Our Mission & Philosophy

- Our mission is to provide industrial engineering and technical consultancy services of the highest professional level following state-of-the-art technologies to ensure implementation of complex solutions for our customers and partners, taking into account the project’s specific requirements and following the industry’s trends and best practices.

- We focus on innovative solutions developed for the needs of each individual customer.

- We develop our activities constantly pursuing exploration and satisfaction of our customer’s needs. A primary goal in our company policy is the success of our clients, our partners and thus - of our company.

- We believe that the constant enhancement of qualification, theoretical and practical abilities and motivation of our specialists are basic premises for the company’s success and adequacy at the current conditions of increasing market competition and daily growing customer demands.

- A key benefit that Gallus brings to the clients is a global perspective on a broad range of industries, markets, technologies and econometrics.
About Us

- **Gallus Ltd.** is an independent *project-oriented engineering company*, providing specialized advisory services and project management to a broad range of industries and business organizations.

- The company is founded in 1991 as a local growth consulting company. The main goal of the company is the implementation of *accumulated scientific potential* in consultations and practical solutions of complex industrial problems at a high professional level.

- **Gallus expertise includes** industrial engineering, technological process automation design and system integration; investment planning and project management, technical consultations and expert analyses in various industries, technical and IT processes.

- As a project-oriented company Gallus has a small team of highly qualified professionals but through long-term productive collaboration with partner companies and freelance experts in specialized areas, which we attract on a project basis, we are able to undertake complex tasks.

- Following this philosophy, we provide flexibility and high professionalism - characteristic of our company - and we are able to meet the individual requirements of each individual customer.

- **Gallus Consulting Group** is an informal structure, unifying Gallus companies.
All Gallus experts are high-qualified engineers. Their professional abilities derive from profound theoretical knowledge and rich experience. They follow the world’s best practices and standards.

Our specialists are honored with many certificates for inventions and patents, regarding control systems, communications, constructions and process optimization.

Gallus is a node in a grid of wide range of experts and companies, hold together by common convictions and experience. That cluster we call Gallus Expert Partnership.

By our Partnership Service Platform, we provide industry research, marketing strategies, consulting and specialized training to our clients, helping the sustainable development of their business.

By long-term collaboration with leading engineering and manufacturing companies and business organizations, Gallus has obtained substantial experience and professional connections with trustworthy partners worldwide.
27 Years of Expertise

- We conduct technical and business consulting services for large variety of industrial processes - from small-scale to complex flagship projects.

- We assist investors/contractors/credit institutions/managers in the project development and realization process – from the preliminary research, feasibility study, conceptual design, technology selection, assignment of tasks specification to the detailed engineering design, procurement, construction, commissioning & start-up, maintenance & optimization and personnel training.

- One of our core competence is related to engineering and advisory activities in the field of Oil & Gas, Energy, Chemical and further heavy industries. We have exclusive experience in refining operations, storage tank farms and chemical and petrochemical technological processes.

- The company is specialized in process automation and offers control system design, implementation, optimization and maintenance. We conduct investor and operational supervision and audit at any level during the project life-cycle.

- We have specific interest in scientific research and innovations, industrial development strategies, state-of-the-art technologies and best available practices and integral engineering design.

- Gallus team elaborates recovery programs for plant rehabilitation, renovation and process optimization.

- Gallus also assists in Environmental Engineering and elaboration of Environmental Impact Assessment (EAI) studies and evaluation reports together with leading partner companies and specialists.
Academic Background and Membership

**Academic Background**

- Gallus maintains strong relations with the leading science and academic institutions in the country – Technical University of Sofia, Institute of Information Technologies at Bulgarian Academy of Sciences, University of Chemical Technology and Metallurgy and University of Mining and Geology.

- Gallus specialists are lecturers and lead basic and specialized courses in the field of Industrial Control, Automation of Technological Processes, Logical Process Control, Adaptive Control, Control Engineering, Network Communication Systems for Technological Process Control.

