

AN INDEPENDENT CULTURE ASSESSMENT OF THE OFFICE FOR NUCLEAR REGULATION

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KEY MESSAGES

A strong and consistent culture is critical for the Office for Nuclear Regulation (ONR) to operate in an effective manner, ensure the compliance of dutyholders, and influence improvements in safety, security, and safeguards.

ONR's key organisational values are related to its reputation as an effective regulator. These values promote the perception that ONR is a trustworthy and transparent regulator, which inspires confidence in ONR's stakeholders and enables it to influence improvements by dutyholders.

ONR's culture underpins the achievement of ONR's mission to protect society, but its culture poses both challenges and threats to the mission.

For instance, the drive to protect its reputation can make ONR risk averse and closed to challenge and learning, which can damage its ability to successfully achieve the mission.

ONR has four stated values - being open-minded, fair, accountable and supportive. Of these, only 'supportive' was a key aspect of culture at ONR that was reflected in both internal and external-facing behaviour.

ONR values of fairness, accountability and open-mindedness were less well-embedded, particularly from an internal perspective, but were apparent externally.

Through our analysis we have identified the enacted values which are 'lived' by ONR's staff. These are reputation, process-orientation and drive for excellence, professionalism, risk aversion, consensual leadership and supportiveness.

Knowledge of these enacted values, together with the cultural threats and tensions which we have identified in this report, provide insights for ONR in managing change, achieving its vision, and building cohesion to meet its aspiration to be 'one ONR'.

'One ONR' is referred to in its 2016 strategy document as: "Internally, we will ensure that ONR's different functions are integrated and work together effectively to achieve a "one ONR" approach". It says, for instance, that it will continue to develop a "positive, inclusive culture that consistently reflects our values and focuses equally on delivery and behaviour". The document also states that the ONR will "support suitably qualified, experienced and professional inspectors to be more joined-up by working across our functions and regulatory purposes".

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EXECUTIVE SUMMARY



A research team from Alliance Manchester Business School conducted an independent culture assessment, using a multi-method approach, to evaluate ONR's culture.

We had the following objectives:

- > To explore ONR's culture to understand how it affects delivery of its mission
- > To support ONR in identifying strategies to change aspects of the culture which may be adversely affecting ONR's efforts to deliver its mission

Our methodological approach was based on data collection from multiple sources, including both qualitative and quantitative methods, and triangulation across data sources. We collected the following data: 19 interviews with ONR staff and external stakeholders; nine focus groups (involving 50 ONR staff); a staff survey (312 responses / 50% response rate); a document review (over 60 documents); and seven observations (including internal ONR meetings, and interactions with external stakeholders).

Based on our analysis across data sources, we developed a cultural model of ONR. This model identified the underlying beliefs, assumptions, and values at ONR and has certain key themes:

- > At the core of ONR culture is its **Reputation** and being seen as an effective regulator. In large part, this is because ONR needs to have a good reputation to influence dutyholders, which is key to fulfilling its mission to protect society by ensuring safe nuclear operations
- > ONR's reputation is built upon and maintained by having effective **Delivery and Processes** supported by a high level of **Professionalism and Technical Expertise**. An emphasis on process and delivery ensures effective regulation but can reduce flexibility, adaptation and responsiveness to change. Professionalism comes with high levels of technical expertise and commitment to fulfilling the regulatory mission. But it can also lead to **Perfectionism and Overworking**
- > Another key cultural value in ONR is **Independence**, particularly that decision-making in ONR must be free from undue influence from external stakeholders. ONR highly values its independence as a regulator (where independent actions enhance the regulator's reputation) but at the same time this may make ONR difficult to collaborate with, which can impact the regulator's ability to achieve its mission

- > ONR tends to be **Risk Averse**. As a consequence, it can become difficult to **Challenge** and the pace of **Change** can be perceived as quite slow. A risk averse and conservative approach to change is appropriate when managing (particularly external-facing) risk. However, if applied internally, this can lead to slow change process and frustration
- > ONR is seen as very **Supportive** by its staff as well as dutyholders. Externally, ONR's enabling (rather than prescriptive) approach was praised).
- > **Leadership** and aspects of **Accountability** are foundational and grounded our model. The predominant style of leadership in ONR is based on consensus. A consensual leadership style can be effective, as creating consensus leads to ownership and buy-in, which is an important ingredient when managing change. But as currently practised, it may slow down the pace of change, and, if this consensus is not communicated down through the hierarchy, high levels of autonomy can lead to inconsistencies in how people are managed

Of ONR's espoused values (supportive, open-minded, fair, and accountable), only 'supportive' clearly emerged through our analysis as an enacted value that was reflected in both internal and external behaviour.

Meanwhile, through our analysis we have identified the enacted values which are 'lived' by ONR's staff. These are reputation, process-orientation and a drive for excellence, professionalism, risk aversion, consensual leadership and supportiveness.

Protection of reputation was viewed as a positive force but there are both positive and negative aspects of protecting regulation which have consequences for challenge, risk and change.

We also uncovered several themes that could potentially threaten the formation of a consistent, positive, and efficient culture at ONR. These are working from home, people management skills, and recruitment and retention.

In summary, knowledge of ONR's enacted values together with the cultural threats and tensions which we have identified in this report, provide insights for ONR in managing change, achieving its vision, and building cohesion to meet its aspiration to be 'one ONR'.

INTRODUCTION



1.1 Background to the research

A strong and consistent culture is critical for the regulator to operate in an effective manner and ensure the compliance of dutyholders, and influence improvements in safety, security and safeguards. The research comprises an independent culture assessment, using a multi-method approach, to evaluate ONR's culture. The culture assessment fits with ONR's ongoing continuous improvement approach, which embeds the need for rigorous and independent assessment of the culture on a regular basis.

The research was commissioned by ONR, following a self-assessment conducted in 2019. It fulfils a commitment made by ONR as a follow-up to an International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service (IRRS) mission to the UK to carry out an assessment of its safety leadership and culture. The requirement for nuclear regulators to carry out regular (self and independent) assessments of culture stems from IAEA General Safety Requirements (GSR), and is an expectation of Nuclear Energy Agency (NEA) guidance.

Culture is a key component of regulatory effectiveness and limitations in this area have contributed to major accidents in the past. For example, the independent investigation into the Fukushima Daiichi nuclear power plant accident (which occurred on March 11, 2011 in conjunction with the Great East Japan Earthquake), concluded that:

"The regulatory bodies lacked an organizational culture that prioritized public safety over their own institutional wellbeing, and the correct mindset necessary for governance and oversight."

(p.44, official report of The Fukushima Nuclear Accident Independent Investigation Commission, 2012).

Similar conclusions have also been drawn in other safety-critical industries, such as aviation. For example, related to the crashes of Boeing's 737 MAX aircraft, the final committee report concluded that the crashes were a result of a series of faulty technical assumptions by Boeing's engineers, a lack of transparency on the part of Boeing's

management, and insufficient oversight by the FAA to ensure the safety of the flying public. The report concludes that there were deficiencies in the FAA's safety culture, and that the agency's 'waning safety culture' stands as 'a significant barrier to its capacity to learn lessons from the MAX tragedies and make fundamental organizational improvements'. The report concludes with the following quotation:

"[FAA] senior leadership's response to and management of industry pressure is at the heart of the organization's core safety culture challenges: lack of trust, inconsistent accountability, FAA role confusion, and the perception that AVS [Aviation Safety Organization] is moving further away from its safety mission."

(p.234, Final Committee Report: The Design, Development & Certification of the Boeing 737 MAX, 2020).

It is important therefore for a regulator to have a thorough understanding of its culture, and how its culture influences the achievement of regulatory outcomes. To this end, our research builds on guidance issued by international nuclear bodies, regarding regulatory safety culture ('Safety Culture Practices for the Regulatory Body', IAEA, 2020; 'The Safety Culture of an Effective Nuclear Regulatory Body', NEA, 2016), and academic studies on regulatory culture in nuclear and other high hazard industries (e.g., Bradley, 2017; Fleming & Bowers, 2016, 2019; Fleming et al., 2022).

To design our culture assessment methodology, we drew on specific guidance developed by the IAEA for peer review ('OSART Independent Safety Culture Assessment (ISCA) Guidelines', IAEA, 2016a) and self-assessment of regulatory safety culture ('Guidelines for Safety Culture Self-Assessment for the Regulatory Body', IAEA, 2019), as well as on methodologies used in the culture assessments of other nuclear regulators (e.g., Reiman & Norros, 2002). This allowed us to develop a rigorous approach to the assessment of ONR's regulatory culture, based on published good practice, and the experience of nuclear regulators based in other countries.



1.2 Regulatory culture

ONR's culture influences its ability to achieve its regulatory mission, which is 'to protect society by securing safe nuclear operations'.

Nuclear regulators play an important oversight role as regards safety, security and safeguards in the nuclear industry. It should be recognised that the regulator is not directly responsible for nuclear safety, which remains the responsibility of the dutyholder. Nevertheless, the oversight role is a critical one in the wider safety system. The IAEA (2020) in its guidance on 'Safety Culture Practices for the Regulatory Body' argues that:

"if a regulatory body wishes to encourage a positive safety culture within a licensee, it has to be seen visibly to act in accordance with the principles that it advocates for the licensee."

(p.2).

The NEA produced guidance on regulatory safety culture ('The Safety Culture of an Effective Nuclear Regulatory Body', NEA, 2016), which discusses how the regulator might influence safety culture within licensees. With its regulatory strategy, the way it carries out its daily oversight work, the type of relationship it cultivates with licensees, and the values it conveys and the importance it gives to safety – in short, with its own safety culture – the regulatory body profoundly impacts the licensee's safety culture and its sense of responsibility for safety. (NEA, 2016, p.7).

Failures of regulatory oversight, such as those identified in relation to major accidents, highlight how insufficient oversight, and underpinning organisational culture, can lead to the de-prioritisation of public safety concerns over protection of the organisation's own wellbeing (e.g., Fukushima Daiichi nuclear power plant accident).

In line with this positioning of the regulator within a wider safety system for nuclear safety, Fleming and Bowers (2016) define 'regulator safety culture' in the following way.

"the product of individual and group values, attitudes, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of their approach to the regulation of industry safety."

(p.92).

Similarly, the IAEA (2020) in its guidance on 'Safety Culture Practices for the Regulatory Body' uses the following definition, which also emphasises group values, attitudes, and behaviours:

"the way in which individual and institutional attitudes, values, behaviours and processes impact on the effectiveness and efficiency of nuclear safety decisions and actions taken by the regulatory body."

(p.2).



