Growing Businesses Organically on the Social Farm

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Abstract

We propose to create and operate businesses on top of online social networks through our Social Farm *model. The Social Farm leverages the connectivity and trust relationships available in online social networks to create and operate businesses using the programming interface provided by online social networks. Our proposal aims to automate the tasks of finding partners, implementing the business workflow, managing profits and customer reputation, and managing the day-to-day operations of the business. This paper presents the Social Farm model and architecture, as well as, a description of a Social Farm prototype we developed for Facebook.*

1   Introduction

Recent technological trends create an opportunity for radically transforming traditional ways of starting and operating businesses. Workers are spending more time telecommuting, and an increasing number of sales transactions are being done online. Concurrent to the digitization of traditional businesses, social relationships are also moving online with the rapid growth of online social networks [13, 27]. Similar to traditional business organizations, which are constructed on top of social networks of people, we propose to create and operate businesses on top of online social networks through our *Social Farm* infrastructure proposed in this paper.

A business can be broadly defined as a legally recognized organization that endeavors to generate profits by providing goods and services desirable to customers. Starting a business typically requires the entrepreneur to complete a sequence of steps. She must formulate a business plan, and look for partners who will own and direct the business. To implement the business, they must transform the plan into a work description, divide this into individual work tasks, and define the business workflow. Additionally, partners must also agree on how to share the earned profits and reputation fairly.

Given all that must be implemented and executed to promote a successful business endeavor, it is no wonder that only a small percentage of the population seems to posses the right mix of entrepreneurial skill, resources, and time to be successful. As a result, although many people may have the entrepreneurial spirit and a good idea, they either fail to start a business due to the overwhelming requirements, or give up before they even start.

Over time business has seemingly followed a trend of "democratization", making business ownership progressively accessible to a broader category of people. It is well-known that the US has a long history of entrepreneurism. This has resulted in the creation of small and

mid-sized businesses that function as key elements of the country's economy. Recently, the Internet has enabled more people to make the leap into business ownershipby providing an open portal to broadly advertise and reach consumers in new ways. Online marketplaces such as oDesk, eBay, Amazon, and Alibaba have made it easy to find workers, customers, and suppliers efficiently [2, 6, 7, 16]. Yet, business formation and operation still present a formidable hurdle.

We believe that today many opportunities for businesses remain unexplored, such as the available personal time and resources that go idle rather than being leveraged to realize various businesses. For example, Joe has an idea to start an online social movie rental service by banding together with others who may wish to join him in his endeavor. Each individual partner could rent out their unused movies to satisfy movie rental requests. Similarly, Alice would like to start a baby-sitting service that serves her locality. To do so she needs to find other qualified people able and willing to perform the service in the locality. Although both Alice and Joe could easily open an online store-front and reach sufficient numbers of consumers, there exists no technical infrastructure[1] to help them in creating and operating the business.

1.1 Our Solution

In the paper, we propose the *Social Farm*, an infrastructure for creating and operating businesses on top of online social networks. Our solution reduces the overheads present throughout the lifecycle of a business, thereby eliminating the critical barrier for most people to progress beyond the idea phase of business formation. Essentially, we utilize online social networks as *business formation networks*, upon which people grow their businesses from concept through implementation and into management and operation.

The Social Farm provides a structured framework for people to form businesses, invite or hire suitable people as members of their businesses, define business plans and automated workflows, advertise the goods and services of their businesses, disclose and verify their business' consumer reputations, regulate consumer-business transactions, and distribute business profits to members.

Online social networks possess a number of attractive properties that make them a good platform for business formation and execution: they are large collections of people, they can identify well established trust relationships between those people, and they can efficiently aggregate large numbers of people for various endeavors based upon specified criteria [8, 19]. Finally, as well-known entities themselves, online social networks posses their own reputations similar to online marketplaces. This can add to the credibility of businesses operating on the social farm [25].

In summary, this paper makes the following contributions:

1. Introduces the Social Farm model for building businesses utilizing online social networks as a foundation.

2. Provides a general framework for business creation, operation, growth, and management built on top of online social networks.

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[1]Venture capital and angel investors traditionally help create new businesses by providing resources, expertise, and capital. Complementary to this, the social farm is a technical infrastructure that uses online social networks to automate the task of creating and operating a business.

3. Develops a novel technique for work-flow specification, monitoring, and execution for Social Farm businesses.

4. Illustrates how an online social network can be utilized to act as a reputable mediator between businesses and consumers, and between businesses and employees.

We believe that the Social Farm concept represents the ultimate "democratization" of the business start-up. It empowers any online social network user to create, participate, and benefit from businesses on the Social Farm.

