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The potential role of Crowdsourcing in Risk Assessment

Steven Drew

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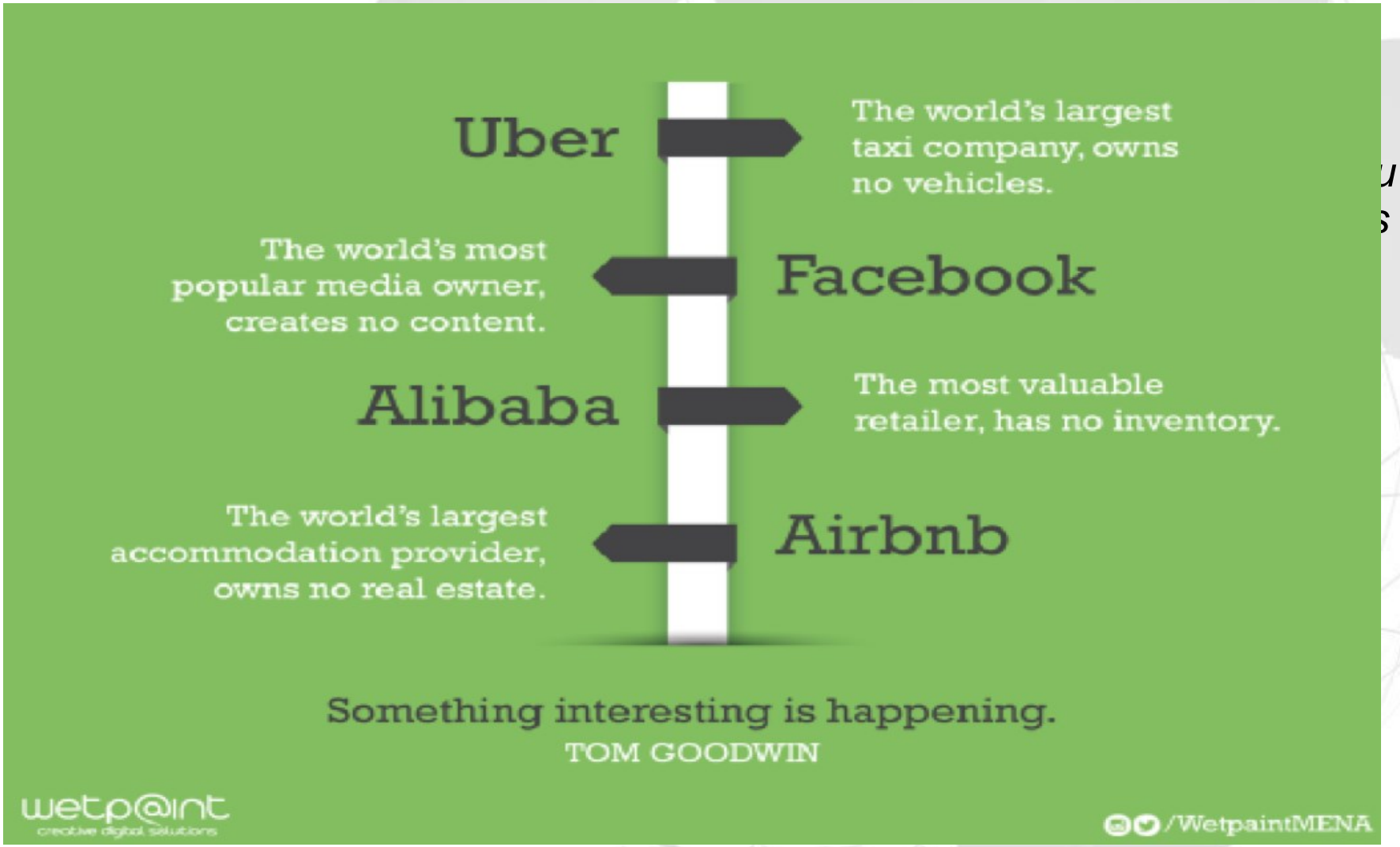
October 16, 2015


Better connected now than ever before

The transition to Crowd Labour



The Future of Work: Conventional Innovation to Crowd Innovation

Conventional Innovation	Challenge Driven Innovation
Objectives Steer Internal Innovation Teams **Frame and Structure**: • Stage Gate Innovation • Monolithic Structures • Employ or Contract for Resources **Economics**: • Fixed Costs • Pay for Success & Failure **Weaknesses**: • Lack of diversity • Difficult to Adapt	**Problems Engage a Global Ecosystem of UNKNOWN Innovators** **Frame and Structure**: • Distribute or Broadcast needs • **Challenges** **Economics**: • Variable Costs Pay for Performance **Opportunities**: • **On-demand Talent** • **Compression** • **Agility and Speed**

The Challenge?

An Open Innovation tool – Seekers ask Solvers

Ask for an impactful solution, an idea or an insight to a problem/opportunity

Incentivize contributions from the Crowd by offering awards - $1,000 to $1,000,000

Solvers Pre-agreement – Seekers go straight to work!