1.3 Research scope and research question

Our research comprised an independent assessment of ONR's culture, which was based on the following aims:

- > To explore ONR's culture to understand how it affects delivery of its mission
- > To support ONR in identifying strategies to change aspects of the culture which may be adversely affecting ONR's efforts to deliver its mission

Our approach provides the high standard of methodological rigour and independent evaluation that is required to provide ONR with rich insights into its culture and an understanding of how the

culture affects ONR's delivery of its mission. The scope of the research covers all of ONR's regulatory purposes, functions and locations, including input across ONR (including regulatory and corporate functions), and from external stakeholders (including dutyholders).

We designed a multi-method approach, which captures a wide range of cultural indicators across the organisation to build a holistic picture of ONR's culture. The methodology comprises both qualitative and quantitative methods, including document analysis, focus groups, interviews, a survey, and observations.

1.4 Research challenges and approach

There is a lack of consensus in the literature on what constitutes 'regulatory culture', and the extent to which this construct may be synonymous with existing approaches and definitions of 'safety culture'. Fleming and Bowers (2016) discuss the difficulty in aligning 'regulator safety culture' with previous definitions of safety culture, noting that existing definitions do not readily encompass the regulator's oversight role for ensuring safety in the regulated industry.

ONR is not only responsible for regulating nuclear safety, but covers other statutory purposes too, including security, safeguards, conventional health and safety, and transport of radioactive materials. Taking account of this wider scope, we focused on culture at an organisational level, and its influence on the achievement of ONR's mission.

By taking this approach, we looked at ONR's culture in a holistic way. We aimed to develop a conceptual model of ONR's culture, which reflects the values, attitudes, and behaviour of ONR as a whole organisation. From this perspective, culture should be recognised as the heart of the organisation, deeply embedded, and reflected in every aspect of the organisation's operations and strategy, capturing all functions from regulatory to corporate. We adopted the following definition of organisational culture:

"A pattern of basic assumptions invented, discovered or developed by a group as it learns to cope with the problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to problems"

(Schein, 1990).

Schein's definition of organisational culture highlights how it is both internally and externally facing. Culture is defined as a "pattern of basic assumptions", which permeates everything that an organisation does and how it does it. This definition also underpins an approach to managing change, which cannot be undertaken in isolation, without a clear understanding of the underlying culture. Similarly, in undertaking any type of cultural change programme, this must be considered in the context of the organisation's wider strategic initiatives.

Our theoretical approach is based on Schein's (1985, 1990, 2010) model of organisational culture (see Figure 1). The figure illustrates that there are surface elements or 'artefacts', but that under the surface there are elements that are largely covert, but reflected in 'espoused values', and 'basic assumptions'. This approach can be used as a lens through which to understand our conceptual model. This will aid understanding, but should be used as guidance, rather than a strict mapping, given our 'bottom-up' approach to developing our conceptual model.

We used grounded theory (Glaser & Strauss, 1967), which means taking a 'bottom-up' approach, and building our conceptual model by interpreting the data. We prioritised the data gained across different sources in ONR to develop the model, rather than working strictly within a pre-existing theoretical framework.



Schein's (1985) model of organisational culture likens culture to an iceberg in which only a small proportion is visible and the majority lies beneath the surface.

The model defines three levels:

Artefacts:

These are visible above the surface. Artefacts include: behavioural norms, stories, rituals and physical aspects (such as office layout).

Espoused values:

These are characteristics of the organisation that lie just below the surface. These are attitudes and beliefs, and reflect organisational priorities (such as safety, quality, integrity, diversity).

Basic assumptions:

These are deeply held beliefs and values, which are embedded below the surface.

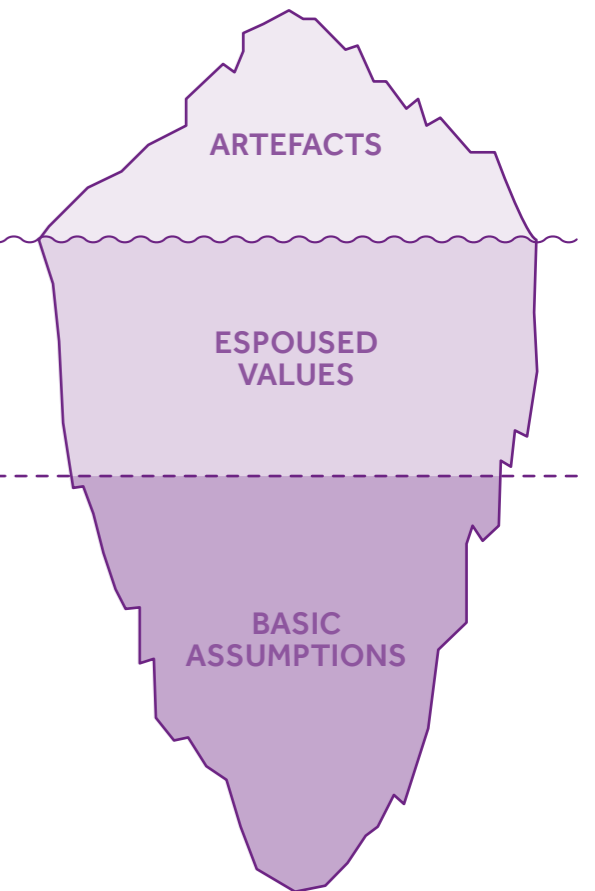


Figure 1: Schein's model of organisational culture

1.5 Structure and format of the report

In the following section, we describe the **methodology** (section 2) that we developed to address the two research questions. The section on data triangulation describes our analytic strategy, in which we looked across the data to identify common themes and develop a narrative of the relationships between them.

Next, we describe the **conceptual model** (section 3). This is shown in pictorial form, with an accompanying narrative, to provide a rich description of the model. Each theme is discussed in more detail in the following sections, including how it fits in the model, and its relationships with other elements of the model. We discuss both the advantages and disadvantages of each element. Also in this section, we interpret the conceptual model in relation to ONR's espoused values of *open, fair, accountable, and supportive* (ONR, 2020a). We

then consider the evidence of cultural tensions and subcultures within the organisation.

In **implications** (section 4), we discuss the impact of ONR's culture on its mission, based on our analysis. We reflect on potential threats to ONR's culture (such as working from home, people management skills, and retention and recruitment) that were identified during data collection and interpretation.

There is consideration in **discussion** (section 5) of how ONR's culture relates to industry guidance on best practice, and existing models of regulatory culture. We then consider the implications for a culture based on the prioritisation of reputation as a basic underlying assumption.

Finally, **insights** (section 6) provides advice for next steps in implementing learning from this report.

METHODS



2.1 Background to the methodology

Our methodological approach was based on data collection from multiple sources, including both qualitative and quantitative methods, and triangulation across data sources (Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 2005).

The first step in the development of the methodology was to conduct a literature review which identified the different methods and methodological approaches used in culture assessments. The literature review included the culture assessment methodology used by IAEA (2016a, 2016b, 2019), previous culture assessments conducted by nuclear regulators in other countries (ARPANSA, 2020; CNSC, 2018; CSN, 2021; ENSI, 2015; Reiman & Norros, 2002), guidance for regulatory bodies (IAEA, 2020; NEA, 2016), as well as the academic literature (Fleming & Bowers, 2016, 2019; Fleming et al., 2022). Based on this literature review, we identified methods which aim to gain insights into the views of both internal and external stakeholders (i.e., interviews, focus groups and survey), as well as methods which aim to gain more 'objective' data (i.e., document review and observations).

We followed an iterative sequential model for data collection, in which each stage of data collection was used to inform the next stage. Although data

collection methods overlapped to some extent, we followed these broad stages for data collection: literature review, document analysis, focus groups, survey, interviews, and observations. At each stage of data collection, we gained ethical approval from The University of Manchester ethics committee. Formal ethics approval was not required for the documentation review. We obtained ethics approval for the focus groups, interviews, survey and observations, and ensured the confidentiality and anonymization of all data collected through these methods.

A key element of the methodology is triangulation, which uses multiple sources of data to inform the findings. Triangulated data may highlight discrepancies, which will either direct us to areas worth further probing or, if corroborated across methodologies, increase confidence and bring credibility to the findings (i.e., that findings are not simply an artefact of a single method, a single source, or a single investigator's bias; Bowen, 2009). This allows us to build a consistent and comprehensive model of ONR's culture, which takes into account a variety of different perspectives, while also being sensitive to the interpretation of differences, contradictions, and tensions, within the culture.

2.2 Literature review

We reviewed the academic literature to identify previous research on regulatory culture. We found that there was limited reference, but that a small body of work exists which examines regulatory safety culture, relating this construct to the wider literature on safety culture, especially in safety-critical organisations (Bernard, 2014, 2018; Bradley, 2017; Fleming & Bowers, 2016, 2019; Fleming et al., 2022). In addition, we reviewed the guidance documents developed by IAEA and NEA for the nuclear industry, which describe dimensions of good regulatory oversight culture (IAEA, 2020; NEA, 2016).

For example, the core dimensions of regulatory culture identified in Fleming et al.'s (2022) model, are as follows:

- > Leadership (for safety)
- > Psychological Safety (Communication, Collaboration and Questioning attitude)
- > Learning and Improvement/Competence
- > Responsibility and Accountability

- > Systemic/systematic/holistic approach (to safety)

- > Independence of the regulator

Specifically, we reviewed the previous assessment frameworks used by other nuclear regulators, which had already conducted internal culture assessments (e.g., ARPANSA, 2020; CNSC, 2018). Based on this information-gathering stage, we developed a comprehensive methodology, which was comparable in scope to that conducted by the Spanish nuclear regulator CSN (2021), and built upon the experiences of other nuclear regulators, including Australia (ARPANSA, 2020), Switzerland (ENSI, 2015), Canada (CNSC, 2018) and Finland (Reiman & Norros, 2002). In addition, we held meetings with staff involved with these assessments to gain insights into their experiences. Based on our review and discussions, we decided to incorporate the input of a range of external stakeholders, as well as internal perspectives of ONR staff.

2.3 Documentation review

We conducted a documentation review, which provided data on the background and context in which ONR staff operate (Bowen, 2009). This data is particularly useful as it has been created without the researchers' intervention and can give an insight into events that can no longer be observed, provide detail that informants may have forgotten, and show change over time.

To guide the document search, a sampling strategy was created, based on key themes within the regulatory safety culture literature, to ensure that we identified a range of relevant documents. As we continued to source relevant documents, we developed a categorisation framework which included: mission and strategy; management systems; training; internal and external communications; internal and external incident reporting and follow up; job design (requirements and skills); and internal and external performance measures.

