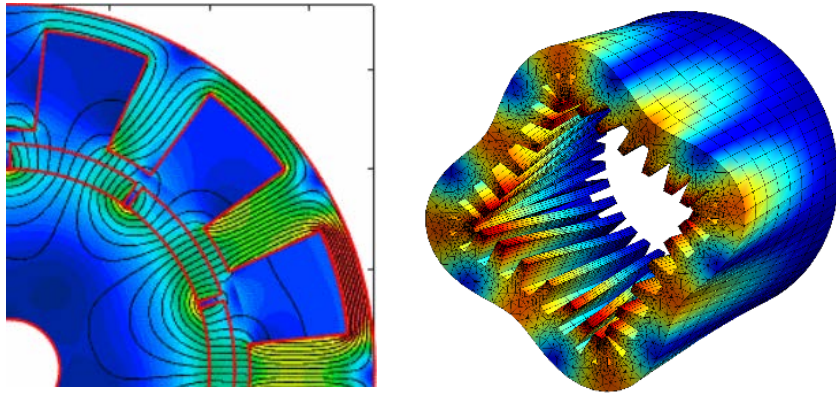


# EOMYS ENGINEERING

Noise, Vibration, Harshness (NVH) expertise of electrical systems



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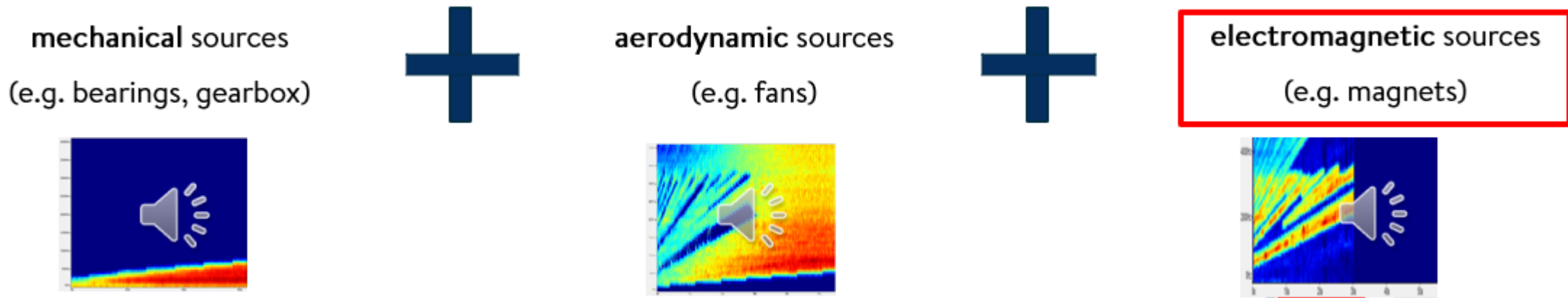
# I. PRESENTATION OF EOMYS

- **Young Innovative Company** created in may 2013 in Lille, North of France (1 hour from Paris)
- Activities : **engineering consultancy** specialized in NVH of electrical systems
- 5 R&D Engineers (electrical engineering, vibro-acoustics, scientific computing)
- 80% of export turnover
- Sectors : transportation (railway, automotive, marine, aeronautics), energy (wind, hydro), home appliances, industry



Automotive	Energy	Industry	Universities
RENAULT                      PSA GROUPE PORSCHE DAIMLER                      Protean ELECTRIC Continental                      Mando                      SONCEBOZ SCANIA                      JJE driving the next	Vestas                      GOLDWIND ENVISION                      JEUMONT Electric	ABB                      OTIS HYOSUNG ENGIE                      ebmpapst ERNEO                      Bernard Bonnefond Bonfiglioli power, control and green solutions	UNIVERSITÉ DE LILLE UNIVERSITÉ DE VALÉNCIENNES ET LE MANS CONSORCI ESCOLA INDUSTRIAL DE BARCELONA
Aeronautics	Railway	Naval	Health & home appliances
THALES	ALSTOM BOMBARDIER	alconza Irizar Group DCNS	ResMed                      somfy.

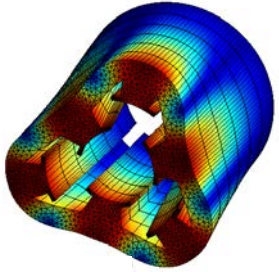
## II. ELECTROMAGNETICS & VIBRO-ACOUSTICS



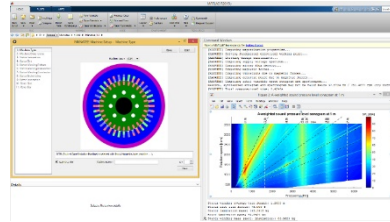
### Electromagnetics & vibroacoustics interactions

- Cost & weight optimization -> structures are more prone to vibrations
- Skewing technique which degrades torque and efficiency is not well understood
- Torque ripple Vs acoustic noise
- New technologies (e.g. concentrated winding) -> higher number of force harmonics

# III. NOISE MITIGATION SERVICES



**Diagnosis and solving** of NVH issues on electrical systems (tests & simulations)



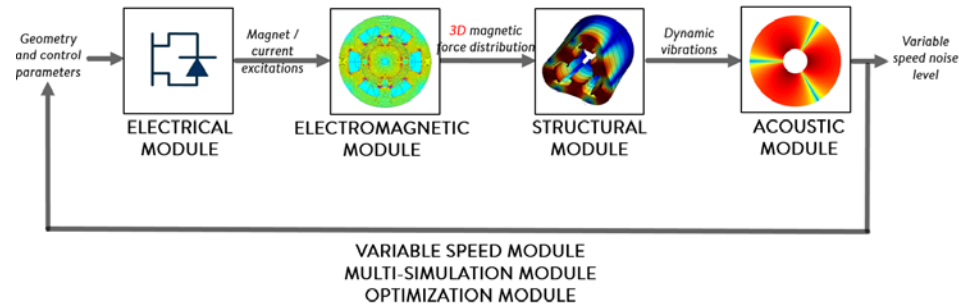
**Multiphysic design optimization** of electrical systems



**Technical trainings** on vibro-acoustics of electrical systems

➔ ***EOMYS can be involved both at design stage & after manufacturing of electric machines & passive components***

## IV. MANATEE SOFTWARE



- **Electromagnetic and vibro-acoustic simulation software** of electrical machines under magnetic forces
- Only software suitable for NVH assessment both in **basic design** (semi analytical models) or **detailed design phase** (coupling with electromagnetic FEA and structural FEA)
- More than 100 post processing to quickly find the **root cause of noise and vibrations** and implement **mitigation actions**
- **More than 50 electric machines analyzed by EOMYS with up to 40 dB reduction obtained on industrial cases**