The Power of Challenges

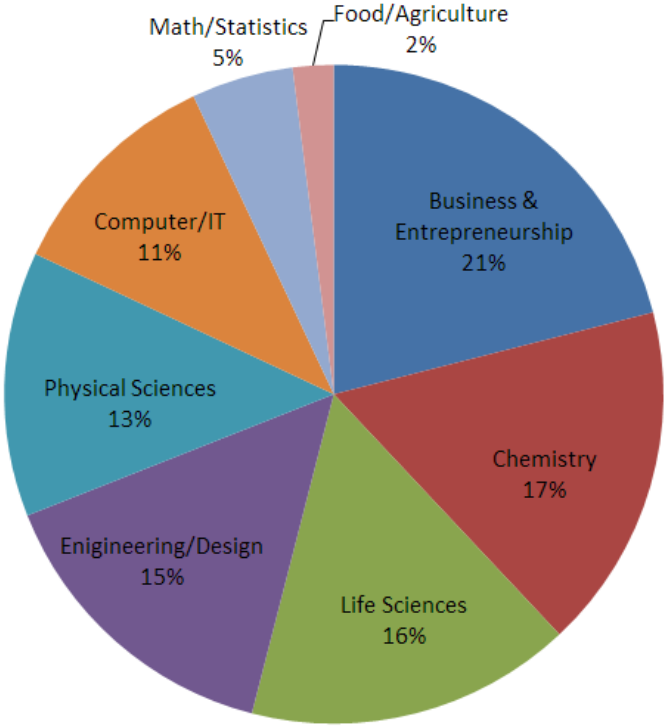
***InnoCentive**; pioneer in crowdsourcing problems to a worldwide community who provide diversity & innovation in their ideas, insights and solutions*

- Vast Global Network
  - 100,000s Solvers *growing '000s monthly*
  - Solvers in 200+ Countries
  - Individuals, Academics and Small Business teams
- Challenges
  - Thousands posted, 70% Anonymous
  - Freedom to use, IP License, IP Rights Ownership or a Partner

