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RRP testing

Our practical design principles and recommendations

RRP Viewpoint

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Glossary

CBL	Core Business Line
CF	Critical Function
FMU	Financial Market Utility
FSB	Financial Stability Board
G-SIFI	Global Systemically Important Financial Institution
MLE	Material Legal Entity
MPE	Multiple Point of Entry
RRP	Recovery and Resolution Planning
SIFI	Systemically Important Financial Institution (note: as used in this document, includes institutions that potentially could be designated SIFIs in due course)
SPE	Single Point of Entry
SWD	Solvent Wind-Down
TBTF	Too Big To Fail
TLAC	Total Loss Absorbing Capacity

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Executive summary

The role and benefits of RRP testing

The primary focus of any Recovery and Resolution Planning (RRP) testing is to provide further evidence that the RRP solution is feasible and credible overall.

Robust and effective testing brings RRP to the next level by turning it from a regulatory-driven initiative into an actual plan that can be used to prepare for – and even manage – genuine crisis situations.

The benefits of RRP testing are realised mainly in four areas: (1) Providing evidence of feasibility and enhanced relevance in practice of an RRP testing concept, (2) generating strategic business benefits, (3) defining the industry standard and (4) facilitating regulatory compliance.

What can be tested in RRP?

Overall, we observe five elements that are subject to RRP testing ('RRP testing elements'). Each element differs in its relevance depending on the RRP document in question. In this RRP Viewpoint, we provide a description of each RRP testing element and we propose specific focus areas for testing.

RRP testing elements		RRP documents				
		Corporate overview documents*	Global/local recovery plan	Solvent Wind-Down (SWD)	Global/local resolution strategy	Global/local resolution plan
1	RRP information elements	✓	(✓)	(✓)	(✓)	(✓)
2	Governance	–	✓	✓	✓	✓
3	RRP tools	–	✓	✓	✓	✓
4	Communication	–	✓	✓	(✓)	✓
5	RRP scenario modelling	–	✓	✓	(✓)	✓

✓ = RRP testing element **typically included** in respective RRP document
(✓) = RRP testing element **sometimes included** in respective RRP document
– = RRP testing element **typically not included** in respective RRP document
* Sometimes integrated in the global or local recovery plan

How can be tested in RRP?

In this RRP Viewpoint, we set out our proposed RRP testing concept and we describe its four key elements:

- The definition of the RRP testing assumptions
- The set-up of RRP testing governance
- The specification of the RRP testing elements and selected RRP testing approaches (1) desktop review, (2) walkthrough, (3) fire drill and (4) management simulation
- The overall RRP testing strategy covering the interplay of the individual RRP tests

RRP testing elements		RRP testing concepts			
		Desktop review	Walkthrough	Fire drill	Management simulation
1	RRP information elements	✓	✓	✓	–
2	Governance	✓	✓	✓	✓
3	RRP tools	✓	✓	✓	✓
4	Communication	✓	✓	✓	✓
5	RRP scenario modelling	✓	✓	✓	–

What it means to you

We note considerable momentum behind RRP testing. The industry has already moved beyond conceptual discussions and RRP testing will become an industry standard within one to two years.

Besides establishing RRP testing concepts and performing RRP testing as such, we anticipate closer interaction with regulators will become one of the major topics relating to RRP in the future.

With this RRP Viewpoint, we aim to raise awareness of the topic of RRP testing and to kick start initial assessments by Systemically Important Financial Institutions (SIFIs) in order to ensure there is enough time to approach this topic strategically (rather than tactically) and thus optimise the benefits and minimise the costs.

