Firefighting Index (FFI)

Official Reference Framework

Version 1.0

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A diagnostic framework for assessing operational stability before continuous improvement, Lean, automation, or digitalization initiatives are launched.

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Executive Summary

The Firefighting Index (FFI) is a rapid diagnostic screening tool for assessing whether a clearly defined operational unit is working in a stable, controlled mode or is dominated by reactive firefighting.

The FFI addresses a recurring problem in operational improvement: Lean, Continuous Improvement, automation, and digitalization initiatives are often launched before the underlying processes are sufficiently stable. Under these conditions, urgent interventions, recurring disruptions, and short-term corrective actions consume the resources required for sustainable improvement.

The assessment covers **five dimensions**:

- frequency of operational disruptions
- daily priority setting
- sustainability of problem solving
- impact on operational results
- transparency of the problem situation

Each dimension is rated with 0, 1, or 2 points, producing an overall score between 0 and 10. The result is classified as green, yellow, orange, or red and supports the management decision whether to proceed with systematic improvement, address selected instabilities, or prioritize operational stabilization.

The FFI is designed for clearly bounded operational units such as teams, individual laboratories, departments, production lines, or defined operational areas. It is not intended to produce one aggregated score for an entire site, corporation, or other heterogeneous organization.

The assessment requires only a small number of informed operational perspectives and can normally be completed within a few minutes. Repeated assessments can be displayed on a Daily Management Board to show whether the operating condition is improving, remaining stable, or returning to firefighting.

The FFI does not replace detailed process analysis or root-cause investigation. Its purpose is to provide a fast, structured answer to a preceding question:

Is this operational unit ready for systematic improvement—or must it first be stabilized?

1. Purpose and Definition

1.1 Why the Firefighting Index Was Developed

The Firefighting Index emerged from a recurring observation across more than two decades of operational work in regulated environments: improvement initiatives often fail not because Lean methods are ineffective, but because the operational unit is not yet ready for improvement.

In a pharmaceutical manufacturing environment, a major compliance remediation program introduced stricter GMP requirements and narrower operating limits. Existing processes had not been designed to perform reliably within these new compliance boundaries. The resulting increase in deviations led to delays, supply interruptions, organizational stress, and rapidly rising operating costs. Although a Lean initiative had been launched, the immediate need was not efficiency improvement. Process capability and robustness first had to be increased through stabilization and Six Sigma methods.

A similar pattern later became visible in a financially challenged diagnostic laboratory. A data-based assessment found numerous opportunities for efficiency improvement but did not recognize the laboratory's reactive operating mode as the underlying constraint. Implementing isolated Lean measures without first addressing the firefighting system would have needed considerable investment while producing little sustainable benefit[1].

Both cases led to the same conclusion:

Before improving an operational system, its readiness for improvement must first be understood.

For a long time, I searched for a practical way to assess the readiness of such a complex operational system without first conducting an extensive analysis. The inspiration came from witnessing the APGAR assessment after the birth of my children. Within minutes, a small number of clearly defined observations provided a structured sign of the newborn's immediate condition and whether intervention was needed.

This proved a powerful principle: even a complex organism can be screened rapidly, within minutes, through a carefully selected set of indicators—not to provide a complete diagnosis, but to identify its immediate condition and the need for action.

I applied this principle to operational systems. Since I was not aware of an existing instrument that could rapidly indicate whether a clearly defined operational unit was ready for Lean improvement or still needed stabilization, I developed the Firefighting Index.

Like the underlying logic of the APGAR assessment, the FFI uses a small number of defined criteria and a simple scoring system to provide a rapid first sign of whether an operational unit is operating in a controlled mode or is dominated by firefighting.

The FFI is therefore not a comprehensive organizational diagnosis. It is a diagnostic screening tool that answers the preceding question:

Is this operational unit ready for Lean improvement—or must it first be stabilized?

1.2 Purpose of the Firefighting Index

The Firefighting Index (FFI) is a diagnostic screening tool designed to assess the extent to which a clearly defined operational unit is operating in a reactive rather than a controlled mode.

