Innovation Through ICT - The Management View

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Abstract. *Innovation without ICT is virtually impossible nowadays. This is why the innovation area appears to be unavoidable part of ICT management discipline.*

The authors discuss relations between ICT management and innovation through the role of CIO on three levels: 1. CIO as a source for business innovation, 2. CIO innovates within ICT organization and 3. CIO enables the innovation in business (supporting them with specialized ICT solutions).

Paper deals also with the tools dedicated for innovation management. Own experiences and achievements in innovation related to ICT will be presented.

Keywords. Innovation, management, ICT

1. Introduction

To introduce the innovation we can't miss with the legendary statement of Peter F. Drucker: 'Innovation is a discipline, with its own, fairly simple rules. And so is entrepreneurship. Neither of them requires geniuses. Neither of them will be done if we wait for inspiration and for the 'kiss of the muse'. Both are work. And only those businesses, and those business executives, who accept this are likely to survive.'!" [1]

So we introduced "innovation"! And how is it related to two other keywords? One could say, there is no need to introduce words "management" and "ICT", they are obvious and everyone understands them. But we should make some distinction between "innovation" itself and "Innovation Management" (I*M, in innovation-related abbreviations "I*" will be systematically used this article!):

Innovation is single activity or achievement. On the contrary, I*M is systematic process within the organization, which promotes, enables and harness innovation itself. Less used, but better term would be "Innovation Leadership". Both of them combined harvest >1 million documents on Google!

Whole article title deserves also short introduction: we are focusing on three issues:

1. how to manage the innovation that brings ICT
2. how to manage ICT activities in innovative manner and finally
3. how ICT can help managing innovation (process) in the company.

2. ICT as a source for business innovation

2.1. Innovation environment

Basic factors of economic performance as today, measured through the competitiveness level, are categorized in dependence of politics. Politics domain consists of: governmental institutions, macroeconomics, judiciary system, financial market and corruption level. Competitiveness factors independent from politics are: education, innovation , business sophistication, technology usage level and similar.

According to these criteria Croatia is positioned today on 59th rank among 120 observed countries, which determines also the level of our personal and public standard. [9]

Croatia can improve this position on long term by making changes in both domains. Experience shows that the changes are less easy in the politics domain. Thus, we have better chance in materialization of our further development based on principles of postindustrialization society, knowledge based society, information, innovation and intense usage of ICT. This applies on national level as well as for

every single company. At least on declarative level Croatia tends to be knowledge based society, leveraging its prosperity on immaterial resource usage. From the prospect of business system it means to develop the ability of usage of own information resources and to conduct the logical transformation flow of different aggregation stages of this immaterial resource. This flow starts with data, through information and knowledge, ending in usable wisdom harnessed in continuous improvement in business system organization, its business processes, technology and products/services. Also external service providers are challenged for innovation! [10]

Having the information itself means nothing, if it is not used for making good business decision or creating new idea. Literature and everyday practice show that this flow ahs multiple levels character as well as the need for knowing and implementing the management of own information resources. Business system efficiency and effectiveness increasing, services improvement, new products/services development are three main goals of business improvement. The types of improvement can vary, from some useful idea, business part process improvement, up to technological progress and invention. Statistics show that the generators of new ideas are mostly own employees, sales and R&D, and from outside sources: business partners, consultants and even competition.

This article shows further what the innovations are, how ICT can be the source of business innovation as well as what is the place of innovations in ICT departments themselves. **Error! Reference source not found.**

2.2.Innovation definitions

What is the meaning and business impact of "innovation"? It is useful to show more than one definition: INNOVATION has multiple meanings and exercises very differentiated impact on organization's business. If one sticks just on one definition, he/she will use advantage of only one innovation aspect. Thus, full potential of this vitally important opportunity will be lost.

Aimed to attract additional attention, firstly we can bring following provocative definition of the "innovation" (slightly modified)*:

innovation *1. thing or process ahead of the times; unlike what has come before   2. the same old material/product/services, but recycled, and possibly rebranded   3. what the thing that went wrong was hailed as before it imploded and got the people who championed, signed-off on, or created it fired.*[3]

In the reference cited, definitions after the 1st one are "business euphemisms", showing stereotypes or hidden meanings.

