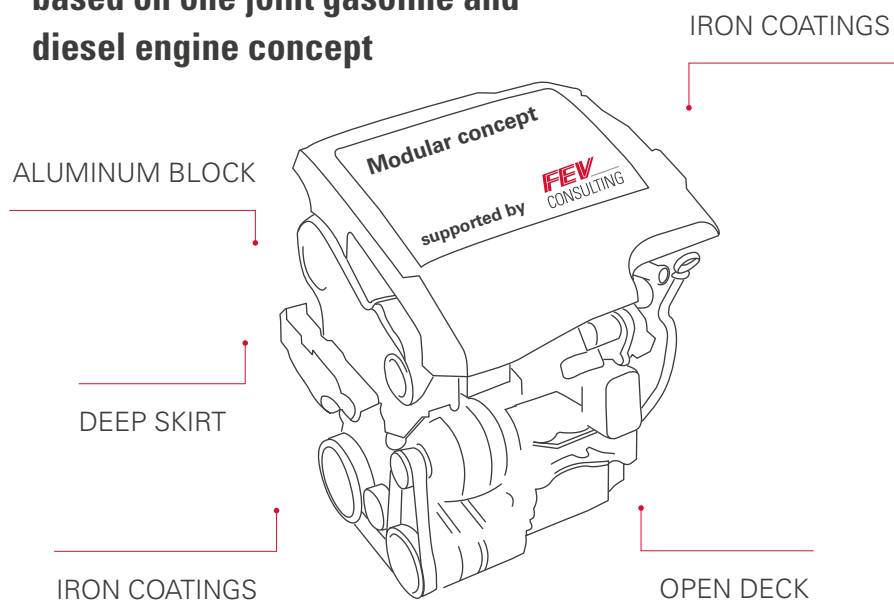


# MODULAR GASOLINE AND DIESEL ENGINE FAMILY

## GLOBAL ROLL-OUT

based on one joint gasoline and diesel engine concept



### SITUATION & APPROACH

- Asian OEM wants to define a competitive engine family (incl. gasoline and diesel variants) for the timeframe 2018+
- Target was to define a modular concept considering the regional market requirements and the customer's existing production boundaries
- Industry benchmark regarding modular powertrain concepts (incl. German, Asian and US OEM)
- Analysis of specific production boundaries of the customer (e.g. consideration of assembly line structure, existing machining tools, etc.)
- Analysis of modularization potentials and technology cross-impacts by engine sub-system (e.g. crank train, valve train, timing drive, etc.)
- Supplier technology assessments for modular engine concept



### RESULTS AND BENEFITS

- Definition of competitive technology sets with focus 2018+ (lead market: Europe)
- Definition of a joint modular gasoline and diesel engine concept (high commonality approach)
- Definition of a modular engine family (e.g. regional variants, power variants, etc.) based on lead concept
- High power variants in lead applications
- Mid-spec variants for large volume applications
- Low cost variants for emerging markets



## MODULARIZATION STRATEGIES

Vehicle Manufacturers are attempting to master increasingly complex powertrains by introducing modular product toolkits. Thanks to its comprehensive industry know-how, FEV Consulting is able to explain current modularization trends and the approaches of global OEMs in individual studies and then explain the advantages and challenges. The consultants identify client-specific framework conditions, as well as complexity drivers and requirements, in order to be able to establish a customized modularization strategy on the basis of cross-industry best practices.

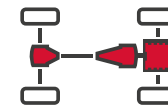
## SERVICE LINES OF FEV CONSULTING



Technology Roadmapping



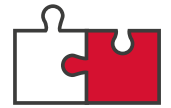
Connected and Automated Driving



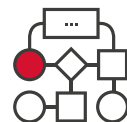
Powertrain Concept Studies



Modularization Strategies



Mergers & Acquisitions



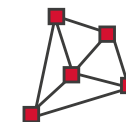
Product Development & Process Optimization



Vehicles & Lightweight



Smart Cost Reduction



Manufacturing 4.0



Supply chain management

Dipl.- Wirt.- Ing.

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