

IA spécialisée en Ingénierie Système



Qui sommes nous ?



Semios AI :

- **Startup 100% française**
- **Dédiée à l'IA au service de l'Ingénierie Système**



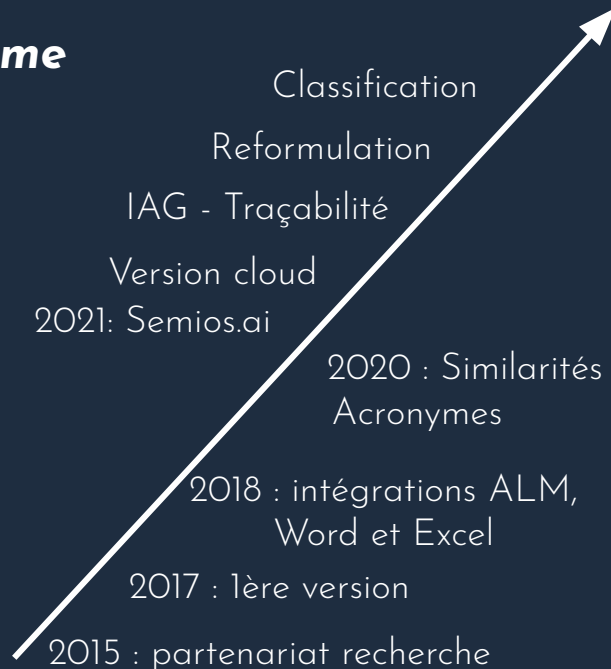
Thomas van de Velde

DG & co-fondateur



Didier Mascarelli

Directeur Commercial & co-fondateur



Pourquoi Semios ?

L'utilisation du langage naturel dans la documentation technique provoque des erreurs, des mauvaises compréhensions et des malentendus

Les systèmes industriels complexes ont un volume croissant d'exigences, de documents et des normes à respecter

Cela génère un temps et des coûts toujours croissants pour leur mise au point



Le logiciel SEMIOS

80 contrôles pour
chaque exigence, en
moins de 2 secondes

A comparer à 30
minutes en moyenne
manuellement

Rapprochement par
similarité

Validation des
acronymes

The screenshot displays the SEMIOS software interface. On the left is a sidebar menu with a 'Drive Pilot' header and a search bar. Below the search bar are icons and labels for 'John Doe My Polarion', 'Home', 'Dashboard', 'Requirements', 'Design', 'Risks', 'Planning', 'Development', 'Testing', 'Maintenance', 'Work Items', 'Documents & Pages', 'Semios', 'Index', 'Semios Acronyms', 'Semios Dashboard', 'Semios semantic analysis', 'Semios similarities', 'Design', 'Development', 'Maintenance', and 'Planning'. The main window is titled 'DP-322' and contains a paragraph of text about DrivePilot controls. Below the text is a table with 4 columns: 'Index', 'Severity', 'Impact', and 'Description'. The table lists 8 items, with the last one partially cut off. Each item has an 'info' link on the right. A 'Close' button is at the bottom right of the main window.

DP-322

DrivePilot controls accelerator / throttle with software-based control commands and a mechanical servo override to the pedal and cable assembly where applicable. Where the vehicle employs accelerator operations from the its onboard command controller, DrivePilot will interface with its APIs to controller manufacturer servo. On manufacturers that do not expose APIs, the OEM servo will be replaced with a DrivePilot servo that matches OEM specifications and provides DrivePilot capability.

