

# Integration of social technologies into business computing

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## We will discuss

- **Social Technologies, Social Informatics and Crowd Computing,**
- **Crowd sourcing as an opportunity for business,**
- **Business computing – call for new support**
- **Challenges for BPM technology**
- **Common Platforms - potential solutions,**
- **Conclusions.**

# Web 2 and Social Technology

- WWW – static pages with great number of users, people are limited to the passive viewing of content,
- **Web 2.0** - use technology beyond the static pages,
- A Web 2.0 site allows users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community:
  - social networking sites, blogs, wikis, video sharing sites, hosted services, Web applications, and mashups (The term mashup originally comes from British - West Indies slang meaning to be intoxicated, or as a description for something or someone not functioning as intended, Wiki)



A tag cloud (a typical Web 2.0 phenomenon in itself) presenting Web 2.0 themes.

# Images for SocTech



*considerednormal.com*



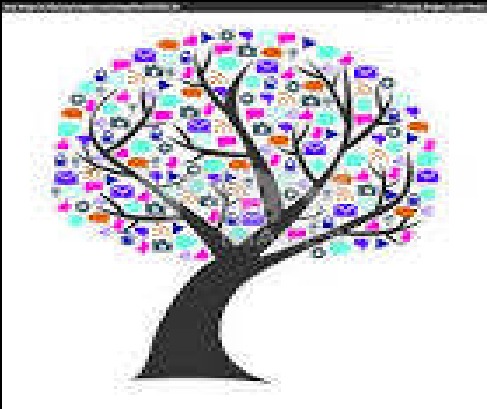
*coxpurtell.com.au*



*pgi.com*



*thedynamicdesigngroup.com*



*yaymicro.com*



*businessreviewusa.com*

# Social Technology

- **Social Technology** - any technology that provides social interactions, is supported by a communications functionality, such as the Internet or a mobile device.
- Good business examples:
- **CRM (Customer Relationship Management)** Customer relationship management (CRM) is a system for managing a company's interactions with current and future customers. It often involves using technology to organize, automate, and synchronize sales, marketing, customer service, and technical support – Wikipedia)
- **Wikipedia** As of February 2014, it had 18 billion page views and nearly 500 million unique visitors each month. Globally, Wikipedia had more than 19 million accounts, out of which there were about 69,000 active editors as of November 2014.

- **Hyper connectivity** - we're connected through our cell phones, computers, cars & soon-to-be watches.
- **Critical Mass** - 2.4 Billion People use the Internet every day.
- **Dynamism** - We're not just consuming information online like we did in the 90s, we're now collectively doing things, and it's this collective action.

Currently each crowd sourced system is designed around a specific function. The future is when these systems begin to play together - an open-crowd sourced business process.

# Impact of Social Tech

- As always – advances create progress and drawbacks,
- Social technology that reduces social interactions, (anti-social social)
- Some technological advances cause people to be distracted, overly stressed, and increasingly isolated.
- **The challenge?** – get better business benefits



# Social informatics

- **Social Informatics** is concerned with information and communication tools in institutional context and information technology in social and organizational change as well as the social aspects of computerization:
  - Trust
  - Reputation
- **Centre for Organizational and Social Informatics, Monash University**
- **Rob Kling Center for Social Informatics, Indiana University**

