



OLI Systems, Inc.

Prescriptive insights to maximize operational efficiency and sustainability, mitigate risk and drive top and bottom-line growth.

think simulation

getting the
chemistry right

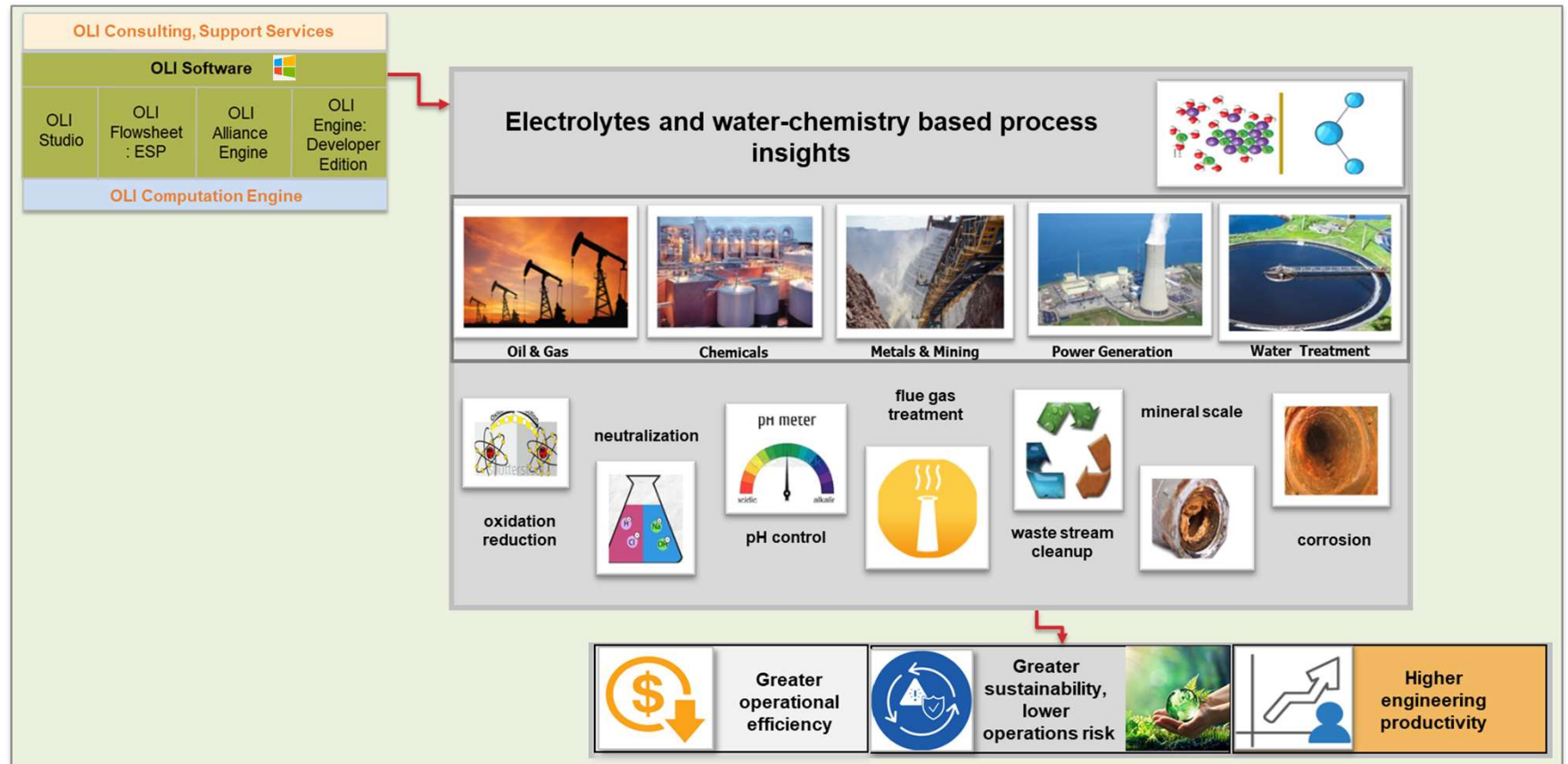
Overview of the new OLI Platform V11 April 2021

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Five decades of successful process modeling and simulation solutions innovation



Enhancing operational efficiency, sustainability and productivity while mitigating operations risk



The “new” OLI Platform v11 announcement

New OLI Systems platform V11 democratizes electrolyte modeling with revolutionary cloud platform; new, rigorous chemistry insights and software innovations enhance sustainability reliability, and efficiency