[1] For a detailed account of the laboratory stabilization approach, see Markus Rhiel, *Raus aus dem Labor-Chaos: Ein Praxisleitfaden zur Reduktion von Firefighting in regulierten Laborumgebungen* (2026).

Operational firefighting consumes management attention, specialist capacity, and employee energy.

Immediate problems dominate daily work, while prevention, systematic improvement, and long-term development of capability are repeatedly postponed. Conventional performance indicators may reveal the consequences—such as deviations, delays, overtime, declining productivity, or missed delivery targets—but often do not name the underlying operating mode.

The purpose of the FFI is to make this condition visible through a rapid, structured assessment.

It provides an early sign of operational instability and helps determine whether stabilization should take priority over further optimization.

The FFI supports three practical goals:

- establish a shared understanding of the current operating mode
- decide whether an operational unit is ready for Lean improvement or requires prior stabilization
- provide a baseline for monitoring progress from reactive firefighting towards stable, controlled operations

1.3 Definition and Intended Use

Operational firefighting is a persistent operating condition in which urgent interventions, recurring disruptions, and short-term corrective actions dominate daily work. Resources are repeatedly redirected from planned activities towards immediate problem resolution, while underlying causes remain insufficiently addressed.

The Firefighting Index translates this condition into a structured score. It assesses five observable characteristics of the operating mode through standardized stakeholder interviews. The resulting score indicates the extent to which daily operations are dominated by firefighting.

The FFI is primarily intended for Lean, Operational Excellence, Continuous Improvement, and operational stabilization professionals. It may also be applied by appropriately trained managers or internal specialists who can conduct the assessment with sufficient neutrality.

The FFI provides a structured basis for discussing the current operating conditions with management and agreeing on the appropriate next step. Its intended uses are:

- assessing readiness before launching a Lean or improvement initiative
- establishing a baseline before starting an operational stabilization program
- supporting decisions on whether stabilization or optimization should take priority
- selecting a suitable pilot unit for a broader Lean implementation
- monitoring progress towards stable, controlled operations through repeated assessments

A low FFI score generally indicates more suitable conditions for a Lean pilot. A high score indicates that stabilization and process robustness should be addressed before substantial Lean implementation. If no suitable low-FFI unit can be identified, a broader stabilization initiative may be required before Lean implementation begins.

2. Scope and Limitations

2.1 Unit of Assessment

Each FFI assessment requires a defined assessment boundary. The selected unit should share broadly comparable processes, operational priorities, management responsibility, and working conditions.

If substantially different operating conditions exist within the selected boundary, separate assessments should be conducted. Firefighting may be concentrated in one team, laboratory, process, or production line while an adjacent unit remains stable. Combining them would conceal these differences and reduce the diagnostic value of the result.

The proper assessment level is therefore the smallest operationally meaningful unit for which one FFI score can reasonably describe the prevailing operating mode.

2.2 In Scope and Out of Scope

The FFI is suitable for operational units that are sufficiently homogeneous for one score to describe their prevailing operating mode.

In Scope	Out of Scope
Individual team	Entire site
Individual laboratory	Corporate division
Department	Entire company
Production or packaging line	Global organization
Defined operational area	Heterogeneous business group
Individual small or medium-sized operation	State or other complex societal system
Current operating condition	Historical performance assessment
Immediate, experience-based judgement	Detailed data analysis
Intuitive selection of 0, 1, or 2 points	Exact counting of individual events
Rapid diagnostic screening	Statistically representative survey

Larger organizations should be assessed through separate FFIs for their relevant operational units. The results may be displayed together to identify differences and priorities (e. g. in a Site-FFI-Heatmap), but they should not be consolidated into a single overall score.

2.3 Assessment Depth

The FFI is a rapid diagnostic screening tool, not a statistically representative employee survey. It does not require a large sample or an exhaustive assessment of the organization.

For an initial screening, two or three carefully selected stakeholders may be sufficient. A formal baseline assessment should normally include three to five participants representing different perspectives, such as operational management, direct supervision, and employees working within the assessed unit.

Direct observation may complement the interviews, particularly when the assessor is familiar with the operational environment. A self-assessment is also possible but should be identified as such.