# Crowd Computing

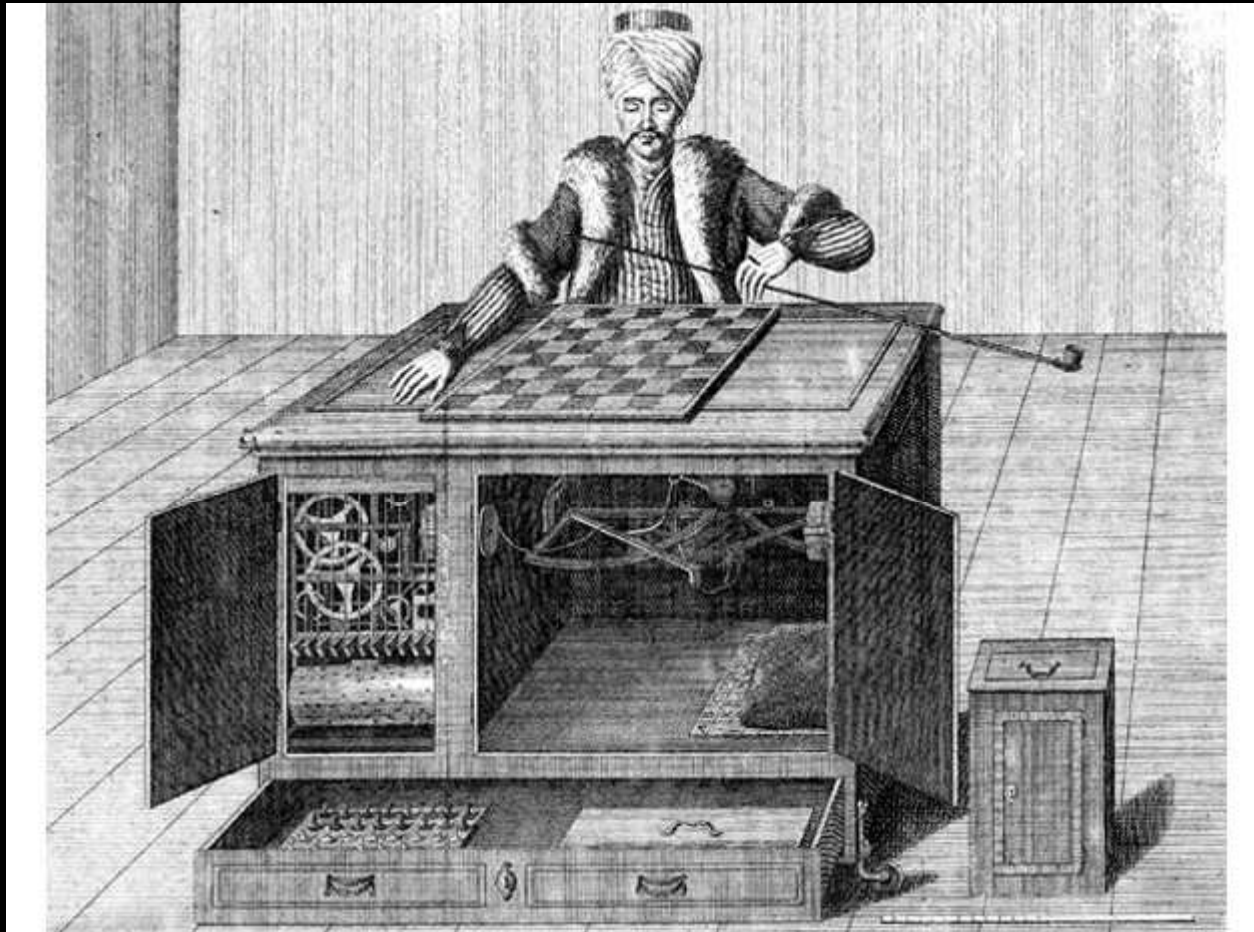
- Relatively a new term, Eric Brown, co-author of "The Effective CIO", introduced the term "Crowdcomputing" in 2009.
- Tools that facilitate idea sharing, non-hierarchical decision making and utilization of the world's massive intellectual surplus ,
- Crowd computing, like cloud computing, offers flexible, on-demand human resources that can extend, invent and create new things. Those facilities offer new ways of using the technology.
- **Businesses and society progressively more rely on the collective intelligence,**

# Crowd Computing Technology

- To create, manage and enhance an on-demand content and data workforce,
- Crowd computing changes business leading to redesign of work due to the world's connectivity and technology tools architecture,

# Enterprise Crowd Computing

- Google uses a captcha to help digitize books,
- Facebook and Twitter rely on the crowd to facilitate the translation that expands their service around the world,
- Companies like Amazon and Google saw early-on the potential for crowd computing
- Amazon created *Mechanical Turk* sorting its massive inventory,



1783, Karl Gottlieb von Windisch – The Turkish Chess Player

# How humans and machines can better work together

- Automation is appropriate for tasks that are well defined and repeated as part of a standardized process, but not ready for tasks that require judgment, particularly those with exceptions, incompleteness, inconsistency, or personalization.
- The changing design of business and ability to break work down into tasks and micro-tasks.
- The roles of crowdsourcing, business architecture, and social business architecture in redesigning work.
- Social business architecture in redesigning work.