Each document was analysed for cultural indicators, using a document analysis template. This included prompts for the researcher, based on the template developed by the IAEA Safety Reports Series 83: Performing Safety Culture Self-assessments (IAEA, 2016b).

2.4 Focus groups

To gain a wide range of ONR staff perspectives, we conducted in-person and remotely facilitated focus groups. We identified a representative sample of ONR staff, based on staff lists across different levels and functional areas, and issued invitations.

We held a total of nine focus groups, involving 50 ONR staff in total. Each group was relatively homogeneous, but across the groups we captured different levels of seniority (Bands 1-6), divisions (regulatory and corporate), and locations (Bootle, Cheltenham and London). Each group lasted two and a half hours on average.

We used the Ketso method during each focus group. This is a creative mind-mapping exercise during which participants answer questions by first thinking about their response, then writing it on a leaf, and sharing this with the group. Each

Using this approach, we identified, appraised and synthesised a range of documents. Data collected was in written form, organised into major themes and categories, using content analysis (Labuschagne, 2003). This allowed us an insight into the espoused values of ONR (e.g., through internal policy and strategy documents) but also how these are enacted in practice (e.g., minutes of meetings, internal communication between managers and staff, external communication with licensees, internal reports on complaints, near misses and incidents, exit interviews, performance reviews, and training compliance/uptake).

To add to this understanding, we considered how and if the culture of ONR has developed over time by contrasting the current ONR strategy documents with documents from previous years. We also used the document review to gain insights into the effects of history and legacy on the ONR's culture. This is especially relevant given that many staff transitioned over to ONR and that culture is inherently a fairly stable construct that takes a long time to change (Schein, 2010). We considered how the espoused values communicated through different leadership regimes have been embedded in ONR. The range of documents also indicated how cultural values are embedded in policies and procedures, such as training, recruitment, selection, and promotion.

leaf is placed on the Ketso board after it is shared and clusters of themes emerge throughout the discussion. The focus groups explored the following areas:

- > Participants' understanding of ONR's culture
- > Whether they perceived any differences in this across the organisation
- > How ONR deals with difficult situations
- > How culture could be improved

The audio recordings were transcribed and analysed in NVivo. The analysis followed a grounded theory approach (Glaser & Strauss, 1967), whereby themes emerge from the data rather than the data being coded against a pre-determined list of themes.



2.5 Staff survey

We conducted a quantitative survey, which allowed all staff the opportunity to input their responses on the culture at ONR. All staff were sent an email invitation to complete the survey, which was hosted on Qualtrics. We received a total of 312 responses (50% response rate). The survey was anonymous, and the completion of demographic information was optional.

The survey was based upon the only available measure of regulator safety culture developed by

Fleming et al. (2022), which has five sub-dimensions, based on their analysis of data from 114 nuclear regulatory staff. The authors reported that none of the sub-dimensions was solely about 'leadership'. Given the role of leadership in the development and maintenance of culture, we adapted the survey to include leadership items, with reference to the ONR's senior leadership team. Respondents rated all items using a Likert-type scale, where 1= strongly disagree, and 5 = strongly agree.

2.6 Interviews with ONR directors and board

Interviews were conducted with nine members of the senior leadership team, including executive and non-executive members of the board.

In addition, we interviewed three ONR staff based in specialist roles. Interviewees held both regulatory and corporate roles.

The interviews were semi-structured, with questions designed to draw out participants' understanding and experience of ONR's culture. Interviews were conducted via MS Teams, and recorded for transcription purposes. Each interview lasted approximately 45 minutes. The transcripts for each interview were coded, and analysed using thematic analysis.

2.7 Interviews with external stakeholders

Interviews were conducted with seven external stakeholders, including representatives from the following groups:

- > Nuclear licensees
- > Research institutes
- > Government departments
- > Other regulators
- > NGOs and local site stakeholder groups

Interviews were semi-structured and conducted via MS Teams, and recorded for transcription purposes.

Each interview lasted approximately 45 minutes. The transcripts for each interview were coded, and analysed using thematic analysis.

2.8 Observations

Interviews and focus groups allowed us to gain insights into subjective views and perceptions of different stakeholder groups. Each has their own specific perspective, and we were able to sample across these different views and opinions. In addition, we conducted observations of interactions between ONR staff, and between ONR staff and external stakeholders, in a variety of settings.

We conducted seven observations in total. In each case we gained approvals and informed consent from all involved, whether internal or external to ONR. In each case, the observer did not participate actively in the event, but observed the interactions, and made written notes. Observations were conducted either online (via MS Teams) or in-person onsite at dutyholder premises. Observations with dutyholders involved different regulatory functions, including conventional health and safety, nuclear safety and security, and transport of radioactive materials.

We observed internal ONR meetings, meetings with dutyholders and other regulatory activity, meetings with external stakeholders, and a regular NGO forum (in which ONR meets with a range of NGOs).

2.9 Triangulation of the data

The cultural analysis was based on a process of triangulation across different data sources.

The research team held a series of three-hour meetings to compare results, engage in sense-making of the data, and integrate the findings into a framework. We used an iterative process of exploratory, bottom-up coding, drawing across themes identified in the focus groups, interviews and other sources of data (document review, survey, and observations).

All meetings were scheduled, and had a pre-set agenda. Observations comprised the following.

- > ONR executive team meeting
- > ONR board meeting
- > Conventional health and safety inspection meeting (at dutyholder premises)
- > Level 3 regulatory interface meeting between ONR and a dutyholder
- > Routine planning meeting between ONR and a dutyholder (at dutyholder premises)
- > Level 4 regulatory interface meeting with a dutyholder
- > NGO Forum

The written notes provided context for the observation, but focused on identifying cultural indicators (e.g., how ONR staff were regarded in the meeting; the style and tone of interactions with external stakeholders; how ONR staff interact with each other). The notes taken for each observation were coded, and analysed using thematic analysis.

This process of triangulation allowed us to develop a rich description of ONR's culture, informed by multiple sources of data. We used this process to identify common themes and interpretations, and build these into a model and accompanying narrative, which explains the relationships within this model.

FINDINGS





Using a data triangulation process, we developed a conceptual model to provide insights into ONR's culture. The model includes a number of themes, which are drawn across data sources, and represent common themes within the organisational culture.

Based on Schein's (1985) model of organisational culture, we focused on identifying the basic assumptions that act as the fundamental drivers of culture in ONR. Basic assumptions may be difficult to articulate, but underpin the organisation's values, beliefs, and attitudes. We also identified the related organisational values. The values that emerged in our analysis represent the values that are actually

'lived' by ONR staff (enacted values), as well as those values that are formally endorsed by the organisation (espoused values). The latter may be identified through the values described formally, such as in strategy documents, and therefore may be more aspirational. The former may be identified through discussions with stakeholders (both internal and external), including interviews and focus groups. Organisational values may be visible at, or just below, the surface in Schein's model. Above the surface, and visible through observation, we identified cultural artefacts, including behavioural norms (which reflect 'the way we do things around here').

3.1 The model

The model, and accompanying narrative, provides a rich description of the organisational culture of ONR. It reflects perceptions from across the whole organisation, and captures a shared understanding of the meaning of ONR's mission and purpose, and how this is reflected in policies, practices, and normative behaviours. A key component of the model relates to leadership. The organisational culture is reflected in leaders' behaviours, including how senior leaders demonstrate their commitment, and how this is cascaded throughout the organisation. In the model, leadership takes a foundational role and underpins the culture.

The model comprises a number of common themes, which are discussed in turn in the following sections. However, the relationships between these themes are critical to understanding the culture, and importantly how the culture affects ONR's ability to achieve its mission and purpose. Therefore, the model should be considered alongside its accompanying narrative.

At the core of ONR's culture is a concern with the **Reputation** of the organisation and being seen as an effective regulator. In large part, this is because ONR needs to have a good reputation to influence dutyholders, which is key to fulfilling its mission and purpose to protect society by ensuring safe nuclear operations.

ONR's reputation is built upon and maintained by having effective **Delivery and Processes** supported by a high level of **Professionalism and Technical Expertise**, and hence these are two key cultural values of ONR. Another key cultural value in ONR is

Independence, particularly that decision-making in ONR must be free from undue influence from external stakeholders. However, although these cultural values support the fulfilment of ONR's mission, they may also have downsides. For example, the emphasis placed on reputation, and the need to protect it, as well as the emphasis on delivery and process, can make the organisation **Risk Averse**. As a consequence, it can become difficult to **Challenge** and the pace of change can be perceived as quite slow and frustrating. Similarly, one downside of Professionalism and Technical Expertise is a tendency to value and require **Perfectionism** in work activity, which can lead to overwork and slow the pace of change. Furthermore, one downside of independence is a perception by external stakeholders (especially other regulators) that collaboration with ONR can be difficult.

Internally, ONR is perceived as very **Supportive**, particularly at a team level and an interpersonal level. However, regulatory and technical staff may not perceive that they need support from the corporate functions, and this can lead to tensions between the two sides of the organisation. From a dutyholder perspective, ONR is seen as open and supportive, and their enabling (rather than prescriptive) approach is praised.

Leadership and aspects of **Accountability** are foundational and ground this model. The predominant style of leadership in ONR is based on consensus. Consensual leadership is effective in building commitment and support amongst staff, but can undermine accountability.