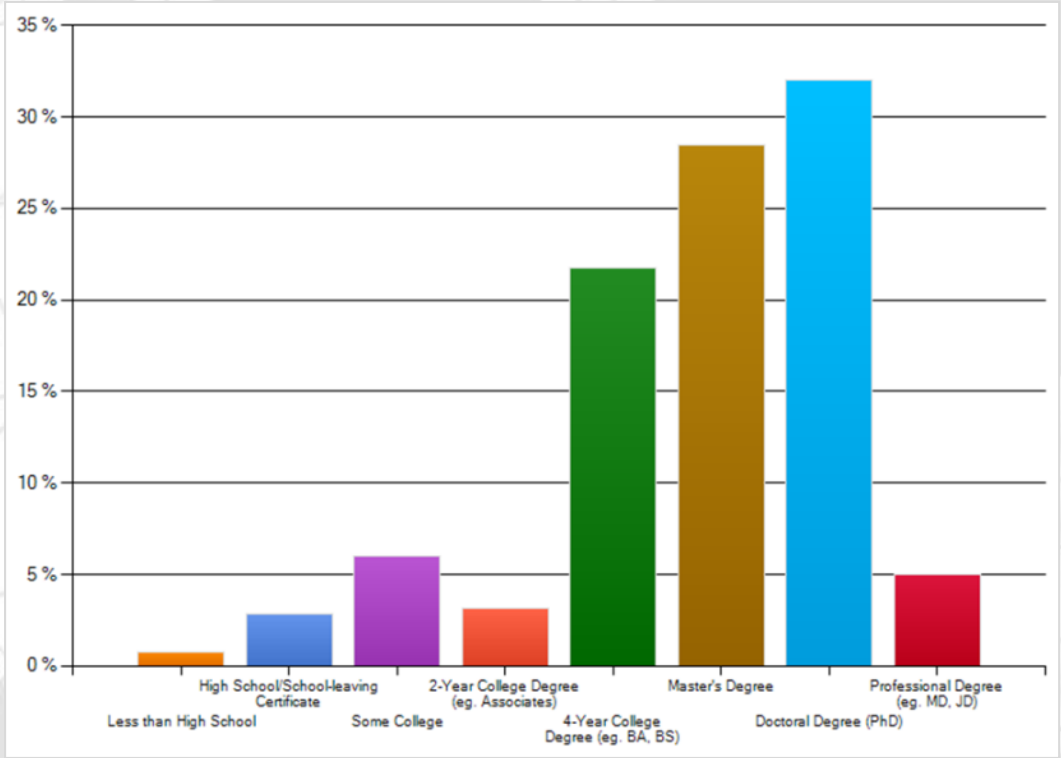
The Crowd – 100,000s registered Solvers

growing at 2,000 to 3,000 per month

Their Experience

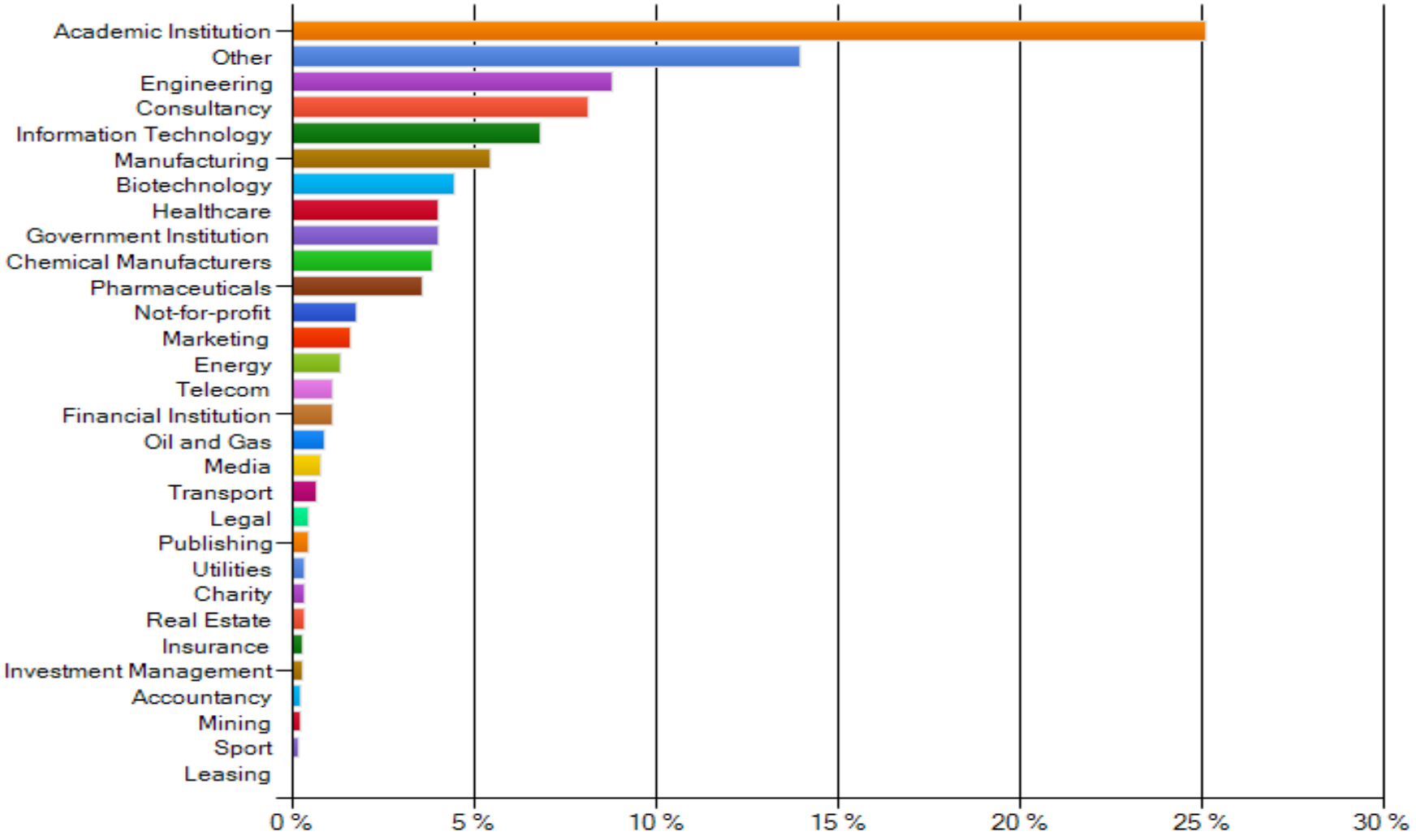


Their Education

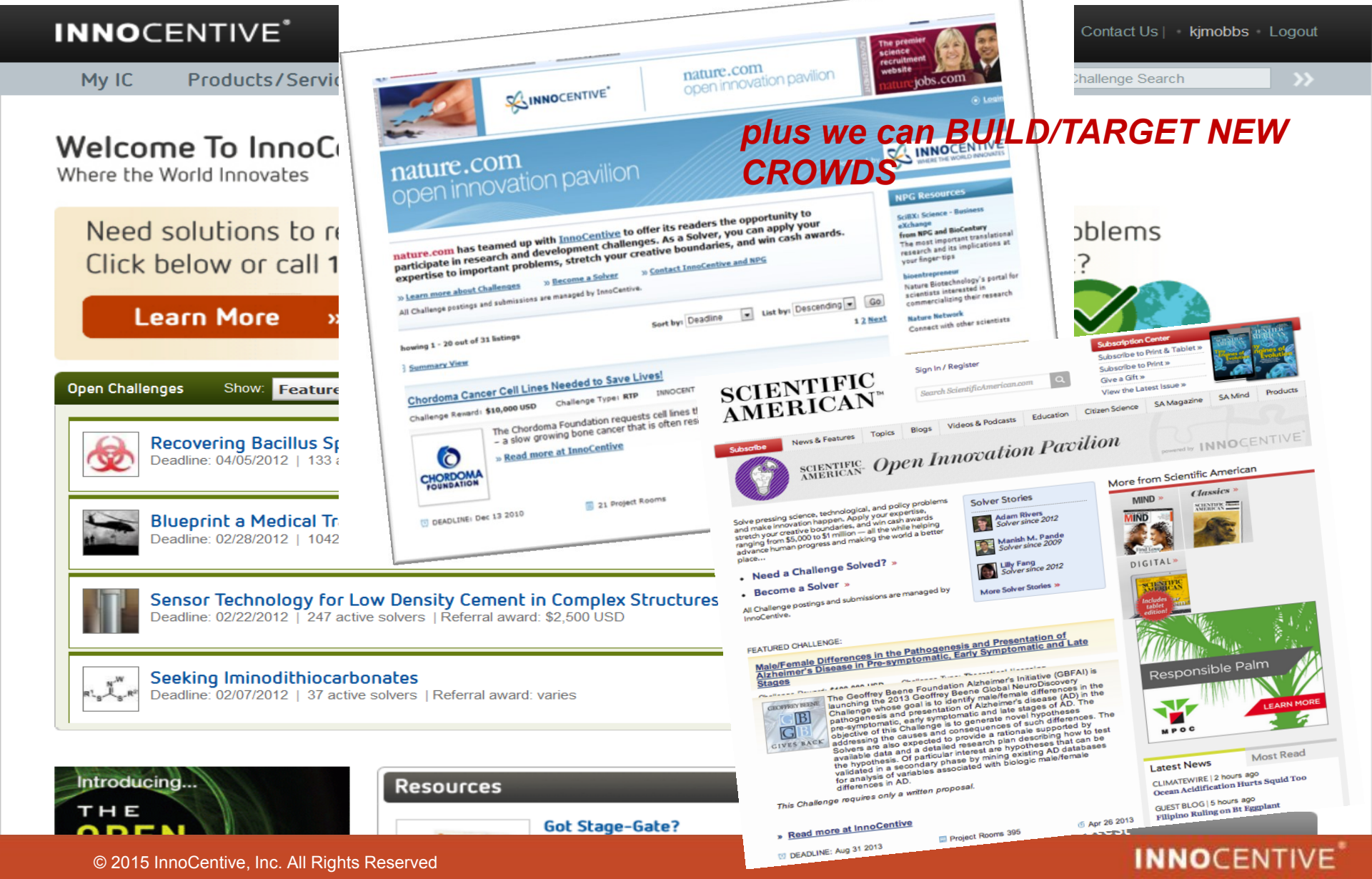


Region	Percent of Solvers
North America	37%
APAC	33%
EMEA	27%
South America	3%

What do they do?

