IT of the future | Fixing Education | 2040 | Internet Technology University

Transforming Information Technology into Global Knowledge Marketplace

According to the US statistics, a year salary for knowledge workers is approximately **six trillion dollars** ($6,000,000,000,000). The number is six and 12 zeros! About 40% of their time is spent on search for information.

Google is a universal engine providing hundreds links in response to every query, helping everyone in a universal way and according to our estimate saving about 10% time, or about 600 billion dollars a year.

We work on a specialized solution with estimated 2% of the market, which is about 120 billion dollars.

Our targets are hospitals and pharmacy companies, real estate, manufacturing and financial sectors, education, research and development in military and technical fields.

We focus on new methods and tools of building smart cloud solutions with specialized knowledge domains and outline new applications and benefits growing out of these methods and tools.

Existing products:

Business Architecture Sandbox for Enterprise (BASE) – Described originally in the book online:

http://ITofTheFuture.com

Why we need these tools or better say how we use these powers

Let us start with education and training, a current focus of Internet Technology University (ITU), http://ITUniversity.us

Changing formula of education

This article proposes significant changes in the current approach to education. The rising costs of education, the mismatches between academic and industry practice, and the difficulty of finding that first job are each addressed by the proposed approach. If these problems are of interest to you, please read on. The author will appreciate your feedback.

Here are just three of the major problems with mainstream education:

1. **Colleges and Universities** are enormously expensive, although considered to be the main channel for access to education.
   This is no longer true. There are many ways to learn, and spending four to six years in school is just one of them.
   There are students who prefer a classroom, live instruction and dorm life. There are many others who are looking for the shortest path to a job. In all cases, learning is a lifelong process, and is not limited to the school years.

2. **The Academic Curriculum** is several years behind industry practice, even in the best of schools.
   Academia is slow to change, partially due to the fact that accreditation takes years. Technology constantly accelerates, and each year the gap between industry practice and academic curriculum is growing.

3. **After graduation** from most schools, students have a significant loan to repay and a hard time finding their first career employment.
   This is a direct consequence of the existing disconnect between academia and the job market.

   Industry investments in technology are much greater than the investments in curricula, so it is not a surprise that affordable investments within the current approach to technical education cannot fix the problem.

Fixing the problem requires resolving two major disconnects:

- Disconnect between the job market and the education being provided by Academia.

- Disconnect between the "mainstream" approach and the capabilities of individual learners.

This second problem is well known to any teacher.

Usually less than half of the group can sync with the basic flow of material. The majority are behind, while a few individuals are bored and looking for the next step. Good mentors can recognize those who are ready for advanced material and those that need more time or special attention. Unfortunately, a teacher has to focus on the mainstream group. No extra resources are available to help the stragglers or to challenge top students to optimal achievement.

Changing the educational formula

What is the fix?

The first thing is to expand professional education beyond Academia by establishing a direct link (the orange dashed line below) between students and the job market.

The current curriculum in colleges and universities is far behind industry practice. For example, we still teach C and C++ to Information Technology students, but industry is looking for artificial intelligence (AI) programming skills [1, 2, and 3].

Academia, with its four-year colleges or six-year universities is no longer the only channel to professional education.

Educational material can be delivered over the Internet to any place and to almost any device. No one knows better what skills are needed today than subject matter experts (SMEs), and some of them (actually many of them) are willing to share.

Just imagine that a consulting company which is specialized in AI directly shares its knowledge in Java and AI, and, after several months of study, offers students consulting projects. With a well-focused curriculum, it is feasible to prepare students for professional work in several months (see **http://ituniversity.us** [4]) instead of it taking several years.

This is not about Coding Schools, which miss a business side of the story. Subject Matter Expert is not just a code expert. SME knows business goals of a company, business practices and business processes, all these extremely important components that are often lost in translation.

This is a great opportunity to expand education beyond Academia and directly connect students to the job market!

A solution to the problem:

Creating educational materials is difficult. Subject matter experts will often miss the structure, format or sequence needed to convert their knowledge into high-quality educational materials.

I know this from personal experience.

I am an IT consultant and a corporate trainer, university and college instructor. I have taught part-time in public and private schools, and also consulted and mentored businesses and technical teams.

Many times I have had this funny feeling that concepts which looked absolutely straightforward and clear in my head appeared as spaghetti in class materials.

A lot of work has been done, and inventions [Patents 1-6] produced, while looking for better ways to consistently create and deliver knowledge in appropriate structures.

I will describe several components of this work, including the conversational approach and Semantic Technology. It is not an artificial intelligence (AI)

framework, although this approach and system is also used to teach AI fundamentals.

