

Joanna Mazur

Innovation in the Information Technology Industry

Innovation Is Nothing New

The key importance of innovation for the economy, companies, or even the single individual is no novelty. There is certainly a very impressive amount of research and studies on whether or not it is worthwhile to implement organizational, social, educational, or yet other solutions that facilitate the freeing of creative potential and may bring us wonderful products. Although more than a century has passed since Victor Hugo noted “There is nothing in the world equally great than an idea whose time has come,” even he was not the first to show respect for the value that is the human idea externalized in new and better solutions.

New ideas, new concepts, and new ways of solving problems are changing our lives, expanding the boundaries of our perception, and satisfying more than just the creative needs of those who generate them. Solutions or products that are universally known today and that can boldly be called spectacular successes of recent years have made their authors exceptional and even immortal, or at the very least very wealthy. The list of these ideas is long and very diverse. It applies to all fields of social and economic life and most certainly includes:

- Products that are novel technological solutions, such as the personal computer, the “blue laser,” cell phones, microwave ovens, and Internet search engines and browsers,
- Innovative financial solutions (e.g. new financial instruments), and
- Modern organizational solutions (e.g. tele-work).

It is in the context of these and other successes that the statement regarding the existence of a universal conviction that innovation must be acknowledged as the driving force of our civilization does not seem to be overly burdened by any risk. Since such

is the view of innovation, it would seem that there is no need to continue to convince a group already convinced as to its value.

The Information Technology Industry as an Example of an Environment Strictly Coupled with Innovation

My personal passions and professional challenges have been merged with the information technology industry for more than a dozen years. I believe that over the past several decades it is *this* industry that has been subject to very dynamic development that simultaneously initiated and determined development in other areas of the economy.

Dynamic development is more than just keeping up with change. It is more akin to a need to overtake change and to challenge the changing reality through solutions whose implementation accelerates market evolution. Such development must be stimulated by innovation. Without innovation it is impossible to speak of building and maintaining an industry leader position. It is also no news to state that innovation is only possible when organizations have the relevant intellectual potential, a potential that is built by and made up of employees.

In this respect, companies active in the information technology industry are not typical organizations. Their employment structure features a very high share of college graduates—people for whom the need for prestige or a certain margin of freedom and independence in defining directions of development or possibilities for implementing nonstandard and ambitious tasks is as important as needs linked with appropriate compensation and sundry benefits. Due to the specifics of the business being conducted, information technology companies must designate significant financial resources for training their personnel. This is one of the reasons why it is so easy to find examples of organizations that can effectively utilize the knowledge and creativity of their workers for generating ideas that reap business success among information technology companies.

A Worldwide Example of Success

One of the most frequently cited examples of an information technology company that is associated with innovation is Apple. Its history goes back to a garage beginning when Steven Jobs and Steven Wozniak built the first personal computer. All that was necessary was knowledge, passion, involvement, and the skill needed to look at certain matters and solutions in a different, nonstandard way. The design and development of what was Apple's key flagship product for many years—the Macintosh, the first markedly user friendly computer that used a mouse, screen icons, and software making it possible

to paint (MacPaint)—was a key to the very dynamic development of the company. It almost proved too much. An enormous harvest in the form of hundreds of thousands of orders, the need to distribute products throughout the world, and the development of competition, almost marked the beginning of the end of this novel organization. It had to face the challenges of transformation linked with the need to introduce very systematized and procedure-based work principles. The organization's need to "grow up" to a business scale necessitated the introduction of major changes that had broad impact on what is known as organizational culture. Many management experts saw such change as a threat taking on the form of restrictions that might kill the company's characteristic spontaneity, openness, and freedom—qualities that foster the creation of an environment oriented at innovation. Unfortunately, some of these fears proved real and Apple, albeit organizationally more efficient, lost a large part of its competitive edge, an edge whose source was novel products. The time again came for changes and action. This time they were aimed at a return to innovation while simultaneously holding on to those work methods that guaranty the functioning of the company as a large and cohesive organization. It turned out that it was possible to conduct reorganization, stressing appropriate behavior and principles of collaboration that resulted in workers feeling a decided tack towards innovation. There can be no doubt that among the key success factors behind these changes were the managers and leaders who proved capable of building ties and guarantying good communication. Today, the efficiency of freeing innovation at Apple is borne out by the successful market debuts of universally known and desired products—the iPod and iPhone. In this day of crisis when most companies, including companies from the information technology industry, report poorer than planned financial results for 2008 to the stock market, Apple not only achieved its targets, but exceeded planned profits. There can be no doubt that in this case innovation proved a good recipe for crisis.

