USING RISK ENGINEERING GRADINGS SYSTEMS TO ASSESS ORGANIZATIONAL FATIGUE RISK

TOTAL WORD COUNT: 4,400

Bob Bridges, Managing Director, InterDynamics Pty Ltd, Santos House, 91 King William St, Adelaide, South Australia 5000, Phone +618 8233 5911, Fax +618 8233 5858, bob.bridges@interdynamics.com

Peter Johansson, Risk Engineer, Zurich Financial Services, 505 Little Collins St, Melbourne, Victoria 3000, Phone +613 9940 6489, Phone +613 9940 6489, peter.johansson@zurich.com.au

Len Pearson, Business Development & Training Manager, InterDynamics Pty Ltd, 9 Trenbridge Rd, Belrose, NSW 2085, Phone + 61 2 9975 6925, Fax: + 61 2 9451 4843, len.pearson@interdynamics.com

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ABSTRACT

Using Risk Engineering Grading Systems to Assess Organizational Fatigue Risk

Objectives

The list of responses by organisations and society to finding protections against the threats posed by fatigue is growing apace. Even with all this activity underway, company boards, legislators, regulators, and unions are still asking "Are organisations fatigue safe? Are the actions being taken by organizations adequate to protect against exposures to the significant losses which arise whenever there is an accident or incident which has fatigue as a contributing or root cause?" This question is also prominent in the considerations of insurers who have long suspected that fatigue is a significant contributor to a large percentage of personal, third party and property damage loss/ claims. In recent years, insurance underwriters have requested their risk engineers to include fatigue risk in their gradings of total organisational risk. The challenge is to develop an organisational fatigue risk assessment methodology, which builds on the growing understanding of the link between fatigue and loss, to objectively rates the adequacy of current or future controls to protect against inherent fatigue exposures

Methods

The Risk Engineering group of a global insurer in alliance with a developer and supplier of Fatigue Risk Assessment products has developed an Organizational Fatigue Risk Grading system which uses a systematic assessment of pure risks utilising between 15 to 25 grading elements with predetermined criteria for each grading element / risk level factor. The overall risk grading is determined using a weighted average formula. The grading is built on the principle of relative assessment. This means that the risk assessment criteria are different for each type of industry.

Results

Organizational Fatigue Risk gradings have been applied to a number of industries .Findings are provided of the application of the fatigue risk grading system in Australia, NZ and Europe. The risk engineering framework of this grading system has assisted in the development of a fatigue risk management approach that focuses on establishing adequacy of current and future controls to protect individuals and their organisations against inherent fatigue hazards. This approach uses a holistic diagnosis of operational, capacity and cultural exposures, coupled with the development of systematic, multiple levels safeguards to achieve adequate protection.

Conclusions

Organizational Fatigue Risk gradings provide benefits to insurers and their clients which include consistent world wide fatigue risk assessment, benchmark data on fatigue risk levels, cost benefit comparisons and prioritization of risk reduction investments

Insurance underwriters are now using organizational fatigue risk assessments based on risk engineering grading systems to price insurance offerings.

Topic

Fatigue Risk Management

INTRODUCTION

The journey towards a fatigue safe society involves extensive research and exploration, significant commitment and constant learning. As the fundamental focus of this journey is safe systems design and the management of risk, much can be gained from the experience of risk professionals such as insurance underwriters, insurance brokers and risk engineers. Their world view is very black and white - their focus is on exposures, controls and assessed risk.