# Business Computing

- A Business Computing deals with any computerized applications that directly or indirectly deal with, or supports some aspects of business either; production, communication, financial, administrative, or other information that is an integral part of running the business.
- Regardless of the application domain – workflows are, as database systems, key players as a technology to run business computing needs.



# Workflow Systems

A Workflow is defined as  
the *automation* of a business process,  
in whole or part, during which  
documents, information or tasks are passed  
from one participant to another for action,  
according to a set of procedural rules

(Workflow Management Coalition)



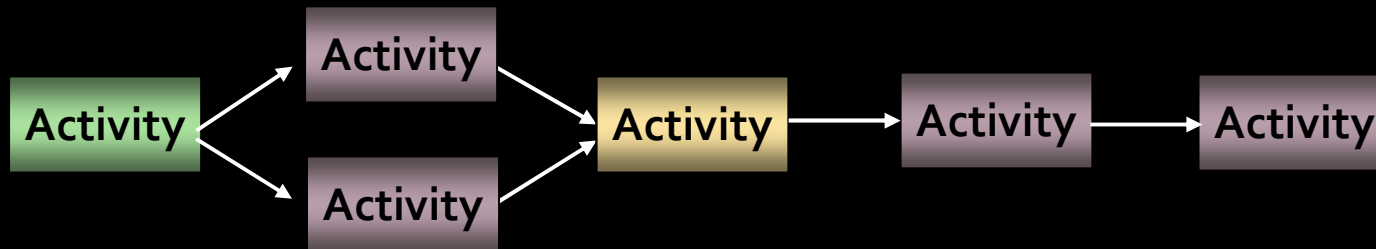
# Challenges

- Finding novel applications for web based IS systems with business process semi-automation
- Coping with success factors
  - Reliability,
  - Scalability (# of clients, # of processes, # of instances, . . .),
  - Cultural and human aspects.

**A new direction- Social BPM**

# Current Computational Model

- Isolation of process logic triggers;
  - User initiated flow - reflecting activity/task progress
  - Workflow engine initiated flow- reflecting process progress

