Energy efficiency as an example of cross-discipline collaboration in chemical engineering - DTU Orbit (18/12/2018)

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This paper summarizes the round-table discussion that was held during the European Congress of Chemical Engineering (ECCE) in Nice, France, in October 2015 on this topic. The panellists come from different fields of chemical engineering and have thus brought in different perspectives. The objective was to determine paths for developing innovative approaches in view of process optimization. The terminology is a first obstacle that was clarified. Energy efficiency can be envisaged either by optimizing thermodynamic functions (entropy or exergy), more pragmatically by selecting the adequate unit operation or in a very general vision by considering all decision variables (i.e. including economic and political) that may have an impact on the final service provided to society.

The second issue relates to improving collaboration among various actors. These may be defined in terms of type of responsibility (industrials, mostly market-driven, or academic), or in terms of discipline. The role of professional societies as the European Federation for Chemical Engineers (EFCE) is stressed as a promotor of collaboration between disciplines. Finally, once willingness for collaboration is identified, the final question is how it can lead to true innovation. The largest innovation potential is often found at the interface between fields. Yet, it often requires both an effort to explain the mutual challenges in a didactic manner, and the development of tools that make it possible to each partner to be efficient in his own field while being aware of the global goal and of the constraints of the others.

General information
State: Published
Organisations: Department of Chemical and Biochemical Engineering, KT Consortium, IFP Energies nouvelles, Aix-Marseille University, Technical University of Dortmund, Norwegian University of Science and Technology, Swiss Federal Institute of Technology Lausanne, ProSim S.A.
Contributors: de Hemptinne, J., Ferrasse, J., Górak, A., Kjelstrup, S., Marechal, F., Baudouin, O., Gani, R.
Pages: 183–187
Publication date: 2017
Peer-reviewed: Unknown

Publication information
Journal: Chemical Engineering Research and Design
Volume: 119
ISSN (Print): 0263-8762
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 3.08 SJR 0.847 SNIP 1.381
Web of Science (2017): Impact factor 2.795
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.79 SJR 0.821 SNIP 1.348
Web of Science (2016): Impact factor 2.538
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.7 SJR 0.852 SNIP 1.434
Web of Science (2015): Impact factor 2.525
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.91 SJR 1.022 SNIP 1.671
Web of Science (2014): Impact factor 2.348
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.56 SJR 0.953 SNIP 1.673
Web of Science (2013): Impact factor 2.281
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.31 SJR 0.918 SNIP 1.611
Web of Science (2012): Impact factor 1.927