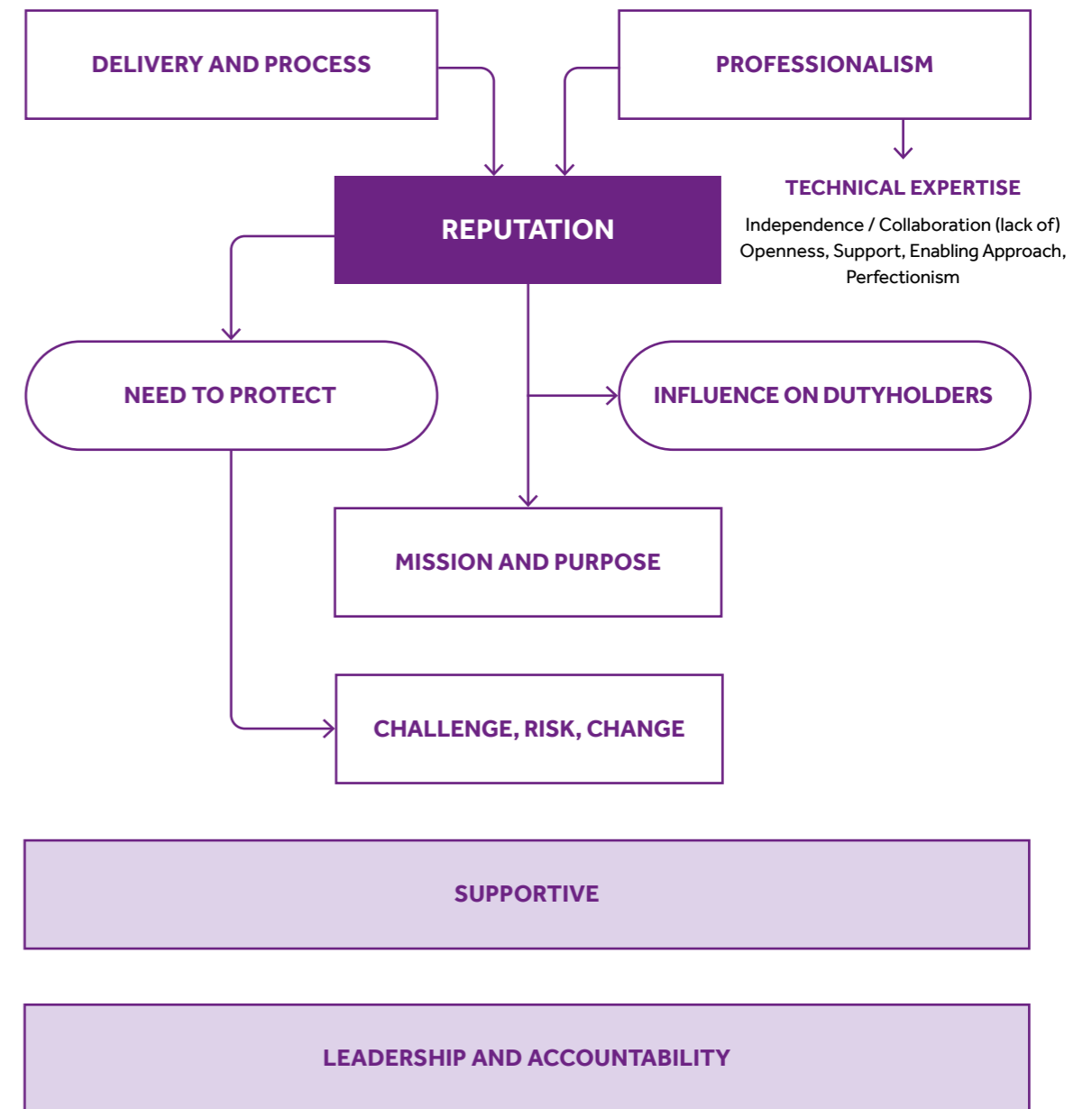


Figure 2: The ONR Culture Model

3.2 Key Themes

In the following sections, the key themes from our conceptual model are discussed in detail. Each theme emerged strongly from the data, with supporting evidence from multiple sources. The themes represent shared values and perceptions across the

whole organisation. Where differences or cultural tensions were identified, these are also highlighted. Quotations are drawn from interviews and focus groups to illustrate the themes, but evidence to support each theme is much more extensive.



3.2.1 Reputation

Reputation emerged as a central theme in our model. We identified reputation as a **basic underlying assumption** (Schein, 1985). This means that ONR's reputation as a regulator acts as a fundamental driving force for the behaviour, attitudes and beliefs held by ONR staff. Understanding the importance and prioritisation given to the organisation's reputation is critical to understanding other elements of the culture. As illustrated in one example quote, a participant described reputation as "being a real driver".

Organisational reputation refers to "a set of symbolic beliefs held by audience networks as to the actual performance of an organisation, as well as its capacities, roles, and obligations to accomplish its primary organisational mission" (Maor & Sulitzeanu-Kenan, 2013, p. 35). This definition highlights our understanding of reputation as a 'set of beliefs' held by the organisation's stakeholders, which reflect how the organisation is regarded.

As highlighted in the model (see Figure 2, page 19), reputation has a direct effect on ONR's capacity to achieve its mission. This relationship between reputation and mission is linked to ONR's ability to influence, which is fundamental to ONR as it underpins its enabling approach to regulation (ONR, 2020b).

ONR achieves its mission through its regulatory activities. This involves using its legal authority through enforcement action, but also through its ability to encourage positive change in dutyholders, based on its enabling regulatory approach. The ability to influence, using enabling regulation, cannot be achieved without the dutyholder believing in the regulator's credibility and legitimacy. The following quotes illustrate how ONR's reputation is seen to influence dutyholders.

"If the regulator is perceived as weak then this will have a knock on effect on how dutyholders behave and may have negative safety implications."

"The way we behave and our culture, influences their [dutyholders'] culture."

There are both benefits and shortcomings associated with a strong organisational reputation. In terms of benefits, an image of trustworthiness and transparency is crucial in building relationships with external stakeholders, including other regulators. The importance of the nuclear regulator's public image is emphasised by the NEA, which highlights how strengthening the regulator's reputation is a 'constant challenge' but advocates that regulators 'build trust and credibility' with stakeholders, including the public.

"In order to build trust and credibility, nuclear regulatory organisations must inform the public about nuclear safety and other related issues. It is a constant challenge for a nuclear regulatory organisation to strengthen its reputation and to be perceived as trustworthy. For this reason, credibility should be built before an event happens and maintained even during a crisis."

(NEA, 2015, p.22).

Organisational reputation is characterised by fragility, meaning that reputational damage can occur relatively easily, and be difficult to repair. This can lead to shortcomings, such as a preoccupation with reputation, and the need to protect it at all costs. This is represented in our model as a consequence of reputation, labelled 'need to protect' (see Figure 2). In our analysis of ONR, we found that it is consistently described as reputation conscious, and focused on the avoidance of reputational damage. There was evidence that ONR has a preoccupation with reputation, which is manifest in a tendency to "obsess over it", and the belief that people are "not allowed to fail", as illustrated in the quotes below.

"ONR's so preoccupied by its reputation. And I understand that it is important that we have a good reputation and we inspire confidence. But we can obsess over it and especially reputation when it comes to what industry thinks of us as well."

"Because of the reputational aspect we are not allowed to fail."

A sense of 'not being allowed to fail' can impede the organisation's capacity for learning and change. It can lead to a working environment in which people are fearful of admitting to mistakes, which means that errors do not become opportunities for learning.

There were examples of this impacting throughout the organisation, both through regulatory activities, and across other organisational activities and processes. ONR staff spoke about there being a "fear of failure".

3.2.2 Delivery and process

A delivery focus was found to be an important precursor for ONR's reputation (and so is shown feeding into the element of reputation in Figure 2). This is needed to build and maintain an image of technical competence and authority. The focus on delivery and process emerged consistently in our analysis. To illustrate, a participant described delivery as "king and prioritised". This means that there is a clear focus on delivery, in which other considerations would be put aside, in order to avoid potential damage to the organisation's reputation.

"It was my comment about the avoidance of reputational damage - I think when a priority comes along to make a regulatory sound decision, other things can be overtaken or overlooked, you know. But that's the nature of what we produce, you know. That's the output of our production line, if you like, so that becomes the important thing at times."

Organisational value is attached to having a process or task orientation. This is important for maintaining high standards of performance. This process-orientation was spoken about extensively ("[ONR]

love process, they love procedure"), and was also evident in the document analysis. For example, one participant highlighted how ONR's 'excellence' depends on processes and procedures.

"ONR is absolutely excellent, but I think it relies on a lot of checks and balances which it's important to maintain in the organisation."

However, a strong process-orientation was also associated with the perceived tendency to create too much process, structure, and bureaucracy, which led to struggles with simplification, and a slow pace of progress (e.g., on internal projects). Decision-making was described as highly formalised, leading to unnecessary bureaucracy. There were examples across the organisation on how this can impact on ONR's ability to be agile and responsive.

"It can mainly end up being overly bureaucratic. We can delay things and we can get things out of proportion and actually build a whole bureaucracy there."



3.2.3 Professionalism and technical expertise

There was evidence of a consistently strong focus on professionalism, and commitment to ONR's mission. Descriptors for staff at ONR included: *committed professionals; highly professional attitudes; diligent; self-driven; hard-working; task focused, rigorous, and perfectionist*. As shown in Figure 2, the element of 'professionalism and technical expertise' feeds into ONR's reputation, and is therefore highly valued by the organisation.

For example, the technical expertise of inspectors was seen to earn respect and give regulatory advice its credibility.

"Reputation is so important, how you conduct yourself, how you manage yourself on site, the impression you give, it's absolutely crucial for being a good regulator".

"That deep technical competence is what then feeds up into being an effective regulator".

This was evident throughout the data collection stages, both in the ways that ONR staff were spoken about during interviews, and also through their conduct during observed interactions with dutyholders, as well as in presentations and discussions with external stakeholders.

ONR staff highlighted that their commitment as professionals leads to a willingness to "go the extra mile" and do "whatever's been asked of me", which in terms of workload can lead to work intensification (such as long work hours, and heavy workloads).

"It's delivery culture but it's also professionalism. We will – I'm speaking for myself in some ways, but I always go the extra mile."

"For me, I've always done whatever's been asked of me. That's professionalism. That's just what we do."

"It all eventually comes down to workload and how, with a highly dedicated workforce, we all want to do that extra bit more. So there's a personal thing on it too."

The theme of professionalism runs throughout the organisation. Depth of knowledge, expertise and professional attitudes were evident across all corporate and regulatory functions. We found many examples of professionalism among ONR staff, indicating that all staff - whether based in regulatory or corporate functions - are equally committed and well-qualified professionals with high levels of competence.

Under the main theme of professionalism and technical expertise, we identified three sub themes. These are: independence, enabling approach, and perfectionism. These sub themes are now described.



3.2.3.1 Independence

As a regulator ONR values its independence, which is another organisational characteristic that is critical to building and maintaining reputation. It is crucial that a regulator has the ability to remain independent from dutyholders and other external stakeholders, such as government, and to be seen as not unduly influenced by external parties.

However, maintaining independence can have implications in terms of the ability to collaborate effectively. Indeed, there was evidence that external stakeholders perceived barriers to collaborative working with ONR, which is illustrated in comments from external stakeholders about opportunities for joint working, and information sharing. This was also evident in observations of regulator interactions with dutyholders and other regulators.

"When you're in a joint meeting, quite often they [ONR] see themselves as the primary regulator.(...) they tend to sometimes not always see that other regulators have got an interest."

"I think there's opportunities for both sides to improve their cultures of joint working."

"We've all got skills and if we can bring all our skills together and do things in a more efficient way and trust each other to do things, or trust each other with sharing of information."

ONR staff spoke about the barriers that can occur, which can affect collaborative working both internally, and with other regulators, as illustrated below.