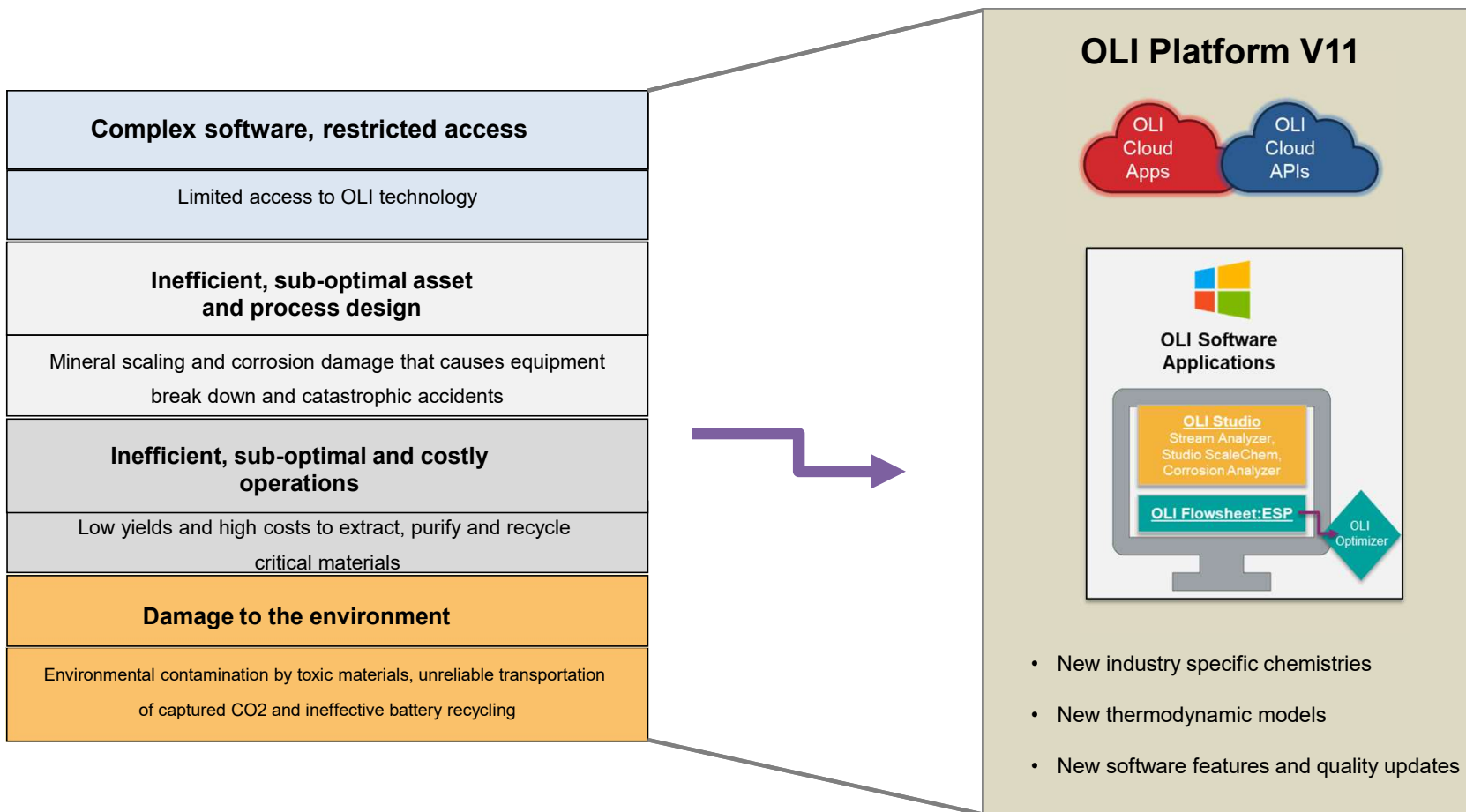
Cloud Apps, Cloud APIs, and Optimizer Tool fuel industrial digital transformation in oil & gas, mining, power generation, water treatment, and chemicals operations



Key drivers for the OLI Platform V11 innovations



Design, operations and sustainability challenges across the enterprise



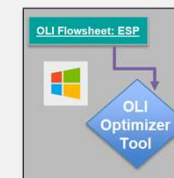
What's new out of the box with the Platform v11?

Accelerating innovations for digital transformation and process simulation



~41
new and enhanced
capabilities

- 28 new chemistries and model parameters
- **2 new cloud software platforms**
- **1 new desktop software tool**
- 10 software enhancements



5
trusted
solution
areas

- Scale prediction
- Corrosion prediction
- Water and wastewater treatment
- Lithium Extraction, LIB Recycling
- REE Extraction

Enterprise level
user
experiences

- R&D/Central Engineering
- Process Engineering
- Field Engineers
- Operators
- Automated Applications

5
target vertical
industries

- Oil and Gas – Upstream and Downstream
- Water Treatment, Mining and Battery Recycling, Chemicals
- Power Generation

The new OLI Platform v11 delivers tangible benefits

Addresses design, operations & sustainability challenges for industrial environments



Democratize electrolyte simulation		New cloud platform delivers anywhere, anytime access to any user or application to fuel digital transformation	
Enhance sustainability		New chemistries, software help improve carbon capture and eliminate toxic contaminants during water treatment, waste management	
Boost asset, operations performance		New chemistries, model improvements deliver accurate mineral scaling and corrosion predictions to increase reliability New Optimizer tool for Flowsheet: ESP creates optimal design envelopes and operating windows; case templates and software updates enhance productivity	
Accelerate process yields		New chemistries, tools maximizes yields and lower costs for extraction, purification of Li, Ni, Mn, Co, Rare Earth Elements (REE) and Li Battery recycling	

