

# Integrated Cloud Framework And Social Management or Crowdsourcing the easy way





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# Introduction

**Crowdsourcing is one of the real examples of a shifting paradigm between Information Technology (IT) worlds that has been created exclusively for business purposes and society.**

The importance of reaching customers and other stakeholders is fully realized by the majority of businesses. A new emergent approach enables access to huge crowds and to employ them in virtually unlimited tasks with a focus on quantity together with quality, thus leveraging social phenomena and cloud computing as a business enabler. This approach is called Crowdsourcing and it allows companies to drive massive collaboration for various purposes.

Crowdsourcing is one of the real examples of a shifting paradigm between Information Technology (IT) worlds that has been created exclusively for business purposes and society.

Crowd is in the physical world and is dependent on proximity while crowd in the virtual world are communities that can connect together anytime, anywhere in the world. Most importantly, they are growing and acting exponentially to maximize their “crowd power” by socializing and following the community goals.

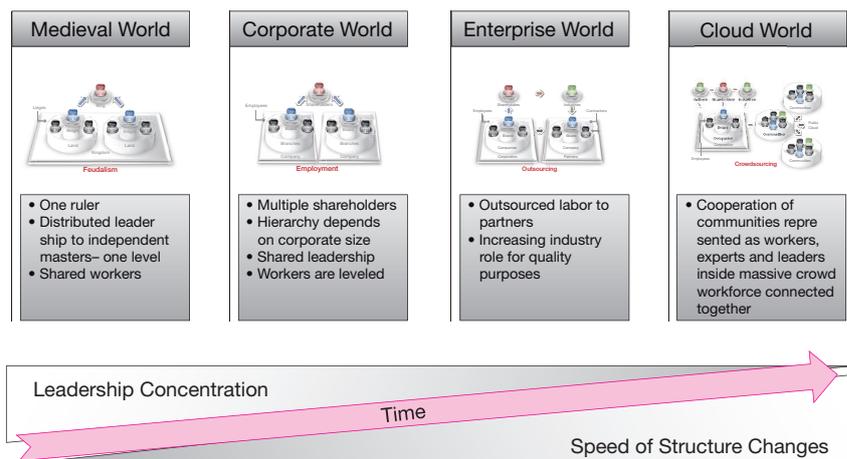
What makes Crowdsourcing so powerful is the broad participation that takes place at relatively no costs. Solutions are generated from volunteers or freelance professionals who get paid only if their ideas are used [1].

The most famous example of Crowdsourcing is Wikipedia where there is a collaboration of millions people that is concentrated around one goal - to describe the world around us in structured way; following integrated semantic and reference rules, driven by volunteers. The contribution model is literally spread out into all social levels and geographically – everybody is a contributor to this Collective Intelligence product.

# Crowdsourcing or How Did We Get Here?

To find the roots of Crowdsourcing, we have to travel back in history, when rulers controlled the crowd and the social interactions were limited to public knowledge, communication channels and collaboration options. Crowdsourcing motivation didn't exist. However, we can recognize hierarchy patterns which evolved into the next stages and opened the space for social networks as we know them today.

**Figure 1: Labor Evolution**

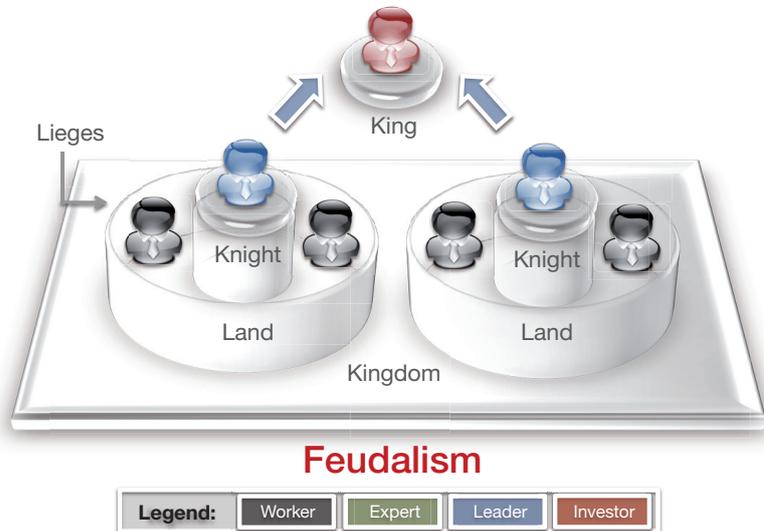


Leadership Concentration is the spreading into smaller groups and the speed of change is increasing as more people are joining groups, reconnecting in different communities, naturally increasing collaboration density and overall collective intelligence.

Four evolution states of Labor Evolution are summarized in Figure 1 and each stage is further described in more detail:

1. Feudalism (see Figure 2)
  - Characterized by one ruler and strict leadership
  - Shared workers with no feedback or collaboration at any level
  - One way control over the workers
  - Flat hierarchy at the workers level
  - Social interactions are limited to the physical world

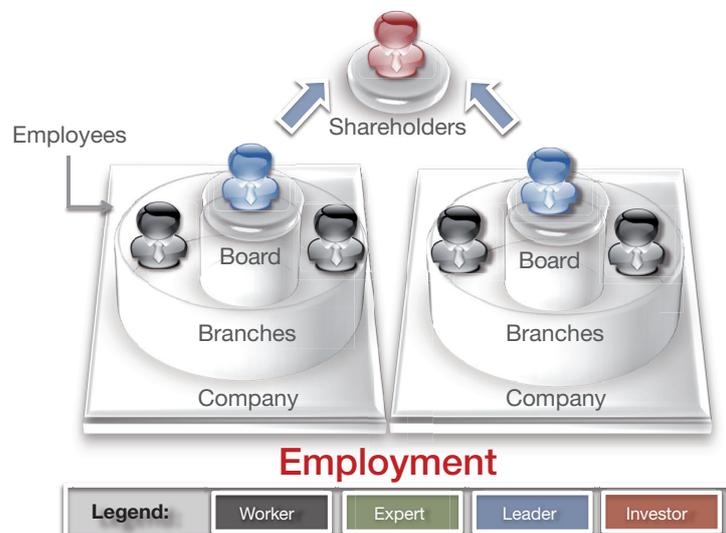
**Figure 2: Feudalism**



2. Employment (see Figure 3)

- Characterized by multiple shareholders
- Company hierarchy depends on corporation size and geographical locations
- Shared leadership is executed by company board (CXO leaders) and spread out between branches
- Employees are task oriented and leveled based on various parameters (skill set, maturity, capabilities)
- There is two way communication, hierarchically oriented, secured in digital world
- Social interactions are limited to corporate and task activities (messaging and internal collaboration)

