



Internet Technology University
Guided *Climb* to Top Development Skills

[Enterprise Services with AI](#) | [Corporate Training](#) | [Capture Knowledge](#)

Learn with AI virtually anywhere

Accelerate
Sharing
Knowledge
with
Conversational
Semantic
Decision
Support
(Ask CSDS)

Executive Summary

Internet Technology University (ITU) developed a highly customizable conversational AI platform, Business Architecture Sandbox for Enterprise (BASE). The platform facilitates integration of internal business information and expert skills into effective knowledge domain.

The BASE helps accelerating decision-making and project development, where innovators can focus on new ideas, while the platform offers a [development factory](#) to fill in the gaps with the technical details.

A rich set of enterprise services is enhanced with Accelerated Sharing Knowledge by Conversational Semantic Decision Support (**Ask CSDS**)

Almost every enterprise is looking for the ways to employ Artificial Intelligence and gain advantage or even dominance in their industry. The wave of big and small development shops offering "AI development" cannot overcome the invisible barrier: the enterprise is not ready, has no specific requirements on **WHAT** to build.

We offer BASE installation behind the firewall to quickly build a customized knowledge domain. (No need to open enterprise data to something like ChatGPT.) With the computerized knowledge domain, enterprise greatly increases efficiency and will share a small percentage of the profit with us on subscriptions for customization and maintenance.

Custom Use Case Samples

Changing formula of education

How? Expanding professional education beyond Academia, establishing a direct link between students and job market, between trainee and trainers. Subject Matter Experts are often willing to share ... but creating educational materials is difficult. ITU Platform offers conversational AI components to solve this problem.



Current Educational Formula

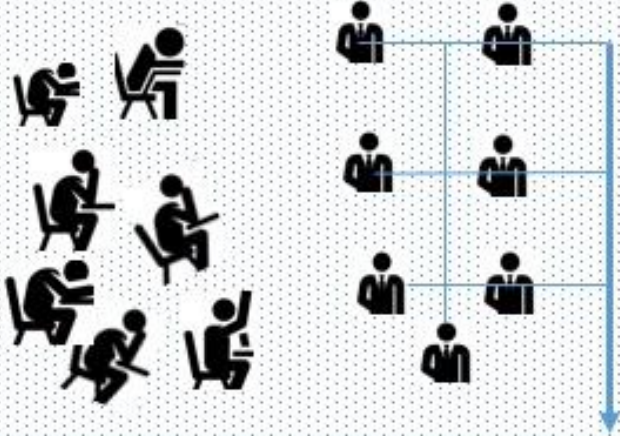
Many to One
Students and a Teacher



Accredited (old) courses for an "average" student
University/College Administration
High Education State Administration
High Education Federal Administration

Changing formula of Education

Many to Many
Learners and Professionals



Semantic Knowledge Graph
Collected by the system
working with experts



Conversational Semantic Decision Support
Helping Professionals to Accelerate Sharing Knowledge
and Optimize for Individual Differences

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 and to directly connecting students to industry.

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



Educational Goals

Individual Skills
and Preferences

Learning
Materials

Real-time
Optimized
Conceptual
Graph

Expand
Education
beyond
Academia
&
Help SME
teaching



Conversational Semantic Decision Support:

- Helping SME transform knowledge
- Building initial Conceptual Graph based on Educational Goals
- Helping SME transform knowledge into Learning Materials
- Optimizing Individual Learning Process
- Evaluate Student Performance & Optimize Individual Graph
- Semi-automatic QnAs arrange for Test-Driven Learning (TDL)

In the future, I envision robots performing as teaching assistants. They will introduce better evaluation and engagement instruments, more like games than tests. Learning is about engagement! Robots will be especially successful with children. Not only due to enormous memory and quick thinking, their ability to game simultaneously with multiple participants, but also due to lack of emotional reactions. Robots can keep their cool in the situations that would drive a human teacher crazy. ([The message from 2040](#))

Reduce the necessity for brokerage between a learner and a profession



This is done in other industries. Uber removed the necessity for brokers - receptionists at taxi stations. Smart applications with **CSDS** will streamline professional education, directly connecting learners with subject matter experts (SME) and jobs.

Engaging to Improve Quality of Study

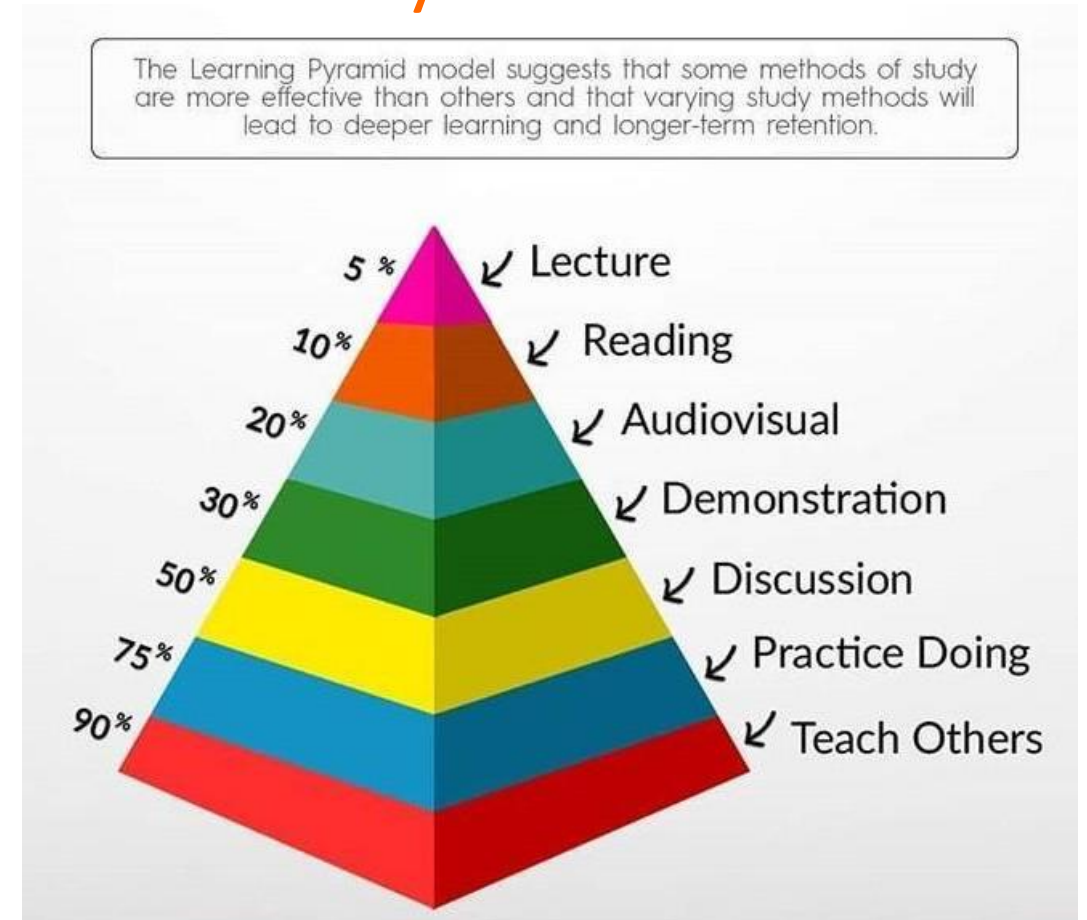
Quality of learning depends on engagement. Teacher's time is priceless.
AI resources help trainers engage and motivate every individual!