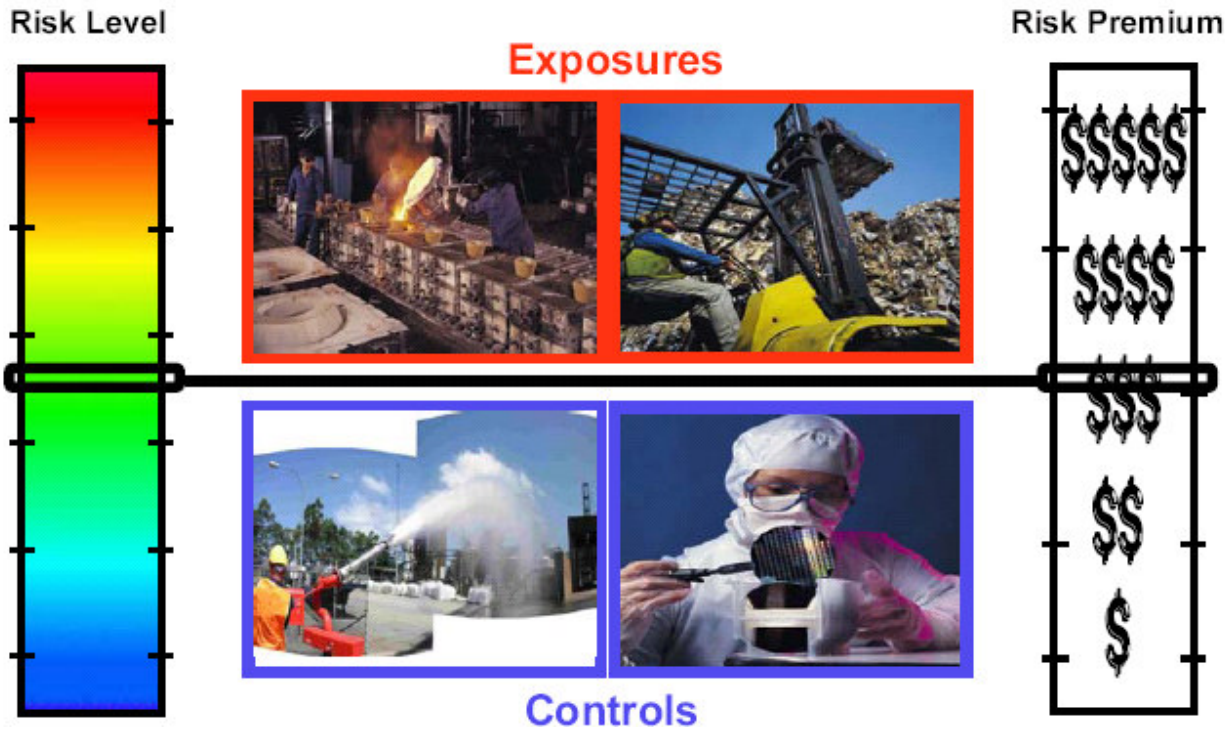

Figure 1: World View of Risk Engineers

Risk Engineers assess the risk and determine the risk level – insurance underwriters determine the insurance premium.

Fatigue Risk Triangle

To assist individuals and organisations to understand how they can significantly reduce their risk of becoming another fatigue related accident statistic, risk engineers have assisted in the development of a simple concept known as the 'fatigue-risk triangle'. This triangle features 3 basic components which can combine to create a potentially high-risk situation. These basic components are

- the length and timing of hours worked, combined with
- inadequate sleep, and
- the presence of fatigue-related hazards.

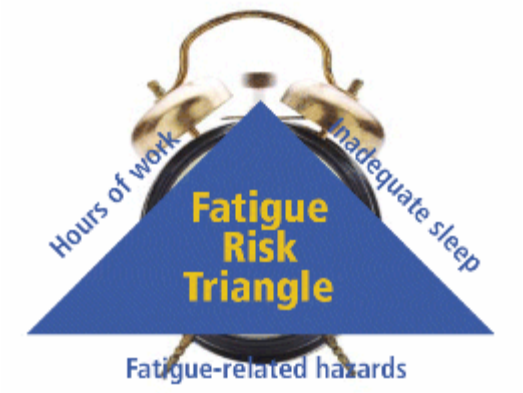

Figure 2: Fatigue Risk Triangle

The 'fatigue-risk triangle' represents a way of thinking about risks. It endeavors to promote awareness of the issues that a risk engineer will purse in rigorous and disciplined manner to ensure reasonable foreseeable losses are prevented in any operational environment. The assessment methodologies of risk engineers are often based on the use of risk grading systems which assist in a comprehensive review of exposures and controls. An understanding of the principles behind risk grading systems has led to the development of an organizational fatigue risk management approach which is fundamentally focused on organizational fatigue risk, how it can be assessed and the benefits which can flow from the ongoing use of organizational fatigue risk grading systems.

Spotlight on Fatigue

The spotlight on fatigue as a significant cause of accidents and incidents in a broad range of industries and activities is becoming more general and emotional e.g. "Fatigue blamed as babies die in fiery crash" – Courier Mail (Brisbane, Australia) front page headline, Friday 16 April, 2004. The list of industries affected by fatigue is endless – road transport, aviation, ferries, passenger rail, sea borne cargo, mining, and healthcare…

Responses to the fatigue problem

The clamor of societies in Australia, New Zealand, and many other countries to "fix the fatigue problem" has led many organisations to become proactive about occupational fatigue.

Organizational Responses

Examples of responses by organisations include

- Development and delivery of awareness and training programs to assist workers to better understand and manage their personal levels of fatigue;
- Formation of consultative committees to oversee fatigue management programs;
- Use of fatigue models to investigate fatigue related accidents;
- Development of "fatigue safe" work schedules;
- Development of fatigue risk management policies and procedures;
- Implementation of organization wide systems to monitor compliance of actual hours of work with organizational safety targets and the minimum requirements of occupational health and safety legislation.

Research Responses

In addition, there has been a proliferation of research into the causes of fatigue and the impact of fatigue on the quality of decision making and behavior. "Fatigue Management in Transport Operations" Conferences have provided a key forum to report on progress made in this diverse area of research. Over the last decade an extensive body of research has confirmed that the amount and quality of sleep that people achieve is the most significant factor contributing to fatigue. With this knowledge, one of the leading forms of protection has been to educate workers on how they can better manage their sleep.

Are actions of organisations providing adequate protection?

Even with greater awareness of how to manage personal fatigue, fatigue cannot be eliminated. Hence, the challenge for organisations has been to protect against fatigue risk at whatever level of fatigue experienced by individuals. For example, contingency plans are required for workers performing safety critical tasks if health or family pressures lead to high levels of personal fatigue.