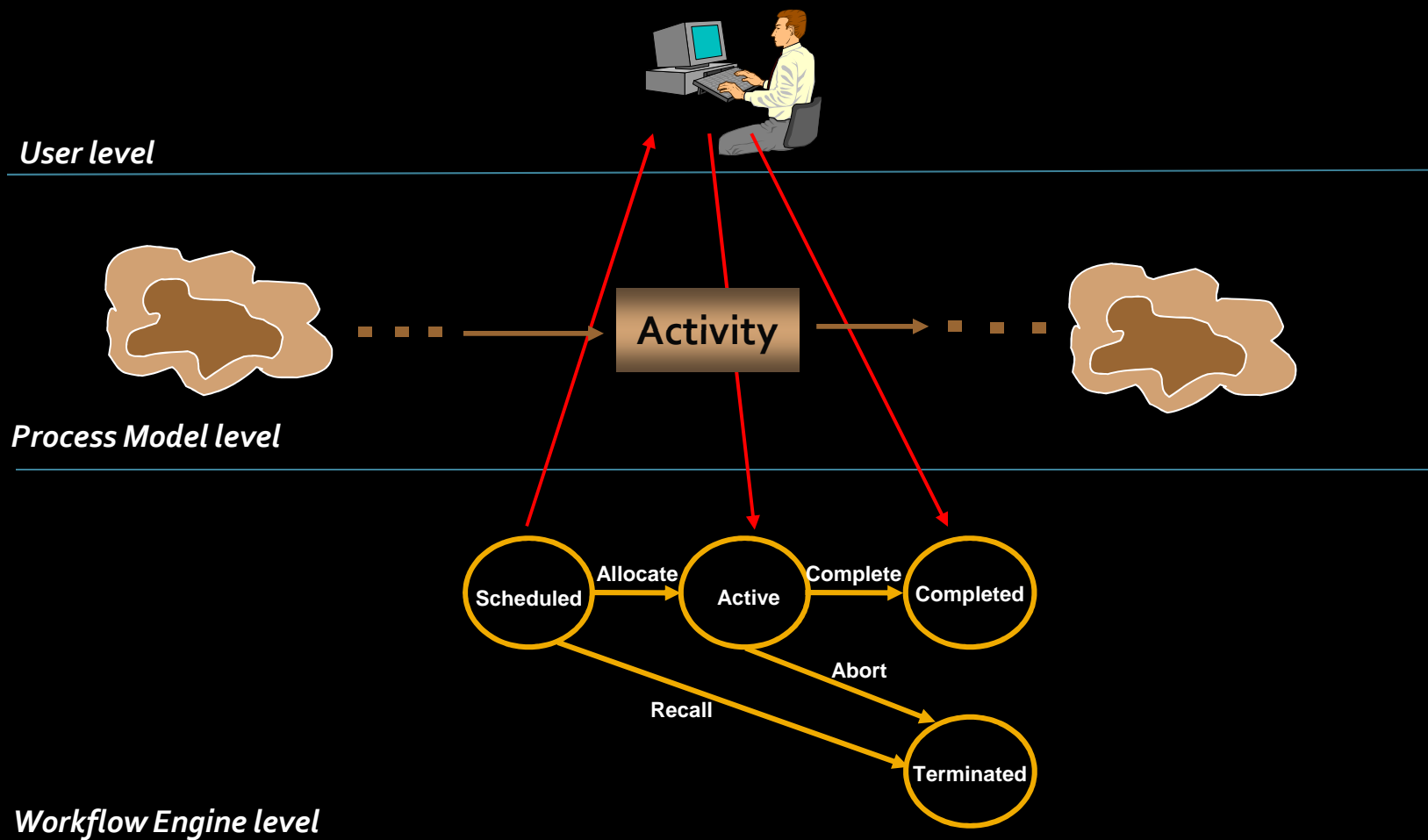


**This leads to many specialised language constructs, and provides