Index	Severity	Impact	Description	
1 (global)	Medium	Readability	Invalid statement size - 3 sentences	info
2	High	Increases ambiguity	Unauthorized word - shall not be used or shall not be a verb <i>STE Rule 1.2: Use approved words from the dictionary only as the part of speech given.</i>	info
3	High	Increase ambiguity	Avoid vague adverbs. <i>Rule 1.1.1.1: The requirement is stated in such a way so that it can be interpreted in only one way.</i>	info
4	High	Increases ambiguity	Unauthorized word - shall not be used or shall not be a verb <i>STE Rule 1.2: Use approved words from the dictionary only as the part of speech given.</i>	info
5	Medium	Readability	Spelling or grammar error - A determiner cannot combine with a possessive pronoun. Did you mean simply 'its onboard' or 'the onboard'. - Suggestions: its onboard or the onboard	info
6	High	Increases ambiguity	Unauthorized word - shall not be used or shall not be a verb <i>STE Rule 1.2: Use approved words from the dictionary only as the part of speech given.</i>	info
7	High	Increases ambiguity	Unauthorized word - shall not be used or shall not be a verb <i>STE Rule 1.2: Use approved words from the dictionary only as the part of speech given.</i>	info
8	High	Increases ambiguity	Unauthorized word - shall not be used or shall not be a verb <i>STE Rule 1.2: Use approved words from the dictionary only as the part of speech given.</i>	info
		Increase	Unauthorized word - shall not be used or shall not be a noun	info

Close

Les bénéfices apportés



Gain de temps sur les circuits de rédactions / relectures
Gain mesuré de 30% à 50%



Amélioration de la qualité des exigences
Respect des standards, précision et cohérence entre rédacteurs



Apport Pédagogique
Éducatif pour les nouveaux rédacteurs



Baisse de la charge mentale et de la fatigue des rédacteurs



Maîtrise des délais pour la production des documents techniques, jusqu'à l'acceptation finale

Nos Clients



Visualisez les démos en ligne

The screenshot shows the semios web application. On the left is a 'Mini Dashboard' with a sidebar menu and an 'Analysis Summary' section. The main area displays 'Semios analysis results' for identifier '172'. It includes a table with columns: Index, Severity, Impact, and Description. The table lists three items with their respective severities (Medium, Medium, Low) and impacts (Non mandatory requirement, Increase ambiguity, Verifiability). A legend on the right indicates that 'Ignore' is represented by a green box.

Index	Severity	Impact	Description
1 (global)	Medium	Non mandatory requirement	Requirement without any modal verbs <i>Rule IEEE</i> : Requirements are mandatory binding provisions and use shall Pronouns with unclear antecedents <i>Ignore</i>
2	Medium	Increase ambiguity	<i>Rule IEEE</i> : Vague and general terms shall be avoided - Vague pronouns Non verifiable term <i>Ignore</i>
3	Low	Verifiability	<i>Rule IEEE</i> : Vague and general terms shall be avoided - Open-ended, non-verifiable terms <i>Ignore</i>

The screenshot shows a detailed analysis of a requirement sentence: 'The processing servers/computers in the system shall run in a network configuration.' The analysis identifies several semantic issues and applies specific rules. The issues are listed on the right side of the page, each with a severity level and a description of the problem.

- SEMOS_Low**: Use - Verifiability
1 elements (1) - *Rule 9.4.46 Alert*: Avoid parenthesis - *Rule 9.4.46 Alert*: Avoid the "2" character
Analysis content used: Default
- SEMOS_High**: Miss - increase ambiguity
Unauthorized expressions, Indefinite article (x)
Analysis content used: Default
- SEMOS_OK**: OK
Analysis content used: Default
- SEMOS_Medium**: Miss - increase complexity
Complexes construction (the capable of)
Analysis content used: Default
- SEMOS_High**: Miss - increase ambiguity
Unauthorized expressions, Indefinite article (x)
Analysis content used: Default

Liens vers les démos en ligne :

- Démo Semios x Polaron - analyse Sémantique : <https://youtu.be/D-KKddYmlGw>
- Démo Semios x Polaron - analyse Acronymes : https://youtu.be/fcXKV3B_7ck
- Démo Semios x Polaron - analyse Similarités : https://youtu.be/DfbF0s_uls0
- Démo Polaron/Word : [import Word/polarion \(FR\)](#) / [Import Word to Polaron \(EN\)](#)
- Démo Polaron : [Addon Polaron \(FR\)](#) / [Polarion addon \(EN\)](#)
- Démo Word : [Addon WORD \(FR\)](#) / [WORD addon \(EN\)](#)