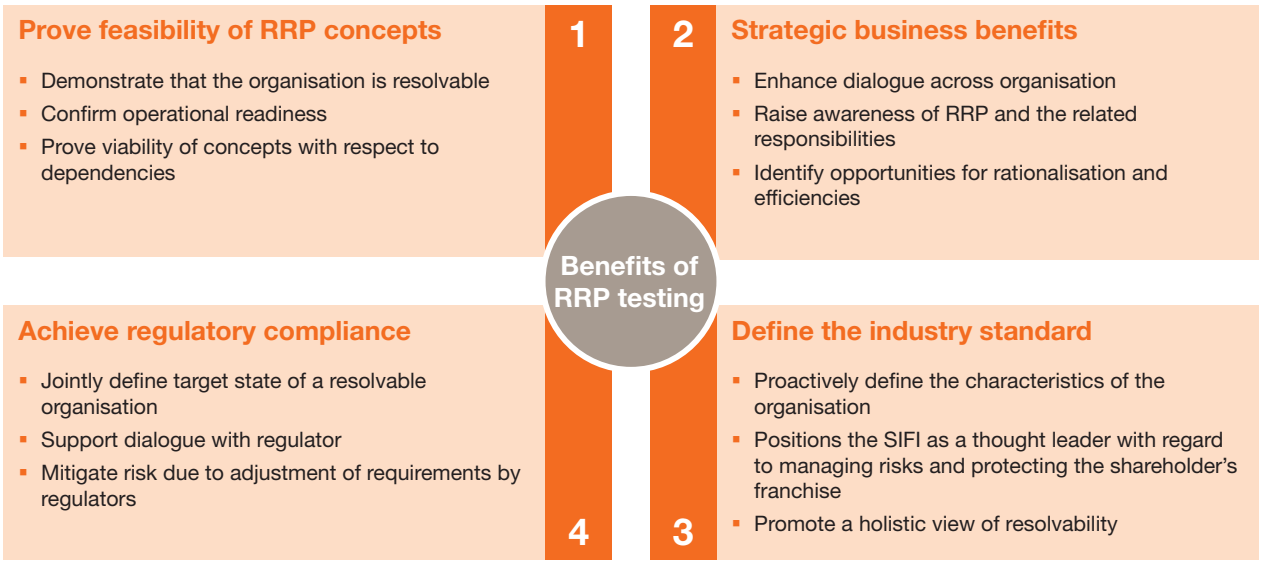
Introduction to RRP testing

Why you should focus on RRP testing

In the early years of RRP, the focus was mainly on establishing concepts and gaining agreement between the involved parties on a mutual understanding of the scope and implications of the topic.

Now, robust and effective testing brings RRP to the next level by turning it from a regulatory-driven initiative into an actual plan, which can be used not only to prepare for crisis situations but also to manage them. RRP testing will further increase the familiarity of senior management with RRP and increase confidence in the related concepts.

As outlined in the diagram below, RRP testing provides benefits mainly in four areas. These benefits are described subsequently in more detail.



1 Testing provides **evidence of the feasibility and enhanced practicability** of a SIFI's RRP solution with regard to key regulatory requirements:

- Demonstrates the conceptual maturity of the SIFI's RRP solution, i.e. sufficiently resilient in a severe crisis and 'sufficiently resolvable' in case of resolution (including the ability to execute the resolution strategy and maintain critical activities)
- Demonstrates the operational readiness of the SIFI's RRP solution by providing evidence that preparatory tasks required to execute effectively the RRP measures in a crisis situation have been completed
- Considers the three key aspects, i.e. time constraints, the changed market environment and potential conflicts of interest

2 Testing generates **strategic and business benefits** in the normal course of business:

- Identifies opportunities for rationalisation and efficiencies in a SIFI's financial, legal and operating models
- Raises the awareness, confidence and buy-in regarding RRP across the business and within senior management
- Ensures ongoing maintenance or enhancement of a SIFI's resolvability whilst implementing strategic change and cost reduction programmes
- Enhances the dialogue within the SIFI concerning RRP and supports alignment across the group
- Ensures the relevant employees and executives are aware of the RRP solution and deliverables and that they are familiar with their responsibilities in relation to the RPP, including governance processes
- Contributes to defining the characteristics of a SIFI's structural target state and embedding these insights in a SIFI's long-term strategic planning

3 Testing provides the opportunity to **define the industry standard** (if SIFIs address this topic quickly in the upcoming months):

- Allows an early-mover advantage to steer the development of an industry standard in the direction that suits the characteristics of a SIFI
- Positions the SIFI as a thought leader with regard to managing risks and protecting the shareholder's franchise
- Supports the recognition that the assessment should not be based on binary outcomes, but rather it should aim for a holistic view of resolvability in order to identify improvement areas

4 Testing facilitates **regulatory compliance** and minimises the risk of stumbling towards a moving target:

- Supports a dialogue and alignment with regulators on action plans to enhance resolvability (including the creation of a common language and demonstrating the mutual benefit of implementing the enhancements)
- Mitigates regulators' reluctance to define with any precision the end-state of a resolvable bank
- Mitigates the risk for SIFIs of a long, iterative process whereby the regulators constantly adjust their requirements, leading to new barriers to recovery and resolution that have to be identified and mitigated subsequently

Regulatory requirements for RRP testing

At a supranational level, the Financial Stability Board (FSB) includes in its guidelines various suggestions concerning RRP testing for regulators to consider in their RRP requirements and practice.

Although, as of today, neither the jurisdictional RRP testing requirements nor the related dialogues between local regulators and SIFIs are public, the industry in various jurisdictions has already moved beyond conceptual discussions.

The public FSB guidance that is available leaves us in no doubt that RRP testing will soon become an industry standard by outlining requirements such as:

- Appropriate senior officials of the home and host authorities should review at least annually the operational resolution plans for each Global Systemically Important Financial Institution (G-SIFI) and engage in periodic simulation or scenario exercises to test the viability of the plans; these exercises may involve the firm in question
- Financial Market Utilities (FMUs) providing critical services should be required to test regularly the effectiveness of their rules, contractual arrangements and procedures relating to a resolution scenario. Examples of test areas are governance, operations or arrangements to expedite the transfer of participation or membership to a third-party successor or bridge institution
- FMUs should be required, as part of their contingency arrangements, to test the effectiveness of their rules and procedures if a major participant were to go into resolution, including the conditions and requirements for continuing as a participant or – in the event that critical activities are transferred to a new entity – admittance as a new participant to the FMU

Current status of RRP testing

Those SIFIs that have taken the lead in RRP testing have already established their testing concepts, gained some initial experience from their testing activities and implemented the first enhancements to their RRP strategies.

These initial RRP tests included, among others:

- Regulators running RRP simulations among themselves
- Regulators requiring SIFIs to provide testing concepts for future RRP testing
- SIFIs running RRP management simulations on their own initiative to test their RRP (draft) concepts
- SIFIs running self-motivated 'fire drills' on their own initiative (see page 13 for more details on the fire drills testing concept)

RRP testing elements

('What can be tested in RRP?')