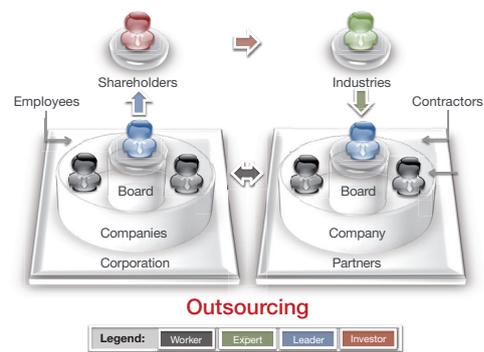
**Figure 3: Employment**



3. Outsourcing (see Figure 4)

- Characterized by multiple shareholders and their partnership connection through industry structures
- Labor is divided between employees and contractors covered by partnership organizations
- Increasing industry role is essential for quality purposes of delivered labor, outsourced from corporation for expansion purposes (limited amount of qualified employees)

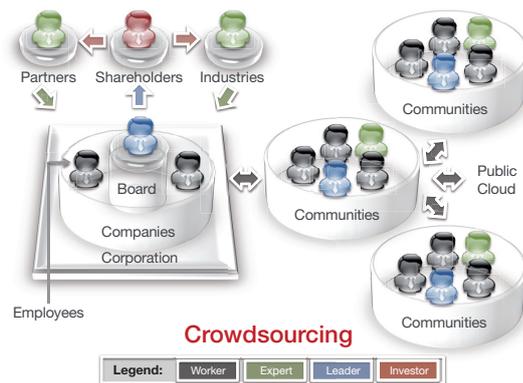
**Figure 4: Outsourcing**



4. Crowdsourcing (see Figure 5)

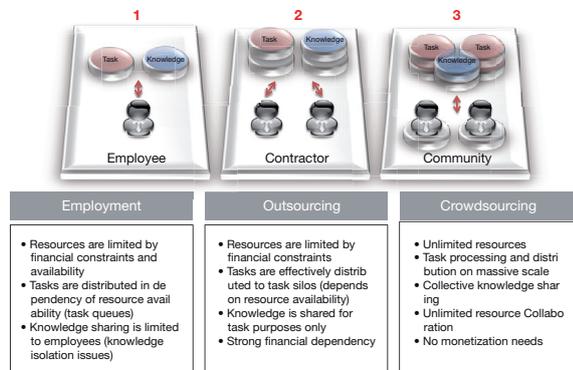
- Labor delivery is massively extended to Communities and Social Networks enabled by Cloud Computing

**Figure 5: Crowdsourcing**



In Figure 6 the relationship evolution is shown from different points of view and is focused on resources and deliverables.

**Figure 6: Relationship Evolution**



Technology advancement, together with cloud based community networks, created a true global job revolution.

Technology advancement, together with cloud based community networks, created a true global job revolution. Amateurs can produce professional quality products (iStockPhoto, Fotolia) within the shortest possible time at a lower cost and with a large quantity.

A similar Crowdsourcing model could be applied to “business crowds” (employees participating within the industry) that has enhanced inter-industry collaboration with a professional crowd via industry communities. This could extensively increase the collective industry knowledge and professionalism of industry community members.

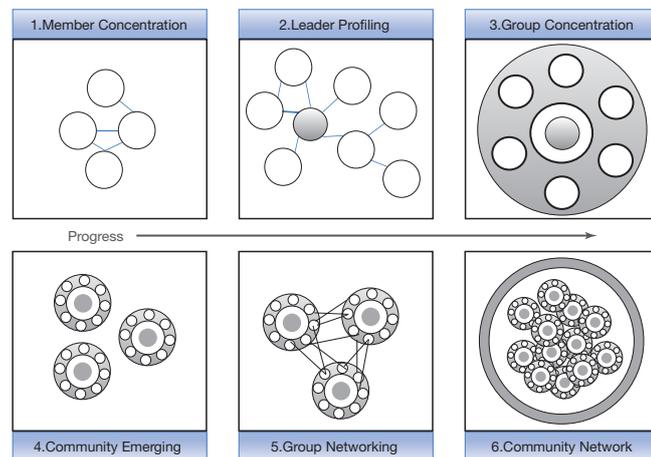
Cloud Computing allows the crowd to focus on its social needs and create virtual communities. In the final stage, crowds can influence themselves and create a better world just by participation in cloud based communities / social networks that are connected together.

# From Member to Community Network

**Crowd follows leaders in order to acquire self-actualization by the creation of communities, which allows communication, sharing of information and collaboration on global community tasks and goals.**

Each community is basically a higher evolution of people / member interactions. However, the major enabler for community creation are group leaders as depicted in Figure 7.

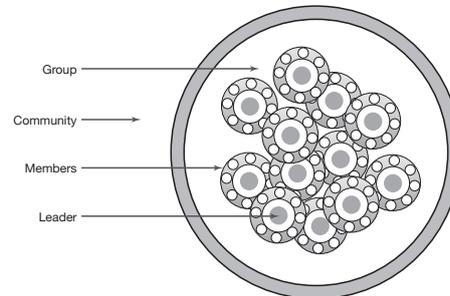
**Figure 7: Creation of Community**



Community network evolution:

1. Member Concentration: personal connections, sharing individual goals and interests.
2. Leader Profiling: emergent leadership exposed by knowledge, personality, number of connections, charisma and other positive characteristics.
3. Group Concentration on Leader: center of focus and connections, leaders growing influence shape the group around him / her and gain power as a social entity.
4. Community Emerging: there are more groups with similar characteristics and they started to fill empty space between them (growing number of members).
5. Group Networking: creation of numerous connections and social interactions between members and leaders from different groups.
6. Community Network: represents high density of networked groups, often sharing the same ideas and community goals, supported by higher level of community leaders.

Crowd follows leaders in order to acquire self-actualization by the creation of communities, which allows communication, sharing of information and collaboration on global community tasks and goals.

**Figure 8: Conceptual Community Structure**

The Community structure is depicted in Figure 8. The circle represents an encapsulation in all structures (group, community, or network) and it is a natural border between elements / structures inside and outside entities. The communities are building blocks of social networks and are an essential element of the Crowdsourcing Idea.

Community and Group borders are also areas with instant “Social Noise” created by weak connections, temporary trends or social changes (such as creation, declining or structural changes) inside social structures (new leader, new community, and group merge).