- They have over 90 scientific publications: lecture notes, books, exercises instructions, articles in journals and reports at conferences.

**Membership in Professional Organizations and Association**

- Our employees are members of International Project Management Association (IPMA), Chamber of Engineers in the Investment Design (KIIP), Automation and Informatics Union (SAI) and many others.
Main Activities & Services

**Turn-key project engineering**
- Prefeasibility and Feasibility Study
- Front-end engineering design (FEED)
- EPC Consultancy and Management
- Commissioning & Start-up Supervision
- Optimization and Maintenance

**Specialized engineering services at any stage**
- Preliminary Research
- Definition of Technology and Equipment Requirements
- Scoping and Conceptual Design
- Technology Selection and Functional Design
- Assignment of Tasks Specification
- Detailed Design
- Vendor and Equipment Selection
- Control Strategies & System Design
- System Implementation and Integration
- Advanced Process Control and Optimization
- Security and Safety Systems
- Maintenance and Technical support
- Personnel Training
- Software Development and ERP Integration Supervision
Main Activities & Services

**Technical and Business Consultancy**

- Recovery Programs and Plant Rehabilitation
- EIA Reports Elaboration
- Technical and Financial Assessments
- Process Unit(s) Evaluation
- Third-party engineering audits and performance assessment
- Costs vs. Benefits Analyses
- Business planning and Investment Costs Estimates
- Material and Energy Balances
- Tender Documentation Preparation
- Quality Assurance and Certification
- Standards and Codes Interpretation
- Best Practices/Techniques Consulting
- Data Analyses and Application performance evaluation

**Project Management**

- Scoping, Planning and Time Scheduling
- Project Base-Lining, Schedule Tracking, Critical Path Management
- Resource Management and Coordination
- Risk Management
- Data and Document Management
Major Clients & References

- “CEZ Electrical Distribution” JSC
- Honeywell
- Overgas Networks JSC
- “CEZ Bulgaria” JSC
- Gastek BG JSC
- VTI Gradnja d.o.o., Zagreb for LUKOIL Croatia
- Titan Promet d.o.o., Zagreb for LUKOIL Croatia
- Comico Overseas N.V., Netherlands
- Sofiagas JSC
- Comico Oil d.o.o.
- VP Gas d.o.o.
- Capital Investments and Solutions Corporation, Florida
- Bulgarian State Agency "State Reserve and War-time Stocks"
- Petromax Refinery JSC
- Indagro Bulgaria, Chimco Ammonia Chemical Plant
- Shipyard Rousse
- Folbek, Agrobiokhim Fertilizer Chemical Plant
- Maritza Iztok Thermal Power Plant
- Abuja Global Gas Company Limited
- Skygate Bulgaria
- Vassilevi Bros., MRAZ Refrigerator Plant
- Stefany Style EOOD
- Aroma JSC
- Oil Oil, Vienna
- Overgas Inc. AD
- Bates Bulgaria Ltd.
- Bulgarian Academy of Science
- Vladimpex Holding
- Sheraton Sofia – Hotel Balkan
- Termo-Power plant - Razgrad
Gallus Portfolio – Oil & Gas industry

- Technological process analyses and preparation of conceptual design and technical requirements for the design, implementation and start-up of a SCADA system for the needs of the leading gas distribution company Overgas Inc. JSC.

- Chief consultant and technical coordinator for the design and construction of 100 000 BPD Oil Refinery in the city of Smederevo, Republic of Serbia. Responsible for the general layout, technology and equipment selection, system design, material and energy balances, supervision, investor’s cost and financial flow estimation, technical assignments, covering main technological equipment, tank farm storage design, Equipment and vendor selection, tender documentation preparation, EIA report, general layout design, project presentation, preliminary material balances and detailed schedule, water collection, sewage and waste water treatment systems, etc. Preparation of Integrated Gasification Combined Cycle (IGCC) power plant feasibility study for the project.

