

The Work Exchange: Peer-to-Peer Enterprise Crowdsourcing

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Abstract

The Work Exchange is a peer-to-peer enterprise crowdsourcing system, where colleagues within a company can share work with each other. Employees can post work that they need help with, and other employees can search for and select work that they're interested in. It supports a variety of mechanisms for the work requester to choose who will do the work, including selection, bids, proposals, and contests. A point system is used to encourage participation and track productivity. The Work Exchange is a work in progress, with a prototype ready for demonstration, and a pilot study launching soon within a 500,000 person enterprise.

Introduction

Imagine that work in an enterprise was not just assigned by manager to employee, but could be shared from peer to peer amongst employees. People can chose to work on things that they're interested in and particularly qualified for, which could lead to more efficient matching of work to worker, more collaboration between colleagues, and increased value-add of solutions.

The Work Exchange is a peer-to-peer enterprise crowdsourcing system, which allows colleagues to share work with each other. An employee (the *work requester*) can post work, either within a specific community of coworkers (e.g., project team, department), or across the entire enterprise. Other employees (*work producers*) can search for interesting work, and select, bid, or compete for the work. Since all the participants are already paid employees, the Work Exchange allows participants to exchange *credits* as a virtual currency for the work.

We have built and will demonstrate the end-to-end Work Exchange application. We will launch a pilot later this year, providing a "crowd" of colleagues of around 500,000 possible participants.

Related Work

Many collaborative work systems, where employees generate and respond to each others' requests directly,

exist. Knowledge management systems are an example of peer-to-peer information exchange. Other examples of tooling to support peer to peer exchange include email, shared repositories or teamrooms, and wikis. Wikis share with the Work Exchange in using an open platform, which has been shown to affect participation both positively, through the potential to develop new relationships and extend impact of contributions, and negatively, due to fear of public exposure and hierarchical constraints (Mansour, Abusalah, and Askenas 2011).

The above emphasize information rather than work exchange. Activity-centric computing aims to support collaborative work management (Balakrishnan, Matthews, and Moran 2010) though is not designed with the explicit purpose of leveraging the crowd.

Enterprise systems that do leverage the crowd have been particularly geared towards gamified applications to motivate participants to generate validate existing data or to generate new data for analysis and mining, such as the GuessWho game (Guy et al. 2011).

The Work Exchange application goes beyond acting as a novel form of data gathering, and combines with the goals of other collaborative work systems to support peer-to-peer exchange of work tasks. Crowdsourcer (Jayakanthan and Sundararajan 2011) is a similar system, designed for software development.

Work Exchange Prototype

The Work Exchange provides the ability for users to create and post work requests; select, bid, or compete for requests; and earn credits and recognition for the work completed.

Posting Work

Any user can create work requests. They provide a description of the work they need performed, and the amount that they want to pay for the work. They can also list skills needed and a deadline. Then they can post the work request within a specific community (such as a project team or a department), or they can make it available to anyone within the enterprise.

Work Matching

Work producers can search for work requests that they're interested by community, keyword, or skill. Once they find something they're interested in, there are several options for how that work request can be matched to the work producer:

- **Suggestion:** The work requester can suggest work to a particular person via email, and that person can accept the work. A basic expertise search is provided to allow work requesters to search for possible producers.
- **Selection:** A work producer can simply select something that they're interested in. Here the work is first-come-first-serve.
- **Bidding:** Multiple users can select a particular work request, and bid on how many credits they want to be awarded to do the work. This is useful when the work requester doesn't know how hard the work will be, or it might be varying difficulty for different people.
- **Proposals:** Multiple users can select a work request and submit proposals for how they would complete the work; the work requester selects their favorite proposal. This is useful for work where the work requester doesn't know how the work will be completed.
- **Contest:** Multiple work producers can select a work request, do the work, and submit their results. The work requester selects their favorite result. That winner is awarded credits for completing the work. This is useful when the requester doesn't necessarily know what they want or how to solve a problem, such as creative work.
- **Collaborative:** Multiple work producers can select a work request, and collaborate using a shared forum to do the work. The work requester then selects how to award the credits to the multiple producers at the end, based on their participation.

It is likely that supporting so many kinds of work matching methods makes the system complicated for users. A pared down set of options may be used to pilot the system, allowing us to experiment with the system for different kinds of work in different environments.

Negotiation and Collaboration

We have built in simple collaboration tools (comments and email) to facilitate interaction between the work requester and work producer(s) at key points in the work exchange process.

- **Pre-selection** – any user in the system can post questions via a simple comment system about a work request before it has been selected. This allows users to clarify the request before signing up to do the work.
- **In-process** – once the work has started, the work requester and producer(s) can use public comments or private communication to further clarify the effort.

- **Result-iteration** – once the work has been completed, the work requester needs to check the work and validate the results and may request rework.

Incentives: Credits and Leaderboard

Since all the participants are already paid employees, the Work Exchange uses *credits* to encourage and track participation. A leaderboard shows the top participants. These credits could be tied to real incentives, such as recognizing the top participants with awards.

In the prototype system everyone gets 100 credits, which they can spend to get people to do work for them. However, when they run out of credits, they can only get more by doing work for others, which will encourage peer-to-peer behavior and may generate a greater sense of shared effort and collaboration.

This credit system is quite basic, and we believe that it will lead to further studies on how points and gamification can be used as incentives amongst enterprise employees.

Conclusion and Future Work

The Work Exchange is a novel system that supports peer-to-peer crowdsourcing amongst employees within an enterprise. We have designed the system with a number of options, such as different mechanisms for matching work producers to the work, that will allow us to test it in different scenarios. We will launch the first pilot in coming months, which will be available to 500,000 employees across IBM, but within the work context of a specific lab.

We believe that the Work Exchange will help us answer many questions about peer-to-peer enterprise crowdsourcing. What kinds of work can be shared? How do you best match work to the right people to perform the work? What incentives are needed to make sure work is completed? How can the system be gamed? We will seek to answer these and other questions in future pilots.

References

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