Introduction

Within the industry, it is sometimes broadly stated that testing is done on entire RRP documents. While all RRP documents contain elements that can and should be tested, it is not always specified what these are.

Testing is relevant for all RRP documents, such as:

- Corporate overview documents
- Global and local recovery plans
- Solvent Wind-Down (SWD) plans
- Global and local resolution strategies
- Global and local resolution plans

Structuring the description of RRP testing according to the testable elements and not along the RRP documents themselves has two key advantages. Firstly, commonalities for testing across the RRP documents can be better highlighted, as several of the testable elements are typically part of several RRP documents, thus allowing for synergies. Secondly, the differences between the testable elements and various requirements for testing approaches can be specified more precisely, thus enabling more accurate testing.

The diagram below shows the five elements we consider typically relevant for RRP testing ('RRP testing elements') and indicates the RRP documents for which they might be relevant.

RRP testing elements		RRP documents				
		Corporate overview documents*	Global/local recovery plan	Solvent Wind-Down (SWD)	Global/local resolution strategy	Global/local resolution plan
1	RRP information elements	✓	(✓)	(✓)	(✓)	(✓)
2	Governance	–	✓	✓	✓	✓
3	RRP tools	–	✓	✓	✓	✓
4	Communication	–	✓	✓	(✓)	✓
5	RRP scenario modelling	–	✓	✓	(✓)	✓

✓ = RRP testing element **typically included** in respective RRP document
(✓) = RRP testing element **sometimes included** in respective RRP document
– = RRP testing element **typically not included** in respective RRP document
* Sometimes integrated in the global or local recovery plan

The subsequent description of each of these RRP testing elements is followed by the proposed focus areas for testing activities.

1 RRP documents include many **informational elements** regarding financial, legal and operational aspects, including dependencies (internal and external to a group). They also identify impediments to an efficient and effective RRP solution.

This information is generally accompanied by an impediment mitigation plan, i.e. a project plan to mitigate the impediments to the separability and resolvability of a SIFI (sometimes referred to as a 'project catalogue').

Those RRP information elements are typically sourced from the SIFI's management information system.

Testing in such a context focuses on the descriptions of the RRP information elements relating to the description of Material Legal Entities (MLEs), Critical Functions (CFs) and Core Business Lines (CBLs).

Potential focus areas for testing include:

- Accuracy of information
- Suitability of information (e.g. granularity)
- Completeness of information
- Timeliness of information, i.e. availability of (sufficiently up-to-date) information within the required timeframe
- Transferability of information, i.e. no barriers to share information in a timely manner (e.g. with regulators)

2 RRP documents typically include descriptions of **governance** aspects for a specific range on the stress continuum.

We observe a trend in the industry to cover this information in the form of a 'playbook'. Playbooks are a concept that is increasingly applied to document the key processes of RRP by individual steps, including timing aspects, responsibilities and dependencies.

Potential focus areas for testing include:
- Practical training of members of the RRP governance structure
- Governance and interaction between the group functions and local functions
- Assessment of the effectiveness of governance
- Cross-border cooperation of the home/host regulators to avoid the implementation of conflicting actions for various parts of the group
- Completeness of the individual steps and their dependencies
- Ability to complete the described activities under the assumed stress level and within the given time constraints (this indirectly encompasses a validation of the completeness of the preparatory tasks required to execute effectively the described activities)

3 Key measures, including the underlying processes, to recover, restructure or wind down parts of or the entire SIFI are summarised in this RRP Viewpoint under the term **'RRP tools'**. Depending on the RRP document subject to testing, the relevant RRP tools might be:

- Execution of individual or combined recovery options (typically part of recovery and resolution plans)
- Transfer of liquidity or capital within the SIFI (typically part of recovery and resolution plans)
- Conversion or write-down of external and internal Total Loss Absorbing Capacity (TLAC) instruments (typically part of recovery and resolution plans)
- Single Point of Entry (SPE) or Multiple Point of Entry (MPE) bail-in including recognition of bail-in (typically part of recovery and resolution plans for contractual bail-ins and resolution plans for statutory bail-ins)
- Sale of entire SIFI, individual legal entities or individual assets (typically part of recovery and resolution plans)
- Activation of a bridge institution ('good bank'), including transfer of assets, liabilities, contracts, memberships, etc. (typically part of resolution plans)
- Separation of positions ('bad bank') (typically part of resolution plans)
- Wind down of a specific trading desk/exposures (typically part of SWD plans as well as recovery and resolution plans)
- Sale of a specific portfolio/securitisation vehicle (typically part of SWD plans as well as recovery and resolution plans)

Again, we observe a growing trend in the industry to cover this information in the form of a playbook.

Potential focus areas for testing include:
- Financial robustness (e.g. ability to assess and manage financial viability when scoping the RRP tools)
- Legal robustness (e.g. maintenance of key licences and memberships)
- Regulatory robustness (e.g. maintenance of CFs – typically without direct government aid or taxpayers' support)
- Operational robustness (e.g. continuity of access to FMU services, such as payment, clearing and settlement)

- IT/infrastructure robustness (e.g. ability to source the required financial information with sufficient accuracy and a minimal time lag)
- Completeness of the individual steps and their dependencies
- Ability to complete the described activities under the assumed stress level and within the given time constraints (this indirectly encompasses a validation of the completeness of the preparatory tasks required to execute effectively the described activities)

4 **Communication** may cover key processes for a specific range on the stress continuum.