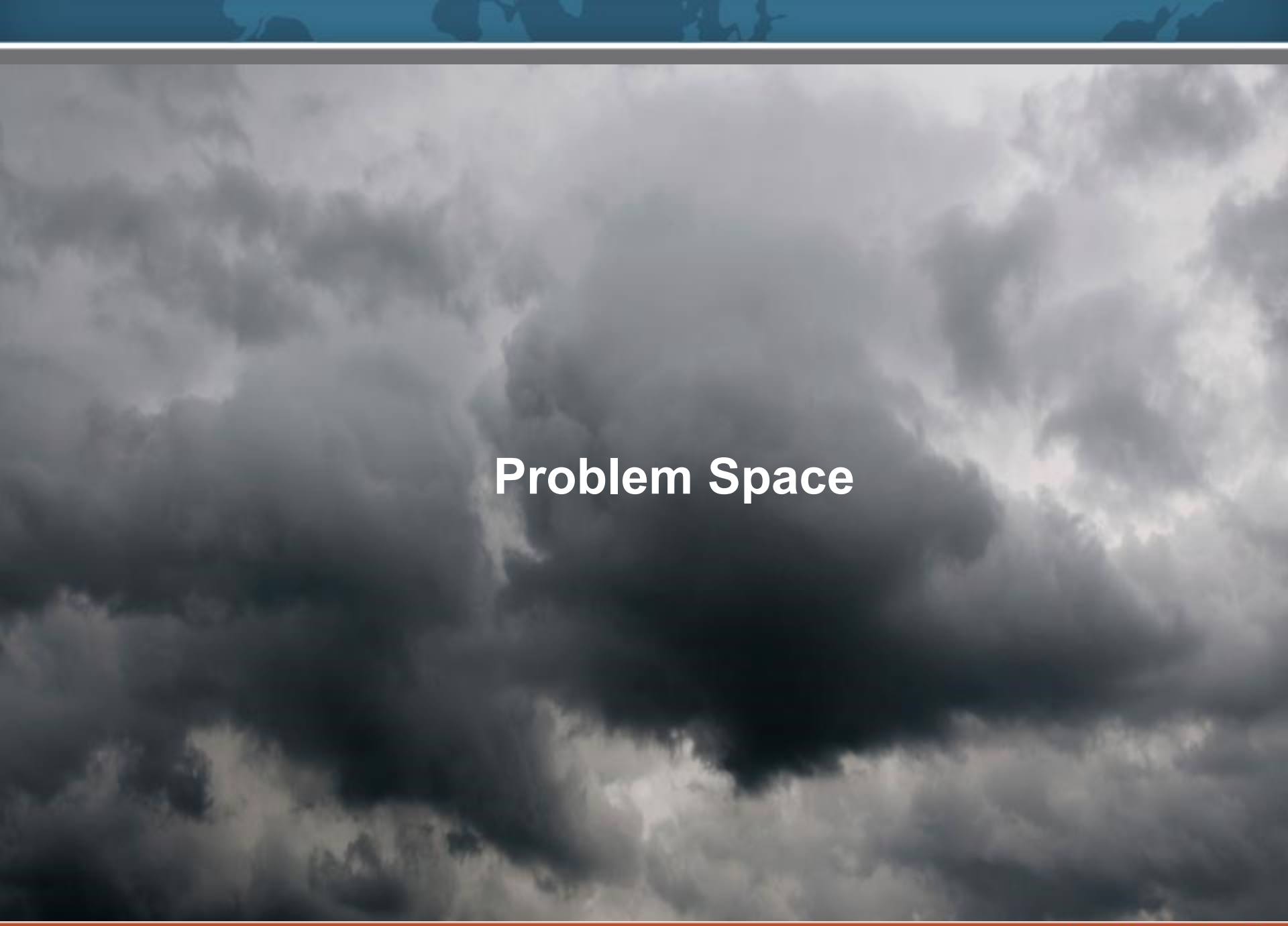


Optionally Promote to a Marketplace of >15 Million 'Solvers'



Good Challenges Consider…

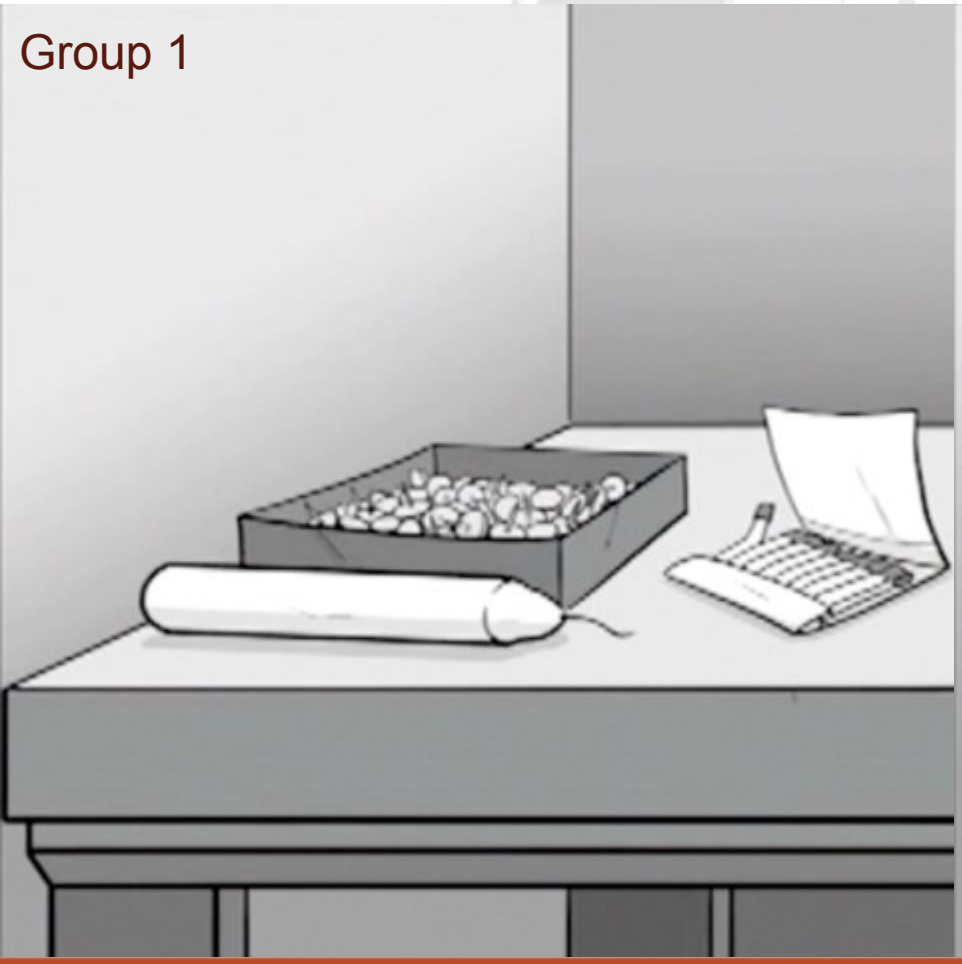
*…not only "what we want" **(solutions)** but also "what is keeping us from getting it" **(problems)***