several abstraction levels.**

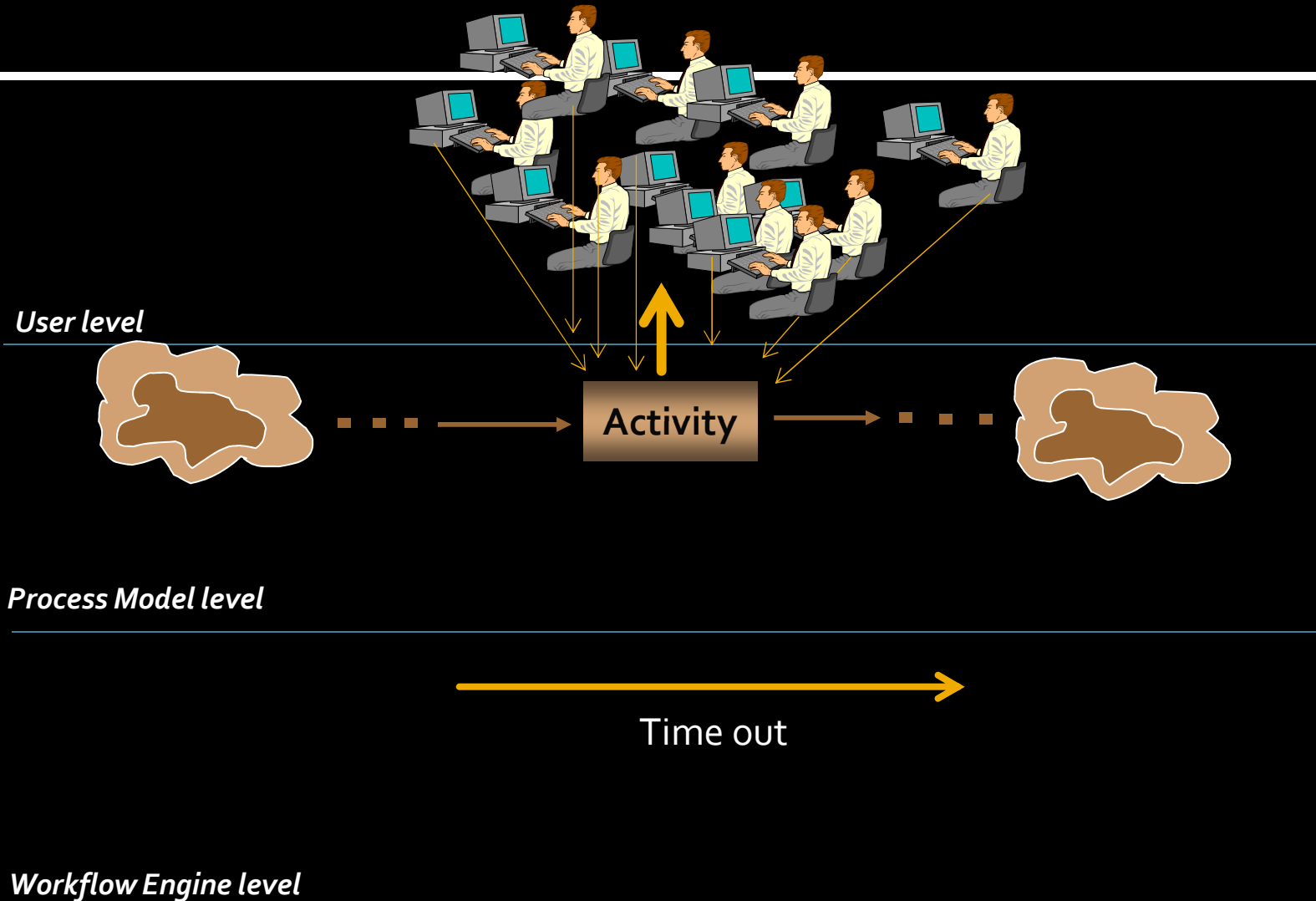
## Current Computational Model (cont)

