

Sales Forecasts without Market Research: How does it work?

Collective Intelligence - intelligently applied

by Christian Halemba and Aleksandar Ivanov

How we as controllers obtain the necessary data, assumptions and information in order to be able to draw up the most reliable reports and forecasts? **Electronic Prediction Markets (EPMs)** is a method which makes it possible to collect in a few days **knowledge** on a given topic **distributed among employees** and to **convert it into hard numbers**. Using case studies, we will show how companies such as Deutsche Telekom, Henkel, Syngenta, and Tchibo use EPMs for reducing the costs of obtaining information and at the same time increasing the quality of the information received.

Functional Principle

Electronic Prediction Markets are **web-based information markets** that can bundle up in a short time the staff's knowledge from various departments within a company ([image 1](#)). In an EPM Intranet portal employees see certain forecasting questions, e.g. "How will the sales of product X in KW14 look like?". The participants share their opinions and then stake play money on their predictions. The more confident you are, the more you can stake on your prediction.

This system gives the staff an incentive to make their **predictions as accurate as possible** because the closer you get to the actual result, **the more play money you win**. To encourage the employees the top forecasters of the month receive real prizes and gain recognition across the whole company.

The EPM system bundles up all the given opinions into a consistent overall forecast. This forecast is demonstrably better ^{1,2} than traditional methods such as statistical estimations or surveys. In addition, the system

is **self-cleaning**, i.e. those who tend to make wrong forecasts (or predict wrongly on purpose) lose "cash" and are left with less play money for the next forecasting round. That way their influence on future forecasts diminishes.

Henkel AG & Co. KG use EPMs in their supply-chain planning in order to optimize their purchase and production planning with more accurate EPM forecasts. Henkel was able to enhance the accuracy of its forecasts by 15 percentage points with the help of the EPM system. This significant improvement was possible thanks to the fact that the whole relevant knowledge from warehouses, production, the sales department and headquarters could be brought together quickly and with little effort - instead of building forecasts based exclusively on the knowledge of a small group of experts.

Due to the improved quality of planning, Henkel can achieve an **annual double-digit million EBIT increases** in a region like North America. Most of this EBIT effect is due to Henkel being able to avoid lost profits by avoiding stock-outs. And on the other hand thanks to optimization in the purchase of raw materials and reduced storage costs.

Ranges of Application

[Image 2](#) shows typical applications of EPMs. The most common applications are:

- regular **sales forecasting** for all sorts of products and services,
- **forecasts for new products** and services for which there is no historical data available yet,
- supplying the **inputs for project proposals**, e.g. costs and duration as well as turnover potential,

- and the **assessment** of a number of **risk parameters and probabilities**.

A four-year long study by **McKinsey&Co.** published in 2010 shows the EPMs are one out of twelve **Web2.0. methods** that have been established in corporations now.³ It was the first time that the positive influence of such approaches towards company results was empirically proved.

EPM Costs and Benefits

Companies apply EPMs mainly for two reasons ([image 2](#)). Firstly, for the reduction of information costs incurred by market research, external data sources and analysts' reports which have to be paid for. And the second aim may be to increase the accuracy of inputs used in controlling and planning, as it was in the case of Henkel presented here.

A controller relies on all sorts of information while working on reports, budgets and predictions. Information acquisition incurs high external costs through market research, or worse: internal resources from various departments are tied up in costly internal processes.

Tchibo GmbH, for example, uses a costly forecasting process **for its new non-food-products**. In this process regular sales tests and customer surveys are carried out. The aim of it is to know in advance and as accurately as possible the sales of products which are partly manufactured on order. In order to decrease high costs of this process, Tchibo identified EPM as an alternative method.