The list of responses by organisations and society to finding protections against the threats posed by fatigue is growing apace. Even with all this activity underway, company boards, legislators, regulators, and unions are still asking "Are our organisations fatigue safe? Are the actions we are taking adequate to protect our people and our organisation against exposures to the significant losses which arise whenever there is an accident or incident which has fatigue as a contributing or root cause?"

One or Two forms of protection used in isolation are not adequate

With the accumulation of experience gained from the endeavours of organisations to develop and implement diverse controls to protect themselves against fatigue risk, there is growing evidence that a commitment to one or two forms of protection in isolation does not lead to a "fatigue safe organisation".[1]

Safety Critical Systems in High Hazard Industries

For safety critical systems in high hazard industries such as transport, manufacturing, mining and healthcare, 3 levels of protection (control) are normally required to give adequate protection. For example, aircraft control systems have typically 2 levels of redundancy to protect against failure of the primary control system.

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[1] ***Example 1: Special Commission of Inquiry into the Waterfall Rail Accident***[1]

This Australian Special Commission of Inquiry found that both master rosters and actual hours of work have to be assessed for compliance with fatigue management policies;

Example 2: Civil Aviation Safety Authority (Australia) investigation into the adoption of Fatigue Risk Management[2]

The Civil Aviation Safety Authority (Australia) investigation into its initial attempt to encourage aviation operators to adopt Fatigue Risk Management systems found that the use of a fatigue risk assessment product such as FAID® in isolation does not constitute an adequate fatigue risk management system.

INSURANCE PERSPECTIVE

Including organisation fatigue risk assessments in insurance gradings

Along with the rest of the world, insurers are waking up to the threats posed by fatigue. They have long suspected that fatigue is a significant contributor to a large percentage or personal, third party, property damage loss/ claims. They too expect adequate protection against fatigue related exposures. In recent years, insurance underwriters have asked their risk engineers to include risk gradings for fatigue in motor fleet risk assessments and other areas of commercial / industrial insurance.

To date, risk engineers have resisted inclusion of fatigue risk in total risk gradings because they were not confident of the link between fatigue and loss. With the growth of knowledge from scientific research about the causes and impacts of fatigue and the accumulation of experience in the development and implementation of controls to provide protection against fatigue related threats, risk engineers now have a sufficient objective foundation to extend their risk grading methodologies to include organizational fatigue risk assessment.

Availability and Cost of Insurance

The availability and cost of insurance for any given exposure is determined by

- The claims history of a company and its industry
- The state of the general insurance and re-insurance market
- Risk assessments of insurable risks made by independent risk assessors retained by the insurance industry.

Insurance Risk Gradings

Insurance Risk Gradings are based on the assessment of risk engineers who focus on:

- Inherent exposures of the process / design
- Management style / strategy / diligence
- Characteristics of the business and organisation
- External factors
- Operations and procedures
- Timing and availability
- Contingency plans / business interruption mitigating alternatives
- Plans and commitments to those plans to reduce identified risks.

Risk Engineering Frameworks

Risk Engineering Frameworks focus on:

- Hazards,
- Triggers,
- Effects,
- Safeguards,
- Residual Risks,
- Assessment of Systems Integrity.

Risk Engineering disciplines are based on a systematic and comprehensive identification of threats, the design of adequate safeguards and assessment of current and future risk profiles.

Risk Grading Systems

Risk Engineers use risk grading systems to objectively rate the adequacy of current or future controls to protect against inherent exposures. The benefits of risk gradings include;

- consistent world wide risk assessment
- benchmark data on risk levels
- cost benefit comparisons
- prioritization of risk reduction investments

Risk Grading systems are a systematic assessment of pure risks and often as many as 15 to 25 grading elements with predetermined criteria for each grading element / risk level factor. The overall risk grading is determined using a weighted average formula based on (claims) experience over many years and industries. They can assist organisations to answer the question "are we fatigue safe" by identifying critical control points that can lead to unacceptable risks.

Zurich Risk Engineering

Zurich's Risk Engineering (ZRE) network is a global provider of risk assessment and accreditation services with emphasis on fleet, OH&S, property and business interruption risk assessments.

InterDynamics

InterDynamics services an international market for Planning, Analysis, Scheduling and Rostering programs, products and systems. Achievements of note include the development and implementation of the Delivery Vehicle Scheduling System for the Sydney 2000 Olympics. InterDynamics has developed a range of products based on a roster-based fatigue-scoring formula licensed from the University of South Australia's Centre for Sleep Research. This collaboration has contributed to the development of the Fatigue Audit InterDyne® (FAID®) family of fatigue-risk management products. Through working with client organisations to deliver fatigue management training, and its own use of FAID® products to deliver fatigue-related risk assessment services InterDynamics has gained extensive experience in the identification of fatigue related exposures.