L'IA générative Semios booste la production de vos exigences et procédures



Des capacités inédites pour :

- Compréhension des textes
- Rapprochement du sens
- Production, transcriptions, synthèses

1-Reformulation (SEMIOS REFORMULATE)

S'appuie sur les
résultats d'analyse
sémantique Semios

Laisse le contrôle à
l'ingénieur système

Intégré à Polarion

Utilise les moteurs
d'IA validés par
l'entreprise

DP-334

The User Console will **resemble** a **typical** dashboard display and **include** options for system configuration

Rephrase based on selection

☐	Index	Severity	Impact	Description
☒	1 (global)	Medium	Non mandatory requirement	Requirement without any modal verbs info ignore <i>Rule IEEE 2: Requirements are mandatory binding provisions and use shall.</i>
☒	2	Medium	Complexity	Multiple requirements info ignore <i>Rule IEEE 8: The requirement statement includes only one requirement with no use of conjunctions.</i>
☐	3	High	Ambiguity	Avoid not precise determinants and adjectives. info ignore <i>Rule IEEE 9: Vague and general terms shall be avoided - Open-ended, non-verifiable terms</i>

Close

- Démo Semios - Reformulation : <https://youtu.be/KNMGz7HEKZY>

1-Reformulation (SEMIOS REFORMULATE)

Propose **plusieurs** reformulations pour nourrir la réflexion

Ne modifie **rien** par lui-même

Préserve les principes d'écriture et de modification mis en place dans Polarion

The screenshot displays the Semios application interface. On the left is a sidebar with a search bar and a navigation menu containing categories like Design, Risks, Planning, Development, Testing, Maintenance, Work Items, and Documents & Pages. The main area shows a requirement titled 'DP-334' with the text: 'The User Console will resemble² a typical¹ dashboard display and include² options for system configuration'. Below this text is a button labeled 'Rephrase based on selection'. Underneath, a section titled 'Rephrasing suggestions:' lists three alternative formulations, each with a 'Copy' button. The suggestions are: 1) 'The user console shall resemble a standard dashboard interface.', 2) 'The user console shall provide options for system configuration.', 3) 'The user interface shall implement a dashboard-style layout. The user interface shall allow the user to configure system parameters.', 4) 'The system shall present the user console as a dashboard-like display.', and 5) 'The system shall include configurable options accessible through the user console.' A 'Close' button is located at the bottom right of the suggestion panel.

2-Génération d'exigences (SEMIO GENERATE)

Suggère des **exigences filles** à partir d'une exigence mère

Accélère la **réponse technique** à des spécifications clientes

Aide à identifier les **thématiques à adresser** dans les réponses techniques

Requirements generation

Parent requirement text
The SoundMaker network module shall provide an API that returns the input level after noise cancellation.

Context
The product for which the API is implemented is called "SoundMaker".
SoundMaker will be available in Europe and Asia.

Specific generation instruction
Children requirements shall cover non-functional aspects of what is needed (architecture, constraints, safety and security, testability, maintainability, scalability, etc.)

Generation language
English

Generate

Identifier	Child requirement text
SM- NET-001	The SoundMaker network module shall ensure the API for returning the input level after noise cancellation is designed to be stateless to support horizontal scalability.
SM- NET-002	The SoundMaker network module shall implement the API with a response time of less than 100 milliseconds under normal operating conditions to ensure real-time performance.
SM- NET-003	The SoundMaker network module shall provide API documentation that includes input/output specifications, error codes, and usage examples to ensure testability and maintainability.
SM- NET-004	The SoundMaker network module shall support RESTful API standards (HTTP/HTTPS) to ensure compatibility with existing network infrastructure.
SM- NET-005	The SoundMaker network module shall implement input validation in the API to reject malformed requests and prevent potential security vulnerabilities.
SM-	The SoundMaker network module shall log API requests and responses for debugging and auditing purposes, ensuring compliance with data privacy.