Quality of study is highly dependent on how much attention can be dedicated to every student.

With AI-assistance a teacher gets the necessary resources helping to engage and motivate every student.

For young students the ITU platform connects the parents, teachers, and AI-assistants in a live contact with their student-children.

With the aid of AI platform every student can walk the path along the Learning Pyramid over her or his own trail. Teachers can focus more on learning subjects, while other subjects, like discipline and similar can be monitored by the AI platform.



Enterprise Services

Developing Software Applications

“Cooking” an application involves several translation layers and teams.



Business Vision



Business Analysis



Architecture



Data Modeling & Development



Testing

This can be done much more efficiently with CSDS



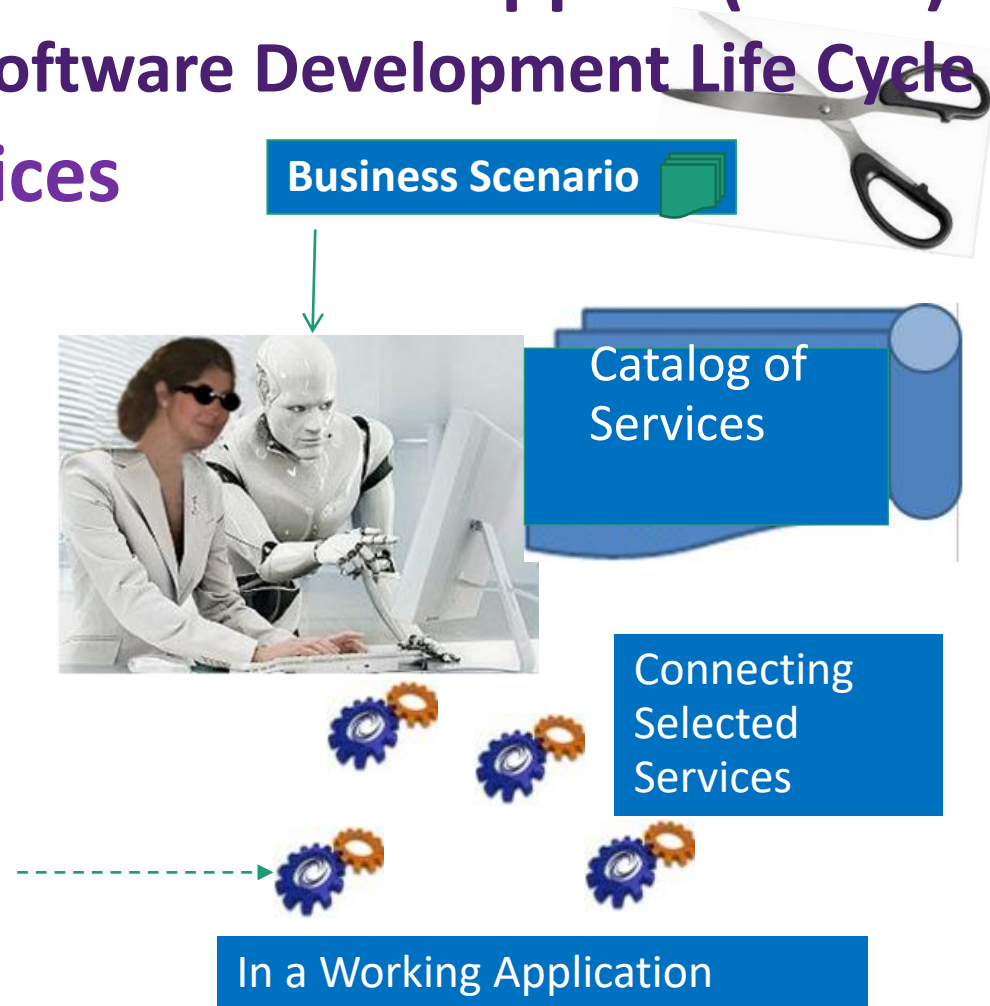
Conversational Semantic Decision Support (CSDS) Will cut extra corners in Software Development Life Cycle From Scenario to Services

Scenario: Successful User Login
When User is valid

Conversational Script:
(Looking in the catalog):
Do you mean ValidateUser()?

SME: yes!

Conversational Script: (action)
selecting a service for an application



Adaptable Robot Systems

Conversational Design, Modeling, and Manufacturing

SOA builds apps by connecting services.