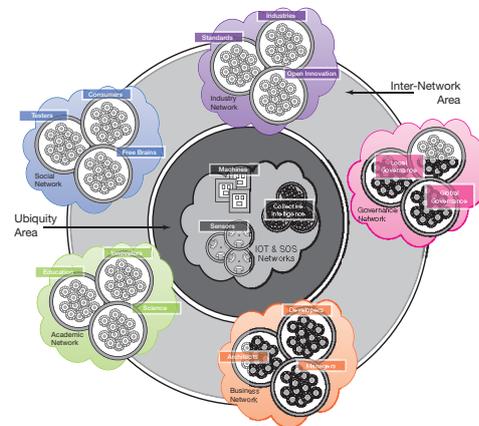
### Community Types

There are three different types of communities (Local, Global, and Virtual). Communities connected to the physical world (Local and Global) can be mixed or act independently in the digital world (Virtual):

- Local Communities are focused on local issues such as anti-social behavior, economic development, local environment, community planning, regeneration, conservation, community safety and transport and highway. The Community will also be able to take on a variety of levels of responsibility for some local services, such as street cleaning, grass cutting, weed control or the maintenance of public conveniences.
- Global Communities are focused on global problems such as social and economic justice, environmental integrity, and overall civilization issues.
- Virtual Communities are independent from the physical world although they solve issues in the real world. Virtual Communities are essentially faster in communication and problem solving areas. However, they are often over-connected (virtualized and multiplied connection between entities).

### Communities and Networks

There is surprisingly a big distinction between human and machine networks, which is characterized by the connections and structures. In Machine Networks, Connection and Structures have visible and stable patterns, which is not always true for human networks. Human Networks are more dynamic, organic and overall unpredictable as complex systems, although Emergent Patterns can be traced as a prediction tool for incoming changes with a high level complexity. Emergent patterns are visible as a substantially higher density of communication, massive creation of new structures and connections, emerging new networks and their evolution into new virtual entities with potential impact on existing networks and their communities. It is essentially a living organism influenced by external, internal elements and their actions.

**Figure 9: Communities and Networks**

In order to measure social relationships for social network predictions, a relevant applicable method can be used. Sociometry is a quantitative method for measuring social relationships, developed by the psychotherapist Jacob L. Moreno [2]. This method brings an innovative approach to sociology, which allows the measurement of two types of sociometry (research and applied):

- Research sociometry is focused on network explorations, concerned with relational patterns in small (individual and small group) and larger populations, such as organizations and neighborhoods;
- Applied sociometry utilizes a range of methods to assist people and groups review, expand and develop their existing psycho-social networks of relationships.

These two sociometry methods can help in the large scale management of Social Networks and can help to monetize them for Crowdsourcing purposes. The Social Network Analysis method that emerged from Sociometry shows different approach in relationship measurement. The power of social network analysis stems from its difference from traditional social scientific studies, which assume that it is the attributes of individual actors—whether they are friendly or unfriendly, smart or dumb—that matter. Social network analysis produces an alternate view, where the attributes of individuals are less important than their relationships and ties with other actors within the network. This approach has turned out to be useful for explaining many real-world phenomena, but leaves less room for individual agency, the ability for individuals to influence their success, because so much of it rests within the structure of their network [3].

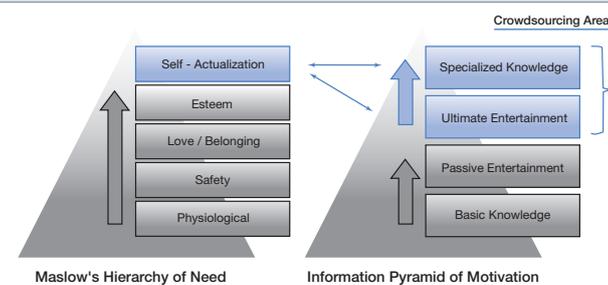
The Conceptual picture about World of Networks is depicted at Figure 9. It shows existing and new Networks with their communities and their potential roles in Crowdsourcing:

- Social Network
  - Free Brains, Testers, Consumers
- Academic Network
  - Innovators, Educators, Scientist
- Business Network
  - Developers, Architects, Managers
- Governance Network
  - Local Governance
  - Global Governance
- Industry Network
  - Industries, Standards, Open Innovation
- Internet of Things and System of Systems
  - Machines
  - Sensors
  - Collective Intelligence

# Crowdsourcing – The Motivation Aspect

This discussion of the phenomena, Crowdsourcing, is partially based on overall human motivation specified by Abraham Maslow [4] in 1943. His Pyramid of Needs basically shows different levels of human needs driven by motivation from essential needs (Physiological and Safety), through Love / Belonging and Esteem to final stage, which is Self-Actualization.

**Figure 10: The Power of Self-Actualization**



Maslow's Hierarchy of Needs has been connected with the Information Pyramid of Motivation, signaling a direct connection between Self-Actualization and two top levels of the Information Pyramid (see Figure 10). Specialized Knowledge and Ultimate Entertainment are motivation levels enabled by the top level of Maslow's Hierarchy of Needs and it is also the key reason for the overall human participation in Crowdsourcing.

Crowdsourcing Motivation is divided into several reason areas with the majority of them defined by Chris Anderson (not for Crowdsourcing reasons but they are could be value for Crowdsourcing too) in his book **Free-The Future of a Radical Price** [5]:

## Mimetic Desire

- We want to do things that other people do, because their decisions validate our own behavior and acts.
- This is a substantial part of our desire for the creation of communities and social networking and it is one of the basic elements which guarantees Crowdsourcing success.

## Follow Leaders

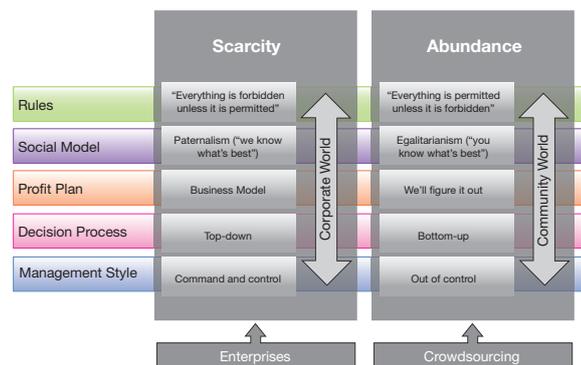
- We tend to follow leaders, resulting in a herd behavior and the concentration around them in natural way.
- Leaders are shaping members into groups and communities.
- Natural leaders concentrate most connections and are able to abstract multi-connections to form more groups / communities.

