InnoWork

MODULE 8: TECHNOLOGY AS AN ENABLER OF CREATIVE IDEAS	
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I. Module overview

Learning objectives	As a result of engaging with the materials in this module, learners are intended to achieve the following learning outcomes: *Knowledge*: understand the challenges the business faces in the information age; understand the concepts "social business", "open innovation", "human cloud" and "crowdsourcing". *Skills*: identify and select appropriate web-based technologies and tools for facilitating innovation process in learner's company. *Competence*: reflective thinking, facilitating innovation process by the use of web-based technologies and tools.
Time schedule	*Time necessary for learning content: 1 hour* *Time necessary for self-test questions: 5 minutes* *Time necessary for exercises: 40 minutes*
Structure	This module is divided into 2 parts: Part 1 – Business challenges and opportunities in the information age; Part 2 – Exemplary list of web-based technologies and tools.

II. Learning content

Introduction

Module 8 introduces the challenges of the information age and explains how Web-based technologies and software tools help organizations meet them.

The reading material presents the context of innovation process in the information age and provides the exemplary list of technologies and tools which may enable creative ideas and facilitate organizational innovation.

Part 1: Business challenges and opportunities in the information age

In the information age, we are living in, the Internet technologies and software tools have become an inseparable part of our life.

We often start a day opening a webpage of our favourite on-line newspaper and look through the headlines to know what is happening in the world. We check our Facebook and Twitter profiles to greet our friends and share recent events, interesting facts and ideas. We use Dropbox and Google Drive to store and share videos, photos, and files, Skype – to connect with those who are far from us, and many other tools for a variety of purposes.

Modern information technologies have created an open, virtually connected environment, providing us with almost unlimited possibilities to access, store, and share information, as well as to interact with each other beyond time and space borders.

Since organizational creativity and innovation depend on accessibility of information, easiness of idea exchange and collaboration at workplace, the usage of appropriate tools becomes crucial for a modern organization.

The most important advantage of Web technologies and software tools (as Akseli Summa [1] proves in his research) is that they help capture, leverage and utilize the knowledge produced in the entire innovation process. And, consequently, they increase its effectiveness by shortening the innovation cycle time, enhancing innovation quality, and increasing the value of innovations to customers [1].

Before we turn to describing specific technologies and tools that may enable creative ideas, let's have a closer look at a broader picture: the challenges the business faces in the information age; the concept of social business and open innovation; the ideas of "human cloud" and "crowdsourcing". These will help us realize the main principles we should bear in mind while choosing and trying to implement technological solutions to organizational innovation.

Information age and value of information

The recent transition to the information age has resulted in a dramatic economic shift. Adam Hartung, an expert on business growth, proves that companies should understand this change and align their strategy with it to survive in the future [2].

In the course of time, as Hartung explains, our society endured three major economic shifts with each changing what people valued and what brought wealth to them. In the **agrarian economy** land was the key

value, as it was the main resource of producing food for the masses. And those who owned land were the wealthiest people, because they possessed everything produced on it.

The shift to the **industrial economy** happened with the industrial revolution. Hand labour was substituted by manufacturing; and machines' productivity created value. For example, in that time survival of the agrarians depended more on the equipment they used than on the area of land they had. The wealthiest people and companies (like Ford and General Electrics) were those who owned machines and used them for industrial production.

The shift to the **information economy** (which began with the rise of the Internet) has destroyed the industrial value. The information and knowledge has become the main resource producing wealth. Now the wealthiest companies (like Apple, Facebook, and Google) increase their productivity by using and managing information. They control huge amount of data on their consumers and leverage that information for creating products and services that meet their needs.

