

"Top-down" indicative ORSA process mapping prepared by the 2012 ORSA working party

A1

Process Map

Risk / General Governance and Communication

Workstream	Process	Information Owner	Information	Example
Policy & Vision	Vision Setting	Board CRO, Sr Mgt.	Govenance Vision statement, regulatory requirements, other external stakeholder requireemnts	New regulatory focus forces revisit to vision statemnt
	Policy	Board CRO, Sr Mgt, Complianvce	vision statement, stakeholder requirement, regulatory requirements	Change to governance policies requires new steps within key ORSA process
Setting business strategy	Annual strategic review	Board	Strategic review output, business plans, competitive environment	Large number of cats forced competitors into insolvency
Setting risk appetite	Business planning session, risk review	Board, Risk Committee	Strategic review output, business plans, competitive environment	Regulation change regarding calculation of solvency requirements
Identifying risks	Regular risk identification sessions	Risk Committee	Previous risk register, industry surveys, external risk review	Greek Euro exit
Setting capital requirement	Economic capital modelling processes	Actuarial, Claims, Reinsurance, Risk Management	All capital modelling data – premiums, claims, reinsurance etc	Greece exits Euro. Impact on assets, insurance liabilities, reinsurance claims etc.
Assess solvency position	Economic capital modelling processes	Actuarial, Risk Committee	All capital modelling data, regulatory adjustments	Expansion of business in Asian property cat business
	Stress and scenario testing	Actuarial, Risk Committee	Key model assumptions, disaster scenarios, required sensitivity tests	Mandatory testing of variables set by regulator
Risk reporting	Creation of risk register	Risk Committee	Risk dashboard	
	Risk reporting templates	Risk Committee	Company policies	Completed and fed back into process for any significant risks
	Regular update of register	Risk Committee, External advisors, Underwriters, Claims, HR, Brokers	Risk dashboard, external review, current news, competitive changes	Acquisition of competitor
Managing risks	Risk review	Risk Committee	Links to business strategy, risk appetite, external review	
Prepare ORSA report	Collation of reports from individual sections	Risk Committee	Capital model report, validation, Contingency plans	Annual Review, Quarterly update
Communication of ORSA	Internal, including Cultural Changes	Risk Committee, HR	Company policies, business strategy, links back to risk profile	Senior manager found guilty of fraudulent activity
	External	Board	ORSA Report	Annual Review, Quarterly update

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Data Quality

Process Map

Workstream	Process	Information Owners	Information	Example
Governance	Ownership & Culture	CEO, Bus Unit Heads, ERM & compliance	training results, performance reviews	validation checks uncover poor data management culture despite extensive training
	Policy	CEO, Bus Unit Heads, ERM & compliance	Policy Documents, data model, monitoring & exceptions	A time deadline forces a smaller unit to delay full adherence to policy
	Data requirements	Head of Capital Modelling, ERM, business unit heads	data directory, Expert judgements (falsifiability),	New QRT look through category cannot be reported without crude assumptions
Data Processing	Internal Data Collection & Input	Sales, Underwriting, Claims, IT	Underwriting & claims data, investments, Finance areas	Project to improve policy data capture
	External Data Collection & Input	various data producing business units	property databases, credit stats, historic investment results, trend studies, other reference data	Identification of external data that now allows backfilling of missing broker data with impact on model accuracy and competitiveness
	Data adjustments	Actuarial, Finance, Risk Management, investments	deficiency and adjustment logs,	Assumptions made to convert incomplete postal code data to cresta zone
IT Management	Data storage and extraction	Sales, Underwriting, Claims, IT	Policy data, claims data, Transactional data	Extract process fails, resulting in 10% of claims excluded from dataset
	Reporting & Analysis	data owners, IT, others	various internal reports and query databases, emerging requirements	Data warehouse implemented, but contains pitfall of blank records for legacy data
Assurance	Assessment	data owners, chief data officer	validation exercises, detective reports, issues logs, databases, source material	Discovery that legacy data had fields that were missed in the remapped exercise with result that some historic claim expenses were in the wrong currency
	Data shortfall mitigation	Actuarial, Finance, Risk Management	Expert judgement logs, exception reporting, "uplift" factors (for deficiencies)	Workaround required for gaps and duration of internal operational loss event reporting
	Audit and testing	data owners, internal audit, external audit	detective reports, audit results	Audit finds that coding accuracy has declined in light of more ambitious data requirements
MI & Analysis	Analysis	Actuarial, Finance, Risk Management	Experience analysis, rating factor assessment, claims trends analysis, etc.	Spreadsheet contains formula errors, invalidating results of analysis

