

# Readi™ /

Readi is a **comprehensive software suite**, delivering actionable fatigue data to **supervisors** and other key roles in your operation.



Readi is based on the validated **SAFTE™ Biomathematical Fatigue Model**, whose fatigue predictions are proven to correlate with **real-world outcomes** in safety and productivity.

# How does **your organization** prepare for fatigue **before work begins?**

Ready / Supervise



**Actionable** fatigue insights pushed to each **supervisor** at the start of shift

**Start of Shift**



Microsleep

Accident

# Readi / How It Works

## Worker Info



Sleep Opportunities  
based on work hours



Demographics  
remains private



One-Time Survey  
remains private

**Optional:**

Sleep Data  
from Wearables



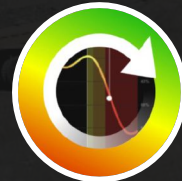
## Readi Prediction Engine



Readi's **SleepML™**  
model predicts past  
10 days of sleep

- sleep quantity
- sleep quality
- sleep timing

Based on **4M+ sleeps**  
from industrial shift  
workers using wearables



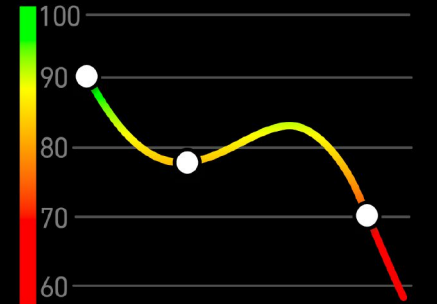
Readi's **SAFTE™**  
fatigue model  
analyzes sleep for:

- sleep quantity
- sleep quality
- sleep timing
- sleep debt
- circadian phase
- jet lag



## Personalized Fatigue Prediction

for Each Operator



Now

92

10:35pm

80

1:40am

70

**BAC 0.08**

100

90

80

70

60

ReadiScore indicates:

- cognitive performance
- reaction time
- lapse likelihood

# Available Configurations

Readi supports the **optional** use of wearables to capture real sleep data

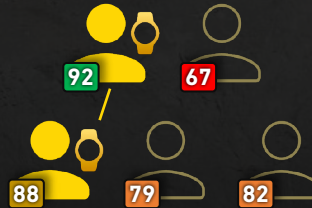
- ✓ Personal sleep data remains **private**
- ✓ No need to wear 24/7
- ✓ Wearables deliver on-wrist Fatigue Alerts

## Software Only



No wearables

## Hybrid



Wearables for those  
who want or need them:

- Volunteers
- Chronically-fatigued
- Ultra high-risk jobs

## Universal



Wearables for everyone

# How Read's **SleepML™** Engine Works

## Intake

Readi receives **worker info**.



Sleep

Opportunities

work hours via API, CSV,  
or pattern-based input



Demographics

age, gender,  
height, weight



One-Time Survey

sleep habits  
and related info

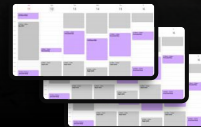


## ML Analysis

1. ML **compares** sleep opportunities to **4M+ other periods** from industrial workers who wore wearables
2. ML **analyzes 4M+ sleep patterns** from other workers' wearables in similar periods



**Worker info**

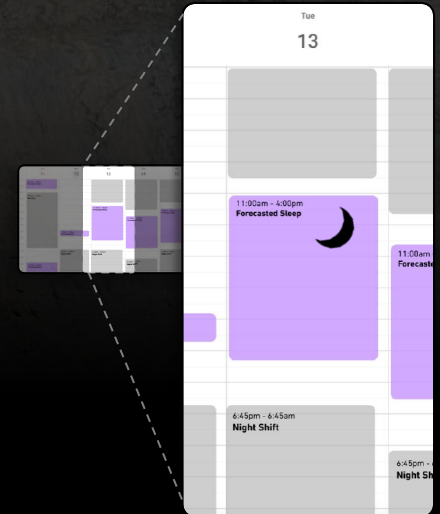


**Labelled sleep + work  
data from others**



## Sleep Prediction

SleepML™ **delivers estimation**  
of operator's last 10 days of  
sleep.



Readi can **predict most cases of fatigue** without the need for wearables.