The shift in the economic value opens a few challenges your company should be able to meet to succeed in the information age (see Fig. 8.1.):

Figure 8.1. The value in the information age

Information Age			
***What** is valued?*	***Who** produces value?*	***How** is value created?*	***Where** does it happen?*
Information Knowledge Ideas	People both inside and outside your organization	In the process of communication and collaboration	Mainly in the virtual environment with the help of specific tools

- ***Information – Knowledge – Ideas challenge***: the Internet stores and gives access to a large amount of information about your customers, clients, competitors, current trends in your industry, recent developments, etc. The Internet like a huge deposit contains information as a raw material which you process to acquire knowledge. And then you use knowledge to generate new ideas and put them into practice.
- ***People challenge***: while information, knowledge and ideas are the key value in the information society, people are the power producing it. You should engage people from inside and outside your organization into a dialogue about your products and services and use their knowledge to drive your performance.
- ***Communication challenge***: people create the value in the form of new ideas. And new ideas are generated in the process of communication between people from inside and outside your organization. You should communicate with your customers to understand their needs; and you should foster and facilitate communication between your employees to generate ideas which service the needs of your consumers.
- ***Technological challenge***: in the modern, technology-driven world you cannot rely only on face-to-face communications. Your business success is defined by not only *what you know* about your customers and their needs, but also *how early you know that* and *how fast you can act upon that knowledge*. You should use different Internet technologies and software tools which may help you: connect many people and facilitate their communication; process a huge amount of data and extract the knowledge you need for generating innovative ideas.

Social business

The spread of digital technology in the information age has given birth to a new way of doing business – *social business*.

Social business is understood as a practice which enables efficient, net-new connections inside and outside an organization to improve its performance. It resembles the social Web where people connect, communicate, share, and interact online in pursuing common business goals.

Social business has four dimensions [3]:

1. **Social technology dimension.** Social business implies using social technologies and applications for business purposes: Social networking, new Web technologies (Web 2.0), enterprise social software (Enterprise 2.0), which supports communicative and collaborative activities in organization and provide possibilities for connecting with outside partners.
2. **Behaviour dimension.** Social business takes into account the patterns of people's social behaviour on the Web: their need for social networking, building on-line communities around common interests, sharing personal knowledge in blogs, participating in forums, and, in general, becoming co-creators of user-generated content. Social business engages people from inside and outside organization into on-line communication and extracts business value from their experience.
3. **Human dimension.** Social business is human-centric. It encourages employees to freely express their ideas and empowers customers to take part in developing new products or services. It shows the value of recognition, equality, trust, involvement, honesty, authenticity, self-realization, etc.
4. **Management dimension.** Social business creates innovative organizational culture, uses innovative approaches to leadership and leads for innovation (see Module 3 "Creating a culture of innovation", Module 4 "Maintaining a culture of innovation").

You can make your business "social" by taking advantage of Web-based social technologies as a means of sharing knowledge and collaborating. It may help you: build strong relationship between your employees, customers and business partners; gather and analyse their knowledge and experience and use it to create a new business value.

Example 8.1. CEMEX: Building a culture of innovation and collaboration with IBM Social Business

CEMEX S.A.B. de C.V. is a global leader in the manufacture and distribution of cement, ready-mix concrete, aggregates and related building materials.

"Business Need: Being a large and distributed enterprise, CEMEX was actively seeking a way to bring people together, facilitate collaboration and leverage global knowledge to solve local problems.

Solution: In 2010 CEMEX set out to establish a new platform for open collaboration – an internal social network with a business focus – and chose IBM® Global Business Services® to build it using Lotus® Connections, IBM Sametime®, IBM Docs and IBM Forms. Available functionality fostered real-time interactions, including knowledge management and progress tracking, and made

teamwork seamless and efficient. Teams had discussion forums and wikis to gather data and find solutions to their specific problems, while leveraging the knowledge of the whole network.

Benefit: CEMEX has become a model for the integrated company. Employees have visibility at all levels of the company. A positive work environment encourages people to become engaged and invested in driving the business forward.

Tangible results include the launch of CEMEX's first global concrete brand [Promptis®] in just one-third of the anticipated time, and the social development of an alternative fuels initiative that has dramatically reduced the company's CO_2 footprint while saving more than USD 130 million annually."