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Process Map

ORSA Capital Calculation Methodology

Workstream	Process	Information Owner	Information	Example
Model design	Risk Exposure Analysis and Ranking	ERM, Actuarial, Investments, Finance, business unit heads	risk profiling results, surveys	Change in risk ranking due to new structural drivers
	Goal setting and design	Board, Sr. Mgt, business unit heads, capital modelers	Design workshops, discussions with management	design is simplified as investments in derivatives are reduced
	Modifications and deviations for ORSA use	ERM, Actuarial, Investments, Finance, business unit heads	ORSA strategy, 1 year compliant internal SCR, standard formula	Ultimate basis rather than one year view is chosen for ORSA run revision
	Model development and maintenance	ERM, actuarial, capital modelers	technical work products, model change requests, prioritizations	Change in correlation methodologies within insurance risk
	Identification of design limitations and conservative adjustments	ERM, actuarial, capital modelers	design tradeoffs discussed, data analysis, back testing, scenarios	"uplift" chosen for nat cat data gaps
Modeling	Data capture and Analysis	Actuarial, Finance, ERM, investments, individual data owners	information in data warehouse, expert judgments, external data	new more granular data found to be credible now used for credit risk review
	Calibration & Validation	Capital modelers, Actuarial, Finance, ERM, Investments	Parameterization data, outliers analysis, test runs, benchmarks	SCR benchmark detail updated by regulator
	Output & Use	Capital modelers, ERM, Business unit heads, board	input/output parameters, Simulation results, decision documents	New use added
	Back testing	Capital modelers, ERM, Business unit heads	Simulations, reference data, experience	Back testing finds that model fits well 10 year variability, but weaker for 25 year horizon on proxy dataset
Governance	Documentation and change Management	Modelers, ERM, compliance, audit	change requests, meeting minutes, programming documentation	List of critical model changes needed and whether these represent a new IM regulatory application
	mapping and validation against SCR requirements	ERM, Actuarial	Internal Model regulatory requirements, standard formula, model features and parameters, sample data	Mapping finds a very large deviation to standard formula in an area of high data uncertainty
	Data quality	Actuarial, Finance, ERM, investments, individual data owners	data quality exceptions (as discussed in A2, but IM focused)	data quality found to be strong, leading towards increased comfort in the Internal model output
	Communication and business ownership	ERM, Sr. Mgt., business unit heads	significant model features, proposals, challenges received and their resolution	Reinsurance department likes the individual counterparty functionality and suggests fine-tuning to better inform treaty negotiations