"And that will save us a lot of work, it will save a lot of cost to the dutyholder and yet we put little barriers in our way to – whether they are sort of protocols or regulator interactions. Where really we should be collaborating in amongst the organisation but also between regulators."

3.2.3.2 Openness, support, and enabling approach

An enabling regulation approach is a cornerstone of the regulator's influence, particularly on dutyholders. The regulator's reputation is critical to ensuring that the regulator has the power to influence, through an enabling approach, in addition to their formal powers and authority.

Dutyholders discussed their appreciation for the enabling regulation approach, particularly in terms of openness (e.g., "there are no sensitivities", "we can talk transparently about anything", "open to challenge") and support ("there is a mutual respect", "engaged", "helpful", "feel listened to" "trustworthy"). These comments were drawn across different sources of data, including observations of regulator interactions.

3.2.3.3 Perfectionism

A focus on excellence and aspiring to high standards is an underlying cultural value at ONR. This is reflected in comments from ONR staff and managers that there is a sense that nothing is good enough unless it is perfect.

"We work on the principle that if you can do more you should, simple as that isn't it. So like we say, something fits for 97% of the people, we in ONR have that approach to say, well actually, no, we want the extra 3% as well."

This approach encourages a high level of commitment and engagement ("no apathy") from staff. From a different perspective, however, this can be perceived as creating an overly 'challenging' and 'competitive' environment, characterised by a drive towards perfectionism. Moreover, an attitude that 'everything has to be perfect' can contribute to protracted processes of decision-making, which slows down the implementation of changes within the organisation.

3.2.4 Challenge, risk, and change

The drive to protect the organisation's reputation has several consequences, which are captured in this element of Challenge, risk and change (see Figure 2, page 19).

Across our data triangulation, there was evidence of consequences based on protection of ONR's reputation. This included the ability to challenge appropriately, where ONR staff spoke about a "lack of challenge", "lack of self-reflection", and that "challenge is not always welcome". This was also reflected in responses to the culture survey, in which items related to 'psychological safety' (such as, feeling free to raise concerns, and feeling free to report errors) had the lowest level of agreement across the organisation.

Given the focus on protecting the organisation from reputational damage, we found that this affected staff behaviour, including the willingness to accept accountability for their actions, and apprehension about actions not going to plan ("Fear of making mistakes"; "mistakes are not forgotten"). Again, this was reflected in the culture survey responses to the 'responsibility and accountability' items (such as, being held accountable for their work). The quotes below illustrate how the need to protect reputation translates into behaviour at an individual level.

"This person is so concerned with their own reputation and conservative decision making, they're not prepared to actually stand up and put their name on something."

"They'd rather just not try than risk it going wrong."

An environment which does not encourage challenge and accountability can stifle opportunities for learning. This was evident in responses to the culture survey, which included items related to organisational learning.

There is evidence of a risk averse approach being transferred into strategic activities, such as managing change programmes, leading to a slowed pace of change, especially in terms of the implementation of changes. This was illustrated in quotes, such as "No one is willing to make the tough decisions" and ONR being characterised as "an environment of constant change with no outcome".

Based on our analysis (which included a sample of ONR's external stakeholders), we found that external stakeholders share the internal perspective that ONR's culture is "change averse", "cautious", "conservative", "hierarchical", "formal", "rules based", "process driven" and "technically proficient". While they acknowledge that a conservative approach is a strength of the regulator, ONR was also said to have a technocratic mind-set where a lack of flexibility and strong focus on longstanding process may hinder its ability to adapt to new developments. Some questioned ONR's ability to "think outside the box", and mentioned the slow pace of change.



3.2.5 Leadership and accountability

Organisational leadership plays a crucial role in shaping culture. In our model, it is positioned as a foundational element (see Figure 2) upon which the other cultural elements rest.

Our analysis revealed the importance placed on leadership skills throughout the organisation, so that those in leadership roles are recognised for their contributions as a leader, not only their technical skills.

"90% of your wages should be about your leadership and bringing the best out of others, and engaging with others."

The data also suggested that ONR values and practices a style of leadership that might be best described as 'consensual' or based on consensus. This reflects an approach to decision-making that focuses on generating consensual commitment among staff (Rowland & Parry, 2009). It is a relational form of leadership, which involves facilitating information exchange, encouraging discussion, and resolving dissent within teams. The effective use of consensual leadership builds commitment and support. It reflects a style based on generating a convincing evidence base to 'win over' staff with rational arguments.

A 'consensus style' (Eisenhardt & Bourgeois, 1988) of leadership is associated with effective strategic decision-making and team performance (Flood et al., 2000). It is an effective form of leadership because it builds support and a sense of ownership amongst staff. Where there is an emphasis on gaining consensus for decisions, this can increase perceptions of collective commitment and provide direction for efforts. However, a consensus style of leadership can be slow, time-consuming, and can be derailed through resistance (even by a small minority).

In addition to a consensual style of leadership, another strong theme was the presence of placatory and appeasement leadership behaviours. Such behaviours were viewed as problematic in three key ways. First, when associated with the need for consensus, it was thought to create difficulties managing change and making decisions. For example, participants described a lack of follow-up and agile working. This can make it more difficult for staff to work effectively as a team. Second, placatory leadership could lead to a lack of accountability. Holding people to account for their actions does not necessarily require a punitive approach, but it is important to recognise that inaction can undermine confidence in leadership among staff. There was a sense that leaders needed to act as role models, but this did not always happen ("if we do mess up, we put our hands up and say look actually, do you know, I got this wrong, but people don't"). Third, placatory leadership behaviours were thought to result in a reluctance to deal with negative behaviours for fear of upsetting someone, or to rationalise such behaviour ("they didn't mean to") such that negative behaviours are not dealt with. In another example, a participant highlighted a tendency to avoid difficult conversations ("we do shy away from having those conversations sometimes....and it is almost kind of accepted, which isn't right").

Lastly, across our data, there was evidence of significant shifts in the leadership and strategic direction of ONR over time, which were strongly influenced by the directors and the ONR board.

ONR executives are supported by the board, where there was evidence of strong oversight, constructive challenge, and a supportive environment. Our analysis showed that this has grown over time to a mature stage, where executives now feel more comfortable to challenge and be challenged, and non-executive directors understand their roles. Non-executive directors (NEDs) were perceived to be committed and appropriately experienced. There were examples of executive directors who felt comfortable with seeking advice from NEDs, but also comments that NEDs would on occasion "stray into executive territory".



3.2.6 Supportive

Being 'supportive' is one of ONR's four espoused values and emerged as a distinct theme in our data analysis (shown in Figure 2 as underpinning all other themes). Being supportive was an organisational value recognised internally and externally. Indeed, external stakeholders, including dutyholders, discussed how ONR demonstrated support for them.

Internally, ONR is perceived as very supportive at a team level. Staff reported high levels of collegiate support and effective team working, with people at ONR described as "kind", "considerate", "respectful", and "friendly". It is important to be an effective regulator that staff feel valued and supported ("draw on each other's strengths; gets the best out

of people"). ONR was often described as "a great place to work" and, although there were critical comments, participants noted that these should be considered in the context of ONR's low turnover rate, and the long service of many staff members ("the grass is not always greener").

Despite the endorsement of ONR's organisational value of being 'supportive', participants also discussed a feeling of 'siloed' working, and highlighted a disconnect between regulatory and corporate functions ('them and us'). This was reflected in comments about tensions between the two functions of ONR ("are we valued equally?") and how this may act as a barrier to the 'one ONR' aspiration.

3.3 Interpretation of the model in relation to ONR's values

Models of culture often contrast 'espoused values' and 'enacted values'. Espoused values are those stated in the company's vision, policies and other documents, so may be more aspirational. ONR's espoused values are: Fair, Open-minded, Accountable, and Supportive.

However, enacted values reflect what actually happens in reality, in terms of people's priorities and actions. As discussed in the previous sections, the 'real' organisational values that are dominant in ONR's culture, include the following: Reputation, Process and Delivery, Professionalism (including perfectionism and independence), as well as Risk Aversion, Consensual Leadership and Supportiveness.

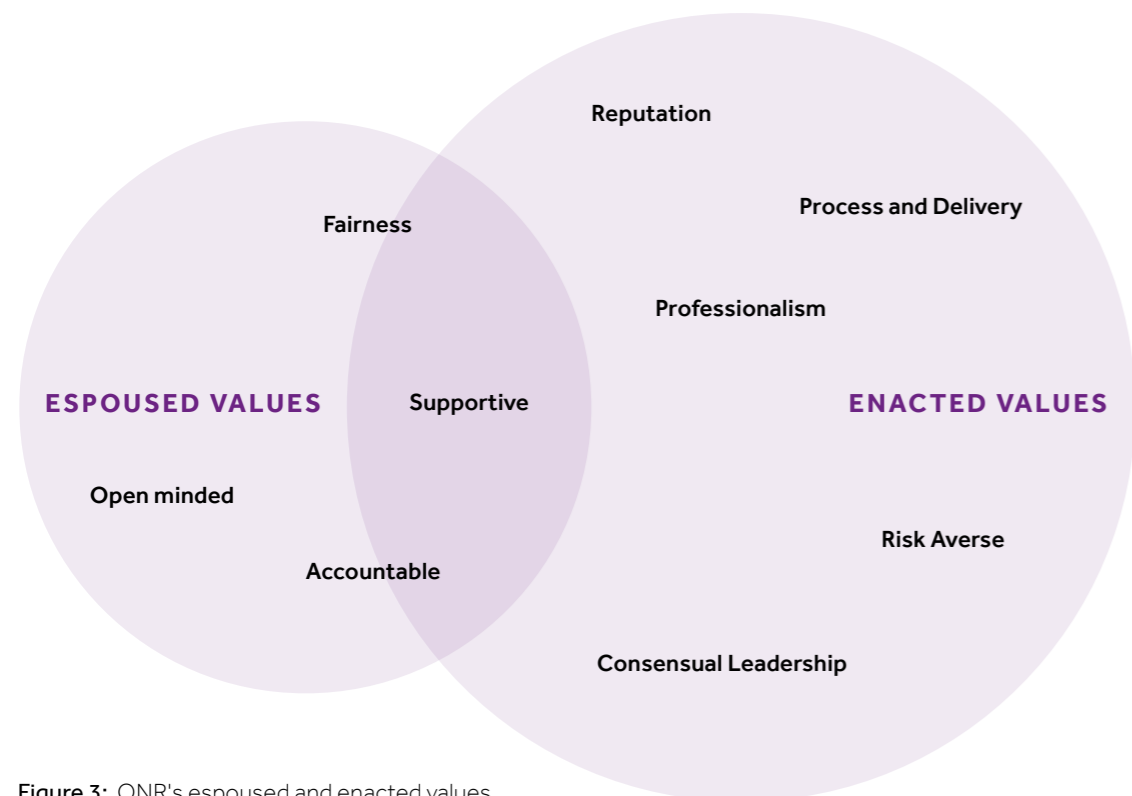


Figure 3: ONR's espoused and enacted values

A difference between espoused and enacted values indicates the extent to which the espoused values are 'lived' in practice (see Figure 3). Although there was evidence that ONR's espoused values were recognised and understood, we observed differences in the extent to which espoused values were enacted internally and externally.