Source: IBM website

http://www.ibm.com/social-business/us/en/customers/cemex.html

Open innovation

As we have mentioned above, in the information age the value shifts to **managing information and using it to generate new ideas.** Creation of new ideas is no longer associated with the work of individual experts; it is sooner the result of group work of people with complementary expertise who communicate and collaborate for achieving a common goal. Communication and collaboration become the processes underlying organizational innovation.

In the past organizations tried to keep their innovation process "closed" and carefully protected it from any outside invaders. Sharing information and co-creating was viewed as a threat rather than an opportunity. However, nowadays companies realize that they have to collaborate with customers, suppliers, experts, community members and even competitors in order to improve the flow and quality of new ideas [4].

Engaging people from outside your company into the innovation process inside is called **open innovation.** In other words, it means opening up your innovation process to outside participants, and tapping into their perspective, experience, and advice. Open innovation is a useful approach as it offers an efficient and cost-effective way of solving problems by leveraging ideas, capabilities, and know-how from people outside your organization. It may help you involve various groups of people to organizational innovation process, whose diverse inputs are likely to produce more valuable results. Open innovation is explained in detail in Module 2: Organisational business model, the creative process and governance for innovation.

Example 8.2. P&G: Connect + Develop

Procter & Gamble Co., also known as P&G, is an American multinational consumer goods company.

"Historically, P&G relied on internal capabilities and those of a network of trusted suppliers to invent, develop and deliver new products and services to the market. Times have changed, and the world is more connected. In the areas in which we do business, there are millions of scientists, engineers and other companies globally. Why not collaborate with them? We now embrace open innovation, and we call our approach *Connect + Develop*.

C+D is a systemic, company-wide open innovation program charged with bringing the outside in, and taking the inside out. *As a program*: C+D includes a global team that searches for solutions to business needs via external networks, preferred suppliers and existing partners. *As a mind-set*: collaborating for

innovation solutions has become a part of everyone's job at P&G, and part of all we do".

"C+D partnerships have delivered innovation across all areas of the Company, including break-through product innovations."

Oral B Pulsonic: To Market in 80% Less Time

P&G Oral Care was looking for a strategic expansion of its dental care line. A pulsating toothbrush was on the drawing board, but still had up to 5 years in development.

Through C+D, the company found a Japanese firm with a product matching P&G's vision. The partnership, coupled with additional P&G R&D, resulted in the Oral-B Pulsonic Toothbrush.

"*We were on the shelf in 1 year. It would have taken us 5 years if we'd done it alone.*"

Source: P&G website
http://www.pgscience.com/home/connect_develop.html

Questions for reflection	**Reflecting on your business needs, how would you use the "Connect + Develop" approach?**

Crowdsourcing and human cloud

The term "*crowdsourcing*" describes the way of involving large and various groups of people into innovation process, particularly into generating ideas for solving problems. Using the Internet technologies, in the form of an open call, it invites people to share their ideas on the problem and makes contributors the co-creators of new products, services or business concepts.

Crowdsourcing means that you outsource creative problem solving tasks (which before could have been performed by your company's employees) to a ***human cloud*** – collective mind of people on the Web. As an approach to open innovation, crowdsourcing gives you an opportunity to harness the knowledge, expertise, ingenuity of individual members of the public and get more innovative ideas in a cost effective way in a shorter period of time.

Example 8.3. NASA: Prizes, Challenges and Crowdsourcing

National Aeronautics and Space Administration (NASA) is the US government agency responsible for the civilian space program as well as aeronautics and aerospace research.

In an increasingly connected and networked world, NASA recognizes the value of the public as a strategic partner in addressing some of the country's most pressing challenges. The agency developed *Solve website* for opportunities available to the general public to contribute to solving tough problems related to NASA's mission through challenges, prize competitions, and crowdsourcing activities.

