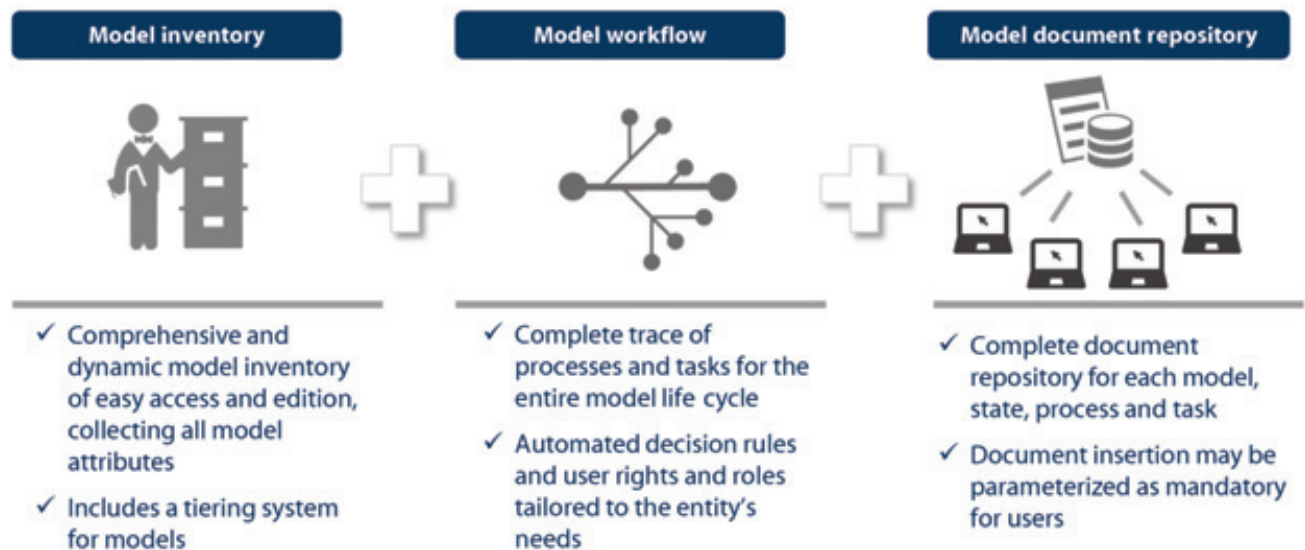# *Model Governance System*

Gamma**γ**
ManagementSolutions

Why Gamma?

Gamma is Management Solutions' answer to the challenges observed regarding model risk management and its governance processes

Gamma's main functionalities

Model inventory	Model workflow	Model document repository
✓ Comprehensive and dynamic model inventory of easy access and edition, collecting all model attributes ✓ Includes a tiering system for models	✓ Complete trace of processes and tasks for the entire model life cycle ✓ Automated decision rules and user rights and roles tailored to the entity's needs	✓ Complete document repository for each model, state, process and task ✓ Document insertion may be parameterized as mandatory for users

By means of these functionalities, Gamma overcomes the challenges observed in the industry:

▸ **Lack of a comprehensive and integrated view** of the status of all models within the institution.

▸ **Lack of standardization** when applying model risk policies and inappropriate segregation of duties.

▸ **Model information scattered** among different groups, generating knowledge silos and inefficiencies when developing and reviewing models.

▸ **Difficulty to prioritize** and identify material issues and model dependencies that will generate regulatory pressure.

▸ **Limitations to the visualization** of the model development, validation and deployment timelines to actively manage the model plan.

▸ **Disconnection between the tools** used in the model field: model governance, model monitoring, campaign managers, etc.

