In the development of the modern economy, we can observe a shift towards increased customer-orientation. If we put things a bit black-and-white, we can describe this shift as follows. In traditional (say ‘old school’) thinking, a company determines its output for a market, either physical products or services, from its own perspective, trying to optimize the output using its own internal criteria and measures. In modern, customer-oriented thinking, a company determines its output for a market from the perspective of the customers in that market, using their criteria. In other words: instead of delivering what the producer wants to sell, delivering what the customer wants to buy. This holds both in business-to-consumer and business-to-business markets.

In the modern times where competition becomes fiercer on a global scale, delivering an output that may make a customer happy is, however, often not good enough anymore. A customer that is happy at its input side (i.e., happy about products or services supplied to it) is not necessarily a customer that is successful at its output side (i.e., successful in delivering products to its own market). This means that a producer should provide an output that makes a customer more successful - and preferably in a way that can be quantified and measured. If you can show that you make your customers stronger, you ensure your own success. This is where the notion of the Outcome Economy comes in. As stated by Accenture in their Technology Vision 2015: “the Outcome Economy is defined by the ability of companies to create value by delivering solutions to customers that in turn lead to quantifiable results”.

We can project this thought on many business domains. A typical example is a manufacturer of airplane engines. In ‘old school’ thinking, it may focus on making engines with the best product characteristics from its own perspective. In Outcome Economy thinking, it should focus on enabling its customers to achieve the business outcomes that are important to them, such as high operational availability of airplanes equipped with engines of the manufacturer. This may be achieved by trying to optimize the technical quality of engines to the extreme (and hence possibly drive up their costs to the extreme as well) to avoid engine failures, or alternatively by supporting quick swapping of engines that have failures (or are predicted to have failures). In doing so, we have moved from producer-centered products to customer-centered solutions.

When these solutions must lead to quantifiable results, we must define what result is quantified exactly and how measurements are made to assess this result - certainly if the projected outcomes are put into contracts. The ‘how’ question includes the ‘who’, the ‘when’ and the ‘with what’ sub-questions. The ‘who’ question pertains to which party should do the measurements: is it the producer, the customer, or perhaps an independent third party? The ‘when’ question pertains to the moment at which and the frequency with which measurements are taken. Certainly in highly volatile markets this is an important issue. Last - but not least - the ‘with what’ question is about the instruments that are used to make the measurements. As measurements are about information, this is where information technology comes into play.

Measuring customer outcomes is usually not an easy task. Take the airplane engine manufacturer that wants to sell high operational availability of airplanes to its customers. Here the ‘high’ needs to be quantified, say at 98.5% (to name a rather arbitrary number). To assess whether the manufacturer properly contributes to this value, engine operation must be monitored, the various steps in engine maintenance and failure handling must be meticulously recorded in time and the effect on airplane operation must also be measured. This can be done by having sensors in the engines that measure all relevant operating characteristics and transmit these to the manufacturer, by logging all engine handling process steps for maintenance and repair, and by measuring airplane downtime. Given the fact that there are thousands of engines in play, this creates large data streams and intensive data processing. On the data generation side, we see what is called the Internet of Things, where engines and airplanes are the ‘things’
in this case. On the data processing side, we see what is called Big Data. And in between, we may see data storage and transmission in the form of Cloud Computing.

This all means that Outcome Economy actually has two faces that are strongly interconnected: a business side and a technology side. At the business face, we determine the new business models in the outcome economy world. Here we determine which outcomes we want to sell to which customers under which conditions. Note that even the ‘which customer’ is not always a trivial question. In our airplane engine example, the relevant customer may be the owner of the engines (which may be a leasing corporation that never uses the engines itself), the operator of the airplane to which the engines are attached (who may neither own the airplane nor the engines), or the parties that use the transportation offered by the airplane (such as airlines or tour operators). At the technology face of the Outcome Economy, we see the design and operation of advanced, distributed data processing facilities. These facilities should operate in a real-time fashion, should be completely trusted (as their data determine the success of the players in the outcome economy), and should be perfectly reliable.

The two faces of the Outcome Economy stress that the modern economy is one that is heavily based on a strong interplay of business and technology aspects. To harness these developments, experts are required that can oversee both aspects and that can understand their mutual influence. Therefore, it is good to see that the research project described in this magazine has its roots in the field of industrial engineering, where business and technology meet in clearly defined structures.

**Biography**

Paul Grefen is a full professor in the School of Industrial Engineering at Eindhoven University of Technology since 2003, where he chairs the Information Systems subdepartment. He received his PhD in 1992 from the University of Twente. From 1992 until early 2003, he held assistant and associate professor positions in the Computer Science Department at the University of Twente. He was a visiting researcher at Stanford University in 1994. He has been involved in various European research projects as well as various projects within the Netherlands. He is a member of the Executive Board of the European Supply Chain Forum. His current research interests include architectural design of business information systems, inter-organizational business process management, and high-level transaction and contract management in electronic business. He teaches various courses related to these topics. During the IRP, he has given advice in many ways, especially regarding the theme.