Faid®Safe and the InterDynamics / Zurich Risk Engineering Alliance

InterDynamics and Zurich Risk Engineering has formed an alliance (idZRE) which has developed an organisational fatigue risk grading system known as Fatigue Graid®. The alliance has also developed Faid®Safe which is a fatigue risk management approach based on a risk engineering framework that focuses on establishing adequacy of current and future controls to protect individuals and their organisations against inherent fatigue hazards.

This fatigue risk management approach is based on a holistic diagnosis of operational, capacity and cultural exposures, coupled with the development of systematic, multiple level safeguards.

Faid®Safe focuses on

- Objective risk assessment;
- Promotion of risk awareness at operational and management levels and
- Accreditation for those individuals and organisations who achieve competency in fatigue risk management systems.

Systematic Multi-level Safeguards

Faid®Safe features the following systematic, multiple levels safeguards

Faid®Safe Level 1 Safeguards

Primary protection is achieved by developing fatigue safe work schedules and work practices which significantly reduce task fatigue risks. Diagnostics of fatigue risks associated with hours of work are used to assist individuals and organisations identify hazards and to develop protections through for example changes to the work / rest patterns used to make up work schedules.

Faid®Safe Level 2 Safeguards

Secondary levels of protection are achieved by developing competencies for managing fatigue risk at an operator and management level, together with the use of systems to monitor compliance with fatigue safety standards. Workforce and management training and education, compliance monitoring and reporting procedures are integral to this level of protection.

Faid®Safe Level 3 Safeguards

Tertiary levels of protection are achieved through the development of contingency and emergency competencies to cope with high-risk situations when individuals experience high levels of fatigue. These safeguards may or may not be supplemented by business interruption, personnel, third party and property insurance. Insurable risk assessment and fatigue risk gradings by professional risk engineering assessors are used to monitor fatigue risk profiles and to determine priorities for further improvement.

TOTAL ORGANIZATIONAL FATIGUE RISK GRADING SYSTEM

As part of the Faid®Safe development, the idZRE alliance has developed an Organizational Fatigue Risk Grading system based on the risk grading systems that have been developed and applied by ZRE to-date in areas such as fleet, OH&S, property and business interruption. The purpose of this Organizational Fatigue Risk Grading system is to provide an objective rating of the adequacy of current and future safeguards to protect against inherent fatigue exposures.

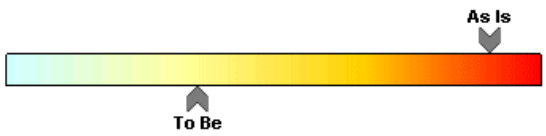
Organizational Fatigue Risk Grading Overview

The following is an example of inputs and outputs to the organizational fatigue risk grading system (a demonstration version of the Fatigue Graid® System is available on the Faid®Safe web site, http://faid.interdynamics.com/)

Figure 3: Example of an Organizational Fatigue Risk Grading

Fatigue Graid®

			Importance	As Is	To Be
Exposures	Hazards	Fatigue hazards associated with the operational environment	XH	D	C
		Driving to / from work	H	D	D
		Sleeping conditions	M	C	C
	Hours of Work	Hours of operations (i.e. day / afternoon / night operations)	XH	C	C
		Nature of rosters (i.e. rotating, fixed, on-demand, stand by)	L	B	B
	Capacity	Seasonality impacts on workload vs workforce balance	H	C	B
		Seasonality impacts on workforce profile	M	A	A
	Culture	Pay incentives which encourage personal fatigue	H	A	A
		Prevalence of second jobs	M	A	A
		Cultural expectations which encourage longer than planned hours	M	D	D
		Cultural expectations that lead to less than normal sleep hours	M	A	A
		Workforce turnover	L	A	A
		Age and health profiles	L	C	B
Safeguards	Primary	Roster design	H	C	B
		Hours of work risk assessment	H	C	B
		Fatigue hazard analysis methodology	M	C	B
		Task fatigue risk thresholds	M	C	B
		Workforce capacity planning	M	C	B
		Fatigue safe policies and procedures	L	B	A
		Communication and consultation frameworks	L	B	A
	Secondary	Competency and awareness	H	D	A
		Compliance with corporate & legislative fatigue safety standard	M	B	A
	Tertiary	Contingency and emergency procedures	H	D	A
		Incident and accident reporting	M	C	A
		Audit - periodic assessment of fatigue risk controls	M	D	A



Potential Rating Good
Current Rating Poor

Relative vs Absolute Assessments

The grading is built on the principle of the relative assessment. This means that the risk assessment criteria are tailored for each type of industry.

Grading Calculation

The result of the Grading is called "Overall Grading". It is calculated based on the assessment results of a set of risk factors. Risk factors are determined by pre-established risk assessment criteria.