Supportive: Of the four of ONR's espoused values, only the value of 'supportive' clearly emerged through our analysis as a key aspect of culture at ONR that was reflected in both internal and external behaviour. As noted above, support was enacted internally at the team and interpersonal level, while external stakeholders described interactions with ONR as supportive, understanding, approachable, and engaging. External stakeholders also expressed a good level of trust and consistently referred to having open and candid conversations, although some expressed that it would be encouraging to see ONR better recognise the improvements made by dutyholders and to engage in more collaborative working.

Fairness: Our analysis found evidence of fairness being reflected in internal and external behaviour. For example, a supportive culture would not be possible without some degree of fair treatment between colleagues, while external stakeholders confirmed that ONR was seen as fair and respectful of others' views. But fairness was not a 'dominant' value reflective of 'the way things are done around here'. Indeed, a perceived lack of fairness and equal treatment of corporate staff, lower grades and women was frequently mentioned in discussions and was also evident in our review of previous assessments carried out by ONR. Furthermore, some external stakeholders noted an inconsistency in approaches between inspectors (described as 'schizophrenic' at times), issues with joint working (e.g., "it seems to feel that they don't want to work jointly"; "we are proactive but there is no two-way"), and unfair behaviour of inspectors towards women ("have reported some quite unfair behaviour, some not being treated as equals particularly females, you know and this has been quite recently"). This could threaten the positive relationship with external stakeholders and their views of ONR as a fair organisation.

Accountability: We have already described how there is a perception that it is difficult to hold people to account internally. But in contrast, external stakeholders saw ONR as having a good level of accountability, justification and transparency for decision-making and a constructive, challenging, and engaging relationship with its stakeholders. Many saw the enabling approach as a particular strength and perceived ONR as very professional, technically competent and safety-focused. This may

suggest that accountability as a core value may be more embedded in external practices than internal practices.

Open-mindedness: We observed very little evidence for open-mindedness being a value that shaped or was reflective of ONR practice. Internally, even though there are opportunities for feedback, employees do not always perceive an openness to this feedback. External stakeholders found ONR to lack flexibility and have a strong process-orientation. Interestingly, while they provided evidence of the regulator being supportive of their drive towards innovation and open to new ideas, they had not witnessed ONR be innovative themselves.

Overall, staff recognised that while ONR's values are aspirational values to strive towards and some improvements have been made, there was still some way to go. Views were also expressed to suggesting a lack of confidence that this gap can be bridged without outside help, due to the difficulties in managing change. Furthermore, in some instances, the espoused values have been perceived negatively based on the perceived gap between aspiration and reality. It is believed that more focus on transparency would be helpful to reduce perceived disconnect between senior leadership team messaging and staff views.

In addition to ONR's stated values, it has four strategic themes:

- 1) Influencing proportionate improvements
- 2) Inspiring stakeholder confidence
- 3) Creating a culture of inclusion and excellence
- 4) Modernising how we work

The underlying values and assumptions of ONR's culture, particularly its strong reputation, delivery and process focus, and professionalism, strongly supported the first and second strategic themes that are outward facing.

Nevertheless, the perceived lack of collaboration can affect theme 2 and addressing this may build even stronger stakeholder relationships. The inward facing themes (3 and 4) were positively underpinned by the supportive value, which can build trust and positively influence the formation of an inclusive culture. However, this may be harmed by a lack of challenge towards negative behaviours by creating an environment where individuals do not feel safe to voice concerns. Additionally, the high level of risk aversion can make it difficult to manage change, which may be needed to achieve internal innovation.





3.4 Cultural tensions

For each of the themes discussed in the previous sections, there was evidence of ‘cultural tensions’, as each aspect of culture may simultaneously have positive and negative sides. These cultural tensions, as shown below, are like two sides of the same coin.

- > Having a strong and positive reputation as an effective regulator enables influence with dutyholders and the achievement of the mission, which is at the core of ONR’s cultural drivers. But the need to protect this can make ONR risk averse and have implications for the ability to speak up and challenge, which ultimately can hinder learning
- > An emphasis on process and delivery ensures effective regulation but can reduce flexibility, adaptation and reduce change
- > Professionalism comes with high levels of technical expertise and commitment to fulfilling the regulatory mission. But it can also lead to perfectionism and overworking
- > A risk averse and conservative approach to change is appropriate when managing (particularly external-facing) risk. However, if applied internally, this can lead to slow change process and frustration
- > ONR highly values its independence as a regulator (where independent actions enhance the regulator’s reputation) but at the same time this may make ONR difficult to collaborate with (which can impact the regulator’s ability to achieve its mission)
- > A consensual leadership style can be effective, as creating consensus leads to ownership and buy-in, which is an important ingredient when managing change. But as currently practised, it may slow down the pace of change and, if this consensus is not communicated down through the hierarchy, high levels of autonomy can lead to inconsistencies in how people are managed. This can have implications for accountability, and perceptions of fairness

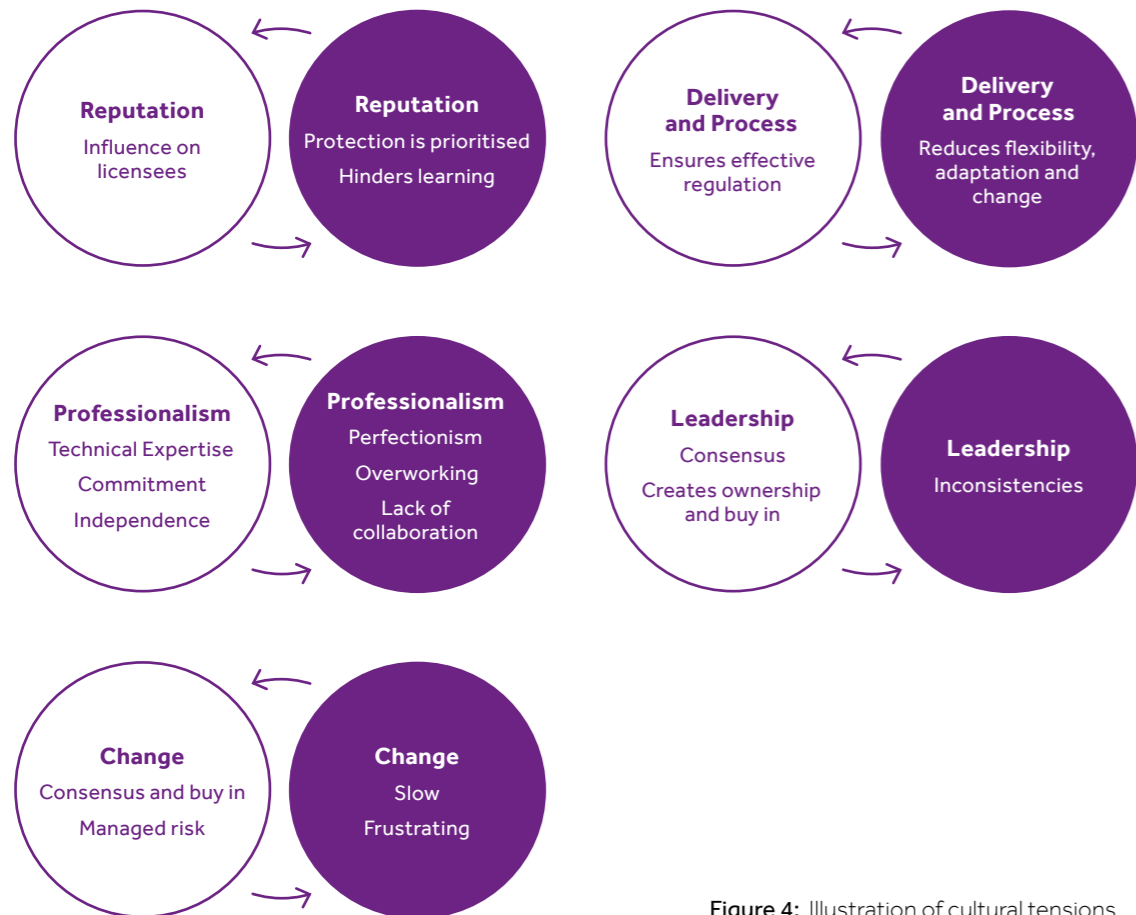


Figure 4: Illustration of cultural tensions

In managing such a culture, one challenge is to mitigate any potential negative effects, without diminishing the positive effects. For example, it can be suggested that ONR would benefit from a culture that enables it to be an effective regulator **both** with effective delivery and processes **and** be adaptive and open to change. Similarly, ONR may benefit from a culture that enables it to be **both** independent **and** collaborative, and which enables it to **both** have a consensual style of leadership **and** be agile and flexible when responding to change. This is in line with the idea that organisations need to be ambidextrous (Tushman & O’Reilly, 1996).

An ambidextrous organisation will possess **both** stable routines and processes that exploit existing knowledge **and** it will have the ability to adapt flexibly and acquire and explore new knowledge. In an ambidextrous organisation the emphasis is on leaders thinking in a ‘both-and’ way rather than an ‘either-or’ way. This is further illustrated in the following quote:

“Organizational culture is a key to both short-term success and, unless managed correctly, long-term failure. Culture can provide competitive advantage, it can also create obstacles to the innovation and

change necessary to be successful.(...), great managers understand this dynamic and effectively manage both the short-term demands for increasing congruence and bolstering today’s culture and the periodic need to transform their organization and re-create their unit’s culture. These organizational transformations involve fundamental shifts in the firm’s structure and systems as well as in its culture and competencies” (Tushman & O’Reilly, 1996, p. 23-24).

A further implication of the cultural themes and tensions we have identified is that they are central to managing the change process. Specifically, a key element in managing change is understanding how the culture is driving the predominant beliefs, attitudes, and behaviours in the organisation. For example, any efforts to improve collaboration and joint working might meet resistance as this could be seen as threatening independence. Thus, the first step in managing such a change would be understanding and managing resistance to change. Raising awareness, and communicating the organisation’s resolve to tackle negative consequences, are often the first steps in managing cultural tensions within an organisation.