Cloud Computing makes technology so cheap, ubiquitous, that anybody can use it, so it propagates around the world and into every possible niche.

### Abundance Thinking

- The economist Nick Szabo came up with the terminology “Mental Transaction Cost”, which describes a buyer’s low cost decision methodology “Toll of Thinking” [6]. In short, people don’t think that if something is for free but they start to think if the cost is even only 1 cent.
- This method predicted the fall of micropayment systems as ineffective for reasons specified above.
- The overall definition of abundance thinking is depicted in Figure 11.

**Figure 11: Connection between Communities and Abundance Thinking**



Cloud Computing makes technology so cheap, ubiquitous, that anybody can use it, so it propagates around the world and into every possible niche. This collective exercise opens a Pandora’s Box collaboration on all social, technology and business levels, shifting economical landscapes by the creation of services with cost close to zero or for free (Mass effect).

This leads to an overall fixation of Capital Expenditure (CAPEX) close to zero (XaaS consumption) by increasing Operating Expenditure (OPEX) for only a short period. Service cost will continuously fall and will decrease the OPEX to a minimal value, which creates paradox, where all services will be close to free and there will not be any pushback to increase CAPEX for small- and mid-size companies.

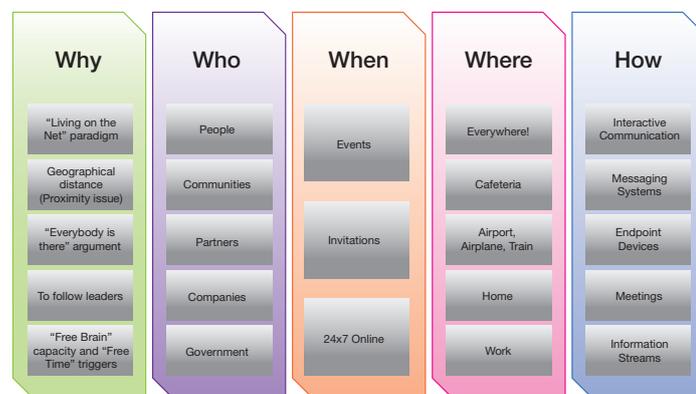
### Independent World Phenomenon

Community members have a desire to act independently and their interactions are limited if there are any visible constraints in the sense of discussion control or if they feel unsafe to openly interact with other members. This is partially eliminated by crowd self-management which is achieved by voting on actions and crowd goals. This barrier does not exist in public social networks and it is also one of the reasons why there is such a huge and increasing crowd concentration. And this is the “Independent World Phenomenon”, which indicates the highest density of crowds spread out among various social networks.

# Social Integration Factors

Social Integration factors (see Figure 12) answers basic questions about crowd concentration and their behavior.

**Figure 12: Social Integration Factors**



## 1. Why

- "Living on the Net" paradigm: There are more and more people online connected to the Internet via computers, mobiles and other endpoint devices. This brings crowds into cyberspace and enables communication of virtual communities;
- Geographical distance: The digital world omits proximity issue (of social communication) and the time zone problem is greatly minimized by messaging (time constraints);
- "Everybody is there" argument: People already uses social networks, e-mail communication and instant messaging, so there is not any "hire" problem for Crowdsourcing purposes;
- To follow Leaders: People follow their leaders everywhere, so if they are accessible on the web, they will go there and connect with them anyway;
- "Free Brain" capacity and "Free Time" triggers: People have free time and they are looking for interesting activities, to entertain themselves. There's also "Free Brain" motivation (Open Innovation Model), where they enjoy thinking and if it's paid – even better.

## 2. Who

- People: Anybody connected as a user or anonymously;
- Communities: Physical and virtual communities represented in cyberspace;
- Partners: Third party companies, industries, academic ground;
- Companies: Business markets and business entities;
- Government: Local and global governments (\*.gov).

### 3. When

- Events – scheduled
- Invitations – on demand
- 24x7 Online – anytime

### 4. Where

- Everywhere: Literally at any place covered by wireless or wired signal;
- Cafeteria: Connection to the lowest human needs (Maslow's Hierarchy of Need) – physiological;
- Airport, Airplane, Train: Global world connections and travel. We spend significant time traveling and even during this time we are able to socially interact inside our digital communities;
- Home: Family time, social interaction with friends (social networks);
- Work: Corporate interactions and enterprise collaboration.

### 5. How

- Interactive Communication: Video conferences, mobile video (3G) , Webex;
- Messaging Systems: E-mails, SMS, Twitter, MMS;
- Endpoint Devices: Mobile, eReader, Playstation, Xbox, Internet TV, computer;
- Meetings: Online, offline (archived);
- Information Streams: Sensors, machines, data hubs.



# Crowdsourcing for Enterprises

**Crowdsourced collaboration creates new opportunities, and traditional collaboration executes them [7].**

How can enterprises use Crowdsourcing and how can they enhance their business models, just as they embraced outsourcing a couple of years ago? The best definition of Crowdsourcing is as collaboration and this leads to the idea that Crowdsourcing is actually a new collaboration framework. This thinking is aligned with Hutch Carpenter’s article “Crowdsourcing is the new collaboration” and shows the distinction between traditional collaboration and Crowdsourcing Collaboration as depicted in Figure 13.

**Figure 13: Comparison between traditional and CrowdSourcing collaboration**

	Traditional Collaboration	Crowdsourcing Collaboration
	Dedicated teams beforehand	Virtual, on-the-fly teams
Team	Team formation in response to some authority	Teams form on common interest
Formation	Participation is a requirement	Internally motivated participation
Participation	Know go-to people on the team	Contributions from anyone
Identification	Response to project an executive is working on	Response to ideas from anyone
Responsibility	Structures interaction	Emergent interaction
Interaction	Task-driven	Innovation-driven
Driven by		

With the Crowdsourcing approach, participation is predicated based on you actually having an interest in a given idea. Not that you are tasked to bring a particular set of skills to a project that you may or may not care about.

Crowdsourced collaboration does not replace traditional collaboration. If traditional collaboration is the process of executing on a known objective, Crowdsourced collaboration is the process of discovering and building ideas that are not yet known. Crowdsourced collaboration creates new opportunities, and traditional collaboration executes them [7].