If the individual assessments differ substantially, the variation should be examined rather than concealed through simple averaging. Diverging scores may indicate that firefighting affects only part of the unit or is perceived differently across organizational levels.

2.4 Limitations

The FFI provides a structured indication of the prevailing operating mode. It is based primarily on informed stakeholder perceptions and must therefore be interpreted within the relevant operational context.

The score indicates the extent of firefighting but does not identify its specific causes. Significant results require further analysis of the relevant operational, technical, organizational, or compliance-related drivers.

FFI scores should not be used as an absolute measure of organizational performance or to rank unrelated operational units. Differences in processes, regulatory requirements, technologies, and operating conditions may limit direct comparability.

The FFI should support diagnosis and management decisions. It should not be used as an individual performance measure or as a basis for assigning blame.

3. The Five FFI Dimensions

3.1 Frequency of Operational Disruptions

This dimension assesses how frequently unplanned operational disruptions occur within the assessed unit.

Occasional disruptions are a normal part of operations. Firefighting becomes evident when disruptions occur repeatedly or become a permanent feature of daily work. Their frequency therefore provides an initial indication of whether the operating system is stable or chronically reactive.

Assessment question:
How frequently do operational disruptions occur?

3.2 Daily Priority Setting

This dimension assesses whether planned work determines daily priorities or whether priorities are repeatedly changed in response to operational disruptions.

Frequent reprioritization indicates that the unit is being controlled by emerging problems rather than by an agreed operational plan. In a pronounced firefighting mode, escalation becomes the primary mechanism for determining what is addressed next.

Assessment question:
Can you plan your day—or do disruptions determine your priorities?

3.3 Sustainability of Problem Solving

This dimension assesses whether operational problems are resolved sustainably or repeatedly return after being considered closed.

Recurring problems indicate that immediate symptoms are being addressed without sufficiently eliminating their underlying causes. The same issues therefore continue to consume resources and contribute to a persistent firefighting cycle.

Assessment question:
How often do previously "solved" problems recur?

3.4 Impact on Operational Results

This dimension assesses how frequently operational disruptions affect the unit's ability to deliver its intended results reliably and on time.

Unexpected failures, delays, or interruptions in result delivery indicate that firefighting is no longer confined to internal workload. It is directly affecting operational performance and service reliability.

Assessment question:
How often do unexpected failures or delays in result delivery occur?

3.5 Transparency of the Problem Situation

This dimension assesses whether current operational problems are visible, understood, and consistently prioritized.

Transparency enables a unit to distinguish critical issues from less urgent ones and to allocate resources accordingly. When no reliable overview exists, problems compete for attention through urgency and escalation rather than through structured prioritization.

Assessment question:
How transparent is the current problem situation?

4. How to Conduct the Assessment

4.1 Define the Assessment

Before conducting the assessment, define:

- the operational unit to be assessed
- the purpose of the assessment

The FFI assesses the current operating condition. Participants should answer the questions based on how the unit is operating now, using approximately the previous four weeks as context. Isolated exceptional events should not determine the assessment unless they reflect the prevailing operating mode.

The purpose should be clear, for example, an initial screening, a baseline before stabilization, the selection of a Lean pilot, or a recurring progress assessment.

4.2 Select the Participants

Participant selection should remain pragmatic. For an initial assessment, it is generally sufficient to ask a small number of people who are familiar with the unit's daily operations.

Where practical, include different perspectives, for example, a manager, a team leader, and an operational employee. However, no formal sampling procedure is required. The FFI is designed to provide a rapid initial assessment within approximately three minutes, not to initiate an extensive employee survey.

If accessible, the perspective of an internal or external customer may provide valuable additional information about visible consequences such as delays, service disruptions, or unreliable delivery. This external view should complement the internal assessment rather than be included directly in the FFI score.

Once the result is shared within the team or displayed on the management board, differing views should be invited. The resulting discussion is part of the diagnostic value of the FFI. Substantial disagreement may reveal differences in perception across roles or organizational levels and should be explored.