Work hours + demographics  
+ sleep habit survey data

**Readi can predict fatigue caused by:**

### Root Cause of Fatigue

#### **Abnormal timing of rest periods** (circadian impact)

1. Rest times vary from day to day
2. Rest times are biologically difficult
3. Unpredictability of next shift (can't plan sleep)
4. Time zone travel / jet lag

#### **Insufficient** rest periods

1. Overtime
2. Delayed start
3. Unexpected downtime / delay

#### **Underutilized** rest periods

1. Personal sleep health
2. Random sleep loss



Using wearables,  
Readi can also predict  
fatigue caused by:

# Biomathematical Model

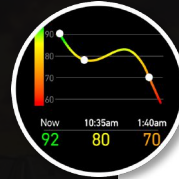


SAFTE is a validated biomathematical model that analyzes a wide array of inputs to predict fatigue, including cumulative historical sleep **duration**, **quality**, and **timing**, as well as circadian factors like **sunrise/sunset times**, **night shifts**, and **time zone** travel.

Developed by the **US Army** at the Walter Reed Army Institute of Research and validated by:



# Fatigue Prediction



	ReadiScore	Cogn. Effectiveness	Reaction Time	Lapse Index	Dig Rate	Spot Time	Microsleeps	Accident Cost	Harsh Braking	Speeding
<b>Peak Performance</b>	<b>100</b>	-0%	+0%	1.0x						
	<b>90</b>	-10%	+11%	1.5x	+3.2%	-3.3%				
	<b>80</b>	-20%	+30%	3.7x						
<b>Fatigue Impairment</b> ≥ BAC 0.08	<b>70</b>	-30%	+43%	5.2x						
	<b>60</b>	-40%	+67%	8.0x			+14x	+5x		
	<b>50</b>	-50%							+4x	+8x

**Lab Validation**  
13 Published Papers

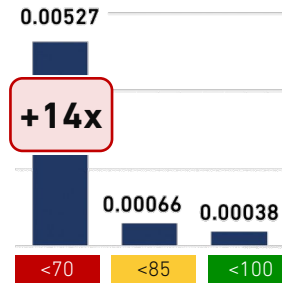
**Real-World Industrial Data**  
Telematics, In-Cab Video, Recorded Incidents

# Correlation to Outcomes & ROI

With data from **two separate mining customers**, dated Mar 2020 and Dec 2021 respectively, Fatigue Science conducted empirical correlation analyses that combined **ReadiScore fatigue data** with **telematics productivity data** from haul trucks. Additionally, the analysis from one customer included Hexagon OAS camera system data that was designed to detect and record microsleeps.

The analyses revealed a **14x higher incidence of dangerous microsleeps** when ReadiScores predicted high fatigue. Furthermore, both studies of **Spot Time** revealed nearly identical **productivity benefits of 3.2% to 3.3%**. The customer analysis that included **Dig Rate** also revealed a 3.2% benefit.

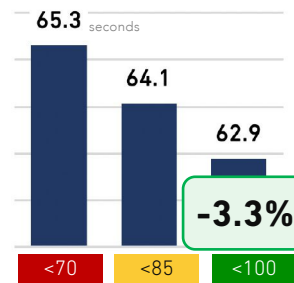
**Microsleeps per Hour,**  
by ReadiScore



The "Critical Microsleeps Analysis" revealed a strong relationship between the likelihood of Hexagon OAS Critical Microsleeps and the individual's ReadiScore, indicating fatigue.

The likelihood of Microsleeps during "High Fatigue Hours" was observed to be **14x higher** than their likelihood during "Low Fatigue Hours," as defined by the worker's ReadiScore at time of operation.

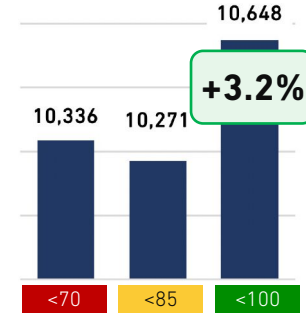
**Spot Times,**  
by ReadiScore



The Spot Time Analysis revealed a strong relationship between Spot Times and fatigue. In analysis for Customer A, dated Mar 2020 and shown above, Spot Times recorded during "Low Fatigue Hours" were observed to be **3.3% faster** than those recorded during "High Fatigue Hours".

Results from Customer B's analysis, dated Dec 2021, were 3.2% faster.

**Dig Rate,**  
by ReadiScore



Our Dig Rate Analysis revealed a strong relationship between Dig Rates and fatigue.

Dig Rates recorded during "Low Fatigue Hours" were observed to be **3.2% faster** than those recorded during "High Fatigue Hours," as defined by the worker's ReadiScore at time of operation.