Vasil Remeniuk, in his article “Internal Crowdsourcing: Enterprise Edition” [8], described internal Crowdsourcing as, “When it comes to prototyping or the planning of internal applications for the enterprise, the common practice is to involve into the collaboration process representative(s) of the user party. Normally, these are the heads of departments (such as marketing and sales) or just the most experienced users. In total, no more than three to four people, who can define, whether a technically implementable and economically sound requirement has any sense for users. While these people can have impact on the development process by specifying requirements and assessing viability of ideas, the main reason for their presence is to help build the cultural bridge between users and new applications (to get the users ready for change). The problems is

**With Crowdsourcing application as the place where employees can submit their ideas, no brilliant ones will be lost.**

that, like with any other kind of mediators, user representatives, who aggregate demands of the community and promote them to other parties (technical, business), can be inaccurate in their conclusions and vision of major demands. At the end of the day, the things that users really want can be out of the picture. Internal Crowdsourcing will help to setup many-to-many relationships between users and other parties. Without slowing the planning and development processes down, it may continuously reveal bottlenecks and impediments that users face interacting with the system. Employees of customer service, marketing, sales and other departments are those who use internal applications on a daily basis (literally breath those application) and have a very deep insight into them. While working with the applications they admit the problems but that does not let them act effectively, or things they lack that will increase the productivity. If they try to push these points forward via bug-tracking engine (create a ticket for a proposal), they have very little chance to succeed – the ticket most likely will be treated as “not a bug” and put off. With Crowdsourcing application as the place where employees can submit their ideas, no brilliant ones will be lost. Filtering and promotion of ideas is managed internally by the crowd, so the hottest ones are always highlighted and very little external impact is required. Compared with other media tricks, internal Crowdsourcing resembles self-organized continuous brainstorming, most of all.”

Using internal Crowdsourcing judiciously, this simple concept can do the following:

- **Stimulating innovations:** End users can be the authors of innovative ideas that will increase the share in existing markets, add new value to a current project, and help enter new markets. Fresh eyed users can see the problem in a new light;
- **Solving impediments:** Users may have problems using existing products, or have no ability (functionality) to do what they want. Crowdsourcing may reveal the most popular impediments;
- **Highlighting creative agents:** Management may be interested in figuring out the most creative employees for the future.

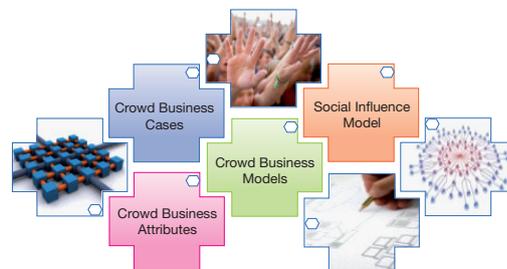
Employees can have a strong motivation to share ideas, which are stirred up with money or public approval [8].

The ICF approach for Crowdsourcing is presented in ICF Crowdsourcing Framework (described in section” The ICF Crowdsourcing Framework”

# The ICF Crowdsourcing Framework

There are four basic elements in the ICF Crowdsourcing Framework (see Figure 14): Business Cases, Business Models, Business Attributes and Social Influence Model.

**Figure 14: The ICF Crowdsourcing Framework – Elements**



For a conceptual description of Crowdsourcing business cases, ICF suggest to use Cloud User Requirements Notation (CURN) with planned extension to Cloud Computing Notation Language (CCNL), which will allow the interpretation of conceptual modeling to Cloud Architecture Components (XaaS) and Cloud Business Components.

Crowdsourcing Business Models represents a major categorization of Crowdsourcing for Business purposes. Crowdsourcing Business Cases are focused on a more granular point of view and explore business areas with short description of the main business cases.

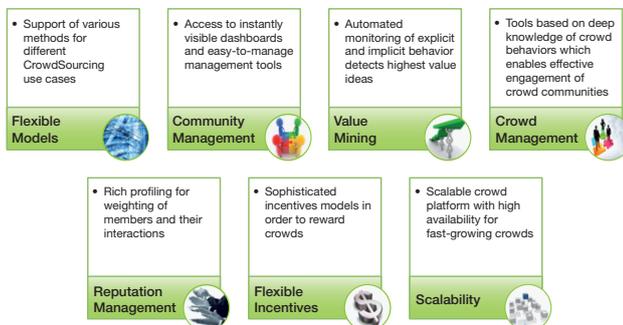
Crowdsourcing Business Attributes could be described as best practice applied to Crowdsourcing Platform / Engine and processes.

The Social Influence Model (developed by Integrated Cloud Framework) is a unique method for the calculation of Community / Network influence with dependency on a numerous factors such as Community Involvement, Personal Growth, Knowledge Sharing, Leadership Recognition and many others. This Model can be used for a variety of social measurements, which can significantly help to compare the social strength of particular cloud networks and social communities and predict their value for business and industry purposes.

## Crowdsourcing Business Attributes

Crowd Business Attributes describes business related attributes of crowd engine/platform necessary for successful execution/management of Crowdsourcing Business.

**Figure 15: Crowd Business Attributes**

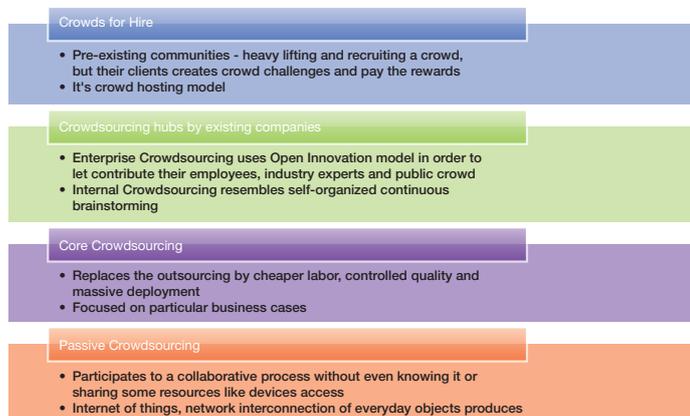


Crowdsourcing Business Attributes can be spread out between multiple tools / platforms and not all of them are mandatory for all business cases, but it is necessary to integrate them in order to run successful Crowdsourcing Business Model.

### Crowdsourcing Business Models

Crowdsourcing Business Models are categorized into four major areas (Crowds for Hire, Crowdsourcing hubs, Core Crowdsourcing and Passive Crowdsourcing) described in Figure 16.