4.3 Conduct the Assessment

The assessment should normally take only a few minutes, typically between three and ten minutes per participant. It may be completed through a short conversation or directly on the assessment sheet.

Ask the five questions in their defined order. Participants should select the rating of 0, 1, or 2 that best reflects their immediate perception of the current operating condition, informed by their experience of approximately the previous four weeks.

Responses should be intuitive and should not require extensive analysis or prior discussion. The informed judgement of people who experience the operation daily is an essential part of the screening approach.

The assessor may clarify a question but should not influence the response or seek consensus during the assessment. Individual ratings should be recorded first. Discussion and interpretation follow after the initial results are available.

Direct observations may be added as supporting information but should remain distinguishable from participant ratings.

4.4 Consolidate the Results

After the initial assessments, compare the ratings for each dimension. Where the ratings are broadly consistent, the prevailing value can be adopted directly.

For assessments conducted in a larger group, a simple voting procedure may be used:

- Participants vote independently for 0, 1, or 2.
- Different perspectives are briefly discussed.
- The group votes again.
- The majority rating becomes the final score for that dimension.

The purpose of the discussion is not to force unanimous agreement but to ensure that relevant differences in perception are heard before the final decision. Significant minority views should be noted where they reveal different operating conditions or experiences within the unit.

The five final dimension ratings are then added to produce the consolidated FFI score. This score provides the basis for interpretation and management decision-making in the following chapters.

5. Scoring and Interpretation

5.1 Dimension Scoring

Each of the five dimensions is rated with 0, 1, or 2 points. The description that best reflects the current operating condition is selected.

Dimension	0 points Unremarkable	1 point Noticeable	2 points Critical
Frequency of Operational Disruptions	Rare; exceptional	Regular, at least once a day	Permanent; chronic, several times daily
Daily **Priority Setting**	Predominantly planned	Frequently reactive; plans often change	Predominantly escalation-driven; planning is hardly possible
Sustainability of Problem Solving	Problems generally remain resolved	Problems partly recur	The same problems recur repeatedly
Impact on Operational Results	Rare; exceptional	Frequent	Daily or continuous
Transparency of the Problem Situation	Complete overview; problems are prioritized and addressed accordingly	Partial overview; prioritization usually succeeds	No reliable overview and therefore no clear prioritization

The rating should reflect the prevailing condition rather than isolated exceptional events. If a situation lies between two descriptions, participants should select the value that best represents their immediate, experience-based judgement.

5.2 Overall FFI Score

The five-dimension ratings are added to produce an overall FFI score between 0 and 10 points.

FFI score	Status	Interpretation	Meaning
0–2	**Green**	**Stable Operations**	No pronounced firefighting is evident. The operating system appears stable and controllable. Continue to improve selectively.
3–5	**Yellow**	**Increased Instability**	Initial signs of structural instability are evident. Preventive action and targeted stabilization of individual areas are advisable.
6–8	**Orange**	**Critical Firefighting Pattern**	Clear indications of structural instability are present. A systematic approach to reducing firefighting is strongly recommended.

FFI score	Status	Interpretation	Meaning
9–10	Red	**Pronounced Structural Firefighting**	The need for action is high. Stabilization should receive the highest priority.

The score reflects the extent to which firefighting characterizes the current operating mode. It does not measure the number of individual problems, but the degree to which they control the operational system.

5.3 Additional Reflection Rule

The overall score should be supplemented by a review of the individual dimension ratings.

If two or more dimensions are rated with two points, this frequently indicates a structural firefighting pattern—even when the overall score remains below 6.

This rule does not change the calculated FFI score or its colour category. It acts as an additional diagnostic flag because several critical dimensions may reveal a concentrated instability that would otherwise be softened by the total score.

The affected dimensions should therefore be examined explicitly during the subsequent management discussion.

6. Management Decision Logic

FFI result	Management decision
0–2 Green	**Proceed with Lean,** Continuous Improvement, automation, or digitalization as appropriate. Continue monitoring operational stability.
3–5 Yellow	**Address the critical dimensions selectively** while continuing improvement activities that do not depend on full operational stability.
6–8 Orange	**Initiate a structured stabilization approach** before launching substantial new improvement initiatives.
9–10 Red	**Make stabilization an immediate management priority.** Secure leadership ownership, capacity, and a structured daily operating routine before pursuing further optimization.