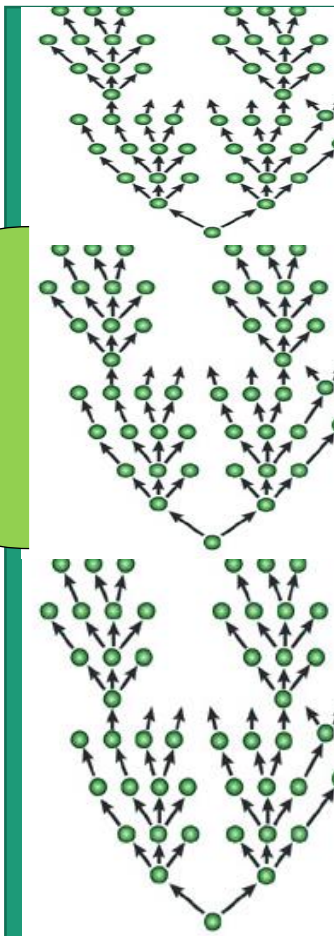
Adaptive robot systems learn on-the-go, build new skills, and connect them, while manufacturing new products.

What we call design and development is transformed into a conversational modeling and manufacturing.

Each successful transformation introduces more rules, services, and orchestrations, adding computer (robot) skills.

Read more in: <http://ITofTheFuture.com>

* Adaptive mobile robot system with knowledge-driven architecture, Yefim (Jeff) Zhuk, US Patent, US7966093



Knowledge Tree or Knowledge Domain Ontology is a graph, similar to a Decision Tree.

Ontology allows a computer at least partially understand human descriptions, ask clarification questions, adapt and learn, while collaborating in a task

Computer can quickly scan the branches looking for specific subjects that can be mapped to a described situation/task.

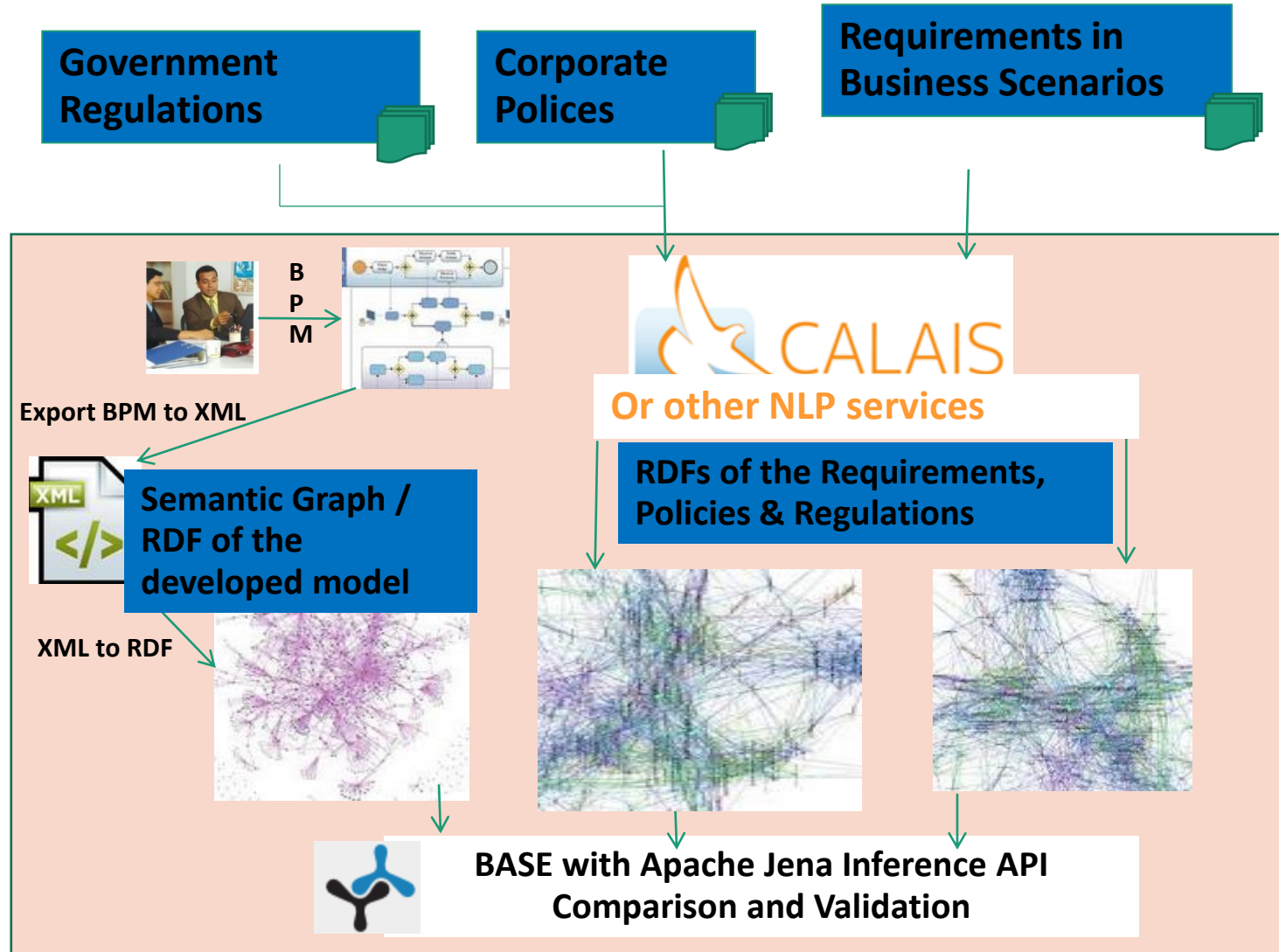
A powerful combination of human intuition and computer restlessness is expanded by the conversational approach. Computer uses ontology to map human instructions to the knowledge tree.

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?”**

If confirmed, a computer can find a related branch of the knowledge tree and follow the conversational branch with the next question: **“what roles and access privileges are needed?”**.