Family Experience

Working in the information technology industry for over a dozen years, I have had the opportunity to actively take part in the making of decisions with a thought to utilizing the full potential of workers in order to strengthen the innovativeness of the organization in the various dimensions of its operations. Some of these experiences are a value in launching projects aimed at just such targets.

Several actions were undertaken at the company I worked at over the years 2000–2001. They were intended to motivate employees towards greater creativity and the generating of unconventional solutions. One such effort was the official establishing of the "Innovation Club." Club by-laws were developed in order to support its operations. It

was assumed that anyone can be a member who forwards an idea that might bear fruit in the form of:

- New, interesting products, or
- The improvement of processes being conducted in the company that can reap financial benefits derived from the saving of time, materials, etc., for example.

The bye-laws also assumed cash prizes (three prizes per quarter and one annual grand prize), which were intended to encourage workers to forward ideas.

It is not difficult to note a certain confluence between the initiative to establish the club and the idea of comprehensive quality management (TQM). The primary principles of TQM were not unfamiliar to the employees of this organization. Their company already had an implemented quality management system for several years.

After over a year as of the starting of the Innovation Club, it was possible to note the following:

- A fixed group of over a dozen people forwarding ideas coalesced, which was not a satisfactory result for a company employing about a thousand people, and
- The generated ideas were usually the forwarding of a need to implement solutions or ideas in the company that the person submitting the idea learned about through literature or saw at other organizations.

Many improvements were implemented as a part of regular operations in parallel to the ideas forwarded by the Innovation Club. New solutions and products expanding the company's offer were designed. The authors of these changes did not see themselves as innovators, but rather as people striving to a higher level of professionalism. A wider look at analyzed questions, a search for connections and ties from various fields with the given problem, the ability to reach out for non-routine solutions, and the initiation of changes benefiting the work environment—all this was more a style of work and natural expectations on the part of the employer in the consciousness of most employees than a foundation for innovation in the organization.

With ever increasing probability, it may be assumed that the small group that used the formal path to submit ideas to the Innovation Club was primarily striving for the prizes guaranteed by the Club bye-laws.

These results made the people involved in undertaking pro-innovation efforts aware of the fact that very often, many of the benefits for the company are the result of a large number of improvements and modest changes, rather than concentration on seeking ideas for lucrative, new ventures. Perhaps this initiative intended to release innovation was doomed to failure because it tried to use formal methods to stimulate exactly the things that such a formal approach stifles the most. On the other hand, the atmosphere of joint work on projects that are often very demanding was a natural method to build ties within the design teams, favored the sharing of knowledge from various fields of

competency, not only those strictly tied with information technology (information infrastructure, applications, software production process support), but also in the area of the customer's business for which the products were being developed (banking, finance, industry, power engineering, etc.). Such an environment fostered the overcoming of barriers and the seeking of solutions taking into account new and broader perspectives.

It seems that that it is in information technology companies with large portfolios of diverse projects and products—guarantying a potentially broad scope of search for novel solutions—that conditions are exceptionally ripe for the generation of many innovative ideas. The more of them there are, the greater the probability that they will include concepts of exceptionally high potential. One of the most interesting examples of innovation breaking barriers between various fields of life is the “World Community Grid,” which is a non-commercial solution making possible a search for unused computer power submitted to a common network by respective owners. All this is to make it possible for scientists to work on exceedingly large data sets and so their work takes into account the needs of various areas of the economy.