- Consultancy and Project management contract for the extension of Lukoil’s retail network on the territory of Republic of Croatia, regarding the design, procurement, construction and commissioning of petrol filling station BP Aerodrom, Velika Mlaka, the city of Zagreb.

- Consultancy and Project management contract for modernization of 29 petrol filling stations, proprietary of Lukoil Croatia, including filling station’s standards and regulations conformity to safety requirements and uniform principles for classification, safe limits determination, selection, installation and testing of protective equipment for explosive gas-air and vapour-air mixtures.

- Chief consultant and project initiator of the project ‘55 000 BPD Mini Refinery for crude oil and fuel products in the town of Silistra. Responsibilities concern prefeasibility and feasibility studies, investment cost estimations, general layout, conceptual and functional design, material and energy balances, assignment of tasks and tender documentation preparation, supervision of equipment manufacturing, process simulation, P&ID, FAT.

- Gallus specialists have been invited as advisors to the Iraqi Government on the recovery of crude oil extraction from wells/drilling machines destroyed or damaged during the war and also on reconstruction of refineries and their operation processes.

- Consultations and expert report concerning technical assignment / requirements specification for the implementation of SCADA system for control and automation of the gas distribution network.

- 55 000 BPD oil processing refinery project at Porto Romano, Durres, Albania – capital cost estimation, technology and equipment selection.
Gallus Portfolio – Petrochemical Storage and Logistics Facilities

**Tank-farms for chemical and petrochemical products**

- Buffer tank storage design for 2 000 bpd crude oil topping unit for Indonesia
- Refinery Smederevo tank farm storage design supervision:
  - 14 x 25 000 m3 EFR storage tanks for crude oil
  - 20 x 10 000 m3 IFR storage tanks for final products
  - 7 x 2000 m3 heated fixed roof bitumen storage tanks
  - Additional 4 storage tanks with capacity 5000 m3 each for the storage of intermediate products
- Expert assessment and labor cost estimations for the installation of supporting systems for tank farm storage facility - Tuba, Iraq.
- Conceptual design and cost estimation for the construction of 8 x 58000 m3 floating roof storage tanks for South Oil Company FAO depot for crude oil - Basra, Iraq.
- Technical inspection and assessment of tank farm storage facilities for crude oil and oil derivates of Bulgarian State Agency "State Reserve and War-time Stocks", Polikraishte, Bulgaria.
- Technical audit of the current status of the State reserve tank farm for petro-chemical products Sliven, reconstruction capital cost estimation and schedule preparation, detailed design and equipment selection.
- Conceptual design and cost estimation for the construction of 2 x 40 000 m3 fixed roof and 2 x 25 000 m3 floating roof storage tanks for El Gaily storage facility for oil derivates - Sudan.
- Detailed design, vendor and equipment selection of 10 atmospheric storage tanks for crude oil and final products - Mini-refinery, Silistra.

**Loading/Unloading Facilities**

- Design of loading/unloading facilities, blending, pumping stations, VRU, product movement system, fiscal management system.
Gallus Portfolio – Chemical Industry

- Automation of technological process of degreasing baths for paint-shop production of metal components of MPM GROUP 7 Ltd.

- Chief consultant for Reconstruction of Ammonia and Urea production at the chemical plant Chimco, Vratsa, Republic of Bulgaria. Detailed technology audit and equipment assessment, rehabilitation program elaboration, investment and schedule estimation. Detailed action plan preparation for production recovery of ammonia and urea and all supporting chemical processes. The recovery plan of Chimco is officially accepted by the creditors and Vratza Regional Court.

- Head consultant for the design and construction of a new chemical plant for melamine production and integration with the existing ammonia and urea production at Chimco, Vratza.

- Head consultant for the reconstruction of the power station and restart of the caprolactam production at Folbeck Chemical Plant in Stara Zagora, Bulgaria (former fertilizer state plant Agrobiochim).