For a long period, AI lived on the bottom of the lake of opportunities. Recent years turned the lake into an ocean and the underwater current brought AI back to the surface. Nothing else is growing so quickly, with increasing demands for new skills and talents.

Artificial intelligence can mean many things. I will focus on just one. Computer programs are becoming more helpful. They start working for us not just as stupid machines, but almost as partners. Partners usually talk to each other and good ideas are polished and clarified in brainstorming conversations.

The conversational approach to knowledge acquisition combines the power of Big Data and Semantic Technologies with human intuition. This combination has proved to be extremely helpful in converting knowledge into well-structured, properly formatted data.

The Conversational Semantic Decision Support (CSDS) system, described in the book, "IT of the future" [1], helps SMEs to overcome this difficulty and produce course content.

How does it work?

The magic is done in several steps:

- First, a system would ask (prompt) a SME about specific educational goals and help in creating a conceptual graph based on the goals.
- Then, CSDS will automatically build a decision tree/script to help prompt the SMEs in providing related information.
- Then the decision tree is used by a system to converse with a SME while retrieving the information and building a proper structure of correctly formatted educational materials based on the conceptual graph.
- The system also generates test questions for each subject of the conceptual graph in a semi-automated process. The questions help to evaluate the student's progress as well as the student's perception of the materials from both quality and difficulty perspectives.

Helping SMEs to become instructors will not only increase educational channels beyond Academia. This will directly connect students with the job market and significantly improve employment opportunities, especially for young people looking for their first job.

Colleges and universities will survive. There are many students that need classrooms, friendly teamwork, and exciting social life outside of home. But new educational channels will compete with traditional schools and will impact school prices.

My personal 30-year experience of teaching in class and online, including challenging and exciting work with inner city students in Detroit, confirms: it is feasible during several months (not several years!) to develop a set of skills that opens the door to a profession.

Regardless of the course major, I always start with introduction to Critical Thinking and Skills to Learn. These two subjects must be included in any course of study.

The end of the coursework is not the end of education; quite the opposite! From this point, a person is getting a real job with real pay and has acquired a taste for continued learning.

The second major problem of current education is the disconnect between the "mainstream" approach and individual learning differences.

In the future, I envision robots performing as teaching assistants. They will introduce better evaluation instruments, which will look more like games than tests. These games/tests will help to precisely measure a student's engagement at each point of study. Robots will be especially successful with children. Not only due to enormous memory and quick thinking, and the ability to replicate custom copies while gaming simultaneously with multiple participants, but most importantly due to lack of emotional reactions. Robots can keep their cool in the situations that would drive a human teacher crazy. ("2040", [5])

Changing Formula of Education*

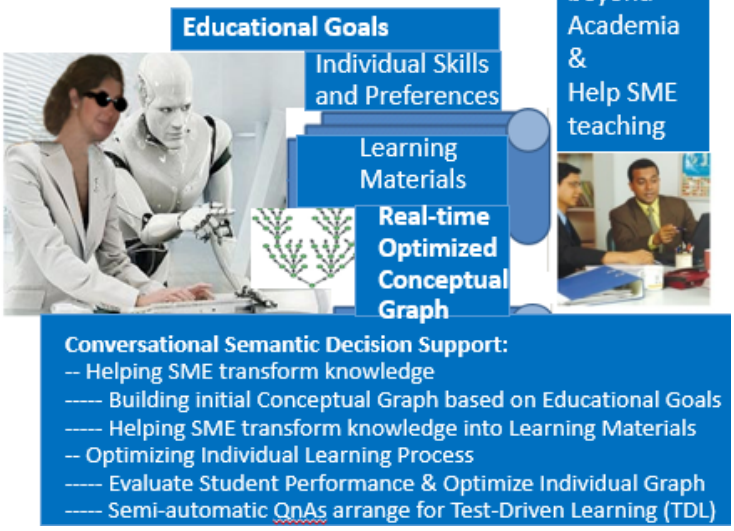
Valid alternative to enormously expensive schools

Conversational approach in education is crucial to finding individual differences and consistently engaging a student.

Combined with Semantic Technology a Conversational Semantic Decision Support (CSDS) also helps students by optimizing Individual Learning Process.

CSDS also helps SME transform knowledge into educational quality materials.

Expanding Education beyond Academia
Teaching skills that industry needs today
Directly connecting with Job Market



Teaching with regard to each student's individual ability is the hardest part of being a teacher. One would like to do exactly that, but trying to focus on stragglers can result in the failure to complete the coursework for the majority of students.

Can technology help here?