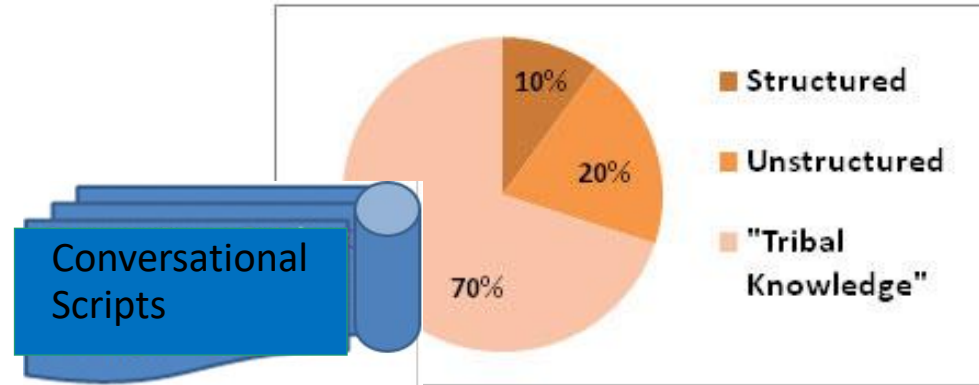
Knowledge-Driven Architecture

Validate Models against Requirements, Policies & Regulations



Capture “Tribal Knowledge” with Rules Collector*

Collect “know-how” in the Corporate Knowledge Factory



Conversational Scripts



User Story & Rules Formatter

Corporate Knowledge Factory

Read more in: <http://ITofTheFuture.com>

* Rules Collector System, Yefim (Jeff) Zhuk, US Patent US8051026

Knowledge Delivery as a Service

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

1 Engage

The service engages a client into a conversation to define and refine daily the area of interest.

2 Collect

The service uses publicly available sources to collect defined by a client information as an Ontology.

3 Retrieve

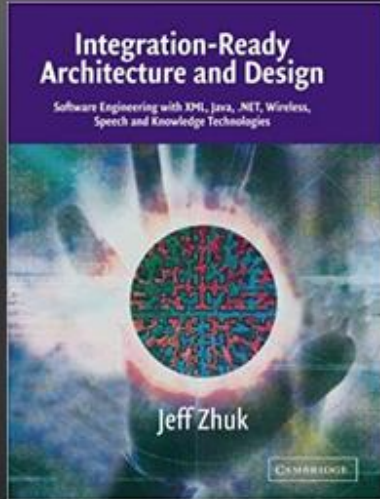
The service includes a semantic engine to retrieve meaningful information from many data layers.

4 Create

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

Greatly improving search, delivering knowledge as a service

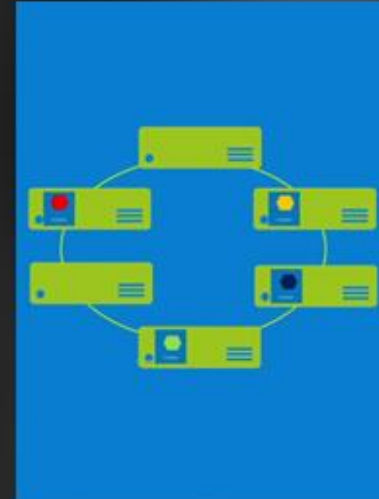
OUR SERVICES



**INTEGRATION READY
ARCHITECTURE AND DESIGN**



**CHANGING FORMULA
OF EDUCATION**



**MICROSERVICES &
SOFTWARE SEMANTIC
EVOLUTION**



**IT OF THE FUTURE WITH AI
AND SEMANTIC CLOUD
ARCHITECTURE**

New educational paradigm | Capture corporate "Tribal Knowledge" | Knowledge Delivery as a Service

Conversational Design and Manufacturing | Creating a unified landscape for information systems

Slack or WhatsApp Conversational Channels with AI assistance for study and marketing

Solutions and Models Validation against Requirements, Policies & Regulations

Investment Opportunity

Accelerate Sharing Knowledge with Conversational Semantic Decision Support (Ask CSDS)



Background

A year salary for “knowledge workers” is about six trillion dollars (\$6,000,000,000,000).

How this was calculated:

According to USA statistics

(<https://www.bls.gov/news.release/pdf/empsit.pdf>) about 160 million people are employed in that country.

About 70% are so called “knowledge workers” dealing with information daily. With the average salary about \$55k

(<https://www.thebalancecareers.com/average-salary-information-for-us-workers-2060808>) their year salary is about \$6 trillion.



Client Benefits Use Cases

Reducing IT Budget

Cut budget costs while creating a unified landscape for all information systems

Enterprise IT as we know it today is slowly disappearing. Companies have begun transitioning their IT to a cloud.

However, we offer even a more significant transformation, which makes transitioning to a cloud much more efficient. Yes, Enterprise IT can be transformed from current enormous complexity and become very simple.

More than 50% of the IT budget currently manages technical systems, not information.

Why? – Historically, different types of information has been processed by different systems.

Semantic Technologies change this by offering a unified landscape for all types of information.