If structural firefighting is identified, the problems preventing employees from performing their work reliably should be collected immediately, made visible on a management board, prioritized, and addressed through a daily problem-solving routine. This process should continue until the underlying operating condition has improved and the FFI has returned to green.

The FFI indicates the need for this response but does not prescribe the complete stabilization method. A detailed practical approach is described in ***Raus aus dem Labor-Chaos:*** *Ein Praxisleitfaden zur Reduktion von Firefighting in regulierten Laborumgebungen* (Rhiel, 2026).

If two or more dimensions are rated with two points, the affected areas should be addressed even when the overall score is below 6.

For the selection of a Lean pilot, preference should be given to a unit with a low FFI score. If no sufficiently stable unit is available, operational robustness should be established before a Lean pilot is launched.

7. Application Example

7.1 Initial Situation

This example is based on a diagnostic laboratory operating under significant economic pressure. As part of a Lean initiative across the wider laboratory network, an external Lean expert was assigned to implement previously identified efficiency measures within the laboratory.

The initial on-site assessment revealed a different and more fundamental problem. Employees were working close to the limits of their capacity, but the apparent overload was not caused solely by the volume of work. A substantial share of their time and energy was being consumed by recurring disruptions, reactive reprioritization, temporary corrections, and unresolved operational problems.

The operating mode became evident immediately. The distance from the laboratory entrance to the manager's office was approximately 15 metres. On many days, employees raised the first urgent problems before even five metres had been covered.

Typical indications included:

- operational interruptions occurring countless times each day
- daily plans becoming obsolete within the first hour
- recurring printer and IT-system failures being corrected temporarily but not resolved
- regular customer complaints and delayed reporting of results
- samples occasionally being untraceable
- potential consequences for the reliability and timeliness of patient care
- no consolidated overview or visualization of operational problems
- no structured prioritization or daily problem-solving routine

Because the FFI had not yet been formally applied at that time, the following assessment is a retrospective evaluation of the documented initial condition.

7.2 Retrospective FFI Assessment

The documented initial condition was assessed retrospectively against the five FFI dimensions.

Dimension	Score	Assessment basis
Frequency of Operational Disruptions	**2**	Interruptions occurred repeatedly throughout each working day.
Daily **Priority Setting**	**2**	Planned activities were frequently displaced within the first hour by urgent problems.
Sustainability of Problem Solving	**2**	Recurring technical and operational problems were temporarily corrected but not sustainably resolved.

Dimension	Score	Assessment basis
Impact on Operational Results	2	Delayed reports, customer complaints, and untraceable samples directly affected service reliability.
Transparency of the Problem Situation	2	No consolidated overview, visual management board, or structured prioritization existed.
Total FFI score	**10/10**	**Red – Pronounced Structural Firefighting**

The FFI result confirms that the laboratory was not ready for an efficiency-focused Lean implementation. Operational stabilization had to take priority.

7.3 Management Conclusion

Figure 1: Decision pathway in the application example

The retrospective FFI score of 10 confirmed that implementing isolated efficiency measures would not have addressed the laboratory's underlying operating condition. Lean improvement was not rejected, but stabilization had to come first.

The immediate management response was to:

- collect the problems preventing employees from working reliably
- make them visible on a central management board
- prioritize them according to their operational impact
- address them through a structured daily routine
- distinguish temporary corrections from sustainable problem resolution

This created the transparency and management discipline required to reduce firefighting and establish a stable foundation for subsequent Lean improvement.

The complete stabilization approach, its practical implementation, and the resulting improvements are described in ***Raus aus dem Labor-Chaos:*** *Ein Praxisleitfaden zur Reduktion von Firefighting in regulierten Laborumgebungen* (Rhiel, 2026).

8. Use and Governance

8.1 Integration into Daily Management

The FFI can be integrated into a Daily Management Board to make the current operating condition visible alongside established SQDEC indicators.

