or little influence on the examined phenomenon. All those facts suggest that the attitude to failure should be considered a part of organisational culture.

Finally, based on 17 021 words of descriptions of how particular companies dealt with various types of failure, the authors identified five thematic areas, including: (1) 'employee error', (2) 'failure at work', (3) 'project control', (4) 'financial loss', (5) 'cost' and (6) 'company meeting'. It was also evidenced that the emphasis of failure-related discourse differed between the 'failure penalising' strategy and all the others in terms of word selection and in a context where particular failure-related stories were located. Looking at the context of how the examined companies described failure situations, one may conclude, paraphrasing a Latin saying that "to err is human and organisational, but to persist in error is (the fatal) failure".

Taking all the arguments described above into consideration, the authors are firmly convinced that the scientific achievement of the research initiative is undoubtedly a diagnosis of how business failure is perceived by international companies – what is a topic hardly researched in the literature and which may trigger further studies in the future.

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