- Démo Semios - Requirement Generation : <https://youtu.be/-3bR5a7OzQY>

3-Cohérence de la traçabilité (SEMIOs CONSISTENCY)

Semios consistency check

Login: admin
Name: admin
Email: admin@polarion.com

Work items

Projects Documents Item type Load Work Items

Start analysis Export results Options

16 workitems

ID	Text	Link role	Linked workitem	Consistency
DP-330	The DCC shall conform to existing best practices for ARM processor circuit board...	Is verified by	DP-526 - Test: Operation check - DrivePilot shall operate with input power of 12 Volts, not to exceed 15 Amps.	Unrelated
DP-330	The DCC shall conform to existing best practices for ARM processor circuit board...	Is verified by	DP-346 - DrivePilot command controller is an ARM and Motorola-processor based controllin...	Wrong link type
DP-330	The DCC shall conform to existing best practices for ARM processor circuit board...	Is satisfied by	DP-332 - DrivePilot is NOT compatible with any vehicle that has "auto parking" capability...	Inconsistent
DP-480	DrivePilot will disengage when Brake is manually engaged	Is verified by	DP-637 - Test: Braking system - DrivePilot must be disengaged when...	OK

Confronte la cohérence des liens de traçabilités existants dans Polarion
Arbre d'analyse avec 14 points d'évaluation pour caractériser l'incohérence

4-Complétude (SEMIOS COMPLETENESS)

Confronte la
complétude par
rapport aux liens
de traçabilité
définis dans
Polarion

Semios completeness check

Login: admin
Name: admin
Email: admin@polarion.com

Work items

Projects Documents Item type Load Work Items

Start analysis Export results Options

16 workitems

Parent workitem	Linked workitems	Uncovered aspects	Overspecified aspects
☐ DP-330 The DCC shall conform to existing best practices for ARM processor circuit board...	DP-346 - DrivePilot command controller is an ARM and Motorola processor based controller... DP-526 - Test: Operation check - DrivePilot shall operate with input power of 12 Volts, not to exceed 15 Amps. DP-332 - DrivePilot is NOT compatible with any vehicle that has "auto parking" capability...	- Board dimensions - Thermal dissipation	Shielding and filtering
☐ DP-338 iPad User Interface application auth code...	None	Apple authentication	None
☐ DP-480 DrivePilot will disengage when Brake is manually engaged ...	DP-637 - Test: Braking system - DrivePilot must be disengaged when...	None	None

5-Extraction de normes ou spécification (SEMIOS EXTRACT)

Extrait les
exigences des
normes ou des
spécifications
client

Découpe en
exigences
atomiques

Lève les
anaphores

Requirements processor

Home

Requirements extraction

Requirements slicing

Requirements comparison

Logout

Atomic requirements

← BACK

EXPORT (.XLS)