- Consultations and supervision for changing the technology and reconstruction of the feedstock input installation for liquid caprolactam in INSA chemical plant, Istanbul.

- Technical advisory on reconstruction problems and production recovery in Caprolactam Plant in Calcutta, India, in cooperation with Vinmar, Houston, TX.

- Expert assessment and estimations of the mechanical erection works and labor costs for the reconstruction/modernization of the Devnya Cement Plant, Bulgaria.

Gallus in the Energy Sector

- Audit and independent (third-party) analysis of the physical condition of electrical equipment from the LV and MV electricity distribution network of CEZ Distribution Bulgaria AD and identification of concrete measures to increase the security / reliability of the power supply for the prevention of accidents and crises.

- Design, construction and commissioning of information system on the territory of 2 MW Razgrad Termo-power plant for remote transmission of data and technological parameters in real time to the electricity distribution company "Energo-pro" AD

- Design, construction and commissioning of real-time automation and communication system for monitoring, remote transmission of data and technological parameters and control of local Termo-power plant - Ovcha Kupel, according to preliminary requirements of CEZ Distribution Bulgaria AD

- Investigation of “CEZ Electrical Distribution” JsC activities and preparation of series of reports, concerning recommendations for service improvement and customer's satisfaction improvement in Bulgaria.
  - Research on modern electricity transmission and distribution systems, world's technical innovations and practices for producing, transmission and distribution of electrical power, available international standards, BATs, European and local regulations.
  - Benchmarking of the available methodologies for evaluation of commercial quality worldwide, available indices for evaluation of supply continuity and for evaluation of voltage quality worldwide.
  - Analysis of the power supply continuity data and quality of the supplied electrical power, indexes and methods of determination. Analysis of problems, points of failure, sources of interference in electrical distribution, loss minimization and network improvement. Analyses of low voltage quality, causes and consequences.
  - Investigation of the technical parameters of relay protection, harmonic influences, reactive compensation, SCADA, remote meter reading, renewable energy sources integration and synchronization.

- Conceptual design, project schedule, cost estimation, selection of electro-mechanical equipment, automation and control strategy, Quality control plan elaboration, preparation of single-line diagrams, operational and maintenance procedures for 4 HPPs in FYROM - Bistrica 97, Bistrica 98, Bistrica 99, Goshinci 125 as part of a bidding process.
Plant-Wide Technology Integration

Technology scheme
MINI-Rafinery - Silistra

1. Transport
2. Crude oil Tanks
3. Water
4. Desalting
5. Atmospheric Crude Oil Distillation Unit (CDU)
6. Vacuum Distillation
7. Distillate Hydrocracker
8. Kerosene Merox
9. Catalytic REFORMING
10. Naphthas desulfurization
11. Naphtha splitter
12. Amines treating
13. Surplus storage
14. Sour Water Stripping (SWS)
15. Waste Water Treatment PLANT
16. Water Buffer
17. Boilers
18. Heavy Gasoil
19. Diesel
20. Kerosene
21. Gasoline
22. Diesel
23. Kerosene
24. Gasoline
25. Ship fuel
26. Transport
27. Chimney No. 1
28. Chimney No. 2
29. Chimney No. 3
30. Chimney No. 4
31. Chimney No. 5
32. Chimney No. 6

Gallus Engineering Services
Industrial Automation / Process Control Engineering

- Our experts are engineering executives with multi-discipline experience and consult on both technical and economic aspects of automation, primarily for industrial systems, but also for IT and commercial applications.

- Our recent engagements include implementation of automation and control for industrial processes and SCADA systems, Process Safety & Emergence Shutdown Systems.

- Gallus has accumulated profound know-how in Control Theory, Process Control, Robust, Optimal, Adaptive and Predictive Control, facing various real industrial control problems and tasks such as process stabilization and process optimization.

- We offer and carry-out specific analyses of control systems and technological processes/states, using mathematical modeling, system identification methodologies and computer simulations.