Exposure Categories

The following are examples of some of the Exposure Categories included in the grading system;

- fatigue hazards associated with operational tasks,
- hours of operations (i.e. day / afternoon / night operations),
- seasonality impacts on workload,
- seasonality impacts on workforce structure (i.e. permanent, casuals, contractors, short term seasonal casuals),
- nature of rosters (i.e. rotating, fixed, on-demand, stand by),
- pay incentives which encourage personal fatigue,
- prevalence of second jobs,

Control Categories

The following are examples of some of the Control (Protection) Categories included in the grading system;

- fatigue safe policies and procedures,
- fatigue hazard analysis methodology,
- roster design,
- actual hours of work history
- competency
    - personal fatigue management
    - management of operational risk
- contingency and emergency plans
- monitoring of compliance with legislative and regulatory occupational health and safety requirements,
- incident and accident reporting,

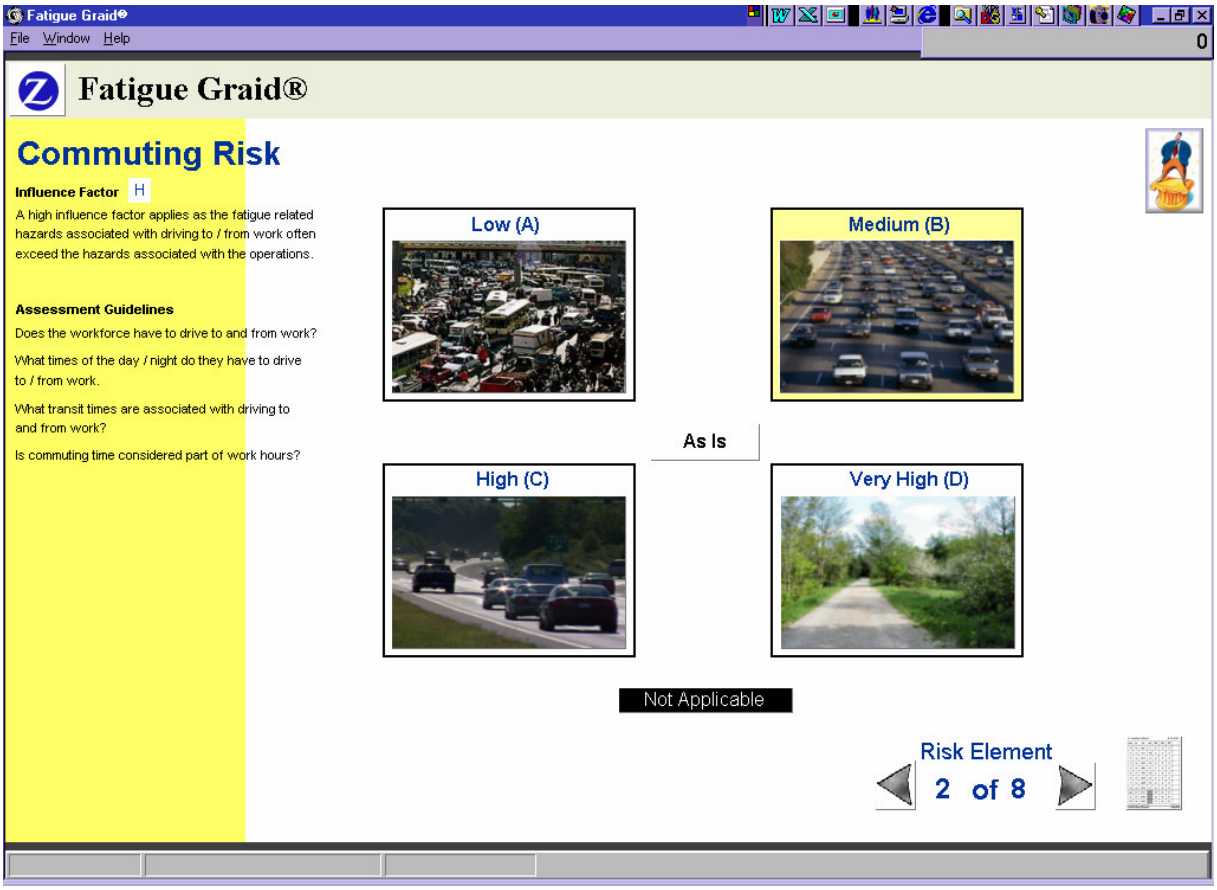
Grading Elements

Each Grading Element for example, “Commuting Risks” assesses risk on the basis of the following risk levels:

A	**Low Risk**
B	**Medium Risk**
C	**High Risk**
D	**Very High**
E	**Not Applicable**

Table 1: Grading Element Risk Levels

Both the current situation (“As is”) and a future scenario with proposed countermeasures (“To Be”) are assessed.



Weighting of Grading Elements

The relative 'importance' of individual grading elements is reflected in a range of weightings from 'low' to 'extra high'.