3.5 Subcultures

In our analysis we were sensitive to the identification of differences, contrasting evidence and contradictions, including the potential for subcultures (or counter-cultures) within ONR’s predominant culture.

We identified that participants perceived differences between corporate and regulatory functions, including comments on the ‘silo’ mentality within divisions, which acted as a barrier to effective cross-division working within ONR. However, there was little evidence to support the identification of distinct subcultures (or counter-cultures, where there are contradictory values held by pockets of staff within the organisation). We found that there were broadly common views regarding the underlying cultural values at ONR. In addition, ONR staff across functions discussed the limited extent to which they felt that the espoused values of ONR (fair, open-minded, accountable and supportive) are embedded in the organisation.

Both regulatory and corporate staff can be described as highly professional, dedicated, having depth of specific knowledge, competence and expertise, and aspiring to high standards of performance. Thus, in many ways, the same values are embedded across both corporate and regulatory staff, and within each of these functions. Where corporate staff reported

feeling undervalued, this was often because their own high standards of professionalism, expertise and performance, are not always acknowledged by regulatory colleagues. Thus, differences that do occur may not reflect subcultures with different cultural values.

Nevertheless, there was significant evidence that not all staff felt equally valued by the organisation. This was particularly evident between functional areas, and within functions, especially where this was punctuated by the use of differential pay scales. We found that participants discussed the aspiration to become ‘one ONR’ to address these perceptions of disparity, but often expressed that they did not feel that this was truly representative of the organisation.

There was evidence that ONR has a strong hierarchy, and comments like “grade-ist” were commonly made. There is a tendency to regard nuclear safety regulation as ‘king’ and other groups (e.g., corporate members of staff, lower grades, and some women) felt less valued. Staff felt that greater transparency was needed, particularly when it comes to acknowledging that these differences exist. Staff would welcome more collaborative working and allowing others to understand what the corporate side or other regulatory specialisms do to create that greater appreciation for their work and enhance learning.



IMPLICATIONS

4.1 Impact on ONR's mission

ONR's culture has a significant impact on its ability to successfully achieve its mission. This relationship between cultural themes and the mission is embedded within our conceptual model (see Figure 2, page 19). This relationship is central to understanding how culture influences the quality of regulation provided by ONR.

Areas of strength emerged in our analysis, such as organisational assumptions and values, which support the reputation as a strong regulator. This promotes perceptions that ONR is a trustworthy and transparent regulator, which inspires confidence in ONR's stakeholders and enables it to influence improvements by dutyholders. However, areas of weakness, such as a preoccupation with reputation, can make the organisation risk averse, and closed to challenge and learning, which can damage the ability to successfully achieve its mission.

There are many direct and indirect ways in which ONR's culture will influence its mission. Reputation is critical for successful 'enabling regulation', which is based primarily on the regulator's credibility and authority. This depends not just on its legal authority, but also on its power to influence. However, stakeholders also look to the regulator's culture as a model for their own.

The regulator is held up as a 'role model', which means that external stakeholders, including dutyholders in particular, look to the regulator, what is said and done, and how this is said and done, as an ideal for them to follow (IAEA, 2020). Thus, the culture of ONR is seen as a model which others will follow. Indeed the NEA cautions regulators to be aware of the 'profound' ways in which their cultural values will influence dutyholder culture (NEA, 2016), and the IAEA highlights that the regulator "has to be seen visibly to act in accordance with the principles that it advocates for the licensee" (IAEA, 2020, p.2).

Dutyholders perceive that ONR, as the regulator of their industry, treats them in a fair and transparent way during interactions, and is seen to be supportive and uses an enabling approach. Thus, it might be said that ONR is 'living its values' in the eyes of the dutyholder. Nevertheless, it is not possible to strictly divide ONR into internal and external elements that are distinct, and manage them in a separate way. Dutyholders will interact with a variety of ONR staff across different regulatory areas (such as nuclear safety, conventional health and safety, cybersecurity, etc).

Other external stakeholders, such as other regulators, will also have a similar experience through their interactions with ONR. In the course of these interactions, stakeholders will form a view of how ONR regards its staff (e.g., whether it champions diversity, work-life balance, and wellbeing). It is this view that will also influence dutyholders, given that they tend to see the regulator as a 'role model' for its cultural values, and to set an example for them to follow. This is an example of how the 'internal face' of ONR can influence outside the organisation, and emphasises the need to view culture in a holistic way.

Culture will affect ONR's internal efficiency and effectiveness as an organisation, which in turn affects its ability to regulate effectively. For example, a process-orientation is usually characteristic of a large bureaucratic organisation as it ensures that activities follow standards and procedures. However, because ONR is a relatively small organisation (approx. 650 people) there should be opportunity to be more agile and responsive, which will allow it to be innovative in the way it manages itself, but also in how it interacts with its stakeholders.

4.2 Potential threats

Throughout our analysis we uncovered a number of themes that could potentially threaten the formation of a consistent, positive and efficient culture at ONR.

- > Working from home
- > People management skills
- > Recruitment and retention

It is worth noting that these issues are common organisational challenges, which may not be connected directly to weaknesses in ONR's culture. Nevertheless, it is important that an understanding of the underlying culture is taken into account in terms of managing these challenges.

4.2.1 Home working

ONR was described as very supportive during the COVID-19 pandemic and received much praise for the way it handled the transition to home working. However, the move back to the office has been more difficult. While it is important to provide staff with flexibility, it is recognised (both internally and externally) that a consistent approach to the way regulation is carried out is important, and this needs to be maintained and managed in the post-pandemic world.

During discussions with staff, the main issue highlighted related to the lack of senior leadership direction regarding the move back to the office. Staff felt that there were no clear instructions, and that Career Development Managers (CDMs) had been left with the responsibility to manage this on an individual basis. This also meant an additional burden for CDMs. Staff discussed how a clear message around the balance between working from home and the office (e.g., how many days a week, which days, etc.) was needed. While some felt that they needed to be in the office more often to help manage staff better and create better consistency, training and culture, others clearly stated the

ongoing demand for flexibility of home working (particularly in the Cheltenham and London offices).

This was not only an internal view, but also featured in discussions with external stakeholders. They also commented on the need for consistency and the need to move back into the office to achieve this.

Some element of office working was viewed as important to maintain tacit knowledge, especially among graduate starters. This would include the opportunity for coaching new starters in the implicit skills of the regulator, such as the ability to influence, which would be difficult to acquire through formal training. These observations align with research evidence, and the experience of other organisations, which highlight both the advantages of hybrid working, such as increased productivity, but also the disadvantages, such as reduced creativity and innovation (e.g., Trevor & Holweg, 2022). Resolving the conundrum of hybrid working is a challenge for many organisations, but is an issue that needs to be managed, taking account of the nature of the organisation, and its particular corporate culture.



4.2.2 People management skills

Throughout conversations with staff, a lack of people management skills and people-focused initiatives was mentioned, which can impact on staff morale and motivation. Particularly the lack of training and time that CDMs receive for their role was discussed. For example, this is illustrated in the quotes below.

"We're told that we're supposed to dedicate a lot of time to being good managers, but then not actually given the space and time to do that."

"I've been asking for training in how to be a line manager for years, and it's only available to me now that I've already been assigned people [as a CDM].... I don't know of any other organisation that pays so little attention to providing management skills training."

Participants highlighted the need to support the development of leadership and people management skills throughout the organisation. They described that a lack of people management skills could affect motivation and morale, and discussed a lack of effective training and resources for CDMs.

Looking in more detail at the data, it became evident that the way in which CDMs are selected presents a potential mismatch between technical ability and the motivation to be a good people manager. The training provided may not be proactive and comprehensive enough to address this effectively. However, there was positive reflection on the lessons learnt through the implementation of 'reverse mentoring' for senior leaders in ONR.

A renewed focus on training and development, including resources and time, to support skill development in this area is perceived as important, especially for CDMs.

4.2.3 Recruitment and retention

Issues regarding recruitment, retention and knowledge transfer, were concerns raised internally and externally. For example, this included points around how inspectors were recruited, and potential retention problems due to cultural issues, such as a suboptimal environment for learning, and challenges competing with growing demands for personnel from the nuclear industry.

There was also concern raised as to whether the demographics, size and capacity of ONR was sufficient to guarantee that regulation was led by technical competence, but also with the wisdom and experience needed. Thus, there should be a focus on ensuring that cultural issues do not adversely influence ONR's ability to recruit and retain the best candidates.



DISCUSSION



5.1 Comparison with literature on regulatory culture

Although there is no definitive set of values that define a 'good regulatory culture', there are elements that support a healthy culture, such as those set out by the NEA (2016). Although these focus on nuclear safety, the principles apply equally to the oversight role of the regulator, which covers its other purposes, such as security and safeguards. These include the following:

- > Excellence in leadership (for safety) at all levels of the organisation
- > Strong sense of personal accountability so that everyone takes personal ownership of their actions and decisions (with respect to safety)
- > Staff who are aligned and engaged: a healthy (safety) culture is supported by staff who know what they are doing
- > Open and transparent communication, internally and externally
- > Informed, balanced accountability that encourages open and honest reporting and respects (safety) information
- > A comprehensive and systemic approach to the regulatory environment, which is a complex and interdependent system, that requires a holistic approach to its management
- > Continuous improvement and learning: an open, adaptable and learning attitude in technical, regulatory and organisational areas helps avoid complacency by continuously challenging existing conditions and activities

These guidelines are well-aligned with the core dimensions of regulatory culture identified in Fleming et al.'s (2022) model:

- > Leadership (for safety)
- > Psychological safety (communication, collaboration and questioning attitude)

- > Learning and improvement/competence
- > Responsibility and accountability
- > Systemic/systematic/holistic approach (to safety)
- > Independence of the regulator

There are organisational values that emerged in ONR's culture that correspond to the dimensions highlighted above, such as independence of the regulator, a comprehensive and systematic approach to regulation, and the competence of staff (including being aligned and engaged). These are strengths of the culture, which support the achievement of ONR's mission.

However, there are also elements which have been discussed as potential threats to ONR's culture, such as a "strong sense of personal accountability so that everyone takes personal ownership of their actions and decisions". Similarly, the ability to collaborate internally and externally, support for speaking up to enable learning, and resources to promote excellence in leadership at all levels of the organisation, are also challenges.

Our findings on cultural tensions is also aligned with results from previous regulatory culture assessments. For example, Reiman and Norros (2002) described a model comprising three roles undertaken by the regulator based on their case study of the nuclear regulatory body in Finland.