As stated previously, there is a trend in the industry to cover this information in the form of a playbook.

Potential focus areas for testing include:
- Assessment of the adequacy of the communication (to internal and external stakeholders) taking into account the assumed stress level and circumstances
- The communication between the group functions, local functions as well as home and host regulators
- Completeness of the individual steps and their dependencies
- Ability to complete the described activities under the assumed stress level and within the given time constraints (this indirectly encompasses a validation of the completeness of the preparatory tasks required to execute effectively the described activities)

5 The **RRP scenario modelling** test determines whether the recovery and resolution triggers and options are fit-for-purpose from a financial resilience perspective. The test assumes a severe but plausible stress level that is relevant to the firm's specific business model and vulnerabilities.

Most firms have assigned a high priority to testing RRP scenario modelling and have made considerable efforts as part of their work on recovery plans, as the definition and calibration of crisis scenarios can fundamentally impact the feasibility assessment of an RRP concept (including the identification and mitigation of impediments).

Potential focus areas for testing include:
- Consistency of RRP crisis scenarios with guidelines and vulnerabilities
- Adequacy of the severity of RRP crisis scenarios (including quantification at consolidated and key entity levels)
- Comprehensiveness of the RRP indicators to detect the selected crisis scenarios
- Effectiveness of the RRP indicators in providing sufficient advance warning for a given scenario to maximise the indicators' forward-looking capability
- Consistency of the RRP indicators with the guidelines on the minimum list of quantitative and qualitative indicators to ensure regulatory compliance
- Comprehensiveness and suitability of RRP options for a given scenario (including their documentation) to identify material gaps
- Calibration and modelling of the number of RRP options, timing aspects and the risks of using individual RRP options in a given crisis scenario to enhance the quality of RRP scenario modelling
- Interrelation between the RRP options (complementary, mutual exclusivity or trade-offs) and consideration of the implications for overall effectiveness in order to enhance the quality of RRP scenario modelling

RRP testing concept

('How can be tested in RRP?')

As RRP testing requires considerable resources and is often set up as an iterative topic evolving over several years, we recommend building an adequate RRP testing concept around it.

More specifically, we recommend the RRP testing concept to define (1) RRP testing assumptions, (2) RRP testing governance, (3) individual RRP testing approaches and (4) an overall RRP testing strategy covering the interplay of the individual RRP tests.

1 A set of **RRP testing assumptions** is helpful as the foundation for the RRP testing concept and execution. Examples of such assumptions are:

- RRP testing should not impact services and relations with clients, counterparties or regulators in the normal course of business
- While external parties, such as regulators or counterparties (including FMUs), play important roles in the execution of RRP measures, RRP testing is initially often planned and executed without their involvement; the SIFI in question covers these roles by itself. At a later stage, RRP testing might be conducted as a joint exercise with external parties
- RRP testing is based on the current version of the RRP solution at the time of testing. For topics which have 'current state' and 'future state' information only the current state is tested (e.g. legal entity structure). If improvement measures are pending in a specific area, consideration should be given to defer the RRP testing until these measures have been implemented

2 The **RRP testing governance** is based on the same governance and processes as typically outlined in the RRP document concerned:

- Dedicated RRP team representatives are responsible for the maintenance of the RRP testing concept. The team coordinates content contributions, validations, sign-offs by business and functional owners as well as plan approvals
- The RRP testing concept is an integral part of the overall RRP solution and, as such, shall be formally reviewed and approved by relevant RRP governance bodies
- Updates to the RRP testing concept are implemented 'ad hoc' based on the lessons learned from executing RRP testing or other inputs
- Data protection and confidentiality provisions applicable to the RRP also apply to the testing concept and testing results

3 The primary focus of any **RRP testing approach** is to understand whether the RRP solution overall is feasible and credible. For example, after implementing a potential ex-ante measure, RRP testing can help in assessing and validating that the area of concern was mitigated successfully and that no further ex-ante measures are required. Any RRP testing approach should be optimised to achieve this ultimate goal.

Depending on which of the RRP testing elements described in the previous chapter shall be subject to testing, different testing approaches should be considered.

Additionally, we recommend considering a SIFI's maturity level of the RRP solution, including experiences from previous RRP testing activities. Such an approach maximises the efficiency and effectiveness of RRP testing, measured in terms of additional insights gained from new RRP testing activities compared with the effort to prepare and execute the test.

Based on our experience, we see four RRP testing approaches, which we subsequently describe in more detail.


Desktop review and benchmarking


Walkthrough


Fire drill


Management simulation

Desktop review including benchmarking (e.g. RRP health check)

A desktop review is a good starting point to identify specific concerns and priority areas for further testing. Before completing any other testing, we recommend some form of independent expert desktop review.