Advantages

Gamma allows for the effective management of model risk and the processes involved
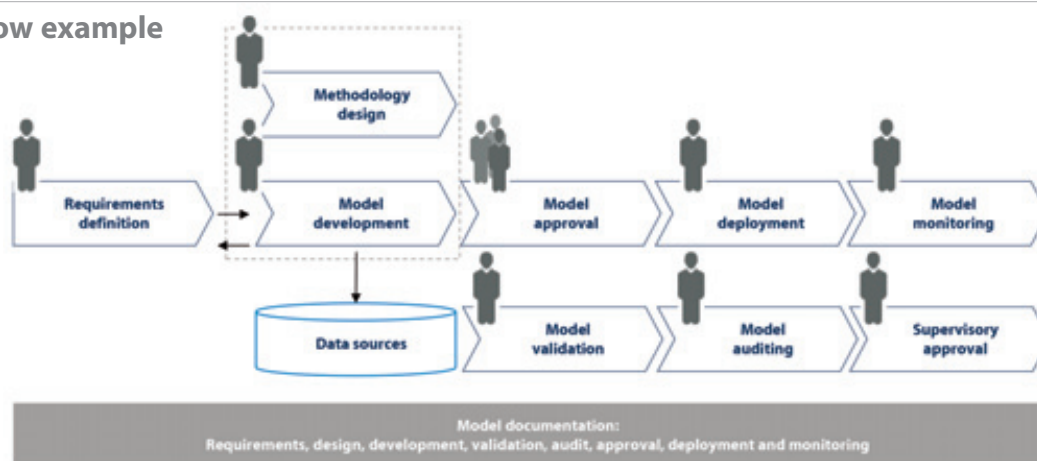
Main features

User

- **Compliance with regulation:** Gamma complies with the IT-related requirements outlined in Fed/OCC's Supervisory Guidance on Model Risk Management (SR 11-07), with the European Central Bank's guidelines on Model Risk for the Supervisory Review and Evaluation Process (SREP) and with Poland KNF's Recommendations W.

- **Fully customizable:** all inventory fields, roles, user permissions, etc., are customizable by the user in Gamma.

- **Version control and historical view:** Gamma incorporates past processes and retired models, which allows for efficient recycling and comparison of legacy models.

- **User-friendly interface:** Gamma provides quick and easy access to the information, both high level and granular, through user-friendly interfaces.

- **Linkage to other applications:** Gamma can be easily integrated with other model management tools, such as model monitoring engines, model policies management tools or campaign definition and monitoring systems, for which Management Solutions has proprietary solutions (MIR and MMDE).

IT

- **Simple deployment:** Gamma is a web-based tool, thus easy to implement and deploy.

- **In-hosted & out-hosted:** Gamma can be either in- or out-hosted (SaaS), as per the client's needs, providing easy and secure access in both cases.

- **3-month implementation:** Gamma can be deployed in only 14 weeks, including an analysis of the client's needs, its model governance status and its configuration preferences.

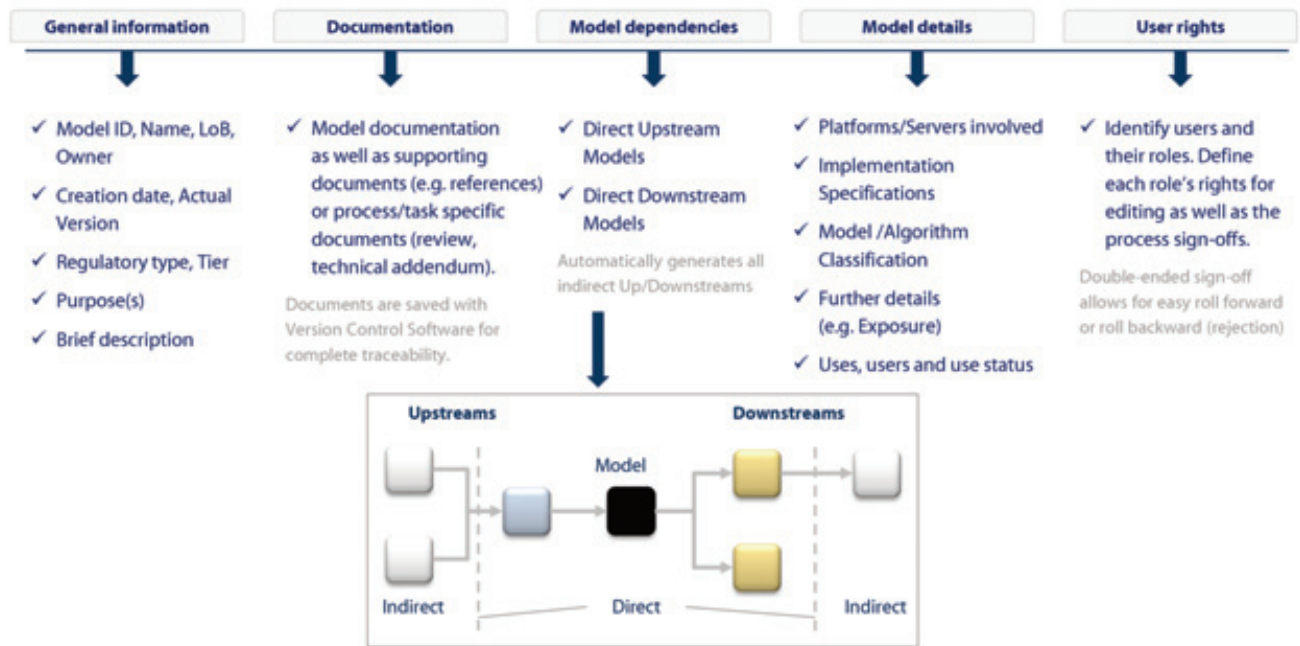- **Little support required:** Gamma requires reduced IT support, intended to be done internally by the client.