- Each task has predefined, generic FSM,
  - Creates difficulty to map activity logic to engine readable states,
  - Provides a strict meaning of the process flow,
- Simplicity for the price of restrictions,

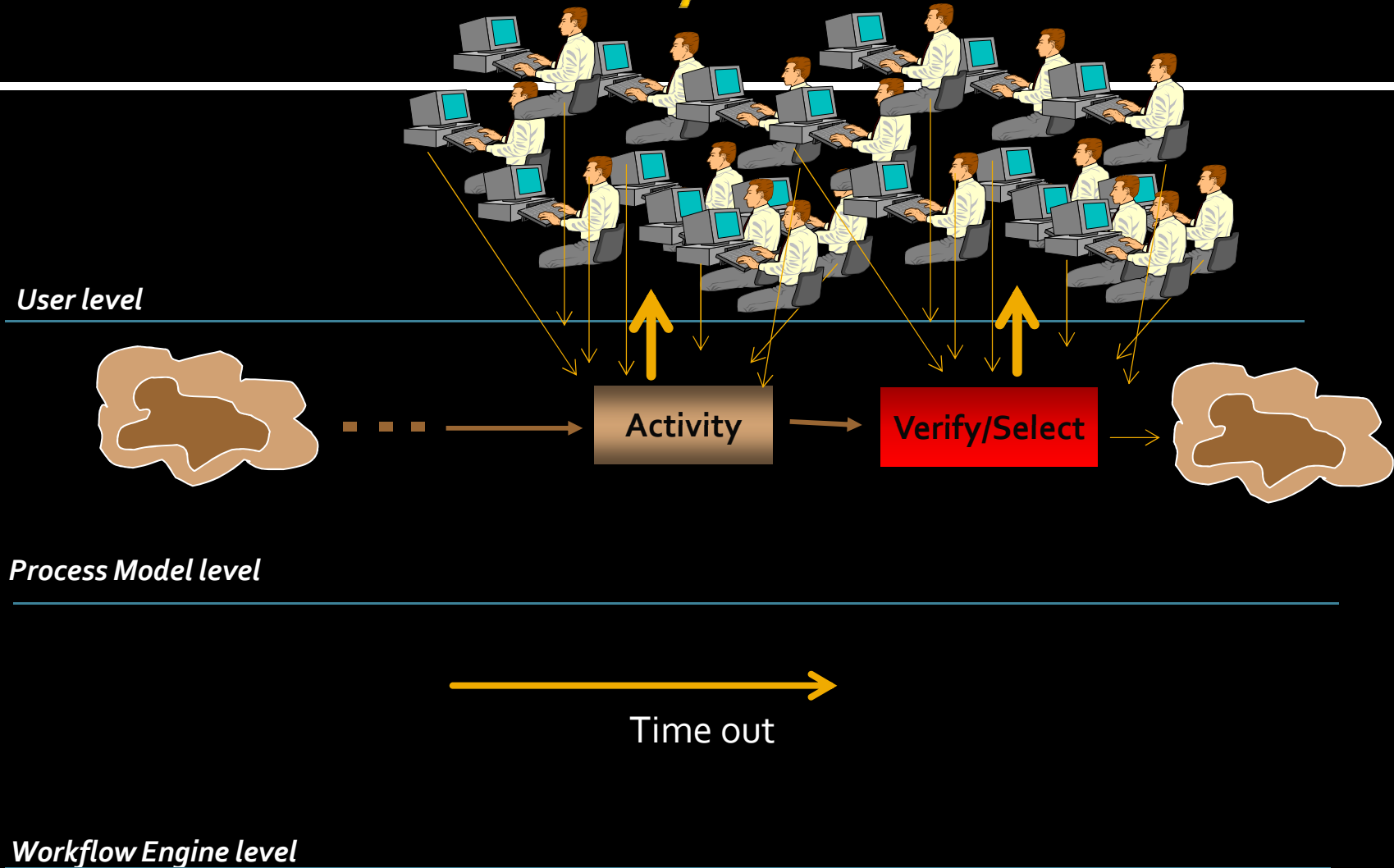
# Activity Execution



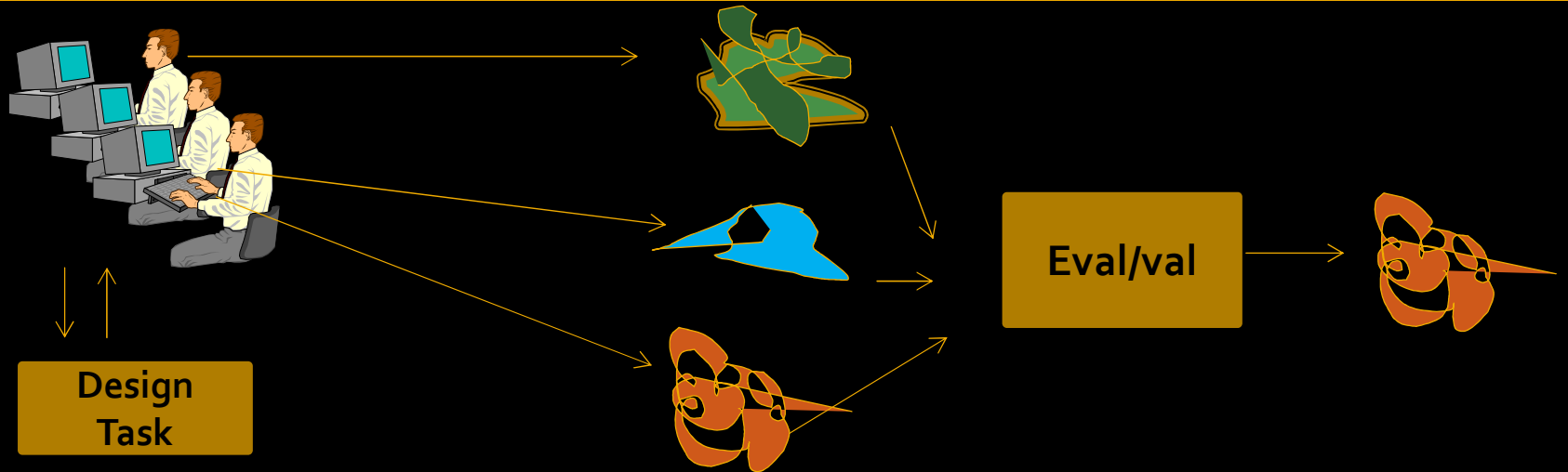
# Activity Execution on Platform



# Activity Execution on Platform



# Validation process



Issue of scalability

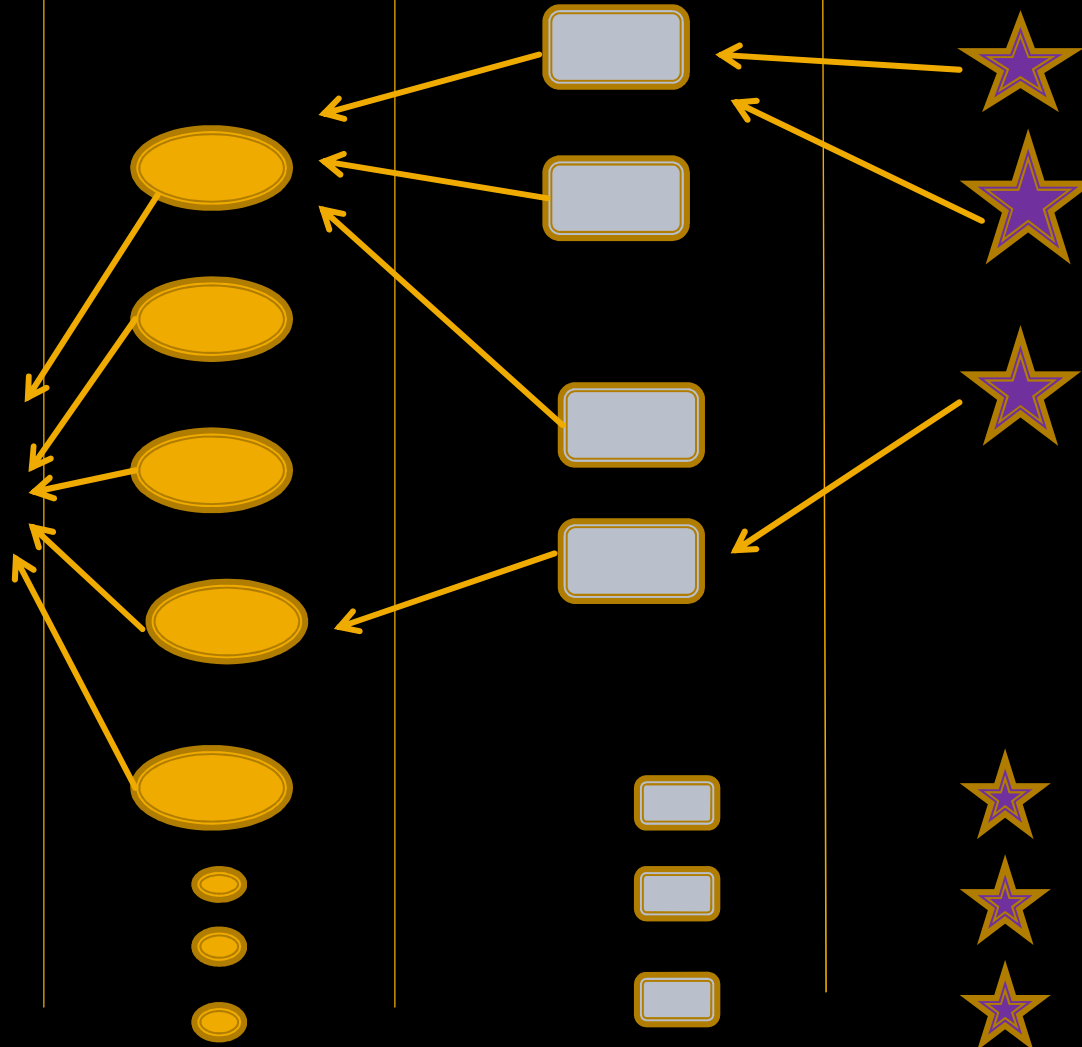
Job on Platform

Job on Platform  
Execution of task

Job on Platform  
Evaluatuion

Job on Platform  
Evaluatuion of evaluation

etc





# Can we do that?



**EMP**

**OUT**

**COMP**

**CROWD**



# Where is the Economy ?

- Preselecting, then selecting vs doing yourself,
- We need better support for the CS to make the economic sense;
  - different requirements - there is no solution to fit all,
  - automated preselecting – no universal solution,
  - image recognition – poor quality,
  - automated judgment on design – unthinkable,

# Types of jobs for CS-ing

- Contest,
- Simple routine job (like check the invoice number),
- Provide an image description,
- Express opinion,
- Create for you own use,

Source: <http://www.boardofinnovation.com/list-open-innovation-crowdsourcing-examples/>

- **INTERMEDIARY PLATFORMS**
- **Research & Development platforms**
- [Innocentive](#) – open innovation problem solving
- [IdeaConnection](#) – idea marketplace and problem solving
- [Yet2.com](#) – IP market place
- [PRESANS](#) (beta) – connect and solve R&D problems
- [Hypios](#) – online problem solving
- [Innoget](#) – research intermediary platform
- [One Billion Minds](#) – online (social) challenges
- [NineSigma](#) – technology problem solving
- [Ideaken](#) – collaborative crowdsourcing
- [Innovation-community.de](#) - Community of innovators, creators, designers & thinkers (made by [Hyve](#) )

