



# Process Intensification in Europe

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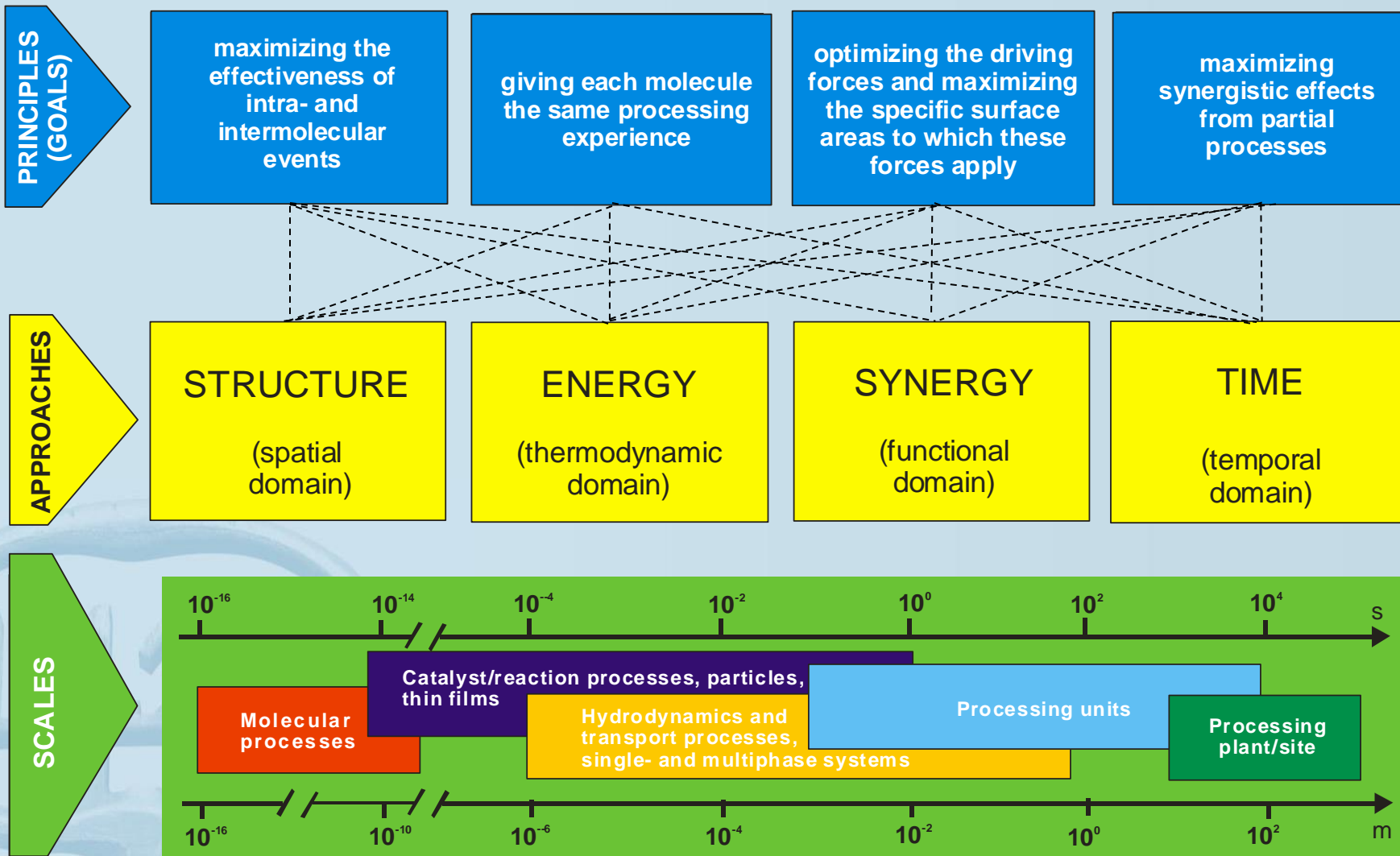
# Definitions of PI?

Process Intensification ...	Reference (year)
... [is the] devising <b>exceedingly compact</b> plant which reduces both the “main plant item” and the installations costs.	Ramshaw (1983) <sup>15</sup>
... [is the] development of <b>innovative</b> apparatuses and techniques that offer <b>drastic improvements</b> in chemical manufacturing and processing, substantially decreasing equipment volume, energy consumption, or waste formation, and ultimately leading to cheaper, safer, sustainable technologies.	Stankiewicz and Moulijn (2000) <sup>17</sup>
... [is the] strategy of making <b>dramatic reductions</b> in the physical size of a chemical plant while achieving a given production objective.	Dautzenberg and Mukherjee (2001) <sup>18</sup>
... [is the] <b>revolutionary approach</b> to process and plant design, development and implementation. Providing a chemical process with the precise environment it needs to flourish results in better products, and processes which are safer, cleaner, smaller, and cheaper.	BHR Group (2003) <sup>20</sup>
... refers to technologies that replace large, expensive, energy-intensive equipment or process with ones that are <b>smaller, less costly, more efficient</b> or that combine multiple operations into fewer devices (or a single apparatus).	Tsouris and Porcelli (2003) <sup>21</sup>
... [is the] holistic approach starting with an analysis of economic constraints followed by the selection or development of a production process. Process intensification aims at <b>drastic improvements of performance</b> of a process, by rethinking the process as a whole. In particular it can lead to the manufacture of new products which could not be produced by conventional process technology.	Degussa/Evonik (2005) in Keil <sup>13</sup>
... provides <b>radically innovative principles</b> (“paradigm shift”) in process and equipment design which can benefit (often with more than a factor two) process and chain efficiency, capital and operating expenses, quality, wastes, process safety and more.	ERPI (2008) <sup>22</sup>

Many different definitions...

... but similar key words!

# Fundamentals of PI



# Useful links

- EFCE Working Party on Process Intensification  
[www.efce.info/wp\\_pi](http://www.efce.info/wp_pi)
- EU Roadmap for Process Intensification  
<http://www.efce.info/EUROPIN.html>
- European Process Intensification Conference (EPIC)  
<http://www.ecce2015.eu/index.php/epic5>