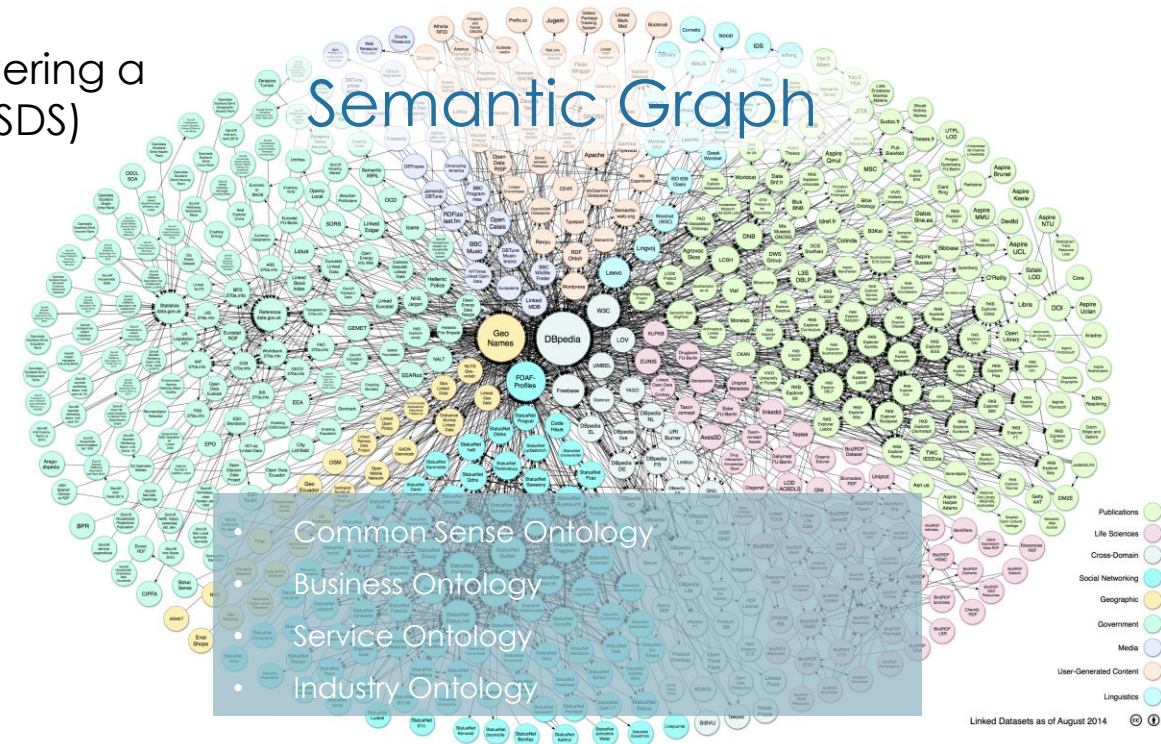
Specific data tables in specific applications make specific SQL queries perform faster.

But in the increasingly interconnected business, integration efforts outweigh the benefits of specific approaches to specific data. And the growing art and science of Big Data help us **understand a complete business story** instead of having to piece it together.

Smart cloud services collect enterprise information in a unified knowledge component, corporate knowledge factory, improving opportunity for automation, while significantly reducing cost of IT.

Semantic Cloud Architecture

A unified information landscape is saving IT budget while delivering a big picture with Conversational Semantic Decision Support (CSDS)



Linked Datasets as of August 2014

Increasing business efficiency and providing a decisive advantage over similar businesses

ITU integrates structured and unstructured data and collecting “tribal knowledge” in the corporate knowledge factory. Every company is striving to become a leading business in its business area. Companies invest in smarter people and smarter technology.

Smart cloud services offer an optimal combination of both. Conversational Semantic Decision System (CSDS), described in the patents [Knowledge-Driven Architecture](#) and [Adaptive Robot Systems](#) helps to transform multiple forms of information into a knowledge domain.

Multiple CSDS can collaborate to connect knowledge branches. CSDS can also converse with an SME to retrieve and translate “tribal knowledge” into rules, scenarios, and services. A conversational approach to knowledge acquisition combines the power of Semantic Technologies with the human intuition. This combination effectively creates a Corporate Knowledge Factory as a base for Conversational Semantic Decision Support (CSDS) systems.

Integrated software and knowledge engineering lead to truly collaborative (human-computer) development, described as a system in the [Development Factory](#) patent.

Development life cycle with its multiple teams of business, Conversational Development and Manufacturing (CDM) will significantly decrease development and maintenance cost.

Adaptable Robot Systems

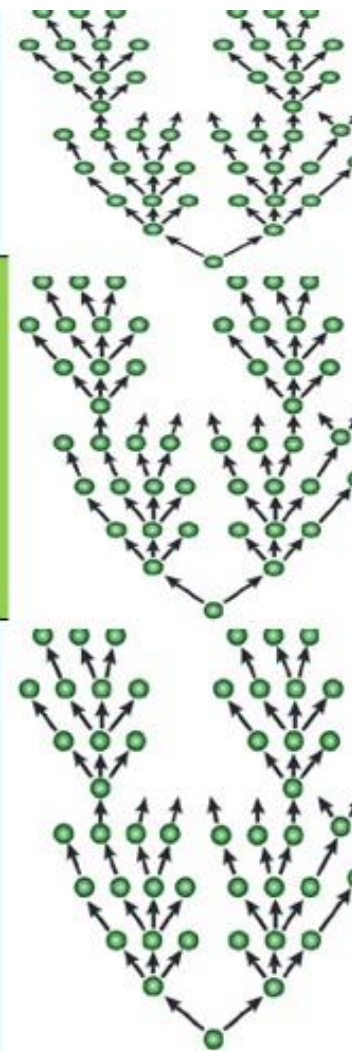
Conversational Design, Modeling, and Manufacturing

SOA builds apps by connecting services.

Adaptive robot systems learn on-the-go, build new skills, and connect them, while manufacturing new products.

What we call design and development is transformed into a conversational modeling and manufacturing.

Each successful transformation introduces more rules, services, and orchestrations, adding computer (robot) skills.



Knowledge Tree or Knowledge Domain Ontology is a graph, similar to a Decision Tree.