While preparing the course, the Conversational Semantic Decision Support (CSDS) system focuses on building a conceptual graph of the course.

A conceptual graph usually includes dependent subjects, which can be found in publicly available sources. The system can help by collecting a variety of materials for each of such subjects, effectively creating a set of choices which can be used during the learning process.

To optimize the learning process, the system gives hints to the teacher to adjust both the style and type of suggested content based on tests/evaluations of individual differences in student's learning style and pace. Some students benefit from Test-Driven Learning, some need more samples and more SME's time.

The system is not (and should not be) completely automatic, but provides significant help to a SME working with students.

The system is not a dream or just a set of good ideas, but is more like a "work in progress" [4].

For example, Internet Technology University, http://ITUniversity.us, provides a platform for SMEs to post educational materials and teach students online. It is up to a SME to offer a price tag or free access.

By expanding the learning process beyond Academia, we establish a new paradigm, where companies can better fulfil their needs and students have a much better outcome from the learning process – the job!

Who will benefit from these changes?

1. First of all, those searching for their first job can follow job market trends.

Here are some statistics on starting salaries:
For humanities and social sciences, the first job's average salary is $35k-$40k.
Information Technology is more generous. IT is awarding the first job with $60k-$70k salaries.

Let's trust the free market. (This is especially easy for someone who lived at least several years in a government-regulated country.)

To get a job in a high-demand field, it is more important to have the skills to do the job than it is to have a degree! Here I am admittedly on thin ice. We traditionally think that a degree means an education.

This is not true! We never stop learning... after we have a good start, but that starting point should not be as hard and expensive as it is today.

2. The same mechanism which helps a SME express her/his knowledge can help in unlocking and capturing "tribal knowledge" to benefit corporations.

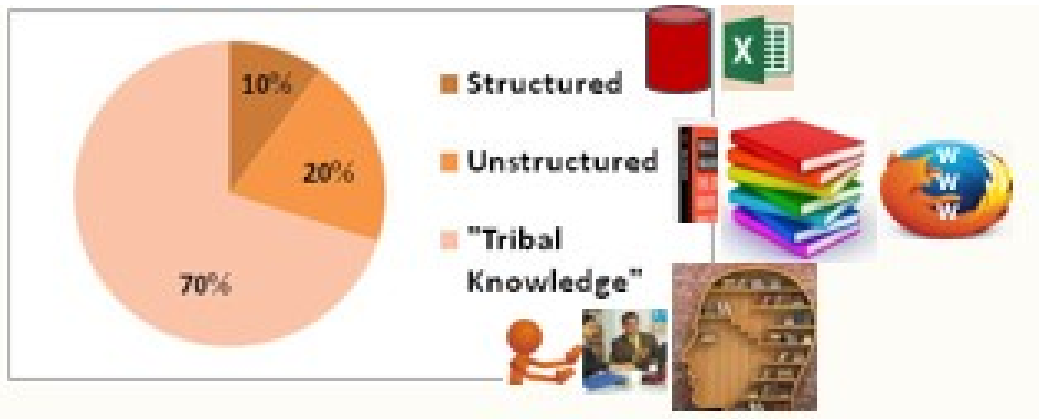
Corporate knowledge or "know how" can be split into three categories:

- Structured data – in relational databases

- Unstructured data – text documents: regulations, business policies and instructions in folders and web sites

- And the biggest portion of information, which is used daily in business routine, but has never been captured. It is so-called "Tribal Knowledge" [1].

My conservative estimate of the percentages of structured, unstructured and "tribal" knowledge is 10%, 20% and 70%.



By retiring “baby boomers” or replacing “experienced and expensive” with “young and cheap” workers, corporations actively lose huge portions of tribal knowledge. Not only retirees, but other people leave the company for various reasons, expanding the void in corporate knowledge.

Sooner or later the business feels the pain, especially companies dealing with long-life products surrounded by an enormous volume of related rules and regulations.

The “experienced and expensive” would love to share their knowledge, but capturing tribal knowledge is tricky, and formalizing this information is even more difficult.

The Conversational Semantic Decision Support (CSDS) system helps to make this challenging task feasible. CSDS will transform the concept of a Corporate Knowledge Warehouse (CKW) into a working system.

What is a Corporate Knowledge Warehouse?

The CKW is a collection of electronic materials which describe enterprise processes, not only for people but also for a machine. Formalized as the integrated ontology of connected knowledge domains, CKW can be converted into specific formats for specific purposes.

For example, they can be converted into business rules and scenarios to drive business applications, as described in the Knowledge-driven architecture patent [1].