OLI Platform V11 revolutionizes industrial process simulation



Democratize electrolyte simulation



Access OLI anytime, anywhere

Deliver ubiquitous cloud access for all users – chemists, process, field engineers, operators and electrolyte non-experts - with Cloud Apps to improve design of assets and processes their operations



Fuel digital transformation

Automate electrolyte insights for any application, dashboard or user with Cloud APIs to enhance operations excellence

Enhance Sustainability



Enhance environmental sustainability and compliance

Eliminate mercury, cadmium and zinc based toxic contamination in industrial water treatment and waste disposal; increase carbon capture and water treatment (RO) efficiency

Boost asset/operations performance



Optimize Design and Operations

More optimal design and operations with OLI Optimizer tool for Flowsheet: ESP to maximize throughput, minimize costs, energy, water consumption and carbon footprint while increasing air, water quality



Increase reliability in upstream oil & gas

Minimize scale formation with MEG, FeS, HPHT scaling chemistries and phosphonic scaling inhibitors; optimize materials selection and lower materials costs with expanded acetate, acetate-related autoclave chemistries and more accurately modeled alloys.



Mitigate risk in downstream oil & gas

Reduce risk in crude distillation and HF alkylation Units with expanded amine hydrochloride and HF chemistries. Enhance petrochemicals operations with new alpha-methylstyrene chemistry insights.

Accelerate process yields








Accelerate yields in lithium, rare earth elements (REE) mining and battery recycling

Increase processing efficiency with new lithium phosphate, lithium-cobalt-iron cathode, expanded neodymium and REE chemistries.

Summary of new capabilities in OLI platform v11



New software, scaling, corrosion, water treatment, mining & carbon capture capabilities

					
	Upstream O&G	Downstream O&G/ Chemicals	Water Treatment	Mining, Recycling	Power Generation
Democratize electrolyte modeling	Cloud APIs and Cloud Apps for anywhere, anytime access to electrolyte simulation;				
Boost asset/operations Performance (scaling, corrosion, materials selection)	Acetic acid/ acetate/ hydrocarbons Phosphonic scaling inhibitors (HEDP and NTMP/ ATMP) NaCl –H ₂ O solubility; HPHT scaling MEG in CO ₂ and with CaSO ₄ MSE-SRK autoclave enhancements HPHT (NaCl pressure dependence), FeS in chlorides scaling Carbon steel in iodide	Acetic acid/ acetate/ hydrocarbons HF Alkylation Enhanced amine hydrochloride chemistries TRIS- water* Alloy 13%Cr, 254SMO, SS316 chemistries	Phosphonic scaling inhibitors (HEDP and NTMP/ ATMP and complexes with Ca, Sr, Ba) Optimizer tool for Flowsheet: ESP to enhance quality of designs along with user productivity improvements; OLI Flowsheet: ESP case library with sample applications		
Enhance sustainability (toxic contaminants, CO ₂ capture)	Sulfuric acid-CO ₂ , Nitric acid-CO ₂ (CCS) Mercury chlorides, fluorides in water with various salts MEG in CO ₂ and with CaSO ₄	Alpha-methylstyrene* to treat hazardous waste streams	Zinc oxides and hydroxides Cadmium salts	Li Battery chemistries for battery recycling	Sulfuric acid-CO ₂ , Nitric acid-CO ₂ (CCS) Mercury chlorides, fluorides in water with various salts
Accelerate process yields (separation of salts, operations efficiency)		Urea with ethanol* Sodium phosphate extension*	Osmotic pressure calculation (RO) improvements	Li, Co phosphates, mixed Li sulfates (Ni, Co, Li, Mn) Gluconic acid, alkaline earth metal, hydroxide chemistries REE acetates, phosphates, citrates, tartrates & sulfates Mg and Na fluorides Sodium phosphate extensions; H ₂ SO ₄ – H ₃ PO ₄	

OLI Unique Capability
*Chemicals Industry

Opportunities to leverage new capabilities in OLI Platform v11

Digital Transformation

- New users without electrolyte expertise?
- New applications that can use electrolyte insights?
- Automation with operations data? Data integrations?
- Corporate initiatives?



Sustainability

- Carbon capture and storage process?
- Toxic water treatment issues ?
- Air quality challenge?
- Corporate initiatives?



Asset / Operations Performance

- Mineral scaling issues impacting operations?
- HPHT scaling in off-shore operations?
- Corrosion problems with assets?
- Optimal materials selection guidance?
- Design of experiments?
- Optimization of process?



Process Yields and Costs

- Lithium, Ni, Co, Mn, REE extraction and purification?
- Lithium-ion battery recycling?
- New Energy initiatives?
- Energy storage issues?



Engage with OLI Systems



Learn more about the OLI Platform V11 capabilities

Visit <https://www.olisystems.com/new-oli-platform>



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Email sales@olisystems.com if you have any immediate questions

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