

Food Process Engineering and the Food Industry – Quo Vadis?

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Summary

Food engineering as part of the global food system has a particular responsibility to society. Food matters for every single individual on this planet. Unlike other manufacturing industries that developed during the industrial revolution the food industry, at its core, has always been about supplying a basic human need.

Over the past 50 years the food industry has (d)evolved into primarily a commodity driven, brand valued, cost driven profit model.

The end of the 20th century and the global realisation that nature's resources are finite introduced two new dimensions, other than growth and profitability, to the food industry namely; environmental and sustainability issues. Currently costing \$2 for every \$1 spent on food.

The need to reengineer our existing food system from a consumer's perspective, environmental concerns, future population and urbanisation growth and or a greater societal cost creates no doubt that a fundamental rethinking and radical redesign of the entire food chain and its practices is required.

Key Findings

Despite Food Process Engineering's auspicious start creating the means for food manufacturing and the fact that the same discipline, at its heart, is still best placed to find processing solutions for the optimal use of agriculturally and biotechnologically produced raw materials the discipline seems to have lost its way in modern times.

Food (Process) Engineering, as a specialised engineering discipline, is no longer viewed as a worthwhile, prospective career choice.

Food companies increasingly driven by quarterly profit reporting do not see engineering anymore as being at the heart of their operation.

Linking a very simple definition of engineering as being "to make things or make things better" with the discipline of Food (Process) Engineering perhaps the point has been lost by more recent numbers orientated management that a food process engineer's key role has always been to consistently reengineer food systems to achieve beneficial change.

As "the Fourth Industrial Revolution" starts to build on the so-called third digital revolution characterised by a fusion of technologies that is already blurring the lines between the physical, digital, and biological spheres the pace of change is evolving at an exponential rather than a linear rate. Likewise, population growth and the fact that 80% of all food production will be consumed in cities by 2050. The breadth and depth of these changes will herald the transformation of entire systems of production, management, and governance.

How can this rapid pace of change be achieved in the food industry without dedicated food engineering skills?

Key recommendations

The need for the food industry to re-engineer itself warrants a complete rethink of how we define Food Engineering relative to the same food system. As such, it's time to move forward with a more inclusive and forward thinking paradigm for both the industry and a reinvented and re-innovated food engineering profession.

This change in direction needs to include educating a new breed of Food (Process) Engineering professionals sooner rather than later. The Food Process Engineering profession also needs to come together and take control of its own future, professional development, future students, and professional recognition. The lack of and compelling need for an independent home, international in scope, for food engineers, academics and technicians regardless of their background (chemical, electrical, mechanical, food or agricultural engineering) is long overdue.

We also need to develop an integrated approach of both land based agricultural and food engineering disciplines, along with professionals in Food science to lead to a more integrated and sustainable food supply chain.

When it comes to reengineering food systems, as per core competencies Food (Process) Engineering professionals have driven change in the food industry for more than two millennia. They are best placed to lead and develop both the innovation and new production processes that will be required. Thanks to more recent developments in food science we know the "why" and or the "what" that is needed. The obvious challenge for industry, engineering and or indeed wider society will be developing the educational infrastructure and nurturing the correct skills set required to implement "the how" that can achieve this beneficial change.

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