They describe a model in which the regulator has three roles: public role (reporting, informing and openness leading to credibility), authority role (independence, mediated control and perception leading to effectiveness), and expert role (dialogue / cooperation, self-criticism and reflectivity leading to competence). They discuss how, in order to be effective, the regulator must be able to maximise their performance in all three roles simultaneously, despite the inherent conflicts between them.

5.2 Reputation

Reputation emerged as a basic underlying assumption in ONR's culture. There is existing literature which discusses how organisational reputation relates to effective regulation across industry, as well as specifically in relation to nuclear regulation.

Previous research has highlighted that organisational reputation in regulatory bodies can be used as a lens to understand the regulator's behaviour: "...when trying to account for a regulator's behaviour, look at the audience, and look at the threats" (Carpenter, 2010, p.832).

ONR interacts with multiple stakeholders, both internal and external. Thus, the fundamental driving force of reputation can be used to provide insight into how the organisation deals with these different audiences, and what may be perceived as a threat. Given the basic assumptions underpinning the organisation, there may be a tendency for challenges to be perceived as 'reputational threats', where risks are framed as the potential for reputational damage, or reputational losses.

Organisational reputation is hard won, as it takes a long time and much effort to build, but in contrast is very easily lost, even by a single incident. Therefore, protecting reputation can become a powerful force as any slight blemish may lead to significant reputational losses, which may be difficult to rebuild. From a psychological perspective, this may promote 'negativity bias' or 'loss aversion' (Kahneman & Tversky, 1979). This is a tendency for negative information to carry much more weight in people's judgements and decision-making than positive information. Such a mindset may underpin a risk averse and conservative approach to decision-making that is characteristic of regulatory bodies such as the ONR.

This can be advantageous, particularly for regulators with responsibility for regulating high hazard industries. However, it may also provide some explanation for behaviours seen in our cultural assessment. For example, there were accounts of a single incident in someone's past which would continue to influence their promotability after years of service. There was evidence of a long organisational memory for such incidences, in which one mistake could remain salient in an otherwise exemplary record.

Based on our cultural analysis, ONR generally has a low appetite for risk, and values conservative, evidence-based decision-making. According to ONR's risk management framework, its risk appetite across different types of risk, including financial, regulatory, cyber, governance, and technology, is cautious or minimalist. In relation to operational, people and reputation it is 'open' and in relation to fraud it is averse. For reputational risk, ONR's appetite for risk is 'open', which means that it 'undertakes activities by seeking to achieve a balance between a high likelihood of successful delivery and a high degree of reward and value for money. Activities themselves may potentially carry, or contribute to, a high degree of residual risk.' ONR's risk appetite document (2022-23) states the following:

"Protecting our reputation and stakeholder confidence in us is [therefore] important as our reputation is one of our biggest assets. We will not tolerate unsolicited comments or behaviours that could be detrimental to our mission or adversely affect the trust necessary to maintain the confidence of dutyholders, other stakeholders and the public."

(ONR, 2022).

The extent to which these statements are borne out within ONR's culture requires careful consideration. Protection of reputation is viewed as a positive force, but as illustrated throughout our cultural assessment, there are both positive and negative aspects of protecting reputation, including consequences for challenge, risk and change.

There are examples in the literature which highlight the benefits of having a strong reputation, and taking action to protect it, such as enabling the regulator to act as an independent body. For example, the Spanish nuclear regulatory agency (Nuclear Safety Council, CSN) renewed the licence of the Garoña nuclear power plant, against the



Spanish government's expectations of closing it down. This was an action only made possible through the strength of the regulator's reputation. The demonstration of independent actions in this way led to the further strengthening of the CSN's reputation as a regulator (Bianculli et al., 2017). CSN continued to build its reputation as an independent risk regulator through developing international networks to enhance its learning and standing in the global regulatory community (Bianculli et al., 2017). This example illustrates how a strong reputation can enhance the regulator's effectiveness and ability to achieve its mission, even in the face of external pressures (in this example due to political pressures from the government).

However, there are also potential challenges associated with building and maintaining a strong reputation. The literature highlights the example of the US regulator, the Food and Drug Administration

(FDA), whose extraordinary reputation was the source of power for its oversight activity of the giant US pharmaceutical industry (Carpenter, 2010). The powerful influence of the FDA was built on its image of competence and vigilance, but there has also been recent criticism that the FDA is too powerful. For instance, it has been accused of 'over-regulation', leading to a loss of public confidence (Bhaskar & Carpenter, 2023).

As discussed earlier, there can be dangers in regulators being too powerful to the point that they prioritise the reputation of the organisation over the achievement of its fundamental mission (i.e., to protect public safety). In the aftermath of the Fukushima disaster, the independent investigation found that the nuclear regulatory authorities in Japan "lacked an organizational culture that prioritized public safety over their own institutional wellbeing" (National Diet of Japan official report, 2012).

INSIGHTS

We offer the following insights, based on our cultural analysis, for strategies that ONR might adopt to change aspects of the culture, which may be adversely affecting ONR's efforts to deliver its mission.

In each case, however, we would advise that these are initial insights, which require additional information and investigation, before implementation. A cultural analysis can only provide indicators of next steps, rather than fully formed recommendations.



6.1 Embedding ONR values

In its strategy document, ONR has already identified those values that the organisation aspires towards, and which should underpin its strategic direction: open, accountable, fair, and supportive (ONR, 2020a).

Based on our cultural analysis, there is more work that can be done to embed the ONR values. Some values are relatively well-embedded (e.g., supportive) and already provide positive foundation for the organisation, but others less so (e.g., fair, open-minded, accountable). There was evidence that external stakeholders endorsed ONR as 'living its values' to a greater extent than internal ones. Therefore, there should be focus on embedding all the ONR espoused values across all areas of activity to strengthen both internal and external perceptions. It should be noted that culture should be seen in a holistic way, and any actions should address organisational values across the organisation. The priority should be taking actions that will help to embed all its values, so that these are driving positive change and helping to achieve strategies, rather than acting as barriers or resistance to change.

During our cultural assessment, we asked participants to identify potential actions that would assist with strengthening ONR's culture. This would be a good starting point to considering daily activities that might be a focus of cultural change. Below is a summary of the suggestions that were consistently highlighted.

Leadership and accountability

- > Lead by example (ask for help, admit that ONR is not perfect, allow people to make mistakes, and be authentic and visible)
- > Better training for CDMs
- > More time for CDMs
- > Improve personal development and career progression pathways
- > Hold people to account more

Challenge, risk and change

- > Improve the way change is managed (seeing things through until the end and implement learnings from previous assessments)
- > More people focused initiatives
- > More bottom-up approaches (like this culture assessment so staff feel involved)
- > Better communication from top to bottom (open and honest) / direct link from top to bottom (enhance consistency)

- > Listen more to staff
- > More cross working (learning about different areas of ONR)
- > Empower people to say no (more effective challenge)
- > Trust staff more (how tasks are managed / approvals etc.)
- > Simplify processes

These suggestions align with many of the cultural issues that are identified in our analysis, particularly related to the 'challenge, risk and change' factor, as well as the 'leadership' one. Addressing some of these issues, would be a way forward to taking positive action on challenges that matter most to ONR staff.

As highlighted throughout the earlier sections, a thorough understanding of the culture 'as is' can help ONR to implement strategic change more effectively. Understanding the basic assumptions and enacted values provides insight into people's attitudes, beliefs and behaviours. For example, resistance to change can be understood in terms of employees' perception that such changes might threaten ONR's reputation or its independence, or that the change represents a risk to process delivery. An appreciation of these values can also help ONR frame change initiatives in terms of what people truly value, to counter resistance, and encourage acceptance of change.

There should be a focus on understanding the cultural drivers. This requires 'both-and' thinking (Lewis et al., 2014), as discussed in more detail in the following section. For example, it is critical to recognise that as a cultural driver, reputation will produce both positive and negative effects. The key is to recognise where the negative effects come from, and to manage these. The very step of recognising the root cause will lead to more effective ways of managing potential negative effects (e.g., actions motivated by a perceived need to 'protect' reputation, but having unintended consequences).

For example, managing change requires leadership from the top, where staff talked about the need for leaders to be 'authentic and visible'. If leaders are seen to be 'living the values' this will encourage staff to do the same. At the same time, there is also a need to encourage staff involvement so that leaders are perceived to be open, honest and listening to staff. This is an example of 'both-and' thinking, where managing change needs both a top-down and a bottom-up approach.

6.2 Paradoxes and ambidextrous leadership

A paradox denotes a particularly challenging tension; contradictory, yet interrelated elements that exist simultaneously and persist over time. This is characteristic of many of the 'cultural tensions' that were discussed in section 3.4. Addressing these cultural tensions requires the use of 'both/and' mentality.

"A paradoxical approach seeks to engage competing demands simultaneously, rather than focus on one side or develop a blended solution....The elements are both opposing and complementary. Managing paradox therefore requires a creative, both/and approach that leverages the benefits of each side separately, while also tapping into their synergistic potential."

(Lewis et al., 2014, p. 62)

This approach requires leaders to consider cultural values that present 'competing demands simultaneously', such as the need for both independence and collaboration. But, as we demonstrated in our analysis, ONR needs to be both independent and collaborative, but these values are both opposing and complementary. Managing these cultural tensions requires a both/and approach, characteristic of ambidextrous leadership that takes advantage of their synergistic nature, and maximises the benefits of both.

For example, we could apply a paradoxical approach to the 'working from home' conundrum. This is a paradox: the solution requires leaders to both treat staff uniformly and allow individualisation,

rather than an 'either-or' solution, in which either everybody returns to the office / works from home, or it is purely down to individual choice.

In managing change, this has been described as the 'now/next' paradox. There is a need to focus on both continuity and change simultaneously, which requires having two modes of operation, one that focuses on the short-term, running the business, while at the same time taking a longer-term view of more innovative ways of working. Leaders who focus too much on the change may pay too little attention to continuity (the importance of maintaining current operational excellence) (Waldman & Bowen, 2016).

Another example is related to leadership style, where consensus based leadership places all the focus on gaining support. However, this relates to a paradox often faced by leaders of both 'being in control' (autonomy) and 'letting go of control' (empowerment). Leadership development might be focused on learning to empower, while at the same time maintaining control.

Research has also highlighted the importance of engaging with staff. An important step is explaining why it is important to focus on both/and approaches to encourage 'change-readiness' (Sparr et al., 2022). For example, staff may readily understand the need for independence, but might need explanations for why collaboration is also important to achieve at the same time.

This communication helps to increase 'change-readiness' in staff so that they are more open to change initiatives. For example, this might involve building on processes where staff already manage paradoxes in their daily work (e.g., inspectors may regularly simultaneously use their powers of enforcement alongside their ability to influence in regulatory activities).

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