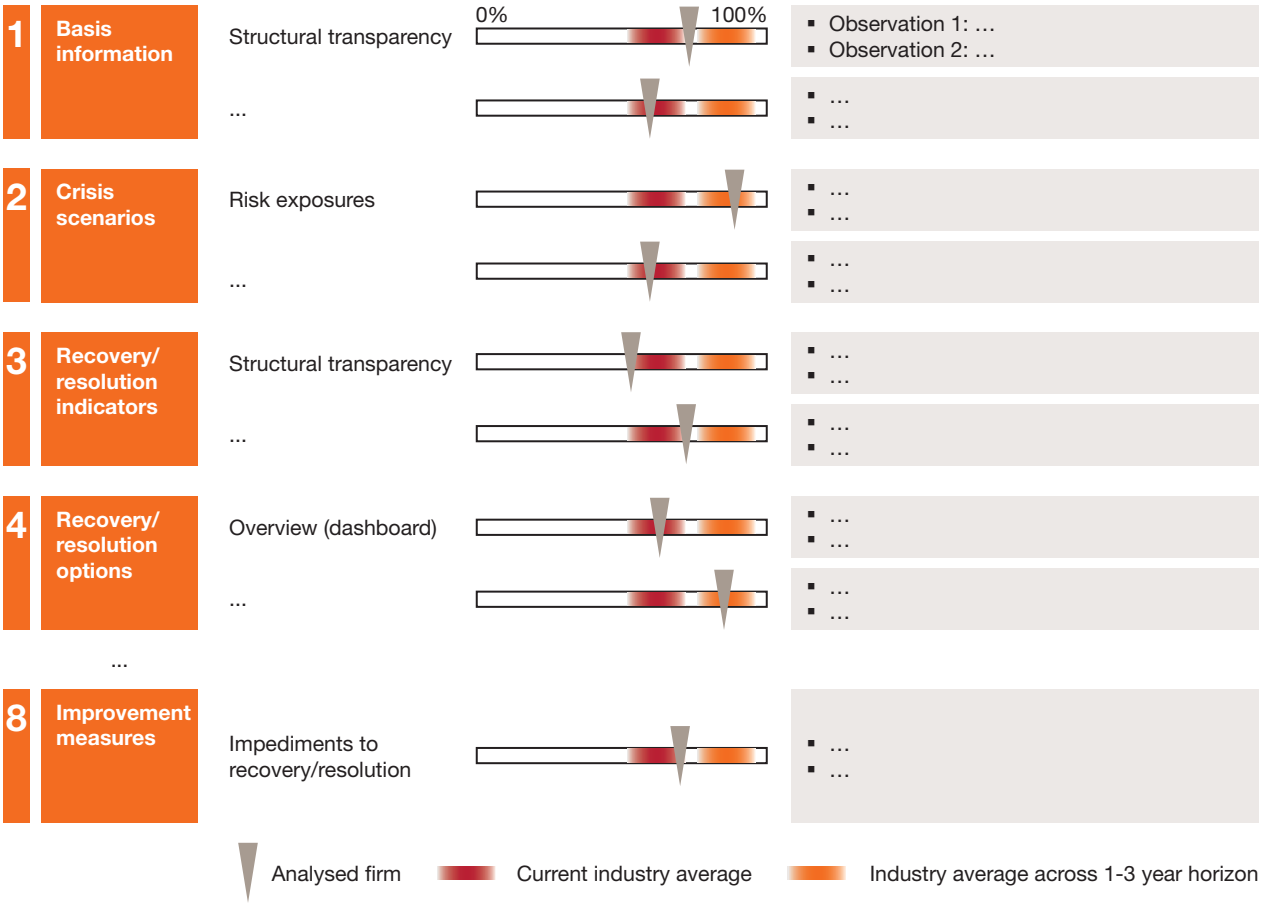
PwC's RRP Centre of Excellence in Zurich has developed an 'RRP health check', which is a standardised desktop-review approach that includes benchmarking.

This RRP health check assesses an individual recovery or resolution plan against a pre-defined set of criteria, which we consider the most critical elements (see illustration below).

1	**Basis information**	Structural transparency	Overview of current & evolving legal entity structure including set up of holding and/or service companies
		Financial transparency	Overview of firm's financials & its alignment with firm's liquidity, capital and risk management frameworks
		Dependency analysis	Overview of financial, legal and operational/IT dependencies from a top down firm-wide perspective
		Material Legal Entities (MLEs)	Identification and description of the firm's MLEs
		Core Business Lines (CBLs)	Identification and description of the firm's CBLs and critical activities
2	**Crisis scenarios**	Risk identification	Overview of risk identification process and methodology for selection of scenarios
		Scenario classification	Overview of criteria considered for classification of the scenarios
		Quantification	Overview of quantitative assessment of the scenarios to test effectiveness of recovery/resolution options
		Narratives	Clearly documented narratives of the crisis scenarios to assess the effectiveness of the recovery options
3	**Recovery/ resolution indicators**	Selection	Identification of quantitative & qualitative recovery/resolution indicators relevant to firm's risk profile
		Calibration	Calibration of thresholds for recovery/resolution indicators & on the time needed to activate the measures
		Governance & escalation	Escalation mechanism for invoking the recovery/resolution plan and related governance
4	**Recovery/ resolution options**	Overview (dashboard)	Menu of recovery/resolution options and overview of estimated financial and business impact
		Description	Description of recovery/resolution options including roles & responsibilities, assumptions & dependencies
		Quantification	Financial impact assessment of the recovery/resolution options
		Suitability	Evaluation of recovery options for specific scenarios to assess suitability
5	**Scenarios/ modelling**	Holistic assessment	Application of recovery/resolution options to crisis scenarios in order to model viable recovery/resolution scenarios
6	**Communi-cation**	Internal & external	Development of communication framework and guiding principles for effective internal & external communication
7	**Playbooks**	Description & testing	Overview and detailed description of activities required during the different phases of recovery/ resolution. Testing of playbooks to validate the effectiveness of the recovery/resolution plans
8	**Improvement measures**	Impediments to recovery/resolution	Assessment of impediments to recovery/resolution and measures to overcome these

Following the review, the individual RRP document is benchmarked against our view of market/best practice and the key observations are documented, shared and discussed with the SIFI (see illustration below).