2   The Social Farm Business Model

Economic activity is traditionally carried out in an organized manner. Typically businesses are collections of individuals performing specialized functions to produce goods and services. Economists have investigated why certain economic activities are carried out within businesses instead of being traded in a free market. The traditional explanation for the existence of businesses, first provided by Coase, claimed that business organizations allow the efficient allocation of resources by avoiding the transaction costs of acquiring these resources in the free market [12, 37].

Online social networks allow the Social Farm businesses to access resources in an automatic manner. This is enabled by the pre-existing social ties and the programmable API provided by online social networks. Having a social network based automatic resource discovery process is likely to provide a transaction cost advantage by making it cheaper and faster to search for resources [4] and to co-ordinate tasks [14]. The social farm proposal also enables businesses to gather the required resources from a wider pool of potential candidates. This allows Social Farm businesses to select better resources or to operate with reduced cost.

Traditional business organizations are also evolving towards loosely coupled organizational forms [33]. Operating businesses on the social farm allows for a similar setup, except that the business organization is built from the bottom up. The challenge is to create, operate, and grow businesses on the Social Farm by faithfully mapping traditional business activities onto online social networks to produce identical products or services.

2.1   Business Components

In this section, we define the Social Farm business model in terms of its main components. These components are the business members, the reputation assigned to both the business and its members by consumers, and the business workflow which defines the business execution.

DEFINITION 1 (Member) *A member is an online social network user who participates in the activities of the business.*

In context of the movie rental service, online social network users, who wish to rent movies to others, can join the business as members. Observe that members correspond to workers, partners, and managers in traditional businesses. Members have resources and skills which can be used for business activities.

DEFINITION 2 (Reputation) *The reputation R is an integer encoding the expertise of a member m in a given skill s:*

$$R : (m, s) \mapsto \{0, 1, 2, \ldots\}$$

Members have reputations, one for each area of contribution to the business. For example, members of the movie rental service may have skills like *quick delivery*, *high definition DVDs*, or *failure rate*. Each member has reputation values representing their performance and skills.

Operating a business requires its members to perform a series of actions in order to produce a productive outcome. In context of our Social Farm proposal, a task is a command to a given member to perform a specific action. Tasks are interpreted by the members skilled in performing them. Performing an action not only results in the corresponding business action being done, but also allows a consumer to update the business' (and indirectly) the members' reputations. Combining these concepts, we can now define a business on the Social Farm as follows:

DEFINITION 3 (Business) *A business $\mathcal{B}$ consists of:*

- *A set of members $M = \{m_1, \ldots, m_k\}$, who have the skills or resources required to support the activities of the business.*

- *A set of states Q representing the various stages in the activities of the business.*

- *A task function $\mathcal{T}$ defined for each state $q \in Q$ of the business:*

$$\mathcal{T}(q) = \langle p, T, S, D_r, D_p \rangle$$

  where

  - *$p \in Q$ is the next state of the business after the task T is performed by a member $m \in M$ with skills $S^\star \supset S$.*
  - *S is the set of skills required to perform the task T.*
  - *D_r is a distribution function specifying how the reputation earned after performing the task shall be distributed among the members in M.*
  - *D_p is a payment function specifying how the profit earned after performing the task shall be distributed among the members in M.*

- *A start state $q_0 \in Q$ where orders can be accepted for payment, and an end state $q_f \in Q$ where orders are completed.*

In the movie rental service, the initial state of the business is the "accepting movie request" state. The business state also contains information about the movies available for rent. Consumers use this information to place a movie rental order. Upon receiving a credit card payment and shipping address A, the business moves into the state: "processing movie request X". In this state, a member willing to rent the requested movie X is selected by the business logic for performing the action: "ship movie X to consumer at address A". The state associated with the movie rental business will now change to reflect that one less copy of the movie X is now available for rent. The business then moves into the initial accepting state, once again.[2]

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[2]Throughout the remainder of the paper, we use italicized text to represent our running business example, as in this passage.

2.2 Business Lifecycle Phases

The Social Farm is responsible for the creation, execution, and management of businesses. In this section, we describe each of these business lifecycle phases. We also carry forward the running example of a movie rental business to illustrate the various business phases.

2.2.1 Business Creation

Businesses on the Social Farm are created by a chairman. Every business has a member performing this role. The role of the chairman can also be transferred from one social network member to another. The chairman performs a number of actions as part of business creation. These actions include posting a business charter, inviting members to join the business, and specifying the skills and resources required by the business. Distribution of profits and reputation is also specified up front in the business charter.

The chairman also nominates the initial Board Members whose role is to perform administrative actions for the business. Finally, the workflow logic for executing the business has to be defined. Upon completion of these steps, the business becomes operational.