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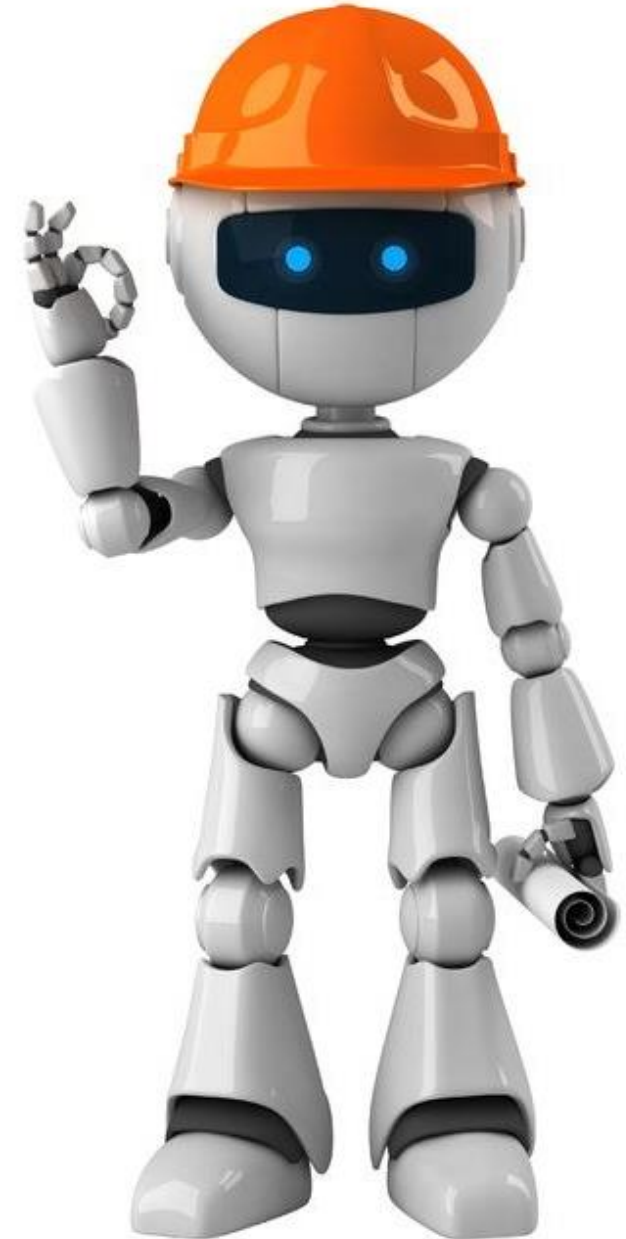
Read more in: <http://ITofTheFuture.com>

* Adaptive mobile robot system with knowledge-driven architecture, Yefim (Jeff) Zhuk, US Patent, US7966093

The conversational approach brings together a powerful combination of human intuition and computer restlessness. Conversational Semantic Decision Support (CSDS) uses an ontology to map human instructions to the knowledge tree. CSDS has access to corporate knowledge factory and also connected to related knowledge domains. These connections allow the system to fill in “know how” - technical details, which may include corporate policies and regulations as well as business process instructions and other “boring” but necessary data.

Adaptive robot systems (US Patent 7966093)

- Can learn on-the-go and build new skills, while providing on-the-fly translations of situational requirements into adaptive behavior models and further down to service scenarios for a collaborative robot team.
- 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 re ne 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 eld. 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.



Client benefits will drive the company profit

Clients will be able to cut their IT expenses and increase business productivity by semi-automation in decision-making processes. Estimated client benefit of using smart clouds is about 10% of their budget for knowledge workers (10% of \$60 bln is \$6 bln). Our conservative estimate is that clients will pass about 5% of their benefit to pay for our smart cloud products (5% of \$6bln is \$300mln)

We expect about 50% of our company revenue from Product Licenses.

customization and support provided by our consulting team we expect another 30% of revenue. We plan to **initiate this work free for high visibility companies** as our investment to gain name recognition. Then this channel will generate constantly increasing revenue.

Allowing common access to knowledge domains excluding client-specific knowledge branches, will open an opportunity for advertising and add 10% to revenue.



Be part of the future of Education!

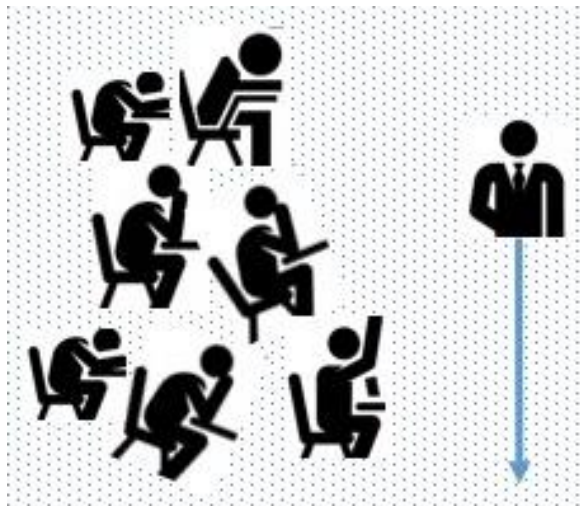


Creating a new education paradigm will bring an additional 10% revenue.

Current Formula of Education- Colleges and Universities serve as the primary channel to access education - Graduates: have a hard time finding work.

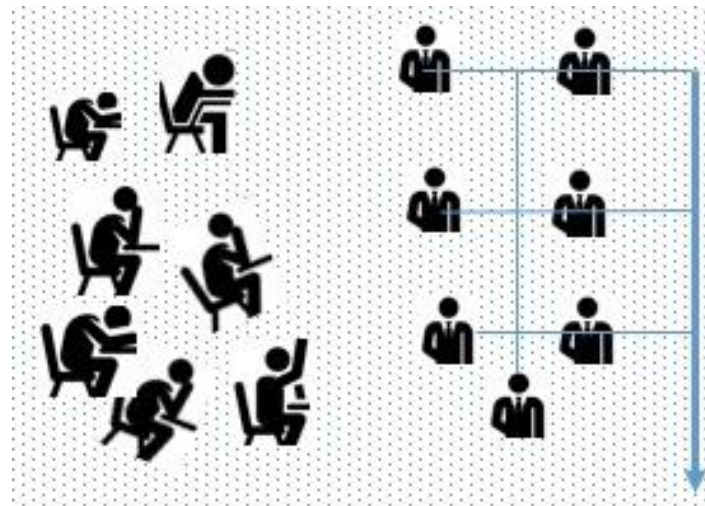
ITU and Semantic Technology is changing the formula of education. A Conversational Semantic Decision Support (see references and patents below) not only helps students by optimizing Individual Learning Process. CSDS also allows SMEs to transfer their knowledge into educational quality materials.