Gamma covers the whole model life cycle with its workflow, ensuring all model risk policies are complied with

Workflow example

Requirements definition → Methodology design → Model development → Model approval → Model deployment → Model monitoring

Data sources → Model validation → Model auditing → Supervisory approval

Model documentation: Requirements, design, development, validation, audit, approval, deployment and monitoring

Structure

Gamma is structured as a web-based tool with a user-friendly menu from which all information is rapidly accessible

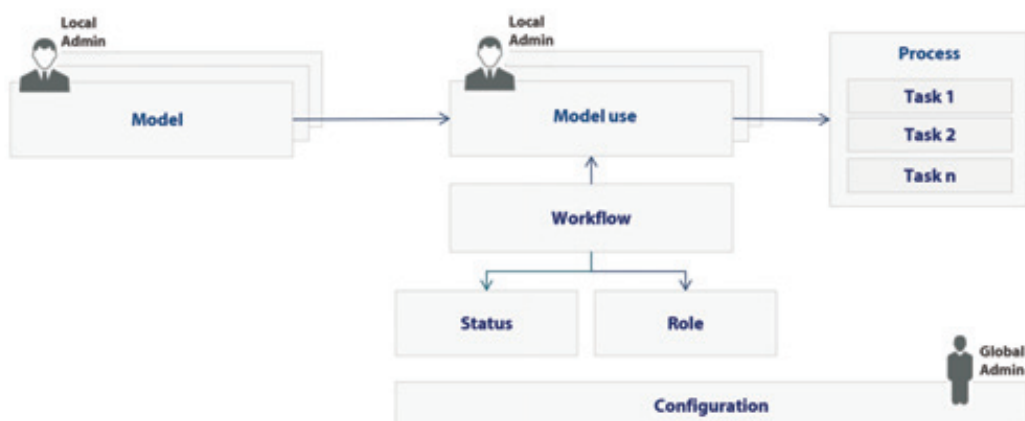| General information	Documentation	Model dependencies	Model details	User rights

✓ Model ID, Name, LoB, Owner

✓ Creation date, Actual Version

✓ Regulatory type, Tier

✓ Purpose(s)

✓ Brief description

✓ Model documentation as well as supporting documents (e.g. references) or process/task specific documents (review, technical addendum).

Documents are saved with Version Control Software for complete traceability.

✓ Direct Upstream Models

✓ Direct Downstream Models

Automatically generates all indirect Up/Downstreams

✓ Platforms/Servers involved

✓ Implementation Specifications

✓ Model /Algorithm Classification

✓ Further details (e.g. Exposure)

✓ Uses, users and use status

✓ Identify users and their roles. Define each role's rights for editing as well as the process sign-offs.

Double-ended sign-off allows for easy roll forward or roll backward (rejection)

Upstreams ... **Model** ... **Downstreams**

Indirect | Direct | Indirect

Gamma includes all relevant information regarding models: identification, purpose, documentation, dependencies, IT and methodological details, user rights, etc.

