



HF AIR™ - Analyse Investigate, Report

HF-AIR™ is a complete online incident investigation system that **has Human Factors at it's heart**.

The integrated analysis tool provide a rich understanding of both technical failures and human behaviours which are pulled together using an interactive timeline. Report writing and analysing the data are now a seamless task.

ANALYSE

A comprehensive range of graphs and data downloads can be selected that **identify key themes** across multiple investigations.

INVESTIGATE

The investigation system is built around a timeline of Critical Moments. These Critical Moments can be classified as **behaviours** or **5M causes** (covers anything that is not a behaviour) and are analysed using our leading-edge analysis tools.

REPORT

Reports can be downloaded at the click of a button. The **reports are editable** and include all the investigation key findings and recommendations.

Key Features



A **secure password-protected** system with data encryption and user access management.



A **responsive design** for mobile and desktop devices which can be tailored to company branding.



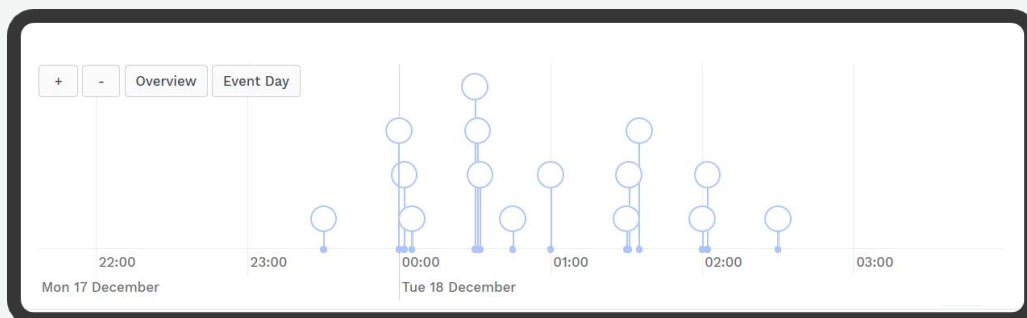
Customisable **management of data** in line with company GDPR strategy. Archive investigations and set reminders to delete unrequired data.



Content and methods based on the **latest research** in psychology and human factors.

The Timeline

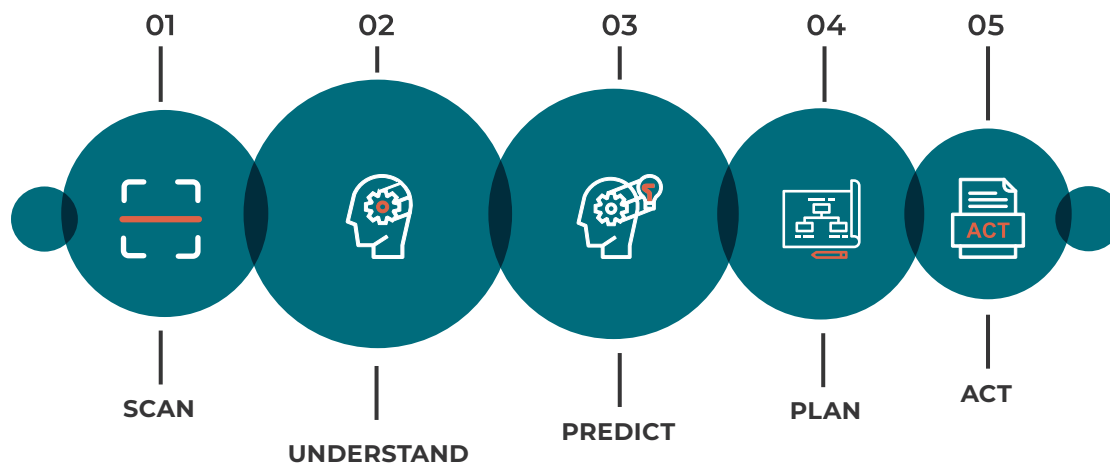
The interactive timeline is the hub of an **HF-AIR™ investigation**. The investigator enters the Critical Moments (CM) into the system which will allow the investigation team to **see at a glance when events have occurred**. Users can zoom in and out on the timeline, view CM descriptions and associated photographs. This is also where they select a CM to analyse. The CM's can either be a 5M Cause or a Behaviour.





Cognitive Origins Analysis™

Behaviours are analysed using **Cognitive Origins Analysis™ (COA™)** which is designed to help support an understanding of the type of failure that has occurred and why (the Cognitive Origin). The investigators will firstly seek to understand at which of the 5 cognitive steps (Scan; Understand; Predict; Plan; Act) the behaviour first failed. They will then look to identify the high-level causes of the failure (e.g. Vigilance) and finally the related Cognitive Origins (e.g. Under stimulated).