They can also be converted into educational and training materials for specific audiences. CSDS will prompt a SME for an initial structure and will help to build a conceptual graph. Then walking over the graph, it will help to create branches, while asking for examples and user stories and creating tests for each branch.

People will still be involved in the processes, but they will not need to repeat boring work, which can be done by the system. The system would engage a SME in conversations, asking to confirm a decision, fill in the knowledge gap in unexpected situations. Becoming part of daily routine, these conversations will effectively grow CKW, improving automation and productivity.

Enabling a SME as a great mentor and a wonderful teacher not only makes her or him a more valuable employee, but also a happier person.

Accelerating learning processes and keeping pace with changes in technology will address the imbalance between demand and supply.
Job stability does not lie in limiting global collaborative engineering, but in improving the ability to innovate, to learn quickly and change directions -- even run ahead of the game.

Developing personal and social mechanisms for quick adaptation to changes is a very natural and rewarding alternative to regulatory barriers.
Technology is on our side today as a friend and a partner helping us to succeed.

3. **We will reduce the necessity for brokerage between a student and a profession.**

This is done in other industries. Smart applications such as Uber remove the necessity for brokers - receptionists at taxi stations. Smart applications directly connect consumers and producers.

Professional education will become less dependent on brokers, such as Academia and job agencies. Smart applications with CSDS will streamline professional education, directly connecting students and jobs.

These methods might also be used in regular schools!

The difference between high school and college could be less dramatic if middle and high schools included advanced subjects taught directly by SMEs from local companies.

This connection might also bring some social benefits for both parties.

4. **Educational publishers will finally be in a position to offer templates** (conversational scripts) helping authors, first of all the SMEs, to share their unique knowledge.

5. **Consulting agencies, which often have the best SMEs** in a specific knowledge domain, will become invaluable knowledge resources. The system/platform helps SMEs sharing their unique knowledge in multiple ways, including Teaching-by-samples, Test-driven-study, and more.

Some of these ways, such as Test-driven-study can be used for screening potential candidates.

There is an opportunity to grow a Knowledge Tree into a Global Knowledge Marketplace by collecting the "tribal knowledge" of individuals, their experience, stories, scientific and emotional context.

Frequently Asked questions from reader's comments and email messages:

Why it is different from Google and Wikipedia?

- The audience is different: not only people but also computer programs
- There is a conversational component, which accelerates data search and comes up as a partner in a brainstorming session.

Even with the help of a program, CSDS, sharing expertise is a time consuming effort. What incentives can be provided to motivate this work?

- Knowledge investment can be measured, for example by the usage. As any investment it can be awarded, for example, by a proper share of the marketplace. This might become a very valuable enterprise.

Do you really think that a computer program can replace a good teacher?

- The shortage of teachers and instructors in the U.S. is estimated in many thousands. The program will help many more people share their knowledge in sciences and IT.
- Yes, it is difficult to achieve quality and efficiency. These two are conflicting criteria. The program will help a teacher/SME to be more efficient, first of all taking care of multiple supporting activities (besides teaching) required today. Then, the program would improve quality by optimizing learning path based on individual student learning differences.

What is the process to offer and teach a new course?

Start with this link: http://ITUniversity.us. Anyone can JOIN the school, post educational materials and after a quick review offer a price tag or free access. Someone can choose teaching existing curriculum. PayPal will work

for you providing payments for your classes. The main rule at ITU – no upfront payments. Students pay only after the class, if satisfied and happy and want to gain access to the next study section. And another rule for an instructor: find time for individual meetings with every student and optimize the individual pace of study.

This is work in progress, and any help and feedback is highly appreciated.

Current educational content at ITU

Java and AI foundation: http://ituniversity.us/about/ITS-courses.pdf

Extract from the IT University catalog with the Internet Technology Summit Program

Certificate Programs

Program A: JAVA-BASED WEB APPLICATION DEVELOPMENT – 300 LESSONS (THEORY AND PRACTICE)
AWARDED THE WEB APPLICATION DEVELOPER CERTIFICATE UPON SUCCESSFUL GRADUATION

The List of Courses in the Program B, Internet Application Development (Pre-requisite: program A)
Each course includes theory and practice, ends up with tests and projects.

1. Mobile Applications and Cloud Technologies (Length: 50 lessons))
Occupational Objective: The graduate should be able to acquire a position for developing mobile applications, become a consultant or a start-up entrepreneur.

2. Big Data and Business Intelligence (Length: 60 lessons)
Occupational Objective: The graduate should be able to acquire a position for developing Big Data intelligent applications, become a consultant or a start-up entrepreneur.