	Context		Influence (weighting) Factor
Fatigue hazards associated with the operational environment	Where are the operations based? i.e. in hospitals, offices, homes, mining / production facilities, logistics (aviation / marine / rail / road), healthcare, hospitality, protection services, ... What losses can be caused by fatigue impaired decision makers?	X H	An extra high influence actor applies as the hazards associated with the operational environment and consequences of fatigue impaired decisions have primary impact on the level of risk.
Driving to / from work	Does the workforce have to drive to and from work? What times of the day / night do they have to driver to / from work. What transit times are associated with driving to / from work?	H	A high influence factor applies as the fatigue related hazards associated with driving to / from work often exceed the hazards associated with the operations.
Sleeping Conditions	What are the sleeping conditions for the workforce? Workers can be required to sleep in accommodation provided by their employer on remote sites such as oil rigs and mining operations and "barracks" for aviation / marine / rail / road crew. Poor sleeping accommodation can lead to lower levels of quality sleep than assumed in the development of fatigue safe rosters.	M	A medium influence factor applies as operators who do not achieve predicted levels of quality sleep are likely to experience higher levels of fatigue than was predicted when fatigue safe rosters are developed.

Figure 4: Example of Influence Factors

Sub-Grading systems

For grading elements which have an extra high or high influence factor, sub grading systems are normally established to address the range of variables which can impact on the risk assessments.

				Commuting Risk			
Commuting Hazards	Does the workforce have to drive to and from work? What times of the day / night do they have to drive to / from work. What transit times are associated with driving to / from work?	>20% of the workforce has to drive >30 minutes.	**Very High**	Medium (B)	Medium (B)	Very High (D)	Very High (D)
		>10% of the workforce has to drive >30 minutes.	**High**	Medium (B)	Medium (B)	High [C]	Very High (D)
		>10% of the workforce has to drive >15 minutes.	**Medium**	Low (A)	Low (A)	Medium (B)	High [C]
		<10% of the workforce has to drive >15 minutes.	**Low**	Low (A)	Low (A)	Medium (B)	Medium (B)
				Extensive	**Comprehensive**	**Limited**	**Severely Lacking**
				Management proactive in providing safeguards for commuting.	Buses provided and car pooling encouraged at high risk shift times.	Commuting considered to be part of work place risks. No buses or car pooling .	Commuting not considered to be part of workplace risks
				Commuting Safeguards			

Figure 5: Example of a Sub Risk Grading System

RESULTS
- EXPERIENCE IN USING ORGANIZATIONAL FATIGUE RISK GRADINGS

In the last 12 months the Total Organizational Fatigue Risk Grading system has been used in Australia, NZ and Europe for a range of ZRE and InterDynamics clients in the aviation, emergency services, marine and road transport industries in particular.

Successful Use of the Grading

It has been confirmed that the system can be used by organisations to self- assess the many risk components that make up their overall organizational fatigue risk grading. The process of self-assessment assists organisations to develop greater understanding of the risk engineering approach to fatigue risk management. It reinforces to clients the wide range of exposures and controls which should be considered when performing a total organisation risk grading.

It has been found that the Risk Grading system is most efficiently used in forums in which management, operators, insurance brokers, insurance underwriters and risk engineers all participate in the grading process.

Preparation for the use of the Grading

Preparation for the use of the grading involves

- gathering information on the insurance claims experience of the organisation and its industry,
- performing a review of the indicative fatigue levels based on actual hours of work for desirably the prior 12 months and
- performing a fatigue hazard analysis using the Zurich Hazard analysis process.

Sensitivities of the Gradings

As the gradings are particularly sensitive to risk elements which have a high influence factor, it is normally necessary to develop sub-risk grading systems for risk elements with high influence factors.

Relevance of the Grading elements

Not all risk elements are relevant to all clients and all industries. The relevance of each grading elements is a function of the personal identification profile for each client.

Task Hazard Analysis

One of the key risk elements in the Organisational Fatigue Risk Grading is "Fatigue Hazard Analysis Methodology". It was found that the Zurich Hazard analysis methodology proved to be a valuable way of assessing the fatigue risks associated with the operating environment.

Operational Tasks

Driver Primary Tasks	Risk Rating		
	Ref ID#	Likelihood	Consequence
Interstate Driving (Hwy)	1A	Rare	Extreme
Interstate Driving (Yard)	1B	Almost Certain	Insignificant
Intrastate & Local Driving	2A	Rare	Modera
Intrastate & Local Driving	2B	Rare	Extrem
Truck Loading	3	Likely	Insignif
Truck Unloading	4	Possible	Insignif
Documentation	5	Unlikely	Modera
Back-loading	6	Unlikely	Insignif
Team Leaders Role	7	Possible	Insignif
Relief Driver	8	Unlikely	Minor

Operational Tasks Risk Matrix

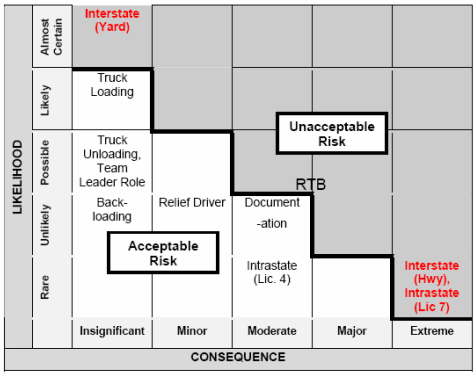


Figure 6: Example of a Task Risk Matrix

The Value of Hours of Work Fatigue Risk Assessments

Another of the key risk elements in the organisational fatigue risk grading is "Hours of Work Fatigue Risk Assessment". It was found that the Hours of Work Fatigue Risk Diagnostics proved to be a valuable way of developing an in-depth understanding of clients' business, the types of work schedules they are working, the fatigue issues associated with them and the fatigue controls (safeguards) that they are implicitly using.