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Process Map

Compliance With General Obligations

Workstream	Process Examples	Information owner	Information	Example
Identification & Assessment	Contractual duties identification & assessment (e.g., service commitments implied or specified by policy)	Compliance, Legal, and Underwriting.	Contracts, Fulfillment statistics, TCF data, complaints, etc.	Rapid growth in the sale of claim services
	Other indirectly contracted duties identification & assessment	Compliance, Legal, & Marketing	marketing materials, outsourcing agreements, response times, reservations of rights, complaints.	New advertising campaign that stresses the firms focus on quality
	Externally imposed duties identification & assessment	ERM, Compliance, Legal, Marketing, Underwriting.	Regulatory requirements, regulatory briefings, & enforcement actions, shareholder and public activism trends	Regulator imposes that the company have a living will
Capability analysis and Recommendations	Comparison of fulfillment data against requirements	ERM, Compliance, Legal, Marketing, Underwriting.	in force number of commitments by service type, information on OSP's providing services, regulatory briefings + experience	sub industry performance identified against contract certainty
	Stress and scenario analysis of fulfillment obligations (bespoke for this section and implications from other more general ORSA scenarios)	ERM, Compliance, Legal, Marketing, Underwriting.	Information from above, other ORSA stresses and scenarios, experience	Scenario finds significant publicity risk that could imperil major new strategic push
	Recommendations	ERM, Compliance, Legal, Marketing, Underwriting.	As above	Recommendation that further data gathering be commissioned to allow complete analysis
Governance	Decisions and action plans	Board, Sr. Mgt, business unit heads, ERM, compliance, Legal	Hiring Stats, Exit Stats, general complaints	New action plan in response to heightened risk to business model.
	Monitoring and assurance	Compliance, Internal Audit	As above	Issue spotted with following spirit of TCF requirements

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ORSA Assurance

Process Map

Workstream	Process	Information Owners	Information	Example
ORSA Information and issue Gathering	Board and Sr. Management Strategy and Planning ("top down")	Board, CEO, Bus Unit Heads, ERM	Permanent Issues logs, New Issues log, scenarios, board agendas	positive: a review of key ORSA referrals and non-referrals, shows a good referral process
	Internal and External Risk, Capital and Other Requirements ("Top Down")	Board Sr Mgt., ERM, Actuarial, Investments, Compliance		
	Internal issues & data gathering ("bottom up")	ERM, business units	Internal Risk event logs filtered for ORSA relevance, ad hoc strategic and planning situations (filtered for relevance)	negative, no investment identified issues despite a volatile Euro
	External issues & data gathering ("bottom up")	ERM, business units, emerging risks committee, consultants	External Risk event logs filtered for ORSA relevance, ad hoc industry and customer strategic and planning situations (filtered for relevance)	Positive, a comparison of top 10 risks from a well regarded chief risk officer publication
ORSA Collaboration and Analysis	Calculation & analytic processes	ERM, actuarial, capital management, Investments, business Unit Heads	Output of analyses	positive,: analysis relied on for ORSA was well reasoned and documented and included different parts of the business
	Collaborating and feedback	Board, CEO, Bus Unit Heads, ERM, actuarial, capital management, Investments	diaries, minutes or other records of discussions, revision histories	negative: investment impact scenario solely performed for internal analysis with no discussion with investment function
Governance, Decision-making & Documentation	Ownership & Culture Validation	Board, CEO, Bus Unit Heads, ERM & compliance	participation results, performance reviews	negative: stale issues reporting indicates lack of participation by key business function
	Policy Validation	Board, CEO, Bus Unit Heads, ERM & compliance	Policy Documents, ORSA policy, monitoring & exceptions	Positive: board committee "self audit" analysis of exceptions (things not run through ORSA) identifies business model area that would benefit from more structured risk informed management analysis
	ORSA Based Decision-making	Board, CEO, Bus Unit Heads, ERM	Decisions taken as result of ORSA process	negative: significant new product decision made before ORSA input received
	Successes & Exceptions	Board, CEO, Bus Unit Heads, ERM	Impact of decisions tracked over a reasonable length of time, exceptions monitoring (e.g. no decision reached)	positive: important decisions not run through ORSA have written documentation why and a plan to follow-up with tracking and ORSA process improvements
Audit	Internal or external audit	compliance, internal audit, external audit	detective reports, audit results	positive: Audit finds that the ORSA process is excellent, but sees ways for increased synergy
	Action point monitoring	data owners, internal audit, external audit	issues logs	positive: Synergy recommendations are planned, and monitored

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Process Map

Risk Identification and Assessment (Incl. Ranking)