Thus, important is "NEW", but innovation also could be something that smells on customers' cheating or even mere fixing previous mistake!

Such insisting on importance of innovation one may see as a kind of religious preaching. Of course, we don't want to communicate that (only) the innovation is panacea for everything or "holy graal" of business success. But its importance is substantially higher than actual recognition in the organizations, especially in our region. Small evidence for general trend for innovation appreciation is also the following: "Medvedev /new president of Russian federation/ spoke about the 4I's: institutions, infrastructure, innovation and investment, sectors that until now have been neglected by the Putin administration."

In our research we collected more than 30 good definitions of innovation notion. Separate paper could be written only on showing different aspects of innovation through these definitions. Here we bring only two compiled definitions that summarize the scope of the notion:

1. „**Innovation is every intentional novelty bringing sustainable advantage to the organization."**

2. **"Innovation is the product, service or process which will achieve market success in the future or be recognized as best practice."**

2.3. From theory to business practice

Based on the definitions mentioned, it is clear the business impact of innovation: conversion of an idea or even invention to the innovation we have to count on market factor. So if some employee comes to great idea for improving internal production process or even invents completely new product, the measure of success of this innovative activity is its market impact. On one side it could bring savings in production process and thus bring competitive advantage to the company. On the other side, innovative product can improve company's market position.

Sources of improvement ideas in the company are different: mostly they are coming from R&D, as well as from marketing departments. In early times of ICT (when it was moreover referred as EDP), its innovation potential was recognized mostly in cost savings procedures. This applies to saving manpower, but also material, a s well as to speed up some internal (back-office) processes. This potential is still present and has to be systematically investigated and applied. Let's mention only one trivial example, which can be easily tested in every company: what is the percentage

of usage of MS Outlook calendar for appointment scheduling, compared to the conventional communication channels (letters, phone, e-mail)? Author's survey in big Croatian company yields result of less than 25%. This is despite the fact that almost every Croatian company has installed MS Outlook or similar tool and its usage could save up to 80% of meetings' coordination time!

In advanced applications of ICT, business is not just supported or improved by ICT. New technology brought in the recent period completely new products and services, as well as new business models. We are not speaking only about examples where we have the banks without any counter clerks, airlines without tickets or x-ray departments without film. We experienced (also) completely new industries earning bns $ /yr using business models not even known before the modern ICT era, take Google or Yahoo as examples.

How the business should act aimed not to miss such opportunities? Simple quoting of modern innovation guru Guy Kawasaki shows the way: "Don't let the bozos grind you down!" [5]. The example he brought in this respect relates exactly to one of most successful business innovation in the history: when he was once offered to be appointed as CEO of Yahoo, he rejected with the explanation "It's too far to drive and I don't see how it can be business!". These are two typical blockades and barriers to the innovation, which are to be banned:

- We are giving up because the innovation is not easy to achieve!

- Innovation simply can't be perceived as feasible!

Business leaders should take this very personal communication very seriously and act in favor of using ICT as the engine for improving their business – from small savings and process advances to development of completely new business models which can boost their company ahead of competition. Examples of splendid successes through ICT should be used as motivation, banning the saying "Everything what had to be invented, was already invented!" [6]

3 ICT as an innovation playground

ICT has thus immense role in boosting business innovation: could you imagine eBay as a business without ICT? But not any kind ICT! Not an ICT as it was 50 years ago, sending punched cards with your auction propositions to the central processing site, running eBay back in 60'es?