Current Educational Formula
"Many to One"
Many Students to One Teacher



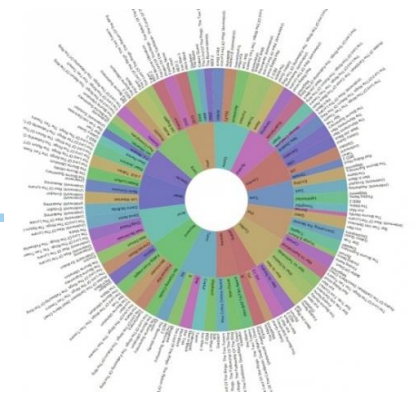
VS

Changing Formula of Education
"Many to Many"
Many Learners and Many Professionals



Accredited (old) courses for an "average" student
University/College Administration
High Education State Administration
High Education Federal Administration

Conversational Semantic Decision Support
Helping Professionals to Accelerate Sharing
Knowledge and Optimize for Individual Differences



Semantic Knowledge Graph
collected by the system
working with experts

Changing the Formula of Education

Valid alternative to overpriced educational institutes

Conversation approach in education is crucial to finding individual differences and consistently engaging a student then directly connecting learners to the industry.

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

CSDS also helps Subject Matter Experts (SME) transform knowledge into educational quality materials.



Our 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.

Expand Education Beyond Academia



Conversational Semantic Decision Support:

- **Helping SME transform knowledge**
 - **Building initial Conceptual Graphs based on Educational Goals**
 - **Helping SME transform knowledge into Learning Materials**
- **Optimizing Individual Learning Process**
 - **Evaluation Student Performance & Optimize Individual Graph**
 - **Semi-automatic Q&As arranged for Test-Driven Learning (TDL)**

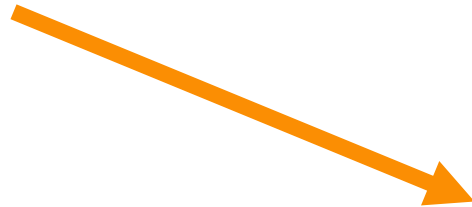
GLOBAL KNOWLEDGE MARKETPLACE



Consulting SME

(Subject Matter Expert)

A new Educational Platform by ITU effectively **expands education** beyond the academy by helping SME, who wants to share, becoming an SME-instructor, **teaching skills that are needed today and tomorrow**, directly connecting learners with the Job Market.



Corporate SME

(Subject Matter Expert)



LEARNERS

Reduce the brokerage between a learner 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 training, directly connecting students and jobs. **Educational publishers** will finally be in a position to grow Global Knowledge Marketplace and to offer templates (conversational scripts) helping authors and the SMEs to share their unique knowledge.



DIRECT PATH FROM
EDUCATION TO A JOB!

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.

Some companies, such as IBM, Google, Facebook, already started this process. CSDS will make it efficient.

With our team of software and knowledge consultants, we plan to bring an additional 10% of revenue. We plan to open our educational platform to IT and other selected industries and pay selected students and SMEs to become instructors and marketing partners. After the initial investment, this program will become a pro table, although we plan to keep low pro to continue growing. Our goal is to shift gears in higher education towards companies, expanding education beyond Academy, helping directly connect Job Market and students, significantly improving educational results.



In several years this area of business might bring significant attention and profit.