Extracted document's name: GRP-0291.pdf

Extraction date: 2025-06-02 14:49:56

Extraction description: From page #28 To page #50 Extraction profile: GRP

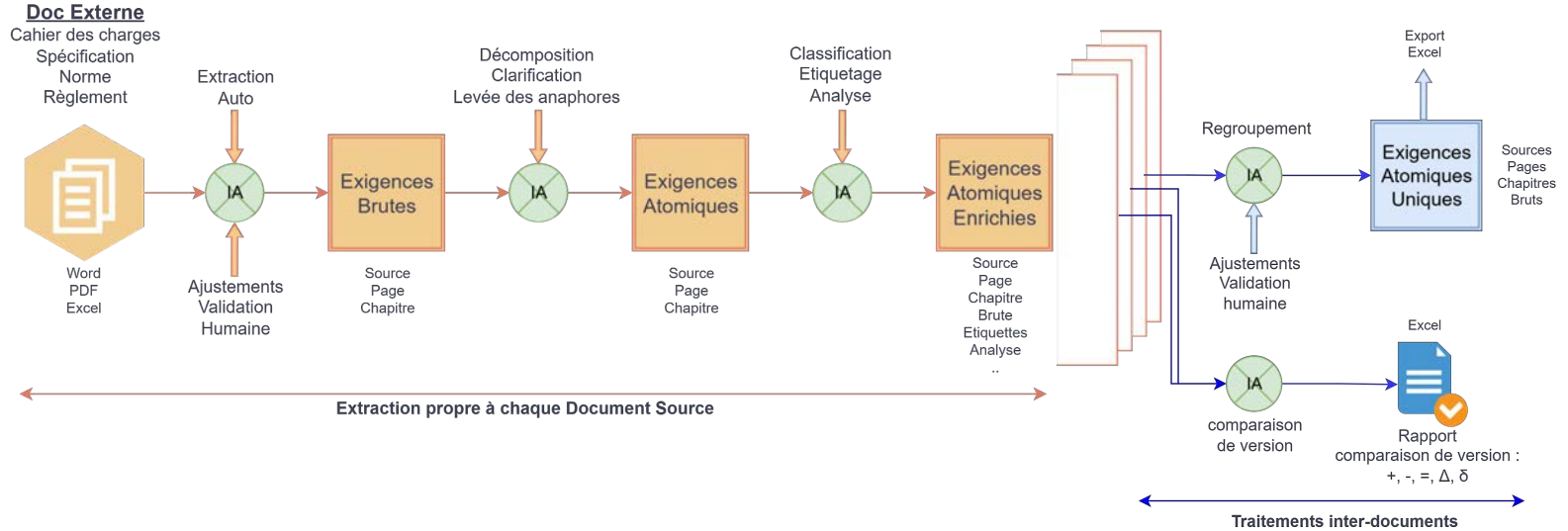
Total number of initial requirements: 18

Total number of atomic requirements sliced: 32

Page	Initial identifier	Initial text	Atomic Requirements	§
28	1-1	Each Group entity must establish an audit program in-house and towards its suppliers, taking into account all the data available to improve the performance of its activities.	1-1 #1 Each Group entity must establish an audit program in-house. 1-1 #2 Each Group entity must establish an audit program in-house and towards the suppliers of the Group entity, taking into account all the data available to improve the performance of the Group entity's activities. 1-1 #3 Each Group entity must establish an audit program taking into account all the data available to improve the performance of the activities of the Group entity.	1 Summary of requirements of this procedure
28	1-3	Each entity must use the audit typologies defined in this procedure; established on the basis of international standards to facilitate the understanding and common culture of all employees within the Group.	1-3 #1 Each entity must use the audit typologies defined in the procedure GRP-0291.pdf. 1-3 #2 The audit typologies are established on the basis of international standards. 1-3 #3 The audit typologies facilitate the understanding and common culture of all employees within the Group.	1 Summary of requirements of this procedure
28	1-5	Each entity shall implement a quality auditor certification process including minimum requirements of this procedure in order to allow mutual recognition of quality auditor within the Group.	1-5 #1 Each entity shall implement a quality auditor certification process. 1-5 #2 Each entity shall implement a quality auditor certification process including	1 Summary of requirements of this procedure

Conserve le lien entre l'exigence atomique et sa page / chapitre d'origine

Module Extraction des Exigences



D'autres applications possibles de l'IA Générative

Traçabilité

Analyse de documents parents-enfants pour :

- Détecter et créer les liens thématiques entre parent et enfants
- Détecter les exigences "orphelines"
- Confronter la cohérence entre la traçabilité établie par l'utilisateur et celle détectée par l'IA