Workstream	Process	Example owners	Information	Example
Risk Capacity	Capital Management	Treasurer/Cap Mgt.	Assets, Liabilities, Contingencies	Loss of investment value reduces capital to a point where it is likely to be breached
	Regulatory relations	Compliance Officer	compliance monitoring	failure to comply fully with anti money laundering leads to risk of license suspension
	Financial reporting	CFO	audit results, progress on systems to meet new requirements	transformation project fails to produce required regulatory information on time
Risk Appetite & Tolerance	Risk appetite setting & monitoring	Board, Management, ERM	Earnings criteria, return on capital, capital at risk for various time horizons, measurable acceptable variation	Parent chooses a lower target on the risk reward frontier and declare they want no more than 5% chance of a loss in a given year.
Risk Limits / targets	underwriting limits management	Underwriting, ERM	dashboards, exception items, emerging risk data	New RMS model released
	Investment limits management	Investment, ERM	dashboards, exception items, emerging risk data	External Economic event
	compliance monitoring	Compliance Officer, internal audit	reports, news	serious reportable event

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Process Map

Risk Appetite, Tolerance & Risk Strategy

Workstream	Process	Information owner	Information	Example
Business Analysis	Evaluate Business Objectives Strategy & Organization (business model)	Board, Sr. Management	Mission, strategy, planning, organogram doc's, business model.	
	Business process & Controls review	sr mgt., business heads, internal audit, compliance dept.	process map, procedure guides, control assessments, internal audit reports	
	Financials Review	Finance, actuarial, investments, ERM	P&L reports, financial statements, reserve studies, accumulation statistics, investment statements, general ledger forecasts	
	Operating Environment review	ERM, business heads	Industry analyses, analyst and consultant materials	
Goal Setting	Establish identification/assessment process (itself) goals	Board or Sr mgt.	Discussions with management, regulatory and rating agency requirements	
Risk Identification	Strategic Risk identification	Board, Sr. Mgt, ERM	List of new initiatives, progress reports, R&D on trends and changes, Scenarios, experience of participants E.g., A decision to centralize operations should trigger a holistic review of risks	
	Financial Risks (Insurance, credit, market, & etc.)	Finance, actuarial, investments, ERM	past deviations from plan within financial info, R&D, scenarios, experience of participants	
	Operational Risks	ERM, compliance, senior staff	External taxonomies of risk, loss and risk event logs (internal and external), scenarios, experience of participants	
	External Operating Environment	Board, Sr. Mgt, ERM	External loss and risk event logs, studies, scenarios, business model and experience	
Risk Assessment	Analysis and description of risk	ERM, sr staff, compliance, internal audit	Experience and the above inputs	
	Qualitative assessment	ERM, sr staff, compliance, internal audit	Experience, external and internal benchmarks, statistical modeling	
	Quantitive Assessment	Actuarial, investments, other risk taking staff, ERM	Experience and all the above inputs	
	Set appetite/tolerance (granular bottom up)	Sr. management, business area heads	Experience and all the above inputs	
	Management e.g., ownership, reporting and mitigation (other than capital)	Sr. management, business area heads	Experience and all the above inputs	
	Uncertainties and limitations Disclosure	ERM, other important content producers	Experience and all the above inputs	