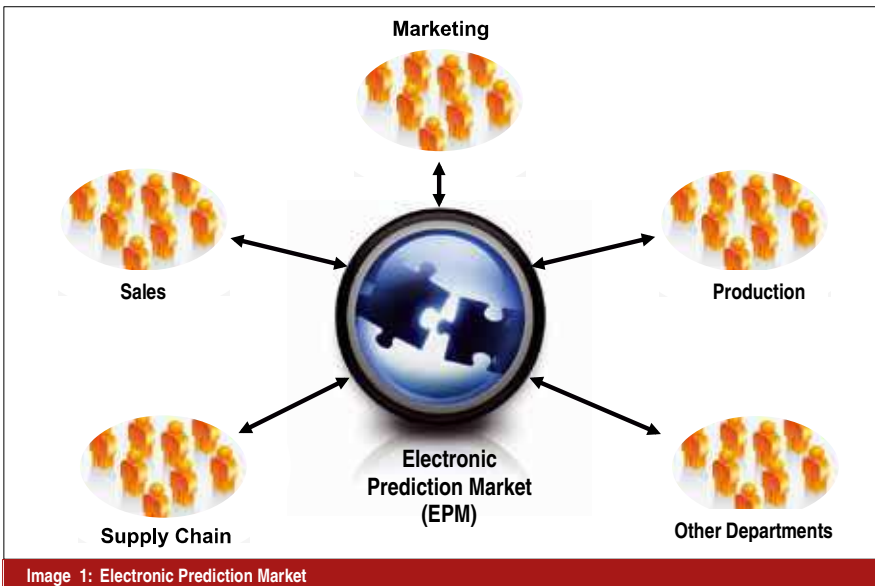


Image 1: Electronic Prediction Market

Tchibo's planning team in its headquarters in Hamburg connected 100 of its 2,500+ retail stores within a few weeks with the help of an EPM system. The store managers regularly visited the EPM Intranet portal after closing time and provided their sales forecasts for the new articles that had been planned.

After a five-week test phase the team were able to verify the forecasts. It turned out that the EPM forecasts provided **the same level of accuracy** as the previous processes and at the same time **saved 90% of costs**. Replacing the test sales and surveys with the EPM enabled Tchibo to reduce its forecasting costs by a high 7-digit figure per annum.

The costs of an EPM system are within at a mid 5-digit range per annum. In addition, with a new EPM system one needs to consider the one-time costs, e.g. EPM integration into existing systems and processes. Amortization time of an EPM investment including introduction costs is less than one year, regardless of the process costs which is to be complemented or replaced by the EPM system.

This favorable cost position is achieved with the help of web technologies and it enables also medium-sized companies to use these modern forecasting technologies so that they are not reserved for big groups of companies only. For instance, a medium-sized construction company uses an EPM system to better forecast its capacity utilization and therefore

to optimize its medium-term investment planning. At the same time the staff's collective knowledge is also used for strategic forecasts, e.g. predicting the competitor's behavior and the medium and long-term market trends and price trends.

EPM Implementation in a Company

The implementation of an EPM system usually takes place in three stages ([image 3](#)). Stage 1 is a pilot phase with a limited number of participants which serves to obtain approval for the novel approach. **An EPM system is supposed to bundle up the staff's knowledge from one or more departments.** Therefore, early in the first stage the department(s) have to be involved in the planning of the new portal. Moreover, it has to be clarified which organizational unit should host the EPM system. If we want to use it across the whole company the HR department is suitable. If on the other hand

only one department uses the system, it can be administered within that department.

From the participating staff's point of view an EPM portal can be made available in two different ways. Either the system is integrated into an existing Intranet portal so that the staff can use the EPM portal within the **Intranet portal** with their existing login data. Or the EPM system is hosted by an external provider as a **stand-alone portal** and the staff use it **via secured Internet access**.

Likewise there are two possibilities for management and analysts who want to make use of the EPM predictions. The results from the EPM system can be transferred into the existing system, e.g. an ERP system, in an automated way. Or they can be made available to planners as an Excel file download.

In the first stage of implementation the EPM system has to prove its usefulness. For that purpose the forecasting accuracy is to be tested. Information is being gathered during an **-2-month test stage with a limited number of participants**. If the first stage is satisfactory then, in the second stage, the EPM system will be integrated into everyday work and made available to further participants. In stage 3 the EPM system enters the completion status and is regularly used by the staff.

Depending on the number of forecasts we need a minimum number of active participants to be able to achieve valid EPM forecasts. The following rules of thumb are in use: **50 active participants for 30 forecasting values per week or month** (e.g. 10 products in 3 regions); 100 active participants for 60 forecasting values;

EPM Application Areas	EPM Benefits
<ul style="list-style-type: none"> • turnover and sales forecast • KPI forecast for new products • project forecasts (costs, duration etc.) • risk parameters (probability of occurrence) • market trend, behavior of competitors and others 	<ul style="list-style-type: none"> • proven lower costs than external market research • proven higher forecasting accuracy than statistical methods • faster results thanks to use of modern web technologies

Image 2: EPM Application Areas and Benefits

	Stage 1 (pilot phase)	Stage 2 (roll-out preparation)	Stage 3 (permanent use)
duration	<ul style="list-style-type: none"> • approx. 2-month-long testing stage 	<ul style="list-style-type: none"> • 1-2 months 	<ul style="list-style-type: none"> • approx. 2 months
aim	<ul style="list-style-type: none"> • testing the benefits of the EPM system use 	<ul style="list-style-type: none"> • system adjustment to the company, e.g. integration into Intranet, connecting to reporting systems 	<ul style="list-style-type: none"> • EPM anchoring in business process • defining forecast that are "on the spot" to be used in EPM only
participants	<ul style="list-style-type: none"> • typically 30-200 participants, though in general always predominantly company-specifically 	<ul style="list-style-type: none"> • raising the number of participants according to the topic and the size of the company 	<ul style="list-style-type: none"> • setting the final number of participants

Image 3: Implementation Plan

200 active participants for 100 forecasting values. A participant normally takes part in more forecasts so that for each forecast a sufficient amount of information is collected. It is important to understand that the EPM unlike surveys does not need a large representative number of participants (=representative crowd). Much more necessary are the right participants who possess relevant information about the respective forecasts (= "wise" crowd).