Moreover, Gamma is customized to every client's needs as part of its deployment, adding all required specific information as necessary.
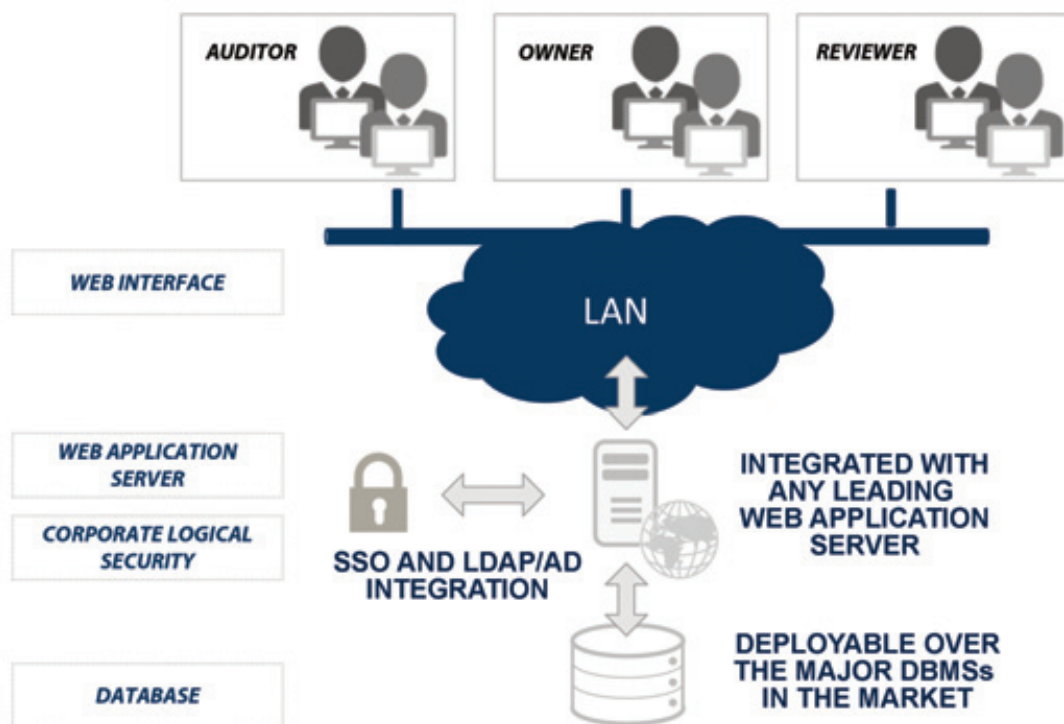
Internal structure

Internally, Gamma consists of seven key elements: models, model uses, workflows, roles, status, processes and tasks

Local Admin — **Model** → Local Admin — **Model use** → **Process** (Task 1, Task 2, Task n)

Workflow

Status | **Role**

Configuration — Global Admin

IT architecture

Gamma provides a stable collaborative web environment for the growing number of users involved in the model management process

Gamma's J2EE architecture was designed strictly following standards to be deployed over the main web browsers, web servers, databases and security managers, reducing technology costs and installation time.