How Solve works:

1. *NASA issues a challenge.* → 2. *Together with the public, they find participants.* People decide if they can and want to participate in submitting the solution for a particular challenge as an individual or a team. →

3. *Participants submit solutions for judging by the deadline*. → 4. *NASA selects winners*. The authors of the best solutions (as determined by the evaluation method specified in the rules) are awarded cash, scholarships, or a number of other potential awards. → 5. *Together with the participants they create the Challenge Community*. NASA constantly offers new opportunities to participate in a variety of solving activities for a variety of incentives.

Success Story: Autonomous Space Capture Challenge

Program: NASA Tournament Lab.

Challenge: to write a computer program to control a satellite (called a "Tender") to enable it to dock with a space object (or POD) that may be tumbling through space.

Winner Spotlight: There were a total of 72 submissions by 26 unique submitters. Of those submissions, there were *eight unique winners from six different countries*.

Award: Winners awarded live viewing of their system tested on International Space Station Partner Organizations: TopCoder, DARPA, MIT Space Systems Laboratory, Aurora Flight Sciences.

Source: NASA website
https://www.nasa.gov/solve

Questions for reflection	**Can you think of a challenge connected to your business which can be solved through crowdsourcing?**

Part 2: Exemplary list of web-based technologies and tools

The technologies and tools fostering organizational innovation should help your company acquire the image of "social business", adopt open innovation strategy and provide crowdsourcing opportunities. They should allow your company to tap into creative potential of all your employees, customers, outside partners, or even any member of the public.

In general, such technologies and tools should facilitate the following processes:

1. Remote communication and collaboration with internal colleagues and outside partners;
2. Generation, development, collection, selection and implementation of ideas;
3. Storage of and access to generated knowledge.

Internet-based technologies and tools is a rapidly developing field. There are many software products which may help you in the process of innovation. However, different products offer different set of functions. And only you can decide what kind of tool or combination of tools best serves your needs.

Below we suggest an exemplary list of web-based technologies and tools classified into categories: communication and collaboration, idea generation, idea management, crowdsourcing, information storage

and retrieval. These categories are not mutually exclusive: for instance, idea management software may also allow for remote communication, or communication and collaboration platforms may provide information storage functions. These categories are not collectively exhaustive: you can find other types of software useful in the innovation process (for example, project management software). These categories and examples are contingent on the main functions which the tools provide and which are important for creativity and innovation.

Communication and collaboration

E-mails, video conferencing, instant messaging, social networking are becoming a usual way of interacting with internal colleagues and outside partners. You may use the systems which combine these common function and offer even more possibilities.

wiggio www.wiggio.com

Wiggio is a web application with a focus on group collaboration. Its features include: hosting of virtual meetings and conference calls, creating to-do lists and assigning tasks; sending email, text, and voice messages; managing events on a shared calendar; polling a group in real time; uploading and managing files in a shared folder.

Basecamp www.basecamp.com

Basecamp is offering a blend of tools necessary for a team to stay on the same page about whatever they're working on. The web platform includes Basecamp, with to-do lists, milestone management, file sharing, and forum-style messaging; Campfire, with business-oriented chat; and Backpack, with user webpages and a shared calendar.

Redbooth www.redbooth.com

Redbooth is a collaboration and real-time communication platform. Its features include: virtual workspaces for team work; group and one-to-one business chat; HD video conferencing with screen sharing and meeting recording functions; task management and advance reporting tools. It has a mobile application allowing you to stay connected wherever you go.

yammer The Enterprise Social Network www.yammer.com

Yammer is a private social network for companies. It helps bring people, conversations, and data together, so that you can get work done anytime and anywhere. It allows you to collaborate beyond your

organization by looping customers and vendors into conversations, so the whole team can work together in one place.

GoToMeeting http://www.citrix.com/products/gotomeeting/overview.html

GoToMeeting is a web conferencing product which may be used for on-line collaborative meetings. It allows multiple PC and Mac users to interact using screen sharing, text chat, remote keyboard and mouse control. It also offers a mobile application with which you can hold communication sessions on the go.