**Figure 16: Crowd Business Models**



This is a short description about crowd “Recruiting” based on Business Models:

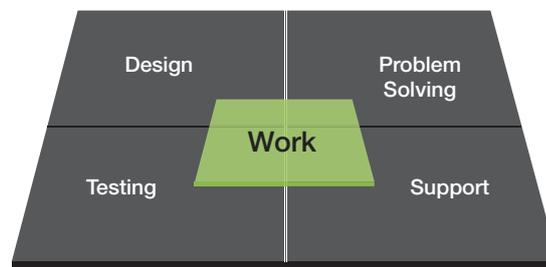
1. Crowds for Hire are recruited from existing communities / social networks such as Facebook or MySpace.
2. Crowdsourcing hubs from existing companies with crowd already there as part of the existing communication.
3. Core Crowdsourcing gains recruits by targeting “works” business case (described below).
4. Passive Crowdsourcing is represented by network of sensors (Sensing - CitySense) / machines (Internet of Things) and their data.

## Crowdsourcing Business Cases

Dion Hinchcliffe in his article “Crowdsourcing - Five reasons it is not just for startup anymore” [9] suggested five business areas suitable for Crowdsourcing and we believe these are in the fact five major areas covering all Crowdsourcing business cases: “A number of Crowdsourcing services have become available over the last few years. What is clear now is that most companies have ready access to Crowdsourcing across a wide set of functional areas, to the extent that it’s often the easiest thing for them to try before going the more expensive outsourcing route. This has implications for business agility as well that can’t be ignored and with opportunity costs so low, we can expect more and more businesses will be experimenting with these tools over the next year to find out what they can do.” Crowd Business Cases (see Figure 17) evolved into five major areas, described by Dion Hinchcliffe:

- **Problem Solving:** Work on problems in science, manufacturing, biotech, medicine and many other fields. Rewards range from US\$5,000 up to US\$1 million for solutions to submitted problems. Reports shows up to a 74 percent Return of Investment for Crowdsourcing over central production methods;
- **Design:** Web design, design of apparel, but also brainstorming on strategically farm specific design decisions across private or public communities;
- **Work:** For many kinds of simple tasks, particularly if they are small, there have emerged highly granular on-demand work marketplaces. Complex tasks cannot be outsourced to these platforms, as they are primarily designed for simple things.

Figure 17: Crowdsourcing Business Cases

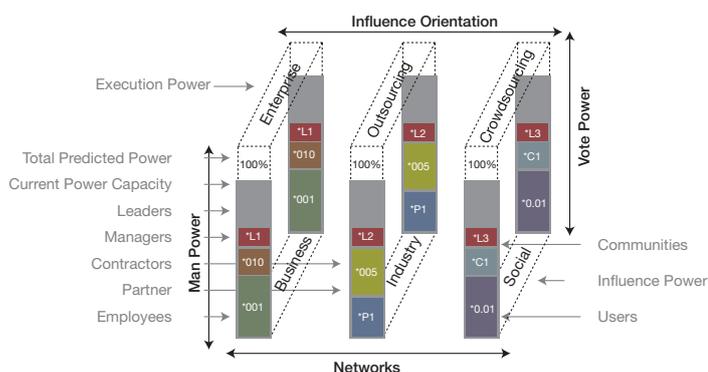


- **Testing:** “Users as testers” has been a growing way for assuring user input from customers that is broad based and thorough.
- **Support:** Online customer communities have been a steadily growing source of Crowdsourced customer service and support for companies that understand how to grow and nurture them. Crowdsourcing customer support can get the answers that are needed, often much better and more accurate than what can be got from the companies that make the products themselves.

# The Cloud Social Influence Model (CSIM)

The Cloud Social Influence Model is a method, which shows the crowd power level from different standpoints, diversified by influence orientation and network segmentation. This model is part of ICF Cloud Strategy Dashboard (ICF Cloud Evaluation Methodology).

**Figure 18: Cloud Social Influence Model (CSIM)**



CSIM is constructed from three windows connected together with each one representing different types of network and orientation. Each window is constructed from four power meters:

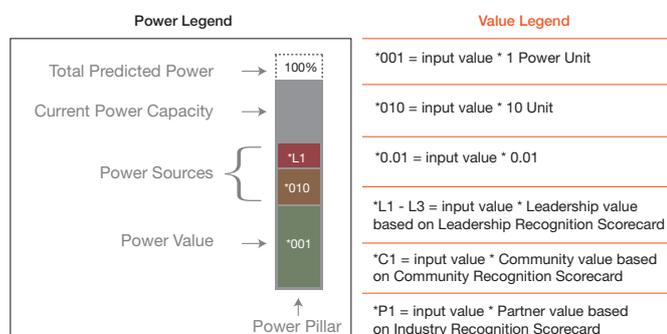
- Man Power: Focused on the overall amount of physical bodies involved in networks and communities (world of atoms), structured by network type;
- Vote Power: Focused on overall vote calculation and is derived from Man Power (world of bites);
- Influence Power: Oriented on communities (Business, Industry, Social);
- Execution Power: Oriented on Influence groups (Enterprise, Outsourcing, Crowdsourcing);

Networks holds different structures of man power connected to vote power:

- Business Network: Leaders, Managers, Employees;
- Industry Network: Leaders, Contractors, Partners;
- Social Network: Leaders, Communities, Users.

## Man Power

**Figure 19: CSIM - Power and Value Legends**



The Power Meter is described in detail at Figure 19: CSIM - Power and Value Legends. Power legend shows the calculation of power sources (based on CSIM Scorecards (Figure 20: Man Power - Scorecards)) with a simple example and predefined scorecards constants.

**Figure 20: Man Power - Scorecards**

L1 - Leadership Recognition Scorecard		C1 - Community Recognition Scorecard	
Leadership Type	Leadership Value	Community Type	Community Value
Small Company	50	Local Community	300
Medium Size Company	300	National Community	600
Large Corporation	1000	International Community	1000
L2 - Leadership Recognition Scorecard		P1 - Industry Recognition Scorecard	
Leadership Type	Leadership Value	Partner Type	Industry Value
Industry Certified	2000	Industry Member	500
Industry Leader	10000	Multiple Certifications	1000
		Authorization Authority	5000
L3 - Leadership Recognition Scorecard		Example: <b>Power Value</b> of Industry Leader (L2) Industry Certified * Number of Certifications = 2000 (score) * 2 (certification) = <b>4000</b>	
Leadership Type	Leadership Value		
Community Leader	200		
Community Network Leader	1000		

Power Meters have four major values:

- Total Predicted Power: Forecasted value based on growth factors;
- Current Power Capacity: Contains calculated value based on capacity factors;
- Power Sources: Identified and calculated based on CSIM scorecards;
- Power Value: Calculated as overall amount of physical bodies (atom world) or votes (bit world).