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Process Map

Risk Profile Monitoring

Workstream	Process	Information owner	Information	Example
Risk profile at reporting date	Assessment of risk profile against risk appetite/risk tolerance	Risk Committee	Risk register, Stress and scenario testing	Comparison of individual risks with risk limits; including analysis at different percentiles
	Monitoring of accumulations (by risk type)	Risk Committee, Actuarial	Exposure by geography / asset type / reinsurer etc	Cat accumulations; Exposure to particular asset classes
	Benchmarking	Risk Committee	External data or industry statistics	ORIC (ABI Operational Risk database)
	Monitoring of risk profile against capital requirement assumptions (internal model)	Risk Committee, Actuarial	Model validation report, Internal model assumptions	Changing assumptions or methodology following review of experience
	Monitoring of risk profile against capital requirement assumptions (standard formula)	Risk Committee, Actuarial	Assumptions underlying the standard formula calculation	Challenging the use of standard formula if not appropriate for risk profile
	Use of risk register in assessing risk profile	Risk Committee	High level risk register	Change in reinsurance arrangements following review of risk profile
Work stream	Process	Information owner	Information	Example
Ongoing risk monitoring	Assessment of emerging risks	Risk Management committee	Legislative changes, court awards, claims statistics, exposure monitoring	Monitoring of risk register over time (possibly including phylogenetic analysis)
	Monitoring of Key Risk Indicators	Risk Committees	Claims frequency, Interest rates, credit ratings	Review of investment portfolio based on economic conditions
	Monitoring of Key Performance Indicators	Board or Management Committee	Profit, solvency, employee morale, market position	Review risk profile in light of reduced profitability
	Monitoring by Risk Type	Subject Matter Experts	Detailed review by relevant risk SMEs	Change in product offering based on strategic risk considerations
	Projection of risk profile over the business planning period	Risk Committee / Actuarial / Finance	Business plan and strategy	Management actions to support planned future changes in asset portfolio or business mix
Governance	MI and committee structure	Board	Enterprise Risk Framework, Risk dashboard	MI reports
	Validation and audit	Audit Committee	Audit reports, validation reports (e.g.- internal model)	Review of effectiveness of risk profile monitoring
	Escalation process	Risk Committee	Defined escalation paths and thresholds in risk policies	Automatic escalation when risk limit or appetite likely to be breached
Reporting	Internal reporting	Risk Committee/ Management Committee	Consolidation of above information for management	Risk profile against risk appetite MI, KRIs, KPIs
	ORSA report	Board	Consolidation of above reports, together with conclusions	ORSA report following change in risk profile (e.g.- merger or acquisition)
	Report to supervisor (RTS)	Board	Required regulatory information regarding risk profile	Exposure information by line of business

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Business Strategy

Workstream	Process	Example owners	Sample Information	Example
Strategic Vision	Mission and vision setting	Board, Sr. Mgt, CRO	Mission and vision statement, governance vision, high level competitive outlook, High level risk appetite statement	Societal expectations force a rethink of corporate values and mission
	Success criteria & monitoring	Board, Sr. Mgt., ERM	High level targets and assumptions, risk appetite and other monitoring metrics, summary of business model successes & failures	Tracking of business performance against assumed shareholder expectations
	Feedback and action points	Board, Sr. Mgt., ERM	monitoring data, experience, external input	Competitor makes a strategic investment in parts of the value chain that your firm does not participate in.
Business Model Mgt	Articulation of Business model	Board, Sr. Mgt, CRO	Business model document/system	Detailed model for direct marketing insurance segment
	Strategic plans	Board, Sr. Mgt, CRO	Strategic vision, current business model, experience, governance documents, external input	Cascaded strategic plan to reduce carbon footprint of firm and customers.
	Governance Plans	Board, Sr. Mgt, compliance officer, CRO	procedure guides, terms of reference, other governance documents	Change in how customer relationships will be governed to accommodate new legislation
	Business Plans	Sr. Mgt, Department Heads, ERM	strategic plans, risk appetite statement	Normal business planning documents expanded to consider key partners
	View of External Environment	Sr. Mgt, Department Heads, ERM	Emerging risk committee, R&D, business unit heads, experience, external input	Insurance cycle forecasts
	Success Criteria & monitoring	Sr. Mgt, Department Heads, ERM, Staff	success thresholds & milestones, performance data, external data	measure against budget or targeted market share.
	Feedback and action points	Sr. Mgt, Department Heads, ERM	monitoring data, experience, external input	softening of rates causes rethink of what niches will be targeted