The documents provided by a SIFI to run such a health check as well as the health check results will need to be kept confidential by the party executing the health check at all times.



Walkthrough

A walkthrough enables the testing of the comprehensiveness and credibility of an RRP testing element.

Compared to the previously described desktop review, this approach is more comprehensive as it is performed at a more granular level, taking into account the individual sub-steps of the process and verifying against a higher confidence level. Further, this test also involves regular interaction with the key stakeholders of the RRP deliverables while performing the testing activities. We recommend performing a walkthrough after a desktop review. This ensures efficiency and effectiveness by defining the focus areas based on the desktop review findings.

We recommend structuring a walkthrough in four phases:

- **Scoping:** Initially, the focus area of the walkthrough needs to be defined. Scoping has to consider a SIFI's testing objectives and the findings of the preceding desktop review
- **Document review:** A detailed document review of the 'fully worked-up RRP testing element', including other supporting documentation as required, sets the basis for a walkthrough
- **Interview:** Interviews with the key stakeholders involved in (or responsible for) the RRP testing element complement the document review. The goal is primarily to verify the assumptions and conclusions from the document review. To maximise the insights from such interviews, external subject matter experts might be involved to assess the comprehensiveness and credibility of the RRP testing elements and to highlight any practical issues of executing them in a stressed environment
- **Report:** A report is established recommending potential enhancements to the RRP testing element, including any identified gaps, conflicts of interest or inconsistencies between the written RRP document, stakeholders' understanding and, potentially, an external view of what is credible or best practice. Such a report can serve as a starting point to plan future enhancements of the RRP testing element

Fire drill

The purpose of a so-called fire drill is to initiate out-of-cycle reporting for a selected RRP information element or RRP process (e.g. in the form of a playbook) in order to test the availability of accurate and relevant information as well as the availability of critical IT systems.

Fire drills are typically real-time exercises without prior announcements. Nevertheless, it is essential to make it clear that the fire drill is for RRP testing purposes and not a real emergency situation.

We recommend structuring a fire drill in three phases:

- **Scoping:** Initially, the specific focus areas for the fire drill need to be defined. Scoping has to consider a SIFI's testing objectives and the findings of previous RRP tests or, for instance, input from regulators
- **Run the test:** SIFI representatives with the appropriate authorisation reach out to the information providers designated in the RRP document to request the informational elements selected as in scope for RRP testing purposes
- **Report:** A report is established recommending potential enhancements to the management information system and process databases, including any identified gaps or inconsistencies between the written RRP document, stakeholders' understanding and, potentially, an external view of what is credible or best practice. Such a report can serve as a starting point to plan future enhancements of the RRP testing element

Management simulation

In a management simulation, selected RRP testing elements are tested with the direct involvement of selected RRP governance bodies (in person).

Scoping:

- Review the existing RRP documentation and current capability of team(s)
- Understand the main risks affecting the SIFI as well as senior management's concerns
- Set objectives for the management simulation
- Agree on participants in the management simulation (e.g. decide whether external stakeholders, such as regulators, FMUs or counterparties, shall have specific roles and, if so, whether these shall be covered by representatives from the actual stakeholder or 'acted out' by delegates from the SIFI)
- Define the date on which the management simulation shall take place (including consideration of seasonal/daily circumstances)
- Agree on an overall timeline and milestones for the preparation and execution of the management simulation
- Plan the logistics to run the management simulation

Design:

- Design the testing programme, including developing the parameters of the scenario and test format
- Design the outlines of the scenario to be tested, and determine the timeline, phase details, focus areas, assessment and success criteria, discussion points and team expectations
- Create scripts in line with the above and provide written and verbal briefing to the participants in the management simulation ahead of running the test
- Define whether the management simulation shall be announced or not (and, if so, with how much lead-time)
- Define whether the management simulation shall be run as a real-time or a time-agnostic exercise.
- Evaluate the use of software applications to support the test during the execution or evaluation of the exercise (e.g. a visual illustration of the playbook, including a comparison of planned timing and effective time requirements)

Run the test (½-day event):

Based on our experience, we recommend splitting the running of the management simulation into two or three stages, followed by a debrief. The two or three stress-scenario stages allow for reflecting on the dynamic nature of severe crises and for exploring senior management's agility in adjusting their approaches during crises with a development that is difficult to predict.

As RRP testing elements from recovery plans are most often selected for management simulations, we illustrate below a generic outline for a recovery plan test:

Stage 1 – Triggers breached and selection of the initial set of recovery options (1-2 hours)

In stage 1, we assume typically a breach of recovery triggers and the need to select an initial set of recovery options.