3. Knowledge Engineering and Semantic Technologies (Length: 47 lessons)

Occupational Objective: The graduate should be able to acquire a position for developing Semantic applications, become a consultant or a start-up entrepreneur.

4. SOA, MICROSERVICES, RAML, DATA SENSE BY MULE SOFT AND SEMANTIC INTEGRATION (Length: 40 lessons)

Occupational Objective: The graduate should be able to acquire a position for developing applications in Service-Oriented Architecture, become a consultant or a start-up entrepreneur.

Summary on educational content and a supporting platform:

I teach for about 30 years. Worked as independent contractor for Sun Educational Services, conducting corporate training for big corporations and government agencies, was awarded by “Hi Five” – best instructor of the year in 2001. For over 20 years was teaching information technology courses for University of Phoenix and DeVry University, received “The Teaching Excellence” award from UOP.

(See http://ituniversity.us/about/references.html)

While teaching part-time, I worked as an enterprise architect and consultant. I started very early in the direction of Integrated Software and Knowledge Engineering, wrote a book on the subject in 2004.

(See Integration-Ready Architecture and Design, Jeff (Yefim) Zhuk by Cambridge University Press.)

I was a member of technical committee of OMG/EDM, helping to create The Financial Industry Business Ontology (FIBO), shared my experience and ideas at Java One, Boeing and Semantic Technology conferences, made presentations at IBM, Ball Corp, Pacific National Labs, and Canterbury University, New Zealand.

This combination of teaching, sharing and consulting practices helped me develop my educational content and also forced me into developing a software platform. The platform supports online training with the focus on individual learning abilities. The platform also helps facilitate collaborative work of business analysts and developers, as described in the book, http://ITofTheFuture.com. The platform is a powerful tool, which supports modeling business processes and creating workflows with the elements of Conversational Semantic Decision Support (CSDS).

The platform helps a SME to share knowledge in a structured way. The platform provides initial guidance, helping a SME to become a better trainer and mentor. This is work in progress. The guidance must be expanded to the degree, where any SME would be able to create high quality educational materials and get necessary support while teaching.

Helping SMEs to become instructors will not only increase educational channels beyond Academia. **This will directly connect students with the job market and significantly improve employment opportunities, especially for young people looking for their first job.** My personal 30-year experience of teaching in class and online, including challenging and exciting work with inner city students in Detroit, confirms: it is feasible during several months (not several years!) to develop a set of skills that opens the door to a profession.

Colleges and universities will survive. There are many students that need classrooms, friendly teamwork, and exciting social life outside of home. But new educational channels will compete with traditional schools and will impact school prices.

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(See https://www.linkedin.com/pulse/changing-formula-education-jeff-yefim-zhuk)

Planned Products: The steps to Global Knowledge Marketplace

Knowledge Delivery as a Service

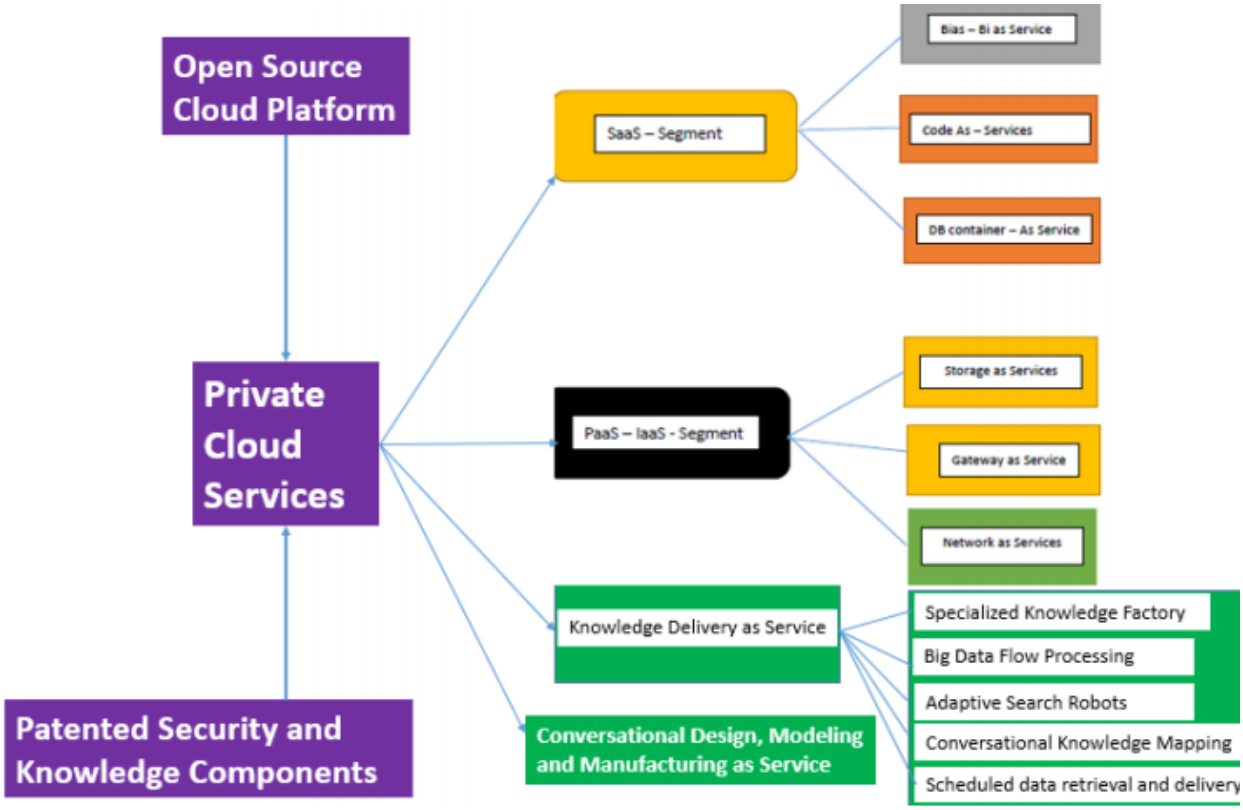
The main scenario of Knowledge Delivery as a Service includes several customization steps:

- define and constantly refine the area of interest for a client company,

- create and maintain private knowledge domain

- schedule, retrieve and deliver relevant information

- establish conversational process for design, modeling and manufacturing for selected clients



- **We offer a specialized system that learns customer needs while conversing with a customer.**
- **The system is getting better and better in understanding customer interests**
- **The system uses publicly available sources to collect this information daily in a custom cloud**
- **The system continue conversing with a customer to follow changing needs**
- **The system includes a semantic engine to retrieve meaningful information from many data layers even this information is not well visible to a reader**

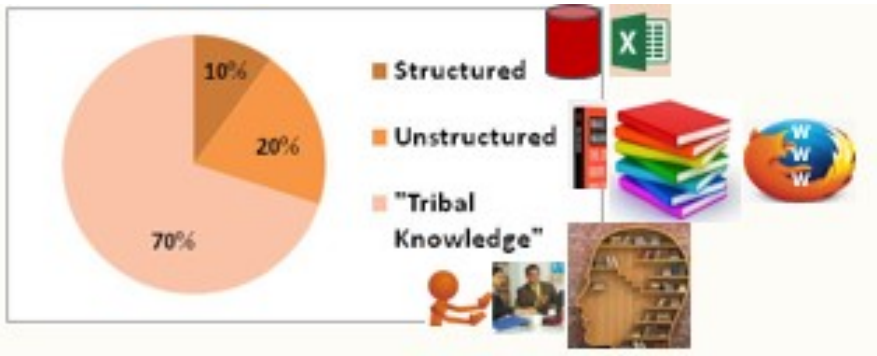
The service effectively creates specialized knowledge domains in the client defined areas.

Greatly improving search, knowledge domains open more opportunities

Corporate Knowledge Factory

Corporate knowledge or "know how" can be split into three categories: structured data – in relational databases, unstructured data – text documents in folders and web sites, and the biggest portion of information that is used daily in business routine and has never been captured. It is so-called "Tribal Knowledge". My conservative estimate of the ratio between structured, unstructured and "tribal" knowledge is 10%, 20% and 70%.

By retiring "baby boomers" or replacing "experienced and expensive" with "young and cheap" corporations actively lose huge portions of tribal knowledge.



The conversational approach to knowledge acquisition combines the power of Big Data and Semantic Technologies with the human intuition to create a Corporate Knowledge Factory as a base for Conversational Decision Making Systems.

Adaptive Robot Teams

Another opportunity, which I mentioned before is about adaptive robot systems.

The systems translate situational requirements into adaptive behavior models and further down to services scenarios and executable services or skills for a collaborative robot team. In the process, robots communicate to each other to integrate information from different knowledge domains, and, when necessary, can bring a human, a subject matter expert, to the conversation.

The use case expands on Service-Oriented Architecture. Orchestrated services are assembled into business scenarios and applications. The invention integrated SOA with Knowledge Engineering to allow resolving new situations via computer-human collaboration. Built-in the system knowledge domain (ontology) helps a computer be a bit smarter by asking questions to refine instructions.