- **Marketing, Design & Idea platforms**
- [CMNTY Corporation](#) – community co-creation
- [Innovation Exchange](#) – open innovation market place
- [Idea Bounty](#) – crowdsourcing ideas
- [Guerra Creativa](#) – crowdsourcing anything creative
- [Brand Tags](#) – tagging brands
- [Battle of concepts](#) – student challenges
- [crowdSPRING](#) – creative designs
- [BootB.com](#) – custom creative ideas for any creative need
- [12designer](#) – marketplace for creative solutions
- [LeadVine](#) – crowdsourcing lead generation
- [99designs](#) – pioneer in design crowdsourcing
- [Edge Amsterdam](#) – elite sourcing platform
- [OpenIDEO](#) – collaborative design platform
- [Challenge.gov](#) – crowdsourcing for government problems

## ■ **Collective Intelligence & Prediction platforms**

- [Lumenogic](#) – collective intelligence markets
- [Ushahidi](#) – crowdsourcing crisis information
- [Kaggle](#) – data mining and forecasting
- [We Are Hunted](#) – the online music chart
- [Google Image Labeler](#) – crowdsourced image labeling

## ■ **HR & Freelancers platforms**

- [TopCoder](#) – competition-based software crowdsourcing
- [Spudaroo](#) – crowdsourcing copywriting
- [Clickworker](#) – small online task solving
- [Amazon Mechanical Turk](#) – low-cost crowdsourcing

## ■ **Open innovation software**

- [Imaginatik](#) – collective intelligence software
- [Napkin Labs](#) – connect with consumers, experts, employees
- [Venture Spirit](#) – gamification platform
- [Wellspring Worldwide](#) – open innovation software

- **Intermediary open innovation services**
- [Big Idea Group](#) – organize innovation contests and idea hunts
- [Skild](#) – organize innovation quests
- [Pharmalicensing](#) – open innovation for the life sciences
- [Chaordix](#) – crowdsourcing engine for innovation
- [DataStation](#) – complete innovation platform
- **Creative Co-Creation**
- [Spreadshirt](#) – shirt community
- [Threadless](#) – create and sell your t-shirts
- [cafepress](#) – shop, create or sell what's on your mind
- [zazzle](#) – create and sell products
- [CreateMyTattoo](#) – crowdsourced tattoo design
- [Sellaband](#) – crowdfunded bands
- [Artistshare](#) – fans funding new artists
- [Quirky](#) – community product development
- [jovoto](#) – co-creation & mass collaboration

- **CORPORATE INITIATIVES**
- **Product Ideas crowdsourcing,**
- **Branding & Design crowdsourcing**
- [Peugeot](#) – Peugeot's design contest
- [Fluevog](#) – open shoe design
- [BurdaStyle](#) – open source sewing
- **PEER PRODUCTION & P2P**
- [Funding Circle](#) – p2p lending
- [Linux](#) – open source software
- [Wikipedia](#) – peer produced encyclopedia



- **PUBLIC CROWDSOURCING**
- [iBridge Network](#) – platform for university innovation ([iBridge](#))
- [Science Commons](#)- generic license agreements
- [Picnic Green Challenge](#) – ideas to save the planet
- [Fold it](#) – solve puzzles for science

# Challenge; search for the connectivity between CS processes

- Task as stand alone

VS

collection of connected CS processes,

- Can the final solution be evaluated through social media sentiment analysis? Not always,
- Experiments, observations and sharing the results are key ways to proceed,

## What else will crowds do in the future?

# Conclusions

- **The crowd-sourcing can take place on many different levels and across a range of industries,**
- **Leveraging collaborative practices and providing the tools may lead to significant business repercussion and probable restructuring,**
- **Crowd workflows are still quite undeveloped, and they are most successful with highly targeted single tasks,**

## Conclusions and future work

- The most promising research plan should include attempts to relax some of the constraints imposed on the standard concept of an activity,
- The minimum requirements for effective construction of a predefined process patterns should include crowd work progress reports, followed by a selection of the reputable partners and finally evaluation by the process owner,
- An extensive experimentation is vital for the final usability assessment of the introduced ideas.