Hours of Work[2]

Driver ID#	Peak Fatigue Index (PFI)	Peak Fatigue Risk (PFR)	Consequence of Peak Fatigue Risks	FTL Compliance Rating (%)	Likelihood of hours in excess of FTL
1	105.0	15.0	Extreme	95.4	Unlikely
2	85.9	-4.1	Moderate	98.9	Unlikely
3	80.9	-9.1	Insignificant		
4	102.7	12.7	Extreme		
5	75.5	-14.5	Insignificant		
6	105.6	15.6	Extreme		
7	87.7	-2.3	Moderate		
8	69.6	-20.4	Insignificant		
9	53.0	-37.0	Insignificant		
10	85.4	-4.6	Moderate		
11	121.2	31.2	Extreme		
12	126.7	36.7	Extreme		
Average	91.6	1.6	Moderate		

Hours of Work Fatigue Risk Matrix

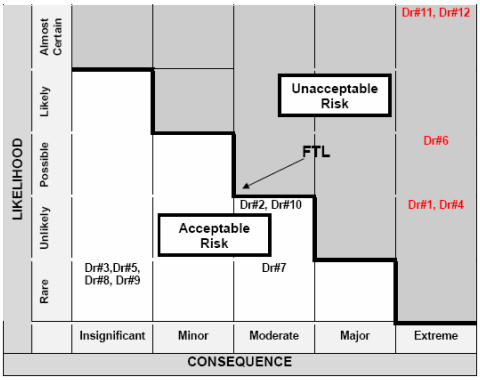


Figure 7: Example of an Hours of Work Fatigue Risk Matrix

Work Schedule Profiling

It was found that "Work Schedule profiling" proved to be a valuable way to assess capacity issues, i.e. the level of staffing available to perform operational tasks at various times of the day, week, month and year.

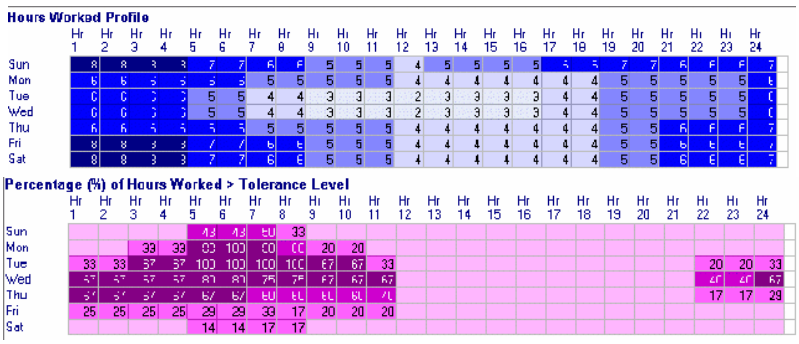


Figure 8: Example of Work Schedule profiles

Benefits of the grading to clients

It was found that organizational fatigue risk gradings assist organisations in inherently high fatigue risk businesses to make explicit the controls that they are already using, and those they are developing, to safeguard their employees. The processes associated with the grading system, gave organizations reinforcement on the practices they are doing well and assisted them to identify other opportunities to further improve their total organizational fatigue risk profile.

Zurich Insurance Achievements

ZRE has benefited from the following;

- Fatigue Graid® (the organisational fatigue risk grading system) has assisted Zurich to selectively enter the long-haul /line-haul trucking market.
- Faid®Safe™ has played a key role in Zurich winning and securing new insurance business for both small (10-20 drivers) and large (1,000+ drivers) long-haul truck fleets.
- Good correlation has been observed between FAID® and Virtual Fleet Risk Manager® (web based driver profiling of attitude, behavior, knowledge and hazard recognition).
- Extremely positive feedback from customers, brokers and underwriters.

InterDynamics Achievements

InterDynamics has benefited from the following;

- A number of their Faid®Safe clients have achieved significant reductions in their cost of insurance.
- A number of Faid®Safe clients have enjoyed significant success in their fatigue risk management programs by following the Faid®Safe framework.
- A number of leading fatigue risk consulting practitioners have become licensees of the Faid®Safe approach.

Linking Insurance Claims databases to fatigue risk indicators

Various components of the Zurich Risk Engineering Service package are now capturing the following data:

- accident and incidents and associated insurance claims (Z Fleet Navigator)
- driver profiling of awareness / attitude / behavior / hazard recognition (Virtual Fleet Manager),
- fleet management assessment by a Zurich Risk Engineer,
- Faid®Safe assessments of fatigue risks associated with actual hours of work.