This invention is improving robot-to-robot and robot-to-human conversational interface and providing on-the-fly translations of situational requirements into adaptive behavior models and further down to service scenarios for a collaborative robot teams, effectively building new robotic/computer skills.

An example of such distributed collaborative work of robots and SMEs in conversational mode is provided below with a use case related to the military field.

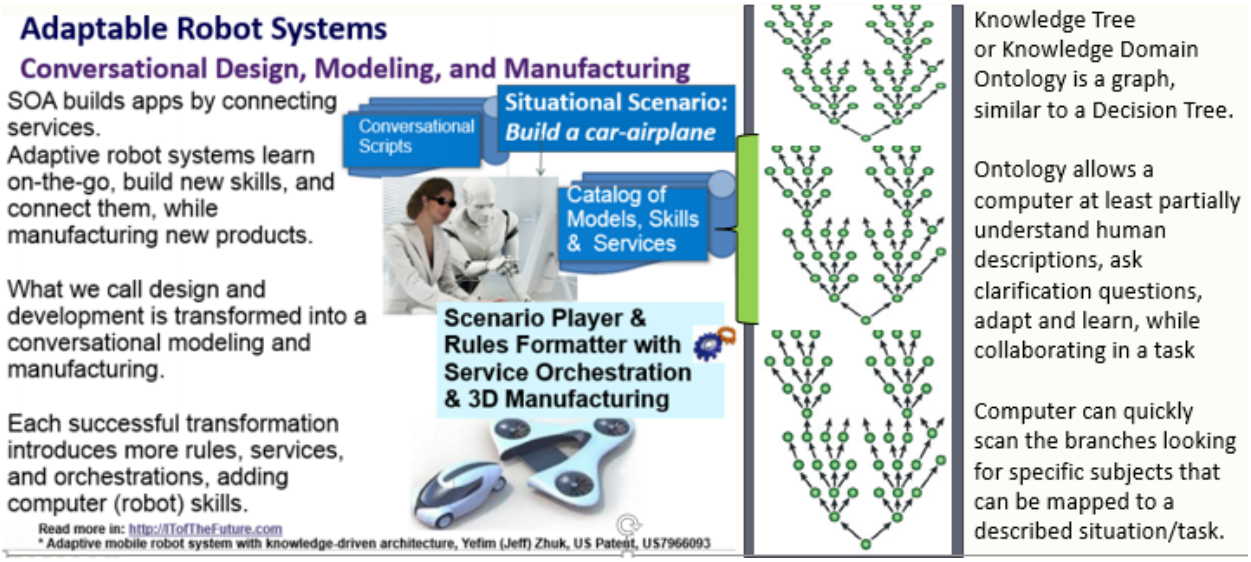
On the image below, a subject matter expert sends the order “Clear Mine Field” to a robot system.

One or more robots, which is specialized in the “Military” operations, will intercept the order and subscribe as potential participants to this request. This will start a conversation between the system and

the sender of the order. This conversation will result in a formatted scenario to be executed as a set of orchestrated services. The Conversation Manager will interact with the Scenario Formatter and check with the Service Dictionary to see if a scenario has been completed and can be executed. In the pretty common case, when the system cannot find the resolution for a new situation, the system will continue the conversation with the sender to better refine instructions. The system will scan the branches of the knowledge domain ontology to ask right questions helping to formalize each level of instructions, from scenarios to services, to the degree where they can be executed.

Conversational Design, Modeling and Manufacturing

Integrated software and knowledge engineering leads to truly collaborative (human-robot) development described in the Conversational Service Knowledge Map patent.



A powerful combination of human intuition and computer restlessness is expanded by the conversational approach. Computer uses ontology to map human instructions to the knowledge tree.

For example, an application developer (not a programmer) builds a web application and starts with the sentence: “User has to ***login***”.

A computer with the service ontology finds the mapping between the “login” word and a service name, and asks to confirm: “Do you plan to use the ***authentication*** service?”

And, if confirmed, a computer can find a related branch of the knowledge tree (for example, of user privileges) and ask a developer “***if application users can have the following privileges:”*** and list optional privileges. Each confirmation by a developer leads to another block of code.

This is a direct realization of the promise by Service-Oriented Architecture: building applications by a business user as an orchestration of services, while interacting with a computer program.

References

Company: Internet Technology University/Internet Technology School, Inc.