Focus areas might include:

- Monitoring of the recovery indicators
- Activation of and operation under the new recovery plan governance (including consideration of potential conflicts of interest)
- Timely availability and completeness of management information (to select the recovery options)
- Selection of recovery options (including consideration of potential conflicts of interest)
- Coherence with other contingency planning

- Internal and external communication (about the trigger of recovery indicators and the selection of recovery options)
- Adequacy of the recovery plan documentation, including related playbooks

Stage 2 – Implementation of the initial set of recovery options (1-2 hours)

In stage 2, we focus typically on the implementation of the initial set of recovery options selected in stage 1.

Focus areas might include:
- Observing the recovery of the indicators and benchmarking against target levels
- Timely availability and completeness of management information (to implement the recovery options)
- Implementation of the recovery options.
- Internal and external communication (about the implementation of recovery options and new indicator values)
- Adequacy of the recovery plan documentation, including related playbooks

Stage 3 (optional) – Evolving crisis (1-2 hours)

In stage 3, which is optional, we focus on the practical application of additional RRP tools (in this case, recovery strategies) assuming the initial set of recovery options has been selected (stage 1) and implemented (stage 2). New stress events are introduced in stage 3 that increase the stress level to simulate a constantly changing stress scenario.

In addition to the focus areas from stages 1 and 2, the following might be considered:
- Involvement of additional stakeholders
- Adjustment of the recovery plan governance (if applicable) and operation under it
- Directors' duties and responsibilities towards regulators

Post-exercise debrief (45 minutes)

We recommend running a formal post-simulation debrief to foster the sharing of learnings and to gather ad-hoc inputs to enhance the RRP solution as well as the management simulation itself.

Report:
- Collate the participants' questionnaires and notes from facilitators, observers and exercise controllers
- Report back on the findings and provide a visual assessment of the testing, drawing on the assessment from the desktop reviews, the walkthroughs and the management simulations, as appropriate
- Recommendations for improvements to the RRP solution overall as well as, specifically, to future performances of the management simulation.

4 The **RRP testing strategy** covers the interplay of the individual RRP tests as well as some typical evolutionary elements in the design of the individual RRP tests.

Interplay of the individual RRP tests

Depending on the RRP testing element, specific testing approaches are individually suitable.

The diagram below outlines our general view of the suitability of the individual testing approaches for each RRP testing element.

			RRP testing concepts			
			Desktop review	Walkthrough	Fire drill	Management simulation
RRP testing elements	1	RRP information elements	✓	✓	✓	–
	2	Governance	✓	✓	✓	✓
	3	RRP tools	✓	✓	✓	✓
	4	Communication	✓	✓	✓	✓
	5	RRP scenario modelling	✓	✓	✓	–

In terms of the sequence of approaches, SIFIs can move from desktop reviews to walkthroughs, fire drills and, finally, management simulations. Nevertheless, other choices or combinations are feasible. Some SIFIs, for example, have opted to accompany their first iterations of recovery planning with management simulations of part of the newly established recovery plans in order to familiarise the recovery plan governance bodies with their duties and test for accuracy.

Customisable design elements

As part of the evolutionary nature of RRP testing, we recommend adjusting selected elements in the design of the individual RRP tests over time. Such customisable design elements include:

- **Stakeholder scope:** RRP testing (for management simulations) might start by focussing on a SIFI's own key stakeholders and treat the behaviour of external key stakeholders (e.g. regulators or FMUs) as exogenous input provided by the testing team. However, the roles of external stakeholders may also be simulated by representatives of the regulators or FMUs or other external stakeholders
- **External actors:** While RRP testing (for management simulations) might start by assigning all roles to a SIFI's personnel, over time the roles of external stakeholders may be substituted by external actors (i.e. covering the roles 'in person')
- **Plannability:** In its initial stages, RRP testing is typically announced to all participants in the test. In order to approximate reality, RRP testing might turn into a partially or generally unannounced exercise (in particular, fire drills are suitable for unannounced testing, although management simulations can also be run 'without warning')
- **Timelines:** Fire drills are typically real-time exercises; however, the other three RRP testing approaches do not necessarily simulate real-time circumstances, although they might evolve in this direction with increasing experience

Outlook and conclusion

Outlook

We believe RRP testing will gather significant momentum over the upcoming months. As well as establishing RRP testing concepts and executing RRP testing, we predict one of the major topics in RRP will become the interaction with (and subsequent involvement of) regulators.

Today, regulators are generally informed of sizeable RRP tests after the event and/or as part of a subsequent submission of RRP documents. This is particularly the case for fire drills and management simulations.

Going forward, we anticipate a closer interaction of the SIFIs with the regulators on various aspects of RRP testing, including:

- Increasing level of engagement of key stakeholders (regulators and counterparties, including FMUs)
- Regulators prescribing test cases to SIFIs or SIFIs proposing test cases to regulators for approval
- Regulators acting as observers (e.g. during fire drills and, especially, management simulations)
- Regulators requesting specific out-of-cycle RRP tests from SIFIs (e.g. fire drills)
- Regulators 'acting in person' during RRP tests (e.g. management simulations)
- Regulators developing RRP tests in collaboration with peer regulators and/or SIFIs
- Trend from time-agnostic tests towards real-time tests
- Trend from tests for which all participants are informed in advance towards unannounced tests

Conclusion

RRP testing is a multi-year journey that is already – or, at least, will be soon – relevant for SIFIs, irrespective of whether they are banks, FMUs or insurance companies.