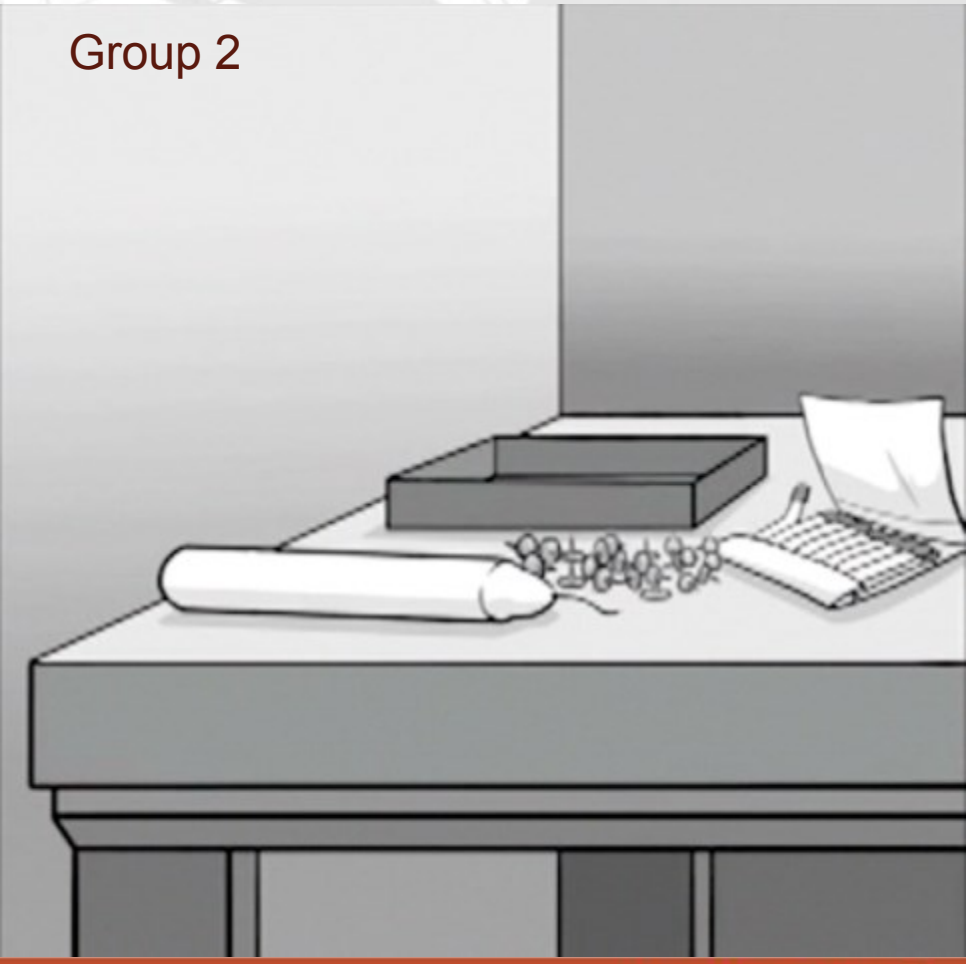
The Candle Problem:

HOW TO use the items to attach the candle to the wall, light the candle and no melted wax on the floor or table