Deutsche Telekom implemented EPMs along this 3-stage Best-Practice-Process during a 6-month long period of time by incremental steps. In stage 1 were set first of all forecasts about the potential of new products and strategic forecasts in the EPM system. **About 1,000 staff members from**

marketing, network operation, research and corporation strategy departments were invited. The participants could still see only the forecasts that were relevant for them. It allowed the management to test the targeting of knowledge carriers from various ranges of topics.

After the testing stage has been completed in stage 1, the use of the EPM system could be better quantified for marketing and strategy. In that way the system collected **over 18,000 opinions on various products in only 4 days** from the staff located all over Germany and converted the results into quantitative figures that could be applied in a business case. Hence the potential of new products could be assessed basing on a much broader foundation than that provided by a small

committee of experts. In strategic area the EPM system shows forecasting accuracy higher than the reference forecasts from the best national and international experts.

These results paved the way for an EPM implementation across the whole company. The system was anchored in the company's HR department and made available for all areas. Each area can at each time make forecast queries and invite appropriate groups of participants. Due to appropriate activities the collective results of forecasting were available after three days only. It was especially appreciated by the top management which needs quick inputs for critical decisions on the regular basis.

Conclusions

There lies a hidden treasure in the companies: the staff's knowledge about markets, products, competitors and customers. This treasure can be for the first time utilized with the help of modern web methods. Unlike wikis, forums and blogs Electronic Prediction Markets hoard this knowledge not only in infinite text collections, but they convert it directly into decision-relevant quantitative KPI. To use the in-house treasure, companies should think about the values which are to be forecast and potential participants.

Authors



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Footnotes

¹ Ivanov, A. (2009): Using Prediction Markets to Harness Collective Wisdom for Forecasting, in: Journal of Business Forecasting, 23. y., issue 3, p. 9-14

² Berg, J.; Forsythe, R.; Nelson, F.; Rietz, T. (2000): Results from a Dozen Years of Election Futures Markets Research, University of Iowa

³ McKinsey Quarterly, The rise of the networked enterprise: Web 2.0 finds its payday, December 2010

An Interview by Dietmar Pascher, coach at Controller Academy, with Christian Halemba and Aleksandar Ivanov

Pascher: I have heard from Mr Klaus Schikora at our seminar on marketing controlling about "crowd forecasting". It immediately crossed my mind that it's something for our controllers. How long have you been working with Electronic Prediction Markets (EPMs)?

Halemba/Ivanov: We have been dealing with this topic for five years and successfully implemented the system in all sorts of branches.

Pascher: It's especially for us, controllers, important to work out with the management the most feasible budgets. And the sales are set at a lower level whereas the costs at a higher one. One wants to be on the safe side and reach one's aims in any case. So "collective forecasting" can certainly bring a bit more objectivity here, can't it?

Halemba/Ivanov: Exactly! An EPM system seems to be the only politically acceptable solution as nobody can allow his/her interests influence the forecast, and if it should be the case the EPM will correct them. With bad (too high or too low) forecasts the participants spend more and more from their play money and therefore their future estimations lose importance.

Pascher: What experience do you have in the matter of target agreement?

Halemba/Ivanov: The top management's support and readiness are necessary to establish the EPM as a basis for target agreement.

Pascher: What is to be considered during the implementation?

Halemba/Ivanov: As with all projects there has to be an internal champion who wholly backs up the method. We suggest first of all a pilot project in order to check all the learnings and responses of an organization. But the staff first need to receive appropriate topics (e.g. sales forecast) in order to get their whole attention.

Pascher: What should be in any case avoided?

Halemba/Ivanov: It's essential that the participants do not compete with each other and a ranking list with best estimations is created. We use a points system (play money) which awards to every participant individual points according to their performance. The EPM should not be used if the forecasts do not contribute to the value - in some companies the forecasts are made only as a sideline and in the end replaced by other objectives. In such a way the forecasting team deteriorates into an "alibi function".

Pascher: I can personally very good imagine that "collective forecasting" leads to objective forecasting. Thanks for the interview.