Figure 2 shows one possible layout. In this example, the FFI is positioned between the board title and the SQDEC sections. This visual hierarchy distinguishes the condition of the operating system from the operational results shown under Safety, Quality, Delivery, Engagement, and Cost.

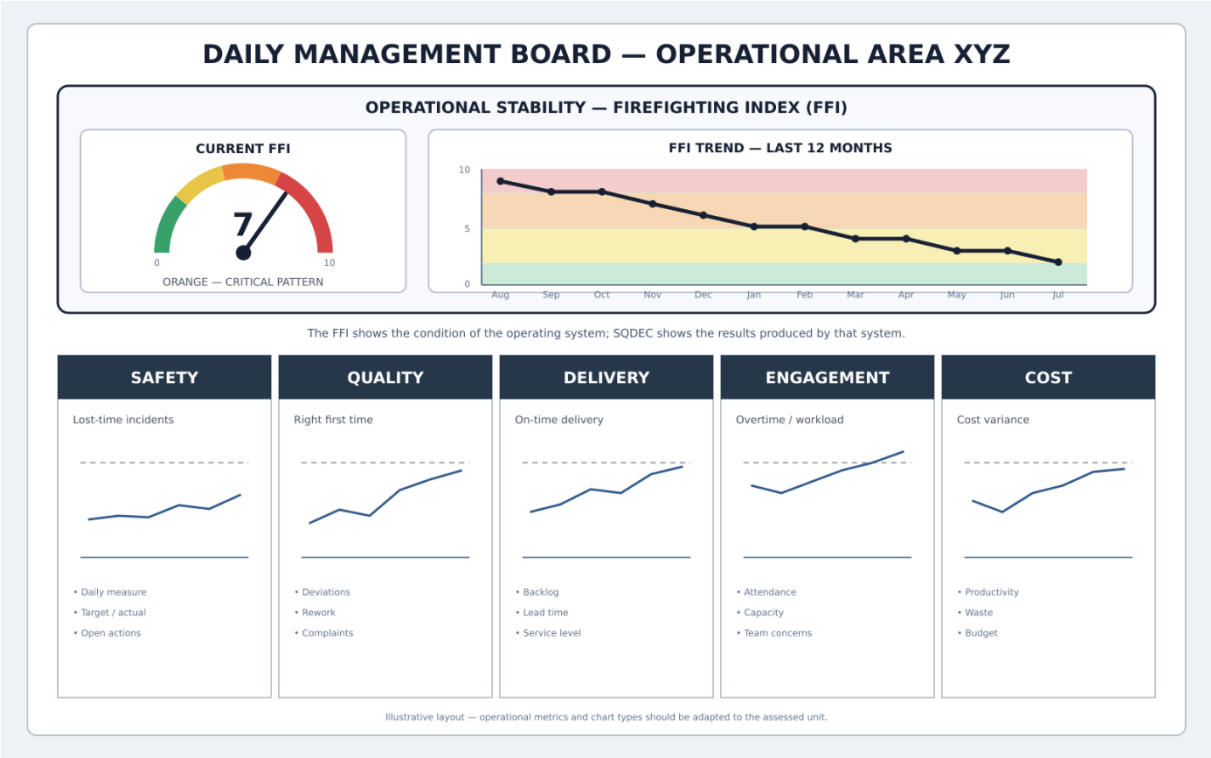
The example combines:

- a colour-coded gauge showing the current FFI score

- a twelve-month trend chart showing the development of the FFI over time

The trend chart uses the assessment month on the horizontal axis and the FFI score from 0 to 10 on the vertical axis. Coloured background zones make movements between green, yellow, orange, and red immediately visible.

Figure 2: Illustrative example of FFI integration into a Daily Management Board



This is an illustrative layout, not a mandatory board design. Organizations may adapt the position, format, review horizon, and surrounding indicators to their existing management system.

Permanent visibility on the board does not require daily reassessment. It keeps operational stability on the management agenda and shows whether the unit is progressing towards—or remaining within—the green range.

8.2 Reassessment and Trend Monitoring

The reassessment frequency should reflect the operating condition and the purpose of monitoring.