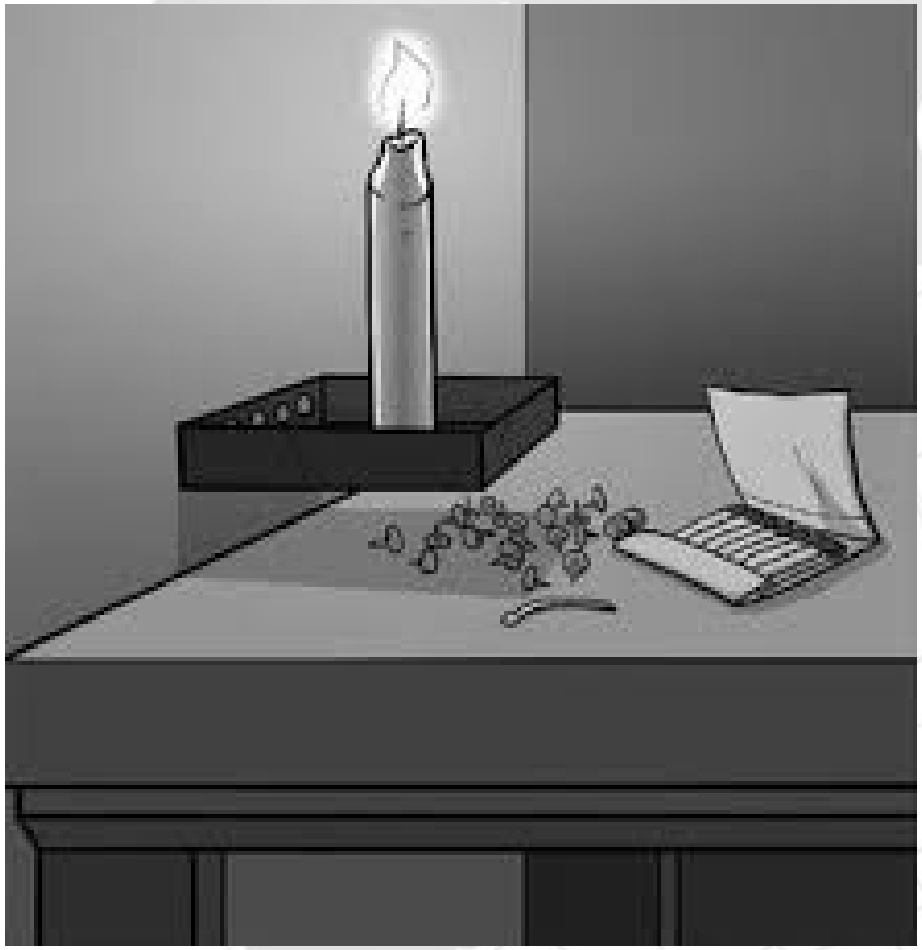
Group 1



Group 2



The Candle Problem – Solution



"A mental block against using an object in a new way that is required to solve a problem."

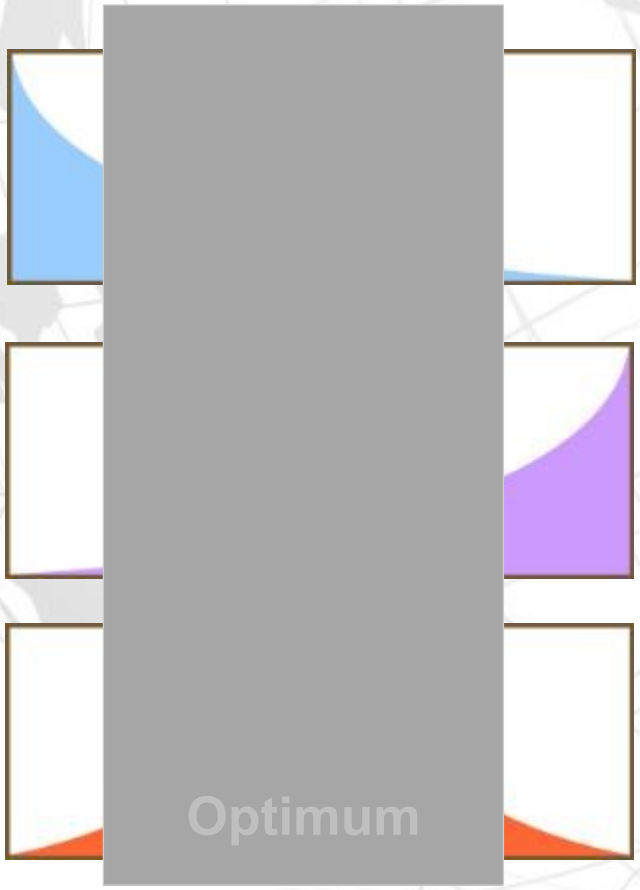
Problem Abstraction Tradeoffs

How does my company improve profitability of a ski mountain

Contextually Defined

What are novel uses of a large inclined white plane

Abstractly Defined



Application Information

Creativity of Ideas
Risk of getting inapplicable solutions

Utility of Solutions

Limitless Challenge Uses

MENs BEST Mega-Brand Marketing
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 445
Source: InnoCentive **Challenge ID:** 8465807 **Type:** Ideation

Marketing & Branding Share

Social Networking for Enterprise Applications
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 1219
Source: InnoCentive **Challenge ID:** 7238720 **Type:** Ideation

Applications for New Technology Share

Creating a Community of Successful Readers
AWARD: **$5,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 777
Source: InnoCentive **Challenge ID:** 9932609 **Type:** Ideation

Education Share

Traffic Detection and Monitoring Method
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 921
Source: InnoCentive **Challenge ID:** 8249491 **Type:** Ideation

Public Services Share

Preventing Ice Formation Inside Packages of Frozen Foods
AWARD: **$8,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 570
Source: InnoCentive **Challenge ID:** 9933006 **Type:** Ideation

Product Improvement Team Share Referral: $800 USD

Unique Packaging of a Craft (Microbrew) Beer
AWARD: **$5,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 611
Source: InnoCentive **Challenge ID:** 9932639 **Type:** Ideation

Product Packaging Team Share Referral: $500 USD

New End Uses for Cotton
AWARD: **$8,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 649
Source: InnoCentive **Challenge ID:** 8135439 **Type:** Ideation

New Market Opportunities Share

Water Problems Affecting People in Developing Countries
AWARD: **$8,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 834
Source: InnoCentive **Challenge ID:** 8652749 **Type:** Ideation

Humanitarian Share

Strategy to Assimilate Unstructured Information
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 693
Source: InnoCentive **Challenge ID:** 9932821 **Type:** Ideation

Business Strategy Team Share Referral: $1,000 USD

Early Diagnostic Tools for Pancreatic Cancer
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 562
Source: InnoCentive **Challenge ID:** 9933031 **Type:** Ideation