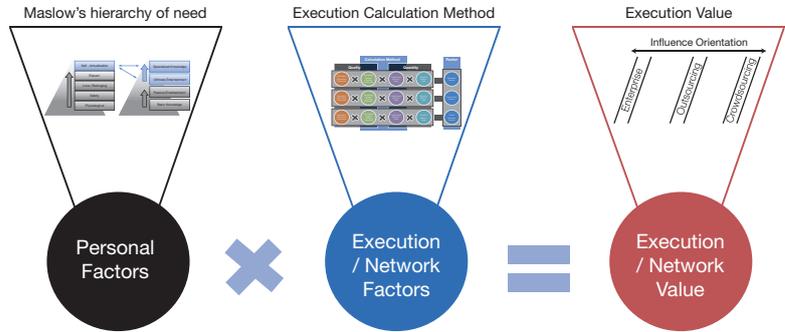
### Vote Power

Vote Power adds the Time aspect into Man Power and is characterized as “Current power Capacity” of “Man Power” \* “Network Business Hours”. Network Business Hours are calculated as Network Operational Time – Network Maintenance Time (Not Active Status).

### Execution Power

The method for the calculation of Execution Power is represented in Figure 21. The Calculation is divided into two major methods driven by network categorization factors and personal factors.

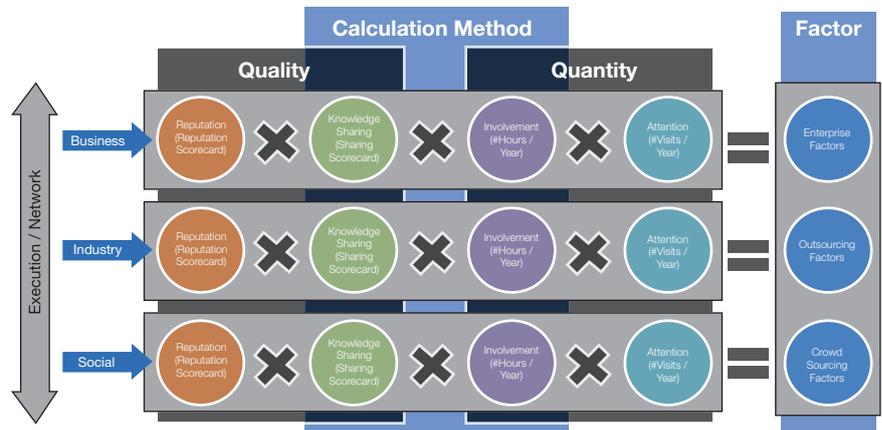
**Figure 21: Execution Power - Calculation Method**



Personal Factors are driven by Maslow's Hierarchy of Need and the connected Information Pyramid of Information. Personal Factors are measurable by many methods. Some factor types (see Figure 23) show the overall alignment about any selected method and the pyramids of need and motivation (Overall Personal Growth, Knowledge, Entertainment).

The Execution Calculation Method is described in Figure 22. Calculation should be spread out by Network Type, so that the Value of each network (Business, Industry, and Social) can be calculated separately.

**Figure 22: Network / Execution Calculation Method**



The Calculation Method is divided into quantifiable calculations and quality related scorecards (see Figure 23), which will give the overall Network / Execution Power value. This Value is separated by execution type and network type.

**Figure 23: Execution Power - Scorecards**

Knowledge Sharing Scorecard		Reputation Type	
Knowledge Type	Knowledge Value	Reputation Type	Reputation Value
Publicly Available	1	Local Connections	1
Unique / Personal	2	Knowledge Shared with other Networks	2
Exclusive for Network	3	Partnership with Governments / Industries	3

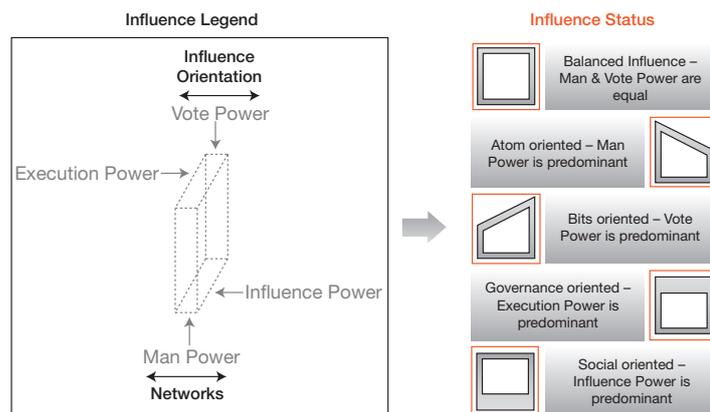
  

Personal Factors	
Factor Type	Suggested Measurable Method
Overall Personal Growth	Personal / Member Surveys
Knowledge	Personal / Member Surveys
Entertainment	Personal / Member Surveys

### Influence Power

The detection of the overall Influence status is based on calculated influence factors (Vote Power, Influence Power, Man Power and Execution Power), as depicted in Figure 24.

**Figure 24: Cloud Social Influence Model**



Overall Influence Orientation:

- **Balanced Influence:** Man Power and Vote Power are actual with influence being evenly distributed per network;
- **Atom Oriented:** Man Power is predominant; Vote power is lower; and there is orientation to the physical world;
- **Bits Oriented:** Vote Power is predominant; Man power is not relevant; and there is a synergy community effect;
- **Governance Oriented:** Execution Power is predominant;
- **Social Oriented:** Social Influence Power is predominant.

## CSIM and ICF Information Identity Model

The Overall Influence Orientation is indirectly connected to the ICF Information Identity Model [12] via Knowledge Sharing (included in the Information Model), so that the Cloud Information Cost (CIC) can be calculated. This could add additional valuable information about the overall Network / Community value and enhance the CSIM value.