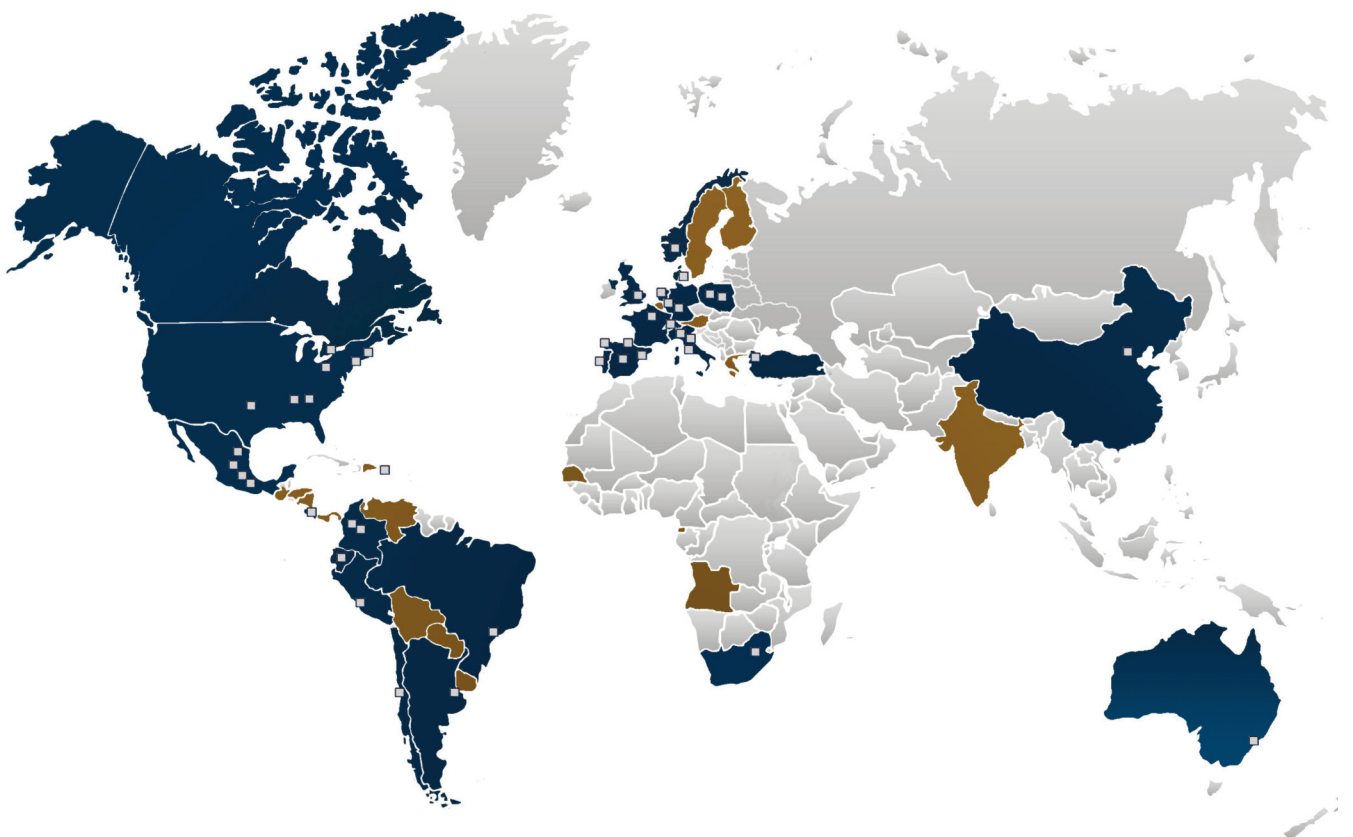Its architecture is oriented to be scalable and stable even under high concurrency circumstances.

Sectors and geographical locations

Management Solutions deploys Gamma for its three main industries and across all its countries of activity

The massive proliferation of models for decision making across all industries, especially – but not exclusively – the financial sector, has made model risk a central issue of concern.

Management Solutions' Gamma Model Governance System addresses Model Risk Management, is customized to each client's needs and is adapted to all specific industry and local regulation requirements.

Management Solutions
Professional Consulting Services

Management Solutions is an international consulting Firm whose core mission is to deliver business, risk, financial, organisation and process-related advisory services, targeting both functional aspects and the implementation of related technologies.

Management Solutions currently has a multidisciplinary team (functional, mathematical, technical and systems integration) of more than **3,300 professionals,** and operates through 42 offices (18 in Europe, 20 in the Americas, 2 in Asia, 1 in Africa and 1 in Oceanía) from where we regularly serve clients that operate in more than 50 countries.

Europe	Madrid, Barcelona, Bilbao, Coruña, London, Frankfurt, Düsseldorf, Paris, Amsterdam, Copenhagen, Oslo, Warsaw, Zurich, Milan, Rome, Bologna, Lisbon
Americas	Toronto, New York -from where New Jersey is managed-, Boston, Pittsburgh, Birmingham -from where Atlanta is managed-, Houston, San Juan de Puerto Rico, Mexico City, Monterrey, Querétaro, San José, Medellín, Bogota, Quito, Sao Paulo, Lima, Buenos Aires, Santiago de Chile
Asia	Beijing, Istanbul
Africa	Johannesbourg
Oceania	Sydney

Management Solutions´ differentiating factor lies in its in-depth knowledge of the businesses in which its clients operate and in its high degree of sector-specific and functional specialization.

To ensure full coverage of its clients´ needs, Management Solutions structures its value proposition by industry and line of activity, bringing together a wide range of skills.

Industries

Financial Institutions and
Insurance Companies

Energy

Telecommunications

Distribution

Technology

Other sectors

Services

Strategy

Sales and marketing management

Risk management and control

Management and financial information

Transformation: organisation & processes

New Technologies

We create value
propositions for our clients
and commit to their
effective implementation
to exceed client
expectations, becoming
their trusted partners

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Management Solutions, Professional Consulting Services

Management Solutions is an international consulting firm whose core mission is to deliver business, risk, financial, organisation, technology and process-related advisory services.

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