ITS, Inc. was registered in Colorado at 5/1/1997

Doing business as:

- Internet Technology Systems, Inc. – consulting

- Internet Technology University, Inc. – education and training

The main direction of consulting and training: Integrated Software and Knowledge Engineering

Related Publications:

- 1. http://ITofTheFuture.com – book online on Cognitive Computing and Semantic Cloud Architecture, describes CSDS and Business Analytics Sandbox for Enterprise (BASE), Yefim (Jeff) Zhuk
- 2. Integration-Ready Architecture and Design: Software Engineering with XML, Java, .NET, Wireless, Speech, and Knowledge Technologies, book by Cambridge University Press, Yefim (Jeff) Zhuk
- 3. http://www.dataversity.net/software-semantic-evolution-and-the-next-step-part-1/ - Software Semantic Evolution: SOA and Microservices and the Next Step in Semantic Integration
- 4. http://ituniversity.us – Internet Technology University
- 5. http://itofthefuture.com/book/message.pdf - The message from 2040

Patents:

- Knowledge-Driven Architecture | US Patent | Yefim Zhuk | Driving applications with business scenarios

https://www.google.com/patents/US7774751

Traditional control systems are first designed by subject matter experts that create business rules and scenarios. Then, the systems are developed by system developers, people who translate business rules and scenarios into technology. The invention allows business rules and scenarios to be directly included in a control system and directly drive the controlling services, providing for knowledge-driven architecture control systems. These systems can easily adjust its controlling behavior, improving flexibility to a variety of control systems including but not limited to video and audio systems, distributed networks and their combinations for medical, military and transportation applications.

- Adaptive Mobile Robot System | US Patent | Yefim Zhuk | Integrating software and knowledge engineering with robotic technologies

https://www.google.com/patents/US7966093

The invention integrates software and knowledge engineering with robotics technology to improve robot-to-robot and robot-to-human conversational interface and provide on-the-fly translations of situational requirements into adaptive behavior models and further down to service scenarios for a collaborative robot teams.

- Collaborative security and decision making in service-oriented environment | US and 15 European countries, Patent | Yefim Zhuk/Boeing | Turning a beautiful idea of collaborative decision into a system

https://www.google.com/patents/US8863234 | https://www.google.com/patents/EP2154628A2

The invention provides collaborative security and collaborative decision making in a service-oriented environment.

- Rules Collector System and Method | US Patent | Yefim Zhuk/Boeing | Formalizing expert knowledge into rules, which can be used for solving the next problem in the expert-computer brainstorming

http://www.google.ch/patents/US8051026

The system and method enables a process of capturing an expertise of an individual in a formalized manner, and which may update rules and knowledge databases with information based on the interaction with the individual.

- Distributed Active Knowledge and Process | US Patent | Yefim Zhuk/Boeing | Collaborative data and services

https://www.google.com/patents/US7032006

A distributed active knowledge and process base incorporates multiple Distributed Object Technology Systems (DOTS) connected over a network, the Internet, or wireless media to allow multiple types of data, processes, and services (system elements) to be created and modified within the same collaborative framework, provides and updates periodically knowledge about available system elements and their values, allows separate systems to negotiate multiple forms of collaboration, and contains sufficiently flexible levels of data security in order to foster online collaboration.

Patent summary:

While describing very different systems, the patents have a common theme. These inventions help organize data and transform information into actionable items, knowledge-based services. They support subject matter expert (SME) with conversational semantic analysis, help building optimized conceptual graph for knowledge transfer (in education and training) and enable global knowledge marketplace. Scaling up these methods will empower conversational modeling, design and manufacturing, effectively replacing our current way of development. (See http://ITofTheFuture.com | 2040).

A brief bio of ITU President, Yefim (Jeff) Zhuk:

Over 30 years of teaching and training at corporate and public agencies.

About 40 years as a developer, architect, manager and trainer, always a change agent.

Awarded by “The First Prize for the best real-time automation system in Belarus”, “Boeing Special Innovator”, “Hi-Five” – the best Java instructor of the year by Sun Educational Services; “For the Teaching Excellence” by University of Phoenix. More at http://ituniversity.us/about/Jeff.Zhuk.Resume.pdf

Training Clients and Feedback: http://ituniversity.us/about/references.html

Web Sites:

http://JavaSchool.com – the first collaborative educational portal in the US

http://ipserve.com | http://ITServe.us | http://RoboGroup.org | http://serviceconnect.org

http://ITUniversity.us | http://TopDevelopmentSkills.com | http://FixingEducation.us

http://ITofTheFuture.com | http://iCoachOnline.org | http://CaptureKnowledge.org

http://JavaInDetroit.com – Teaching 30 women of inner city of Detroit to become IT consultants

Publications: http://javaschool.com/about/publications.html