# Crowdsourcing Services

1. The “**Crowdsourcing for ROI**” is a Return on Investment focused service:
  - a. Open Innovation - Problem Solving Business Case
    - i. Business Innovation - Innovate faster and most profitably
    - ii. Market Prediction - Be first to understand market desires
    - iii. Research and Discovery - Find answers not solve internally
  - b. Crowdcasting - Design Business Case
    - i. Brand Collaboration - Get creative input to stay relevant to consumer.
2. **Government Crowdsourcing** is categorized as “Problem Solving” business case:
  - a. The “Challenge.gov” is an online challenge platform administered by the U.S. General Services Administration (GSA).
  - b. The idea is, sharing with citizens and worldwide contributors challenges and getting solutions at a fraction of the typical cost for a government agency.
3. **Micro tasking** is located in “Work” category of the Crowdsourcing Business Cases:
  - a. The most basic service is form processing. Companies can submit their forms and have the information uploaded into their system. Erroneous information can be pulled so the data will be cleaned as well.
  - b. Micro tasking works by separating the task into sub tasks. So if a form has first name and last name fields, those may be processed separately by different people. Dividing the steps like these ensures that the information stays confidential and also allows for cost savings. Simple tasks are much cheaper to process, and more complex tasks cost more to complete. By breaking the tasks into smaller chunks micro tasking is able to complete the same job for a fraction of the cost.
4. **Citizen Science** is used for projects or ongoing program of scientific work in which individual volunteers or networks of volunteers, many of whom may have no specific scientific training, perform or manage research-related tasks such as observation, measurement or computation
  - a. CitSci.org is a website in support of citizen science. It allows citizens, school groups, and professionals to enter species observations into a global database. The observations are then used for natural resource management, scientific studies, and environmental education. CitSci.org provides an opportunity for students and volunteers to perform field studies that contribute to our collective biological understanding.
5. **Urban Sensing** covers projects that span a broad spectrum of subjects such as public health and wellness, environmental science and sustainability, urban planning, and cultural expression. Examples and description are taken from “<http://urban.cens.ucla.edu>”, “Urban Sensing Web Page”. Each project matches subject experts—be they local community groups or academic researchers—with technology experts to apply the Urban Sensing approach in the context of the project’s goals. Unlike scientific applications, the hardware is not owned and managed by a small number of central authorities. Citizens carry sensors and contribute data voluntarily. A single entity does not pose interesting ‘hypotheses,’ design experiments, force participation. Instead, the process of learning from an urban environment can be organic and decentralized,

existing more in the realm of social networking software. We picked only some of the existing projects :

- a. **Garbage Watch:** Individuals can collect images of trash on campus to determine the best places for new recycle bins and also to perform waste audit.
  - b. **Walkability:** Groups of volunteers use their mobile phones to photograph and tag crossings in need of crosswalks, median islands that aid in crossing busy streets, calm traffic by dieting roads, and cracked or broken sidewalks. The phones geo-tagged and uploaded the tagged images, creating an instant map of neighborhood walk ability.
  - c. **Personalizing Estimates of Environmental exposure and Impact (PEIR):** Taking a step beyond a “footprint calculator” that relies only on your demographics, PEIR uses location data that is regularly and securely uploaded from your mobile phone to create a dynamic and personalized report about the environmental impact and exposure.
  - d. **Networked naturalist:** Allows individual volunteers or groups to observe, measure, and contribute to scientific environmental studies.
6. **Social Shopping** is a method of e-commerce where shoppers’ friends become involved in the shopping experience. Social shopping uses technology to mimic the social interactions found in physical malls and stores and it’s widely supported by social networks.
- a. **Group Shopping:** Encourages groups of people to buy together at wholesale prices.
  - b. **Shopping communities:** Brings like-minded people together to discuss, share, and shop. Using the wisdom of crowds, users communicate and aggregate information about products, prices, and deals.
  - c. **Recommendation engines:** Encourages conversations around purchases with friends / people are known to the individual, which is the next wave of product review companies.
7. **Crowd Funding** typically makes use of online communities to solicit pledges of small amounts of money from individuals who are typically not professional financiers.
- a. **Microfinance:** The solicitation could be to offer a loan.
  - b. **Charity fundraising:** The solicitation could be to back an idea with no direct material return offered to those making a pledge.
  - c. **Investment with reward:** The solicitation could be to micro invest in equities, but rewards are offered in return for donation.

# Conclusion

Jennifer Alsever in “What is Crowdsourcing” [10] defined Crowdsourcing as “Crowdsourcing is a very real and important business idea. Definitions and terms vary, but the basic idea is to tap into the collective intelligence of the public at large to complete business related tasks that a company would normally either perform itself or outsource to a third-party provider. Yet free labor is only a narrow part of crowdsourcing’s appeal. More importantly, it enables managers to expand the size of their talent pool while also gaining deeper insight into what customers really want”. And we can’t agree more. The ICF specify Crowdsourcing as a Collaborative revolution enabled by Cloud Computing with participation on massive scale as a key element, driven by “Self-Actualization” motivation. Crowdsourcing’s learning curve will create interconnected super communities with ultimate labor abstraction and Freemium models supported by existing and new markets. We are at the edge of “Crowd/Community companies” era, renting “Crowd Power”, utilizing Cloud computing, promoting new trends and their community leaders, reshaping world as we know it today by affecting inter-social interpolation.

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### Acronym Key and Glossary Terms

Keys and Terms	Definition
Crowdsourcing	Act of outsourcing tasks, traditionally performed by an employee or contractor, to a large group of people or community (a crowd), through an open call.
Freemium	Freemium is a business model that works by offering basic Web services, or a basic downloadable digital product, for free, while charging a premium for advanced or special features. The word "freemium" is a portmanteau combining the two aspects of the business model: "free" and "premium".
ICF	Integrated Cloud Framework, developed by theICFgroup.org [11]
IOT	In computing, the Internet of things, also known as the Internet of objects, refers to the networked interconnection of everyday objects.
Open Innovation	Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.
Social network analysis	Views social relationships in terms of network theory consisting of nodes and ties
Sociometry	Quantitative method for measuring social relationships. It was developed by the psychotherapist Jacob L. Moreno.

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# ABOUT THE ICFGROUP.ORG

The ICFgroup.org is a foundation for the development of new visual oriented techniques , symbols and frameworks to enable business and IT to achieve a better way of expressing what we see, use, and interact with online in our daily lives. The convergence of social media, smart mobile devices underpinned by cloud computing technology is moving the internet into a new phase. New business and social models are evident in every industry and the digital experience increasingly pervades every aspect of our personal lives in work, rest, entertainment, health, social, family, our business and society. We see these trends as having wider implications that just the business technological transformation but include the physical resources, financial and economic, societal borders and laws, government and the diversity of the world we live in.

theICFgroup.org, founded by Vladimir Baranek (vladimir.baranek@theicfgroup.org) and Mark Skilton (mark.skilton@theicfgroup.org), aims to re-describe this universe of social and business interactions and relationships in a way that reflects a more real-world perspective from how it feels personally to interact online to the way collaboration and enterprise may work and evolve.



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