We observe an industry trend towards increasing the scope and frequency of RRP testing, combined with increasing exposure (including towards regulators and other external stakeholders, such as FMUs).

Considering the risk of inefficiently allocating resources to the preparation and execution of RRP testing as well as the exposure of the function responsible (e.g. when running management simulations with the executive board), we consider it is already indispensable to have a proper testing concept in place for the near future.

As outlined in this RRP Viewpoint, we recommend a testing concept include the following four elements:

- The definition of the RRP testing assumptions
- The set-up of RRP testing governance
- The specification of the RRP testing elements (1) desktop review, (2) walkthrough, (3) fire drill and (4) management simulation including the description of the RRP testing approaches
- The overall RRP testing strategy covering the interplay of the individual RRP tests

About PwC's RRP Centre of Excellence in Zurich, Switzerland

PwC's RRP Centre of Excellence

The RRP Centre of Excellence is PwC's response to one of the most complex, comprehensive and costly challenges that large institutions have faced since the financial crisis.

PwC's RRP Centre of Excellence is a specialised team based in Zurich, Switzerland. Since 2011, it has provided an interdisciplinary service offering in all areas of RRP, including bank restructuring. The team takes a holistic view to encompass the financial, legal, operational and IT aspects of RRP.

The team operates out of a country that has spearheaded the regulatory developments relating to TBTF since the 2007/2008 financial crisis. Positioned in the centre of Europe and home to banks whose assets are four times the country's gross domestic product, Switzerland is uniquely positioned with regard to RRP.

The team has a global track record of serving global as well as local SIFIs in EMEA, APAC and the US.

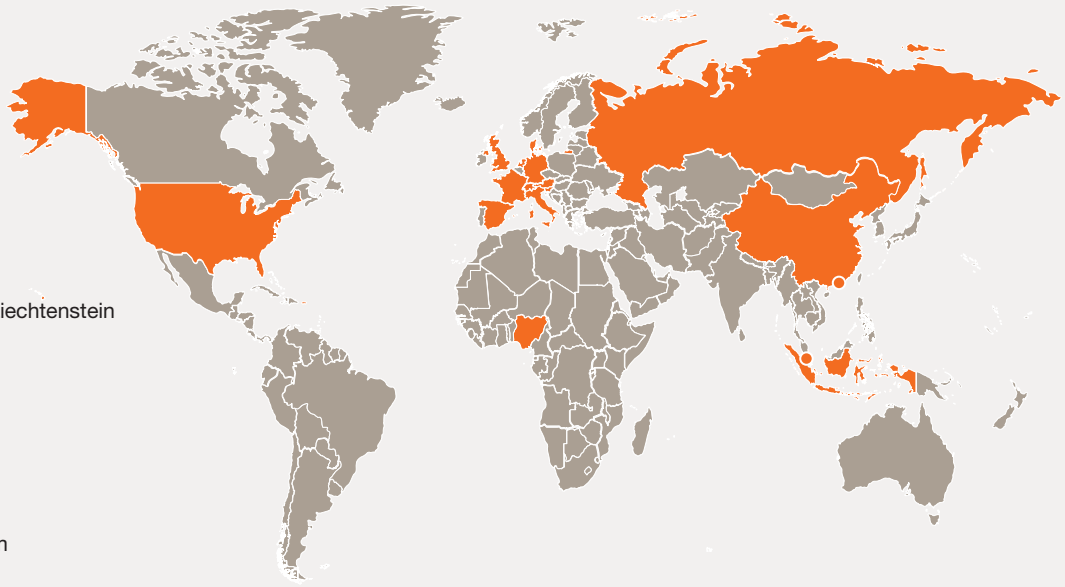
Supporting you in RRP testing

While our services encompass the full suite of RRP, the team has specific experience in RRP testing. We could support you in areas such as:

- Establishing, reviewing or auditing an RRP testing concept, including its key elements, i.e. RRP testing assumptions, RRP testing governance, individual RRP testing approaches and the overall RRP testing strategy
- Performing a desktop review, including benchmarking (e.g. based on our own internally developed RRP health check) or assistance in preparing a more granular walkthrough
- Scoping and preparing a fire drill, including optional support acting as an observer
- Preparing and/or running a management simulation including scripting and 'acting out' the scenario. We would use the scenarios in your recovery plan as a starting point but build out the parameters to ensure effective testing
- Acting as an observer providing feedback/challenges from an independent perspective. This support can be combined with supporting in preparing and/or running a management simulation or, if you prefer, we could run the simulation 'in house'
- Conceptual design and/or establishment of software applications to support the test during the execution or evaluation of the exercise (e.g. a visual illustration of the playbook, including a comparison of the planned vs. actual time requirements)

Global footprint of the Zurich RRP Centre of Excellence

- Switzerland
- Austria
- China
- Denmark
- France
- Germany
- Hong Kong
- Indonesia
- Italy
- Principality of Liechtenstein
- Netherlands
- Nigeria
- Russia
- Singapore
- Slovenia
- Spain
- United Kingdom
- United States



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