Example 8.4. RedBalloon's online training and sales efforts rise up with GoToMeeting

RedBalloon is an online experience gift retailer based in Australia. They are considered the pioneers of experiential gifting in Australia and New Zealand and have been ranked in the Top 50 Employers by Business Review Weekly from 2009 to 2013.

Challenge: deliver an amazing online customer experience

Since all RedBalloon's solutions are delivered over the Internet, the company considers client usability paramount to its success. They want their clients to have an amazing online experience, which is why they decide to train their customers to use the RedBalloon platform correctly. However, existing options such as in-person and over-phone training are difficult and expensive.

Solution: implementing GoToMeeting for online training

The RedBalloon's team sees real value in the collaboration features, such as screen sharing.

Benefit 1: Web-based training improves customer relations and reduces costs

Transitioning all client training sessions online has saved the company thousands of dollars in travel costs. It has helped personalize client training and simplify the training process.

Benefit 2: Online demonstrations speed up sales cycles

GoToMeeting has found its place within the corporate sales team as well. Before online meetings were introduced, RedBalloon needed to visually demonstrate their platform over in-person meetings, and sale process took about 4-6 weeks. Using GoToMeeting, they demonstrate the platform in real time and can close a deal in one day.

Source: GoToMeeting Case Study
http://www.gotomeeting.com/meeting/hd-video-conferencing-resources/customer-stories/redballoons-online-training-and-sales-efforts-rise-up#.VmacWHbhCUk

Idea generation

Idea generation tools help brainstorm and organize your thoughts on a problem. They allow your team to collaborate in the creative problem solving process, gather ideas, and visualize them in an attractive way.

iMindMap | Part of OpenGenius http://imindmap.com/

iMindMap is a mind mapping tool with an inbuilt free-form brainstorming canvas. It has free-form Brainstorm View to capture ideas and Mind Map View to build on ideas and organize them into plans. It allows for adding notes, links, files and comments to gather lots of information on one canvas. Having created your mind map, you can share it through iMindMap cloud; convert it into a variety of formats: document, picture, spreadsheet; and present your ideas in a powerful and memorable way.

FreeMind softonic http://freemind.en.softonic.com/

FreeMind is a free mind mapping software, which may also be used to generate and organize ideas. It provides many useful functions such as one-click navigation, drag-and-drop and find function, as well as extensive export capabilities (hypertext to HTML and XHTML, document to PDF and OpenDocument, image to PNG, JPEG and SVG).

There are many other mind mapping tools with similar functions which you may use for generating ideas, e.g. Thinkgraph, View Your Mind, Popplet, Inspiration and others.

Idea management

Idea management tools may help your company gather ideas, evaluate them and bring them to market in a fast and flexible way. They let you set up specific business challenges and focus ideation around them. Idea management systems imply collaboration: all participants can share their ideas, add comments and peer review other ideas to improve and develop them. Using such tools, you can customize idea input forms and evolution criteria in order to make your creative process manageable and transparent.

Below we provide a few examples of idea management tools.

crowdicity http://crowdicity.com/en/

Crowdicity is a cloud based enterprise social idea management platform which helps drive innovation through collaboration. It can power your company's internal co-innovation and open innovation by connecting your employees and outside partners, engaging them to share ideas, and gathering their ideas in a single place. Crowdicity combines communication, collaboration and idea generation functions. Crowdicity is a dynamic platform which can be accessed anywhere on any mobile, tablet, desktop or laptop.

IdeasMine http://www.ideasmine.net/en/

IdeasMine is a collaborative innovation platform which helps gather, classify, develop, select and implement ideas. It connects managers and employees in the creative problem solving process, allowing you to track the entire process and maximize its effectiveness.

https://www.exoplatform.com/

eXo platform is an open-source social-collaboration software designed for enterprises. It helps you connect your employees, customers and other stakeholders through social, collaborative and content-driven intranets, websites and dashboards. eXo platform offers technological solutions to: collaboration, social networking, knowledge management, content management, document management, and project management. You can use this single platform to manage the entire innovation process. eXo has a mobile application, with which you can connect and collaborate on the go.

https://trello.com/

Trello is a free, flexible, and visual way to organize anything with anyone. It provides a collaborative space for generating and gathering ideas, and it helps you plan idea implementation. You can simply create an account on Trello website and engage other user into your creative problem solving process.