- At the feasibility study and conceptual design stages we elaborate engineering data estimations, control strategy assessments and opportunity analyses for multi-criteria technologies assessment and selection, assignments of tasks for the detailed design stage, vendor and equipment selection.
Gallus engineers are experienced in:

- scientific research and engineering-economic assessments, develop mathematical models, analysis, simulations and design of systems and processes, using specialized software;
- system identification and data estimation, control strategy assessment and valuation, design of algorithms and software for solving of linear and non-linear multi-criteria optimization problems.

**Modeling of different technological states:**
- State Description
- Temporal Logic
- State Transition
- Safety Systems
Detailed Functional Design

Pipeline and Product Movement Scheme

Barge Loading Area

Rail-Car Loading Area

Truck Loading Area

Gallus Engineering Services
Supervisory Control and Process Optimization

Supervisory Control and Data Acquisition SCADA

- Gallus experts have worked and consulted in the SCADA industry at both component and system-wide level.
- Our consulting engagements for SCADA include product development, performance analysis and cyber security.

Optimization and Maintenance

- Plant-wide optimization studies for cost reduction, overall performance improvement, return of investment and profitability improvements.
- Elaboration and implementation of predictive process models and engineering approaches for quality and safety assurance.

Normal Technological Regime Description:
Power consumptions, Raw materials, Consummative, Expenses, Products, Semi products, Incomes, Revenue, Wastes
Gallus experts can consult on management and business integration issues, generally for technically oriented manufacturing and service organizations.

We provide valuable insight into mergers and acquisitions, turnarounds and technology management issues.

Our recent engagements also include the business side of Petrochemical control and equipment.

Important activities in our company’s profile include Plant Rehabilitation, Recreation and Renovation services.

We elaborate Technology Units Balance Assessments.

Part of our work is also Timeline Design & Task Optimization.

Experts assist plants in resolving and troubleshooting difficult problems (from conceptual engineering to maintenance), conduct audits and prepare different type of technical-economic assessments.

Technology Units Balance Assessments: Energy and material balances, Interpretation of the ecological norms, Unit performance optimizations, Energy efficiency improvement, Calculation of emission amounts.
Recruitment and Training

- We have experience in recruiting, training and managing engineers and technicians. For this purpose Gallus has developed internal methodology, competence guide and scope of engagements for the recruitment process.

- We also prepare labor structure, employee job descriptions, budgets, forecasts, progress reports, manpower loadings and schedules.

- Our experts develop and conduct training courses and seminars for engineering/technical staff and operators. Depending on the level of Expertise, the training can be geared to engineers, technicians, project managers and/or specialists in the field of instrumentation and control.

- Our qualified and erudite lecturers, professors and experienced engineers conduct educational seminars and custom trainings of specialists concerning equipment repair, maintenance and process control. This is organized either in the project hosting country on site or in Gallus headquarters.
Energy auditing, facility-wide energy efficiency analysis

- Gallus experts assess/audit energy consumption and cost distribution along processes/nodes/facilities and develop energy-efficiency programs and optimization action plans.
- Our experts have made dozens of evaluations, including heat and energy balances, combustion analysis, cogeneration analysis, steam and chilled water system analysis, heat transfer analysis and design, thermodynamic calculations.

Environmental engineering

- Gallus experts combine their chemistry background with considerable experience of manufacturing processes and facilities to address environmental problems.
- Our experience include air & water emissions and solid wastes management (analyses, control and reduction). We believe that reduction or elimination of pollutants must be fulfilled as close to their source as possible, implementing modern techniques and cost-effective strategies.
- We use considerable amount of energy and material balances and work in close collaboration with governmental agencies and regulatory institutions. Our expertise includes also interpretation of environmental laws and regulations, recommended technologies and international standards.
- As part of our activities we elaborate detailed Environmental Impact Assessment (EIA) studies, assignments and evaluations.
- Our organization is strongly committed to address HSE challenges and problems and prevent their emergence.
Gallus Contacts

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