Health Team Share Referral: $1,000 USD

A Scalable System to Track Electronic Waste
AWARD: **$10,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 788
Source: InnoCentive **Challenge ID:** 9933011 **Type:** Ideation

Sustainability Team Share Referral: $1,000 USD

Next Generation Convenient Household Cleaning
AWARD: **$5,000 USD** | STATUS: **Awarded** | ACTIVE SOLVERS: 595
Source: InnoCentive **Challenge ID:** 6446253 **Type:** Ideation

New Product Ideas Share

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Data Analysis Problem:
4 hours in advance; 50% Accuracy

Background: Solar Particle Events (SPEs) can dramatically affect infrastructure (e.g., power grids, communications) as well as astronauts working in space

Challenge: Improve Prediction of SPEs

Solution: Improved predictability from **50% accuracy 4 hours in advance** to **85% accuracy 8 hours in advance**

- **$30,000** award to **retired Radio Engineer**
- Solver now working (on various projects) with NASA

579 Solvers from 53 Countries – 11 submissions from 5 Countries

The Telegraph

Rio braces itself for potential chikungunya epidemic

Chikungunya, an incurable virus which has hit Peru and Colombia, could be heading for Rio, authorities in Brazil fear

By Donna Bowater, Rio de Janeiro, 6 Apr 2015

A fast-spreading mosquito-borne virus could affect seven in 10 people in Rio de Janeiro, health authorities have warned.

Experts have said it is only a matter of time before chikungunya, which is similar to dengue fever and for which there is no treatment, arrives in the **Brazilian** city and could fast become an epidemic.

TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

DARPA Challenge to Predict Chikungunya Spread

Contest aims to identify models that accurately forecast outbreaks.

By Jyoti Madhusoodanan | August 19, 2014

Models that can calculate the spread of chikungunya virus in the Caribbean and North, Central, and South Americas are being sought in a contest announced by the US Defense Advanced Research Projects Agency (DARPA) last week (August 15).

This is the first health-related challenge announced by DARPA's new Biological Technologies Office division; awards of $150,000 and $100,000 have been announced for the top two solvers, with four honorable mention awards of $50,000 each.

DARPA Program Manager Matthew Hepburn told *Science*Insider that his agency seeks technologies that can be used to make decisions if an outbreak occurs. "It's one thing to know what's happening on the ground currently," he said. "But really to design your response decisions, you need to know what's going to happen next."

Accurately predicting the next chikungunya outbreak could help prevent the spread of the vector-borne infection. Although rarely fatal, the debilitating fever and joint pain of infections can last several months. Several thousands of cases have been reported in the Caribbean and the Americas in the last few months.

DARPA Forecasting Chikungunya Challenge

AWARD: **See details** | STATUS: **Under Eval** | ACTIVE SOLVERS: 466 | POSTED: 8/15/14

Source: InnoCentive **Challenge ID:** 9933617 **Type:** RTP

Share

There will be nine submissions to this Challenge distributed throughout the Challenge period:

1. **Methodology.** An **initial submission** containing a detailed description of the planned data sources and model applicability and a **final submission** with a detailed description of the full methodology used for the forecasts are required. The initial submission must be received by **September 1, 2014** in order to be eligible for points. The final submission is due **February 16, 2015**. Both initial and final methodology submissions should be completed, although only those submitted by the due dates will be considered for points. The project documentation should include a well-articulated rationale for the methodology and choice of data sources.
2. **Accuracy Forecasts.** An initial forecast submission, due **September 8, 2014**, with predictions for the next six months, followed by five monthly update submissions, due on the **1st of each subsequent month**, with predictions for the remaining period of the Challenge.
3. **Peak Forecasts.** A forecast of Peak New Cases per Country or Territory, due **October 1, 2014**.

This Challenge has a special award structure with awards of **$150,000** and **$100,000** for 1st and 2nd place, respectively. The **next four top overall Solvers** will receive awards of **$50,000** each. In addition to winning awards for the highest overall points, top Solvers in each **Methodology Category** (data, robustness, applicability, presentation, and computation) may win **$10,000**. The top six overall Solvers will be invited to DARPA for the Program Finale Meeting where they will participate in an interactive meeting to share best practices, collaborate, and facilitate continuing Solver community cohesion.

CHIKV Challenge Announces Winners, Progress toward Forecasting the Spread of Infectious Diseases

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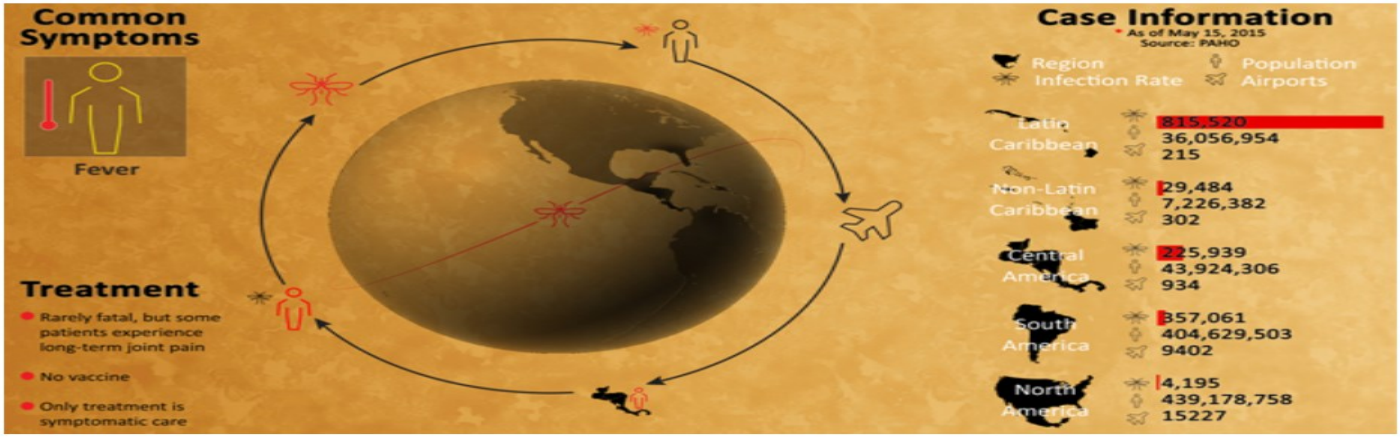
5/26/2015



Yet in just six months' time, the participants made notable progress, Hepburn added. "The teams in the CHIKV Challenge identified gaps in current forecasting capabilities and created a set of tools that can immediately help improve forecasting and guide response decisions for the current chikungunya outbreak. We are on the cusp of enabling a revolutionary improvement in disease forecasting, in much the way that weather reports transitioned from surveillance to forecasting."