During an active stabilization phase, a monthly reassessment is generally sufficient to show whether the operating mode is improving. Once the unit is stable, quarterly assessments may be appropriate. An additional assessment can be conducted after a major operational change or when increasing firefighting is suspected.

Trend interpretation should focus on direction and sustained movement rather than isolated score changes. A single improvement may reflect temporary conditions, while several consecutive assessments provide stronger evidence of stabilization.

For meaningful trend monitoring, the assessment boundary and scoring method should remain consistent over time. Significant changes to the assessed unit should be documented alongside the trend.

8.3 Ownership and Documentation

Responsibility for maintaining the FFI should be assigned to the manager of the assessed unit or another designated owner within the operational management system.

Documentation should remain simple and include only:

- assessed unit
- assessment date
- five dimension ratings
- overall score and colour status
- relevant comments explaining unusual results or changes

The current result and historical trend should remain accessible to the team. Changes to the assessment boundary or method should be documented because they may affect comparability over time.

The official FFI framework and assessment sheets should be identified by version number to ensure consistent application.

Appendix A: FFI Assessment Sheet

SELF-CHECK
Completion time: **less than 5 minutes**

Assess the five core dimensions. Assign 0, 1, or 2 points to each dimension.

No.	DIMENSION	0 POINTS UNREMARKABLE	1 POINT NOTICEABLE	2 POINTS CRITICAL	YOUR RATING
1	**Frequency** of Operational Disruptions *How frequently do operational disruptions occur?*	Rare (exceptional)	Regular, at least once a day	Permanent condition (chronic)	_____
2	Daily **Priority Setting** *Can you plan your day - or do disruptions determine your priorities?*	Predominantly planned	Frequently reactive (plans often change)	Predominantly escalation-driven (planning is hardly possible)	_____
3	**Sustainability** of Problem Solving *How often do previously "solved" problems recur?*	Problems generally remain resolved	Problems partly recur	The same problems recur repeatedly	_____
4	**Impact** on Operational Results *How often do unexpected failures or delays in result delivery occur?*	Rare (exceptional)	Frequently	Daily or continuously	_____
5	**Transparency** of the Problem Situation *How transparent is the current problem situation?*	A complete overview is available, and problems are addressed according to priority	A partial overview is available; prioritization usually succeeds	No overview of the problems and therefore no prioritization	_____

TOTAL FFI SCORE: _____ / 10

Appendix B: Scoring and Interpretation Sheet

FFI SCORING AND INTERPRETATION

Add the five-dimension ratings to calculate the total Firefighting Index score.

Maximum score: 10 points

FFI SCORE	STATUS	INTERPRETATION	MEANING
0–2	Green	**Stable** Operations	**No pronounced firefighting is evident.** The operating system appears stable and controllable. Continue to improve selectively.
3–5	Yellow	**Increased** Instability	**Initial signs of structural instability are evident.** Preventive action and targeted stabilization of individual areas are advisable.
6–8	Orange	**Critical** Firefighting Pattern	**Clear indications of structural instability are present.** A systematic approach to reducing firefighting is strongly recommended.
9–10	Red	Pronounced **Structural Firefighting**	**The need for action is high.** Stabilization should receive the highest priority.

Additional Reflection Rule

If two or more dimensions are rated with two points, this frequently indicates a structural firefighting pattern—even when the overall score remains below 6.

Interpretation Principles

The number of individual problems does not determine whether firefighting exists. The decisive question is whether the operating system controls its problems—or whether the problems control the operating system.

The Firefighting Index is a diagnostic tool. It provides pragmatic initial orientation through rapid screening. The objective is a quick and robust assessment, not a comprehensive organizational diagnosis.

Appendix C: Version History

VERSION HISTORY

VERSION	DATE	AUTHOR	DESCRIPTION OF CHANGE
1.0	**July 2026**	**Dr. Markus Rhiel**	**Initial publication** of the Official **Firefighting Index Reference** Framework, including purpose, scope, five FFI dimensions, assessment method, scoring, management decision logic, application example, governance, and assessment sheets.