The Role of Human Resource Management and Growing Innovativeness in the Organization

Key factors that have direct influence on an organization's innovativeness are:

- The intellectual potential of workers,
- A work environment fostering the building of trust, openness, a readiness to undertake risk, the sharing of knowledge, and collaboration,
- Managers and leaders who are capable of building ties and actively support efficient communication, both formal and informal, and
- Access to a broad area of competencies that, at times, link fields that seem to be completely different.

Human resource management processes should be designed so as to support each and every one of these factors. Among other things, they should deliver information on the intellectual potential held by the company, with accuracy on the level of key specialties and individual persons, periodically or on request. It is only then that the following becomes possible:

- Flexible management of competency development paths, including the development of training and coaching programs, often utilizing one's own educational potential,
- The appointing of duly selected leaders to undertake new ventures, and
- Identification of workers who have the skills and capabilities to increase opportunities to generate new ideas, for whom team work is a meaningful value.

In the context of the above discussion, it is a truism to say that teams of workers involved in the creating of human resource management processes should be those who actively support changes in organizational culture by laying stress on concrete behavior and company values. Modern human resource management processes should help the organization in rapid reactions to needs for change. In a word, they should help companies be flexible, which in the context of the scale of business, complex organizational structures, and complicated external regulations, often requires major innovation precisely in the design of human resource management and may be a major challenge that also provides significant satisfaction.

Innovation vs. Crisis

Innovation is always tied with the risk of a lack of a good idea. In this day of crisis and dearth of surplus financial resources, the not taking of financial risk related to investments in research and development activities is easy to accept, with concentration on day-to-day operations rather than taking the risk of unsuccessful costly actions aimed at possible profits in the future. Among other things, this ease stems from the fact that the profits are difficult to measure in the phase of action initiation. Perhaps, if some imaginary X Company could confirm that neglect in implementing certain ideas will result in its loss of revenues—e.g. in the sales level of iPhones in the year 2008—it would make a decidedly different decision.

In times of crisis and financial difficulties what is given up is often the riskiest of actions. The quest for unconventional solutions is certainly among these. Such times are usually times of strict financial discipline engendering greater control, which always has a dampening effect on innovation. On the other hand, there is much truth to the adage that “necessity is the mother of invention.” It is hard times that strongly accent needs that may determine new, unconventional solutions. There are certain circumstances from the past that allow the supposition that a time of crisis is simultaneously a time of opportunities for those who are not paralyzed by fear of the risk of a lack of success. Maybe this is because:

- They will not have an alternative,
- They will have to set in motion all their own intellectual and competency “reserves”—the entire potential at their disposal, and
- The risk they will be undertaking will not be a major financial risk.

In the context of these conditions, it seems that this may be a fruitful time, especially for teams or small companies operating independently or as a part of large organizations, assuming that they shall have guaranties of flexibility and freedom of action unencumbered by the decision-making inertia of large organizational structures.

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The Pro-Innovation Influence of HRM at IBM

The origins of the **IBM Corporation** go back to the 19th century. IBM stands out not only for its extraordinary achievements in the field of innovation, where it holds the greatest number of patents (4,186), including for the prototype of the personal computer, the floppy disk, etc. The company is also outstanding in its solutions that foster revolutionary progress in many fields, ranging from enhancing the process of the accumulation of solar energy, through nanotechnology research, all the way to the diagnostics of osteoporosis and the development of a computer simulation of the human organism.

IBM is more than just innovative achievements in technology. It also represents special and continuous care for people. For IBM, it is Man who represents the highest of values. This is visible in the strong society-oriented policy targeting the company's employees (almost 400,000 people in 170 countries) as well as the external social environment. With respect to resource management, what makes IBM unique is innovation, an unconventional approach, up-to-date tools, and flexibility. All these features have a direct impact on the innovation level of the solutions the company offers to customers. IBM understands that implementation of innovation inside the company first is absolutely indispensable for promotion of innovation on the market.