The key features of COA™ are:

- ◆ **The cognitive steps** (Scan; Understand; Predict; Plan; Act) are based on a wide range of research including models of Situational Awareness (e.g. Endsley, 1988 and Takano and Reason, 1999) and the Theory of Planned Behaviour (Ajzen, 1991)
- ◆ **Cognitive Origins** can be external (e.g. colleague distraction) or internal (e.g. cognitive overload) and are defined in clear and simple terms.
- ◆ **COA™** recognises that rarely does a behaviour occur because of one single cause – therefore the investigators can identify up to 4 cognitive origins for each behaviour.
- ◆ **COA™** moves away from “blame” terminology such as violations. Instead, ‘planned deviations’ are integrated into the model to understand situations where individuals felt it necessary to deviate from given rules and procedures.
- ◆ As well as the **Cognitive Origins selected**, the investigators can identify any additional Contextual Factors that have influenced the behaviour. These are a carefully selected group of 36 Contextual Factors that investigators can identify as having a weak, medium or strong influence on the behaviour.
- ◆ **Recommendation guidance** is given for each Cognitive Origin selected. The guidance is typically two or three simple but effective actions that are specific to that Cognitive Origin

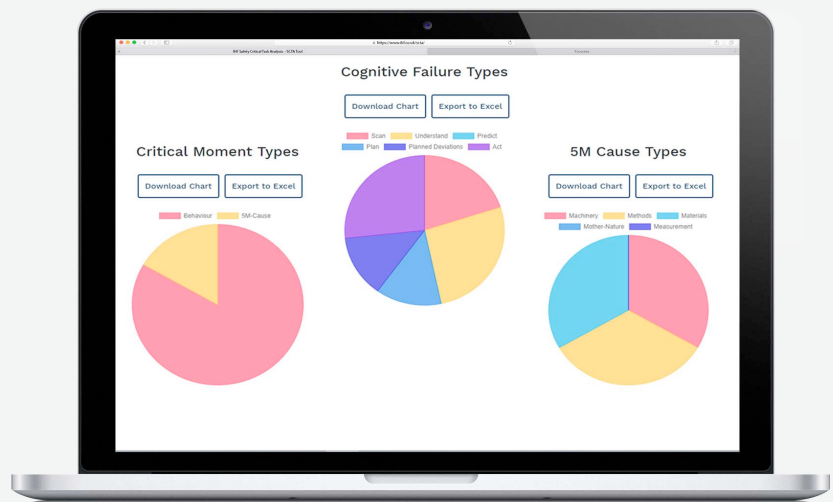


5M – Cause Analysis

A **5M-Cause** is a description for anything that is not a behaviour (Machinery; Methods; Materials; Mother-nature; Measurement) which has contributed to the incident. 5M-Cause Analysis allows investigators not only to understand why the 5M-Cause has occurred but also if there are any relating behaviours that need to be added to the investigation. In order to understand the 5M-Cause the **investigators ask and answer ‘why?’ until it no longer makes sense** to do so (i.e. the root cause has been identified) or there is insufficient evidence to support a response. The evidence that supports ‘why’ is recorded alongside any linked behaviours. If there are any additional behaviours associated with the 5M-Cause (not covered already in the Critical Moments) these can be added and analysed using **COA™**. This way, behaviours that have occurred further back in the timeline, that might have been initially missed, can be identified.

Incident Analysis

Analysing incident data across multiple investigations has never been easier. After selecting the desired search criteria, **HF-AIR™** produces a range of graphs that display the themes that have occurred over that chosen period. This allows users to **identify areas of concern** that need to be addressed on a wider scope. All graphs and data can be exported at the click of a button. The graphs illustrate the breakdown of Cognitive Failure types, Critical Moment types, 5M Cause types, Cognitive Origins (top 10) and the Contextual Factors (standard plus those rated as having a strong impact).



Reporting

Reporting is easy with **HF-AIR™**. All the data that has been captured during an investigation is exported into an MS Word report template at the click of a button. The report template themes the data and includes any supporting evidence such as photographs in the appendix. The report can also be **tailored by the organisation to fit their reporting structure** and styling. Once downloaded the user can edit the report and upload the final report to the system.



Investigation Management

HF-AIR™ has many useful features for managing investigations including:

- ◆ Restricting access and permissions on investigations to named investigators.
- ◆ Collection of background information such as project summaries and evidence.
- ◆ Amending terminology so it is company specific.
- ◆ Moving old investigations to archiving.

About us

The **HF-AIR™** system was developed by a team of Registered Occupational Psychologists, Chartered Ergonomists and IT developers. **Integrated Human Factors Ltd (IHF)** is an **award-winning HF consultancy** with a background in aviation and an impressive track-record in applying HF tools, methods and techniques in a variety of fields. **HF-AIR™** can be licenced and used by internal investigators on a yearly basis.

We provide training and follow-up coaching for those using the tool. Alternatively, we have our own set of investigators who are specifically trained to support you in HF investigations using the **HF-AIR™ tool**.

Competent Users

One of the potential downfalls of any system is when its users are not competent. We assure competency with our system in 3 ways.

- ◆ **Recommendations and guidance**, Throughout the tool there are clear definitions of all concepts and terms as well as comprehensive recommendation and guidance.
- ◆ **Training**, A one-day interactive training course is compulsory for all users covering the core theory and functionality of **HF-AIR™**. An additional day can be added to cover other key topics such as interviewing skills.
- ◆ **Coaching**, An additional half day coaching and review of a completed investigation is also required to become fully certified **HF-AIR™** user.

For more information or to arrange a demo/trial please contact:

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