17th European Biomass Conference & Exhibition, Hamburg, Germany. June-July 2009.

Subject number 4: Markets, especially 4.5 (Economics and benefits deriving from biomass integration, and bio-products complexes) and 4.6. (market forecasts).

How to win the transition towards sustainable biorefinery networks/chains?

By: dr.Emiel F.M. Wubben

Wageningen University, Management Studies Group, Room 5066, De Leeuwenborch (building 201), Hollandseweg 1 NL-6707 KN Wageningen, The Netherlands
P.O.Box 8130, NL-6700 EW Wageningen, The Netherlands
+31-317-484428/160 emiel.wubben@wur.nl http://www.mst.wur.nl/uk

Purpose: This paper wants to drive home a list of items important for firms and other stakeholders who want to succeed in the emerging Sustainable Biomass Refinery Chains. On the one hand, there are established biomass-driven supply chains like solid biofuels. But on the other hand, and especially in Europe, the potential of bioethanol, cellulosis and algae to create biopharma, platformchemicals, biomaterials, fuel, and energy, is (still) enormous. Breakthrough innovations and new coalitions will create totally new industries. Established (firms in) industries may orient themselves on the preferred positions, but in order to realize their ambition they need knowledge that is in progress at institutes or in the hands of others. What makes the more successful firms? We want to derive the items of importance for different biomass refinery chains.

Scientific innovation and relevance: researchers have no prime interest and managers have few tools to preselect routes for success in new industries. By bringing together at boith industry and firm level the insights from innovation management and management studies we add to the potential of firms to reduce risks and maximize potential for success with new business development.

Approach: Taking a business perspective, we use recent concepts and insights from the literature in strategic management (e.g. dynamic capabilities), innovation management (e.g. systems of innovation) and industrial organization (esp. industrial architectures) to find critical factors that explain the success and failure of firms in new industries. These concepts should drive exploratory research on different (early) cases of biomass supply chains. Socalled comparative case study analysis brings together secondary and primary data, based on public and private documents, and semi-structured interviews. The results will be contrasted systematically with earlier emerging industries.

Results: The paper next presents a series of case descriptions. We derive a longlist of critical success and fail factors on the basis of the different cases. Next, by contrasting with other industries, we will shortlists the critical success factors for companies and other stakeholders how to become successful in the emerging biomass refinery chains. For example, in contrast to, socalled, new economy sectors, but similar to functional foods, we here expect substantial market entry from existing industries to establish and dominate new networks and chains. The need for forward or backward integration by established firms determines the operating space of new firms to grow and flourish in the new supply chains.

Conclusions: The concluding shortlist differs on the basis of the original value chain position that a company holds, and the specific level in the biorefinary staircase that is targetted. In general, capital requirements for investments and substitution effects for half-products will soon prevail over fundamental research and product development.