In our example movie rental business, Joe decides to rent out his large collections of DVDs, as a service. He first creates the new business using the Social Farm business framework. In his new role as business chairman, he advertises within his social network for like-minded individuals to join his business as contributors.

2.2.2 Business Execution

Operational businesses process transactions from consumers according to the business workflow. The business workflow logic translates each consumer request into a set of tasks, which are then assigned to members. Members complete the tasks, which ultimately changes the task status. The consumer transaction is complete once all the related tasks complete successfully.

Transaction completion results in the allocation of payments and impacts the reputation of members in the business. The consumer makes a payment while placing the transaction and rates the transaction experience by providing a reputation score on completion of the transaction. The consumer supplied reputation is used to update the reputations of members and businesses.

Reputation management: Businesses maintain reputations for a number of reasons. Consumers like to interact with highly rated businesses while members want to take credit for their work. Reputations are managed by having a number of business domains. Each business domain maps to a set of reputation categories. The business charter defines how reputations are distributed among business members.

Payment management: Payments are processed for each consumer transaction. While the allocation of payments can be done in a simple manner for successful orders, handling failed orders and returns requires special treatment.

Once Joe has recruited enough (by his standards) contributors to work in his business, he again uses the Social Farm application to specify the workflow logic of the business, and sets the reputation and payment distribution parameters. Once completed, he opens the business to
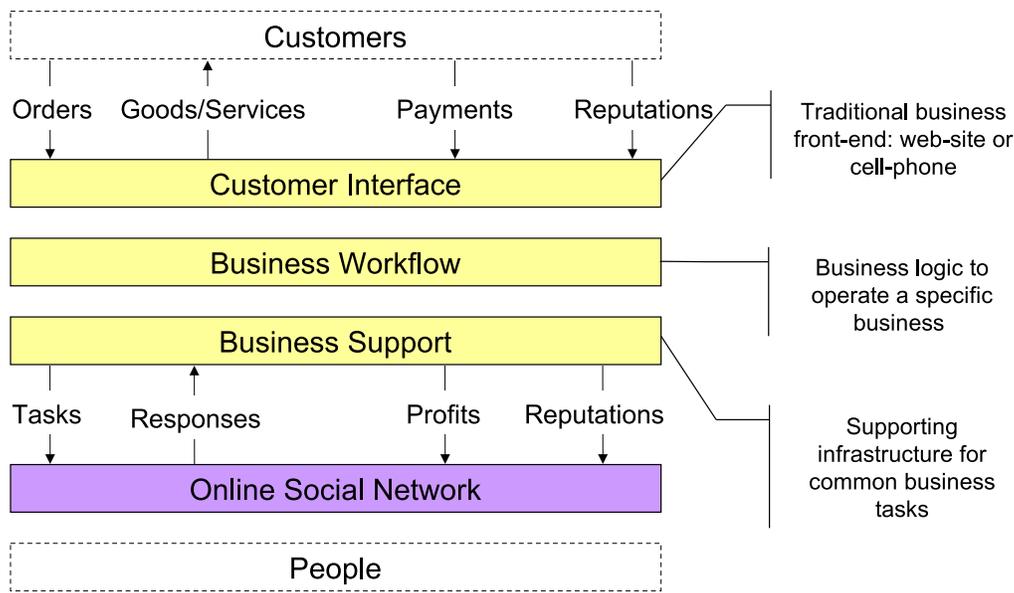
Figure 1: The Social Farm Architecture.

start accepting consumer requests.

2.2.3 Business Management

Business management must be handled by the Board Members and consists of maintaining the business charter, changing the workflow logic, and performing membership maintenance.

As the Netflix-like business continues to accept and process consumer requests, Joe spends his days handling his tasks, as assigned to him by the Social Farm workflow scheduler, based upon the current business workflow logic. He also manages contributors by adding new people from his social network to join the business, and at times removing poorly performing contributors (through the Social Farm application). He is able to determine contributor performance by utilizing the Social Farm workflow monitoring tool.

3   The Social Farm Architecture

In this section, we present the Social Farm architecture and the relevant details of the key Social Farm system components. Our primary design goal is to reduce the cost of business creation, management, and growth. The approach to meeting this goal is to identify those tasks common to all the businesses and provide tools and support for these.

As shown in Figure 1, the Social Farm architecture overlays a social network and is divided into three layers: *(i)* the Business Support layer, *(ii)* the Business Workflow layer, and *(iii)* the Customer Interface layer. Here, we describe the system components (see Figure 2) that compose each layer, including the component interfaces and the interactions that occur between components.

3.1 Business Support Layer

The role of the Business