So also ICT needs its own innovation! One could say, this is for genuine ICT companies, they innovate in their R&Ds and then bring new products to the market. This is really so, but also ICT departments on the ICT-customer side can be more innovative than now. We can explain this with the categories (levels) of innovation:

1. **GRASP: usage of existing**
2. **EXTERNAL: seen s'where else**
3. **CORRECTION: fixing**
4. **PERFECTION: improving**
5. **ORDER: procurement**
6. **INVENTION: s'thing completely new**

On every level CIO should try to bring his people to the awareness of innovation needs, leading even to "promote" CIO to CI*O [7]. We are lacking most of innovations simply because people are not pushed or lead to think and act in innovative way. Of course, one can't be instructed to invent something new, but can be thought and motivated to look around (L4O = looking for opportunities) and see someone's better practice, things that can easily be fixed or simply unused resources which are on the grasp distance in the company. [2]

Here one example from ICT: service desk SW (ServicePlus) is widely used for ICT help desk support. Unlike that, Facility Management (FM) problems are communicated by phone, causing series of problems. Users apply I*proposal to use SD SW for FM also. IT guys add some fields and customize solution for that needs. Interestingly, even the supplier reacted firstly with blockade: "SD is intended for IT and can't be applied for FM!"). [7]

In every category mentioned we have innovation opportunities: e.g. related to bug fixing in SW (but also in other technical solutions). If something went wrong and user reports the incident, both reporting and fixing should NOT to be considered as an innovation (despite of some I*definitions that would fit!). This relates specially to internally developed SW, where I*rewarding would cause serious conflict of interest. Inputs from users are sometimes very useful. If they are accompanied with improvement proposals (not just "Fix that stupid bug at least!") that bring product enhancement, it should be acknowledged as valid I*proposal. If this relates to the commercial SW with the origin external to the organization, reimbursement agreement is to be made. Such practice is highly recommended e.g. by Cleveland Clinic Innovation Centre. [8]

4 ICT services for innovation management

The way from idea/invention to the market success is long and bumpy. ICT has to be used to speed up the innovation process by means of paving the way from numerous big and small useful ideas to their implementation which bring sustainable advantage to the company. Simply, ICT supports I*Management.

Based on principles of I*Management ICT should systematically support innovation processes within the company. There are several dedicated tools which can be bought or used as freeware for helping to the I*Manager and his crew in the company. Because of the "democratic" nature of the innovation process (= hundreds or thousands of employees involved), first of all a kind of collaborative tool for ideas gathering and submissions processing is to be used (document management, task management etc.). Furthermore, the body which makes prioritization and decision preparation for management should systematically and structured document its work. Finally, one can use specialized idea/innovation management tools, such as:

- www.IngenuityBank.com
- www.us-MindMatters.com
- www.Cognistreamer.com

, or similar. Not to forget, standard ERP tools can be used in big organizations for motivation purposes.

I*Management process as a whole is to be considered as any other business process. Thus, it should be designed using company's best practice rules (computer aided process design), as well as managed in professional way, preferably with the tools supported by ICT.

If not yet implemented systematic I*Management, CIO can also start from very beginning. First step could be basic support for the bodies which process innovation applications and preparing the decisions. This can be simple documentation system in company's Intranet or part of web portal system or existing document management system of the company. Think about 1st level of innovation: use something that already exists! This documentation system can also be used for education: awareness, guidelines, innovation success stories, etc.

Next step could be the support for innovators: usually they are bored with complex application forms, so many of them give up already at the beginning. Innovation application has to be as simple and as efficient as possible, thus some kind of I*inbox can be established. Of course, preferable is to have some more advanced (structured) communication, which could easily generate innovation case documentation as a by-product. For that some task management or workflow system can be used.

Finally, ICT has to offer the tools for evaluation of innovation benefits and related incentives for innovators. Best way for executing pecuniary motivation is to integrate it with existing payroll system.

5 Conclusions and recommendations

Innovation is only resource that is broadly unused in companies (compared to cost cutting or marketing). So using innovative potentials companies are gaining competitiveness. One of most important innovative areas is ICT, which can enable small benefits as well as completely new business models. Everyone who deals with innovation has to be aware of blockades and barriers which disable (full) innovation potentials. Also ICT itself has to be challenged constantly aimed to improve its operation through innovation (technological as well as organizational or in soft skills). Many innovation opportunities are on the grasp, there is a plenty of unused resources. ICT has to support I*Management within the company aimed to ease the communication and documentation in innovation process itslef.

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