Interview

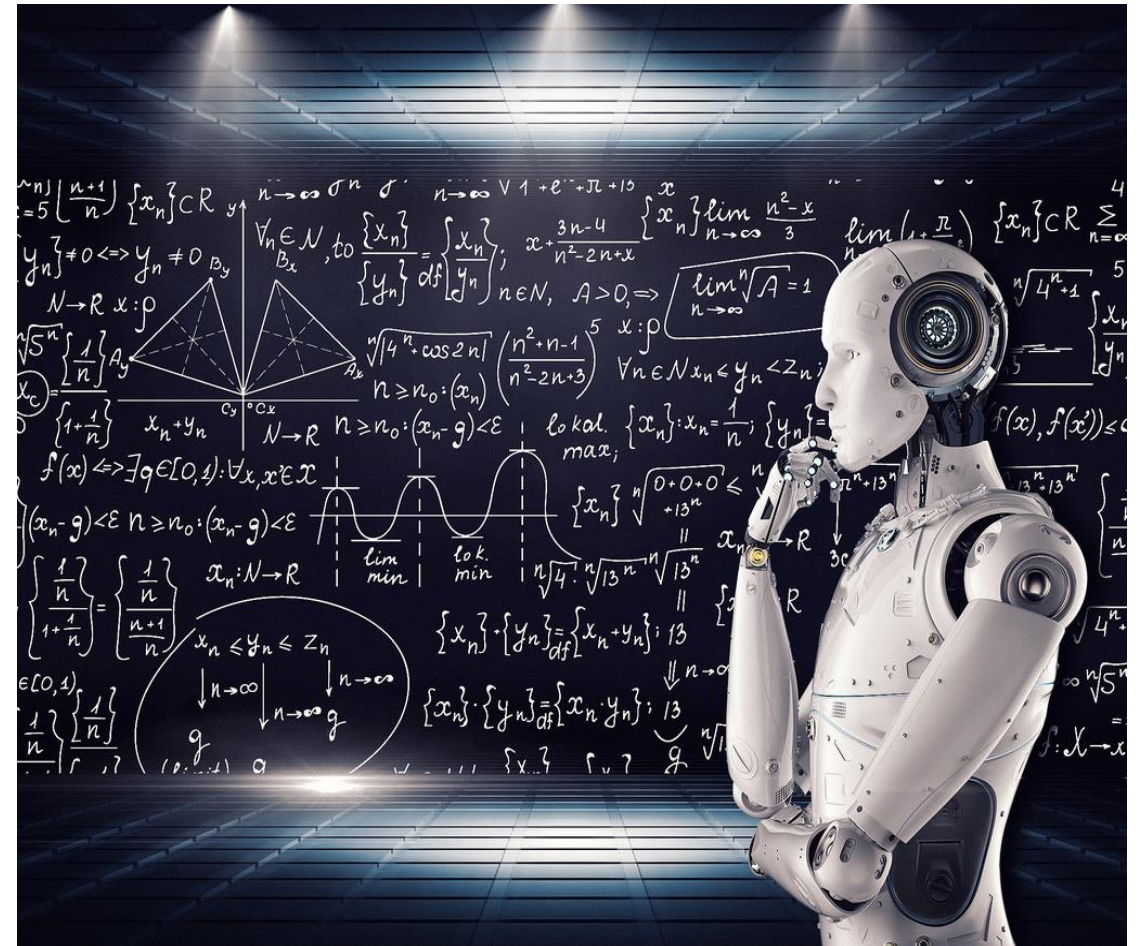


Questions and Answers



What is the actual goal and problem space you are looking to address?

The goal is trivial although the solution is not. The goal is to let computers do things that are most tedious operations, but today people perform. We often call these people “knowledge workers” as they operate with information. This work can be more automated, saving trillions of dollars. To enter this market means to teach computers to understand more and to help more.



Why your solution? Are there others in this problem space? What differentiates you from others?

There are 3 major solutions in this space; all three help computers understand and help more:

- a) Generic search by Google – helps all "knowledge workers" regardless of their profession search and find information on the web via entering related keywords, this saves about 10% of time/budget, which is about \$600 billion (a total market is about \$6 trillion).
- b) Engaging knowledge engineering consultants to create specific knowledge domain ontologies by using Semantic Tools, such and **AllegroGraph, TopBraid, OntoText** and similar.
 - a) Creating Ontology is a tough task, which requires both domain expertise and knowledge engineering expertise. Plus it is a very-time consuming task. These challenges limit the success of this movement and these tools to about 0.5% of the market.
- c) Cognitive computing, "throwing data in the computer", is giving a good algorithm and a chance to figure out what is these data about and find data patterns for analysis.
 - a) This is a relatively new technology, like IBM Watson, which has a long way for success.
 - b) The biggest challenge is what to do with the patterns found? Computers, while looking for patterns, currently is not aware about business goals and specific applications where these patterns can apply.
 - c) Over time, I expect cognitive computing to integrate with the conversational approach described in several patents.

Our patented solution combines computer restlessness with a domain expert intuition via a conversational interface. It is a system and methodology, which includes components described before and adds a conversational mechanism to better connect SMEs, ontology, and computer programs.

Is your solution a better way?

Our solution, protected by several patents, combines computer restlessness with a domain expert intuition via conversational approach. The system includes original conversational scripts prepared once by a consultant working together with a domain expert. Then the system uses the texts to grow knowledge domain ontology and uses the growing ontology to collect knowledge domain information from data sources. Each interaction with users enhance the conversational scripts, increase knowledge domain ontology and makes a precise definition for collecting data from public sources, which in turn improves ontology.

Growing Ontology allows business users to gain immediate advantages in their business processes and with every interaction help growing Ontology. At some point, a growing ontology can help more complex applications, such as:

- **Conversational Design and Manufacturing**
- **Alternative education by assisting SMEs transfer their knowledge into educational materials.**

ITU is too small to spend any resources on fighting patent rights. At some point, a larger company will buy our patents to enter this game; this happened with our patent, US 7032006, Distributed active knowledge and process, which was obtained by Yahoo.

There are several companies, such as Moxie, eGain, and MindTouch that describe similar ideas, but while these companies use "Guided Search" (can be considered as a conversation) none of these companies close the loop. In our situation every interaction with users and every new bit of information in knowledge ontology makes improvements in all system components. Conversational scripts not only help users but also help growing knowledge domain ontology.

Funding requirements and estimated returns

We are seeking an investment to quickly scaling up in the fresh market.
Scaling up our marketing and consulting teams.
Improving user interface and functionality based on early feedback.

Patents and prior developments value: **\$9 million**

The offer to investors: IT University was just stage one of the small business software journeys, now we need to bring the benefits of our AI platform to the industry.

Exit strategy

As a high margin business that's performing well, major patents in the field, we see ourselves as a prime M&A target for major companies. This is a win-win situation as we can save resources by combining. It's also a more efficient way for these companies to grow.

**We expect this exit strategy would deliver 10X multiple on earnings.
Time to this exit would be in the medium term of 3-5 years.**



Patents:

- [Knowledge-Driven Architecture](#) | US Patent | Driving applications with business scenarios
- [Adaptive Mobile Robot System](#) | US Patent | Integrating software and knowledge engineering with robotic technologies
- [Collaborative security and decision making](#) | US and 15 European countries, Patent| Turning a beautiful idea of collaborative decision into a working system
- [Rules Collector System and Method](#) | US Patent | Formalizing expert knowledge into rules in expert-computer brainstorming for solving difficult problems
- [Distributed Active Knowledge and Process](#) | US Patent | Collaborative access and negotiation for data and services
- [Development Factory](#) | US Patent| Conversational Design, Manufacturing, and Marketing

References:

1. <http://ITofTheFuture.com> - Cognitive Computing and Semantic Cloud Architecture
2. [Integration Ready Architecture and Design](#)
Software and Knowledge Engineering book by Cambridge University Press
1. <https://ituniversity.us> - Internet Technology University
2. [The message from 2040](#) – Si-Fi Story
3. <http://AskCSDS.com> | [Contact us](#)