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Process Map

Stress and Scenario Testing

Workstream	Process	Information Owner	Information	Example
Initial baseline	Economic capital modeling process	Actuarial, Claims, Reinsurance, Risk Management	All capital modeling data – premiums, claims, reinsurance etc	
Assumptions and sensitivity tests	Setting of initial assumptions	Actuarial, Risk Committee, Claims, Reinsurance	Initial parameters used for economic capital modeling process	Claim parameters, reinsurance structure, economic factors, dependencies
	Identification of sensitive assumptions	Actuarial, Risk Committee	Probably an iterative approach, involving at least one sensitivity test for each key assumption	Test impact of moving expected future inflation by +/- 0.5%
	Setting range of parameters for key assumptions	Actuarial	Historical range of data for parameters being tested; potential future developments internally or externally; Links with IT around capacity of infrastructure	Shift in yield curves due to breakup of Euro
	Business input to sensitivity test	Underwriting, Claims, Reinsurance, Risk Management, Actuarial	Likely future scenarios, consideration of next year's business plan, adjustments for shift in marketplace	Property cat rate increases in Asia due to recent earthquakes
Scenario tests	Identification of scenarios	Actuarial, Risk Committee	Overview of the business and likely interaction	Impact of expansion into a new line of business on investment income
	Consideration of other scenarios	External advisors, regulators	Independent view of business, standard scenarios across the industry	Lloyd's Realistic Disaster Scenarios
	Holistic scenarios	Risk committee, Actuarial, External advisors, Regulators	Impact on people, processes and seemingly unrelated parts of the business	Need for increased resources to deal with regulatory requirements
Reverse Stress Testing	Fitting of historical results to current model	Actuarial, Risk Committee	Historical data, claims, reinsurance, investment returns, economic factors, business volumes	Impact of moving to current reinsurance programme
Validation of results	Review each stress and scenario run	Actuarial, Risk Committee	Expected results vs. actual model output	Production of risk reports and output packs for each run

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E1 Assessment And Tracking of ORSA Action Items & Residual Issues

Workstream	Process	Information owner	Information	Examples
Implementation	Plan establishment and monitoring	Project Management Office, Risk Management, Actuarial	Implementation plans of actions recommended by the board, progress against targets	Resources available, project timelines, hardware and software requirements, external assistance
	Reinsurance Purchase	Reinsurance committee, Underwriting	Availability of reinsurance in marketplace; reinsurer's appetite for risk	Can the market supply the \$500m of PI reinsurance required for a specific high-risk sector?
	Reputational establishment	Board, Marketing	Perception in marketplace; ability to win new business or maintain existing business relationships	Likelihood of customers bringing business to the company
	Resourcing	HR	Ability to recruit appropriate staff to carry out plans and manage the business	Lack of actuaries with experience of Solvency II
	Legal contracting	Legal, Underwriting	Case law, Wordings review	Ability to execute wording improvement affected by impact on current coverage actions
Assessment	Communication Effectiveness	Data, Underwriting, Actuarial, Risk Management, Claims, Finance, Reserving	Ability to collect, assess and disseminate information accurately and in a timely manner	Adjustments to exposure following pricing table restructure; information not being passed back appropriately to reinsurance team from brokers
	Assessment of plan feasibility and appropriateness	Project Management Office, Risk Management, Affected business functions	Milestone tracking, issues logs, tracking of progenitor issues	Plan hits practical blocks to timely completion.
	Evaluation of reinsurance program	Reinsurance committee, Actuarial, Risk Management	Potential basis risk between reinsurance modeled and reinsurance purchased in the market	Reinsurance contract information (Premiums, Limits, attachments), Capital Model output
	Reinsurance Recoveries	Reinsurance committee, Underwriting, Actuarial	Evaluation of Outwards reinsurers; Reinsurer financials, credit rating reports, existing exposures , collateral agreements	Downgrade of reinsurers increasing exposure unexpectedly to reinsurer credit risk
	Underlying and Residual issues	ERM, various involved business owners	Original issue monitoring reports, risk analysis of mitigation plans choses, plan monitoting reports, associated issues tracking (even if nothing planned for these)	Underlying issue has improved and expensive remediation action may no longer be needed