With the addition of fatigue risk indicators to the safety related data being gathered by corporations, ZRE is gaining further insights into the factors which impact on the success of fatigue safe systems. For example, correlations have been observed between driver profiling of attitude and behavior from the Zurich Virtual Fleet Manager system with FAID® assessments of actual hours of work fatigue risks. Significantly, accident history and the adequacy of fatigue risk management systems are now used directly by ZRE to determine a company's risk rating and subsequent insurance premium for motor fleet insurance.

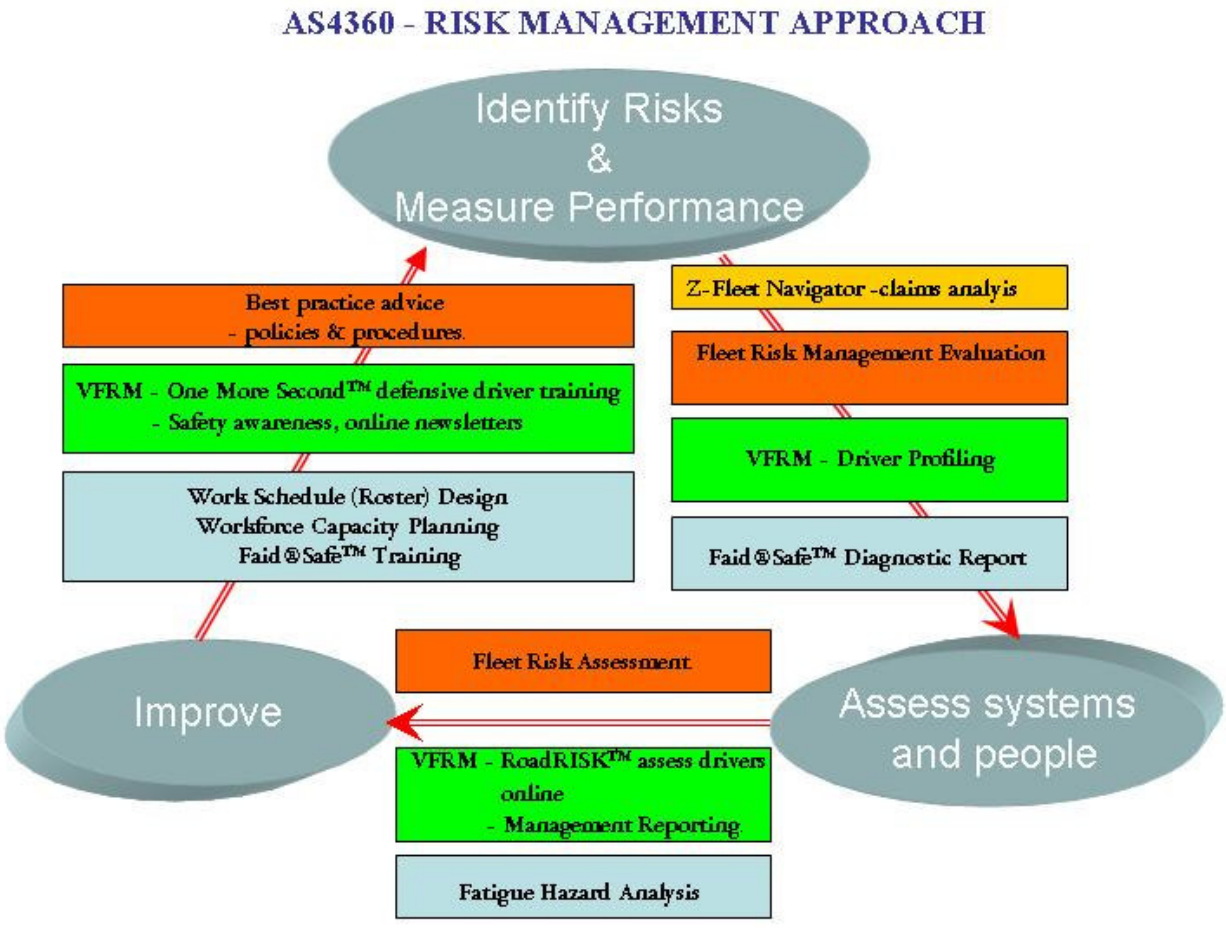


Figure 9: Zurich Risk Engineering Services Package

CONCLUSIONS

Organization Fatigue Risk Gradings provide a rigorous and comprehensive check list to review organizational exposures and controls (protections) which can be applied to a diverse range of industries and operational circumstances. Importantly, its value is not limited by localized legislative compliance requirements.

Organizational Risk Gradings assist organisations to improve risk management competency and to communicate how planned improvement in their business risk profile should lead to an overall reduction in the frequency and cost (both under excess and insurance premium) of accidents, and incidents.

Safety and financial measures are being objectively assessed to track progress of organizational fatigue risk.

Insurance underwriters are now using organizational fatigue risk assessments based on risk engineering grading systems to price insurance offerings

Organizational Fatigue Risk gradings provide the following benefits to insurers and their clients;

- consistent world wide fatigue risk assessment
- benchmark data on fatigue risk levels
- cost benefit comparisons
- prioritization of risk reduction investments

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