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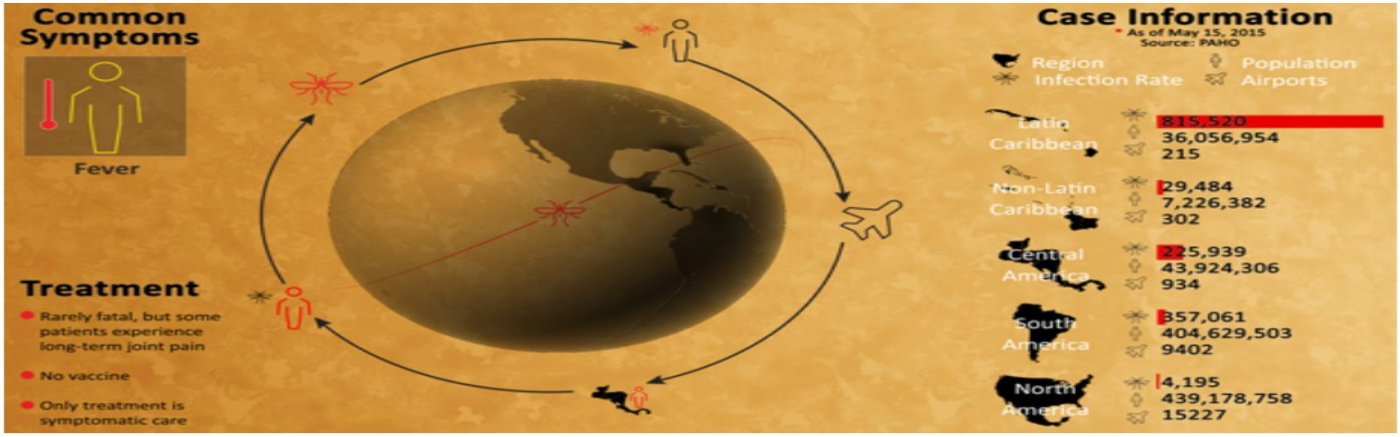

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Another gratifying aspect of the competition was that it succeeding in creating new communities of expertise and connecting them with DARPA. "None of the winners had previous experience working with the Agency, and participating teams were multidisciplinary, including not only specialists in public health and infectious disease but also experts in mathematics, ecology, computer science and bioinformatics," Hepburn said. "This forward-thinking collaboration is exactly what it will take to stay ahead of the global threat that emerging diseases pose."

Expose Data Relationships Through Visualization of Thomson Reuters Web of Science Content

STATUS: Awarded ACTIVE SOLVERS: 900 POSTED: 2013

This challenge provides an opportunity for Solvers to build a web-based or mobile "app" to explore data relationships in scholarly content in a visual or intuitively engaging way. For this challenge, the Seeker will make available access to Thomson Reuters Web of Science content through Thomson Reuters Web of Knowledge API (application programming interface).

Challenge Overview

This challenge is to build a programmatic interface or "app" using Thomson Reuters Web of Knowledge API (application programming interface) that enables users to explore data relationships in an engaging or visual way. Specifically, this challenge focuses on the Web of Science content set, the world's leading citation database and the flagship content set available on the Web of Knowledge platform. Technical requirements and instructions for how to obtain credentials and access the API are available in the Detailed Description.

- ***Solvers grant the Seeker a non-exclusive license upon submission.*** *By submitting a proposal, Solvers grant to the Seeker a royalty-free, perpetual, and non-exclusive license to use any information or intellectual property included in the proposal and/or implementations.*
- ***There is a guaranteed award of $10,000.*** *The minimum award for this challenge is $10,000 ("*Minimum Award"), *which is guaranteed to be awarded to at least one Solver.*
- ***Exclusive option at the Seeker's discretion****. The Seeker may (at it's sole discretion), award individual Solvers an additional $20,000* ("Additional Award") *to obtain ownership to that Solver's submission.*
- ***Includes written proposal + working implementation using API****. Submissions must include both a written proposal and working implementation that prototypes the proposed idea using examples that interact with the Web of Knowledge API and integrate Web of Science content.*
- ***API access will be provided.*** *Access credentials to the API interface will be provided to each Solver, after the Solver agrees to specific terms for data usage in the challenge.*

INNOVATION
CHALLENGE
for SCIENTIFIC AND SCHOLARLY RESEARCH

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WINNER!
CHALLENGE 2
Build

Balazs Godeny
OF HUNGARY

learn more about
the winning entry

WEB OF SCIENCE BROWSER

This application allows you to review a set of documents with emphasis on their connections and relative significance. This is achieved by displaying nodes on a map, in which the nodes correspond to the most important keywords or authors found in the document set. Moreover, the distance between the nodes on the map can be interpreted as semantic relatedness of the nodes. For example, if two keywords are displayed in close proximity to each other on the map, then the keywords are likely to co-occur in many documents. The application also provides navigation between documents. Unlike traditional search systems, the results of a search or other exploratory step will be a combined, connection-enriched view.

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Thank You

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