Génération de tests

Suggestion de tests et vérifications à partir d'exigences, d'une norme ou d'une thématique :

- Accélérer le démarrage des réponses techniques à des spécifications clientes
- Identifier les thématiques à adresser dans les réponses techniques
- Catégoriser les types de tests nécessaires

Classification

Trier un ensemble d'exigences selon des thématiques choisies par l'utilisateur ou suggérées par l'IA :

- Apposer une/des catégorie(s)
- Assigner à une équipe
- Aider à filtrer par critère
- Résumer, regrouper,...

Étapes suivantes

- Un parcours personnalisé pour répondre à vos besoins et vos contraintes de mise en oeuvre de l'IAG
- Sélection d'une ou deux problématiques prioritaires
- Approche POC :
 - Expérimentation de l'application Semios
 - Augmentation avec l'IAG en mode agile

The background is a dark navy blue. On the left side, there are several overlapping circles: a large teal circle at the top left, a medium blue circle below it, and a large blue circle at the bottom left. A circular inset image shows a laptop screen displaying code. To the right of these circles, the text 'Mise en Oeuvre' is written in a large, white, sans-serif font. Further to the right, there are three more teal circles of varying sizes, some with outlines and some solid.

Mise en Oeuvre

Déroulé type d'un Pilote Analyse Sémantique

Atelier Lancement

- Objectifs et critères de succès
- Revue des pratiques internes
- Balayage des règles et configurations souhaitables
- Identification et accompagnement des utilisateurs
- Planning

accompagnement avec points réguliers

Installation
du serveur

réglage serveur

Point
S.I.

Atelier
synthèse

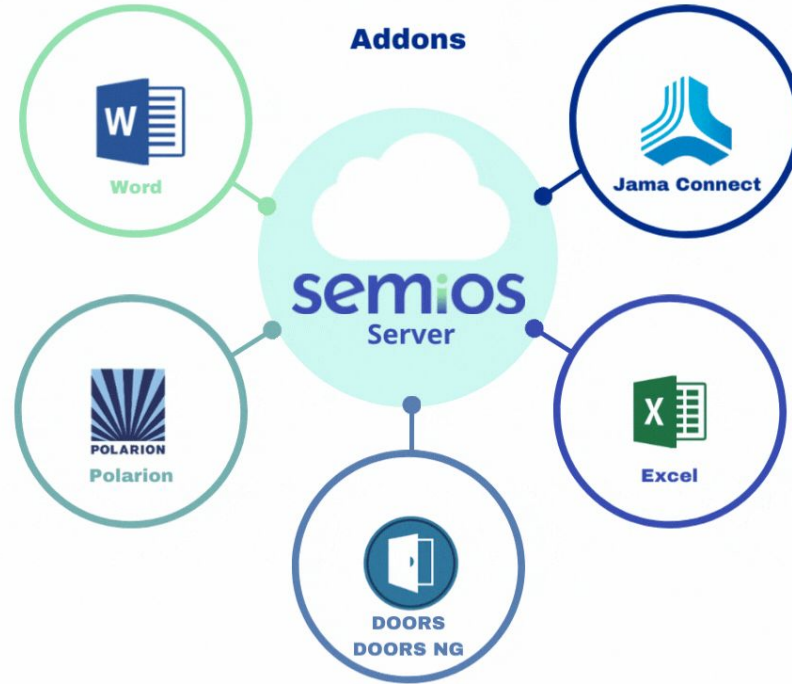
livrables

- Point sur l'atteinte des résultats
- Retour des utilisateurs
- Recommandation sur la conduite du changement
- Recommandation sur l'installation du serveur dans le SI
- Éléments budgétaires et de planning

Large choix de Déploiements



Intégration directe dans les logiciels :





Merci!

Contact : Didier Mascarelli
dma@semios.ai
+33 7 82 11 11 04