Example 8.5. UKTV: Crowdsourcing ideas through social innovation platform

UKTV is a UK multi-award winning media company with 10 channels.

Challenge: UKTV has a constant need for fresh TV program ideas and new ways of promoting these programs. Its workforce is disparate with different skills and expertise spread across the entire organization.

Solution: Crowdicity was used to crowdsource new ideas for TV programs by engaging 250 users from all areas of the UKTV organization. Specific challenges were set by UTV (broadcasting and New Media in Northern Ireland) which users answered through the Crowdicity social innovation platform.

***Benefits*:** The outcome was beyond UKTV's expectations. Crowdicity helped generate 270 unique ideas, with 986 votes, 108 collaborations and 2,500 visits in less than two weeks. Most importantly, a number of winning ideas were adopted and taken forward by UKTV.

Source: Crowdicity website
http://crowdicity.com/en/customers/media-technology-and-communications/uktv/

Information storage and retrieval

Information storage and retrieval systems should provide robust data access for workers from any location: both on-site workplaces (e.g., individual workstations, meeting and conference rooms, etc.) and off-site workplaces (e.g., home office, travel venues, etc.). For quick and easy access to your files and for sharing your files, you can use cloud storage systems. The most popular are Dropbox and Google Drive.

https://www.dropbox.com/en/

Dropbox is a file hosting service that offers cloud storage, file synchronization, personal cloud, and client

software. It allows you to create a special folder on your computer, which Dropbox then synchronizes, so that it appears to have the same content regardless of which computer you use to view it. Files which are placed in this folder are also accessible via the Dropbox website and mobile apps.

Google Drive https://www.google.com/drive/

Google Drive for Work is a file storage and synchronization service. It allows you to store files in the cloud and edit documents, spreadsheets, and presentations together with collaborators. When you save your work files or folders in Google Drive, you can access them from any device and share them instantly with co-workers, customers or partners.

Other similar tools are: **Box**, **Mega**, **ADrive**, **OneDrive**. As constantly new tools appear this list is not comprehensive.

Crowdsourcing

There are a number of crowdsourcing platforms. They work as mediators between your company and the crowd. Such platforms allow you to post your challenges to virtual employees (individuals or teams), and then receive, evaluate, and select solutions. Here are a few examples.

INNOCENTIVE® http://www.innocentive.com/

InnoCentive is a service, which crowdsources innovation solutions from people, who compete to provide ideas to business, social, policy, scientific, and technical challenges.

crowdSPRING https://www.crowdspring.com/

CrowdSPRING is an online marketplace for crowdsourced creative services, such as logos, graphic design and naming.

clickworker http://www.clickworker.com/

Clickworker provides crowdsourcing solutions for challenges in text creation, data categorization, product data management, web research, and surveys.

Example 8.6. Madison Children's Museum: New logo solution

Madison Children's Museum – a museum for children in Madison, Wisconsin, the US – was opening a new facility and wanted a new logo to build on and modernize their 30 year heritage. They turned to crowdSPRING to help.

CrowdSPRING delivered 749 options to choose from in 14 short days. The museum

chose the best. And that is talent on demand!

Source: CrowdSPRING website
http://www.crowdspring.com/

Part 3: Finding the best web-based technology for your company

There is a huge variety of web technologies, which could enable creativity at workplace. Choosing an appropriate tool may be a challenging task even for a most savvy IT user.

You may ask how you could find a web tool with just the right features that could help solve your specific problem. Dr. Sara McNeil and Dr. Bernard Robin (accordingly, Program Coordinator and Associate Professor of Learning, Design and Technology in the College of Education at the University of Houston), emphasise the need to understand the *type* and the *nature* of the problem in order to choose the right tool [5].

Let us give you an example.

Imagine, at the staff meeting you ask your colleagues to share their ideas for improving the product or service your company offers. You notice that many of your colleagues want to suggest their ideas and discuss the ideas of the others. In your turn, you want all of them to make their suggestions, so that you could later choose the best.

On the downside, your meeting room does not have any facilities for exchanging, gathering and developing ideas (e.g. whiteboard, flipchart, laptop and overhead projector, etc.). When all participants start speaking, it gets impossible to keep the track of what has been said and suggested. In addition, some of your colleagues need a little extra time to think about their ideas before they could share them with the rest. And there is just not enough time to get all involved in the discussion.

Obviously, *the type of the problem* is “idea management”.

You want all your colleagues to share their ideas, as well as to review and to comment on the ideas of the others. And you also want to keep all the ideas at a single place, so that you could easily access them and choose the best one. So, *the nature of your problem* includes: gathering ideas from your colleagues, providing a virtual space for sharing and discussing ideas; accessing all collected ideas.

Having identified the type and the nature of your problem, you should only find and choose a tool which provides the functions you need. If you do not see an appropriate tool from our exemplary list, you can google free idea management tools, check their functions and select the most suitable one.

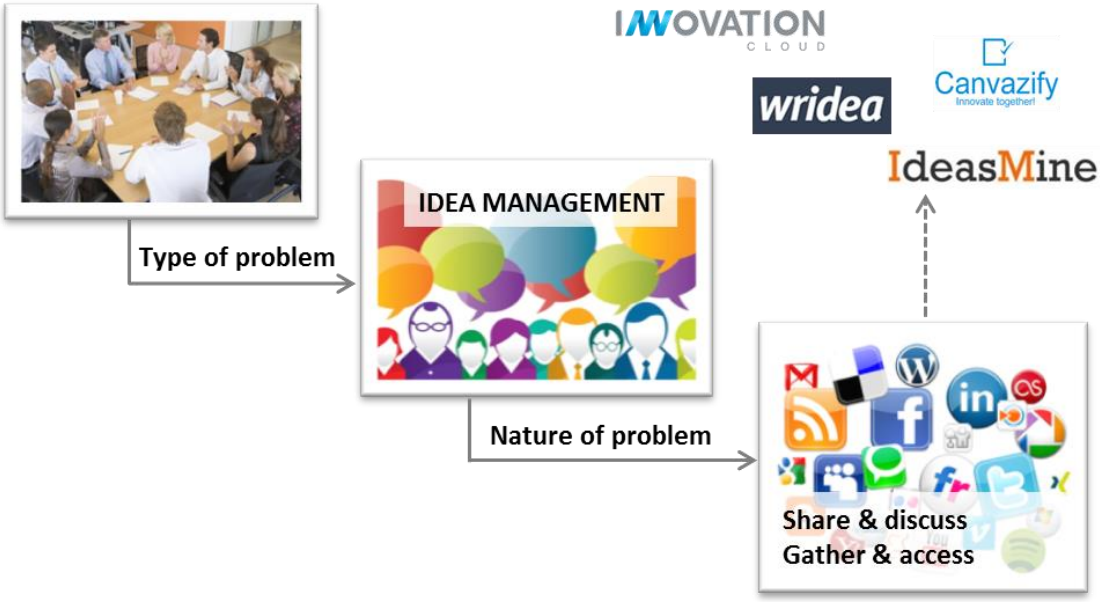

Figure 8.2. Illustration to the example above

In our example, the simple search for free idea management tools gave us many results, including such tools as Innovation Cloud, Wridea, IdeasMine and Canvazify. They all are ranked high in their design, simplicity of use and available features. So, any of these tools may be a solution to the described problem.

Questions for reflection	**Reflecting on your business needs, think about a problem which you could solve using web technologies and tools.**

III. Conclusion

In the information age the speed at which companies discover, develop and implement ideas for new products and services becomes an important competitive advantage. In order to meet the challenge of fast innovation providing added value to consumers, companies have to use appropriate Web-based technologies and software tools.

Technology helps you tap into creativity of all your employees and outside stakeholders, focus their creative activity around particular problems, as well as facilitate and manage the entire process of innovation. As a result, you can increase the effectiveness of the innovation process by shortening its time, improving its quality, and increasing the value of innovations to your customers.

IV. Additional reading

1.	**Summa, A. (2004). Software tools to support innovation process - focus on idea management. Innovation Management Institute, Helsinki University of Technology.**	*This research publication explains the necessity of using software tools in process of idea management. The objectives of this research include: (1) Mapping existing commercially available idea management software which can be used to collect, evaluate and document ideas created in a single location or function; (2) Evaluating the available technologies and software in relation to the idea management needs.*

V. Self-test questions

Question 1:		Comments to answers
Answer 1		
Answer 2		
Answer 3		
Answer 4		
Answer 5		
Correct answer(s)		

Question 2:		Comments to answers
Answer 1		
Answer 2		
Answer 3		
Answer 4		
Answer 5		
Correct answer(s)		

Question 3:		Comments to answers
Answer 1		
Answer 2		
Answer 3		
Answer 4		
Answer 5		
Correct answer(s)		

Question 4:		Comments to answers
Answer 1		
Answer 2		
Answer 3		
Answer 4		
Answer 5		
Correct answer(s)		

Question 5:		Comments to answers
Answer 1		
Answer 2		
Answer 3		
Answer 4		
Answer 5		
Correct answer(s)		

VI. Glossary

Term	**Definition**
Information age	The Information Age (also known as the Computer Age, Digital Age, or new media Age) is a period in human history characterized by the shift from traditional industry that the Industrial Revolution brought through industrialization, to an economy based on information computerization. The onset of the Information Age is associated with the Digital Revolution, just as the Industrial Revolution marked the onset of the Industrial Age. *Wikipedia. The Free Encyclopedia.* *URL: https://en.wikipedia.org/wiki/Information_Age*
Social business	Social business, due to *David Kiron*, is a way of doing business which reflects modern approaches to business collaboration. Social business is "social" in the sense that it: (a) enhances modes of collaboration that already exist in an organization (e.g., high definition video conferencing adds another social dimension to teleconferencing); and (b) enables new modes of collaboration (e.g., technology enabled crowd sourcing or collaborations in virtual reality). Social business, due to *Deloitte*, is a practice that can enable more efficient, effective and net-new connections inside and outside your organization to drive performance. *Defining social business: what, why and how it evolves. I-Scoop.* *URL: http://www.i-scoop.eu/social-business/defining-social-business/*
Open innovation	Open innovation is described as combining internal and external ideas as well as internal and external paths to market to advance the development of new technologies. Simply, it means involving both internal and external partners in developing new products and technologies. *Chesbrough, H. (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press.* *URL: http://www.openinnovation.eu/open-innovation/*
Human cloud	Human cloud is a type of workforce where tasks or projects, not jobs, are performed remotely and on-demand by people who are not employees but independent workers.

	Financial Times, Lexicon. URL: http://lexicon.ft.com/Term?term=human-cloud
Crowdsourcing	Crowdsourcing is the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people and especially from the online community rather than from traditional employees or suppliers. *Merriam-Webster Dictionary.* *URL: http://www.merriam-webster.com/dictionary/crowdsourcing*
Web-based technology	Web-based technology is any form of online technology or practices through which users create communities to convey information, ideas, independent learning, entertainment, collaboration and personal messages, and thus facilitates communication and interaction between individuals and groups. *Wankel, Ch. (Ed.). (2010). Cutting-edge Social Media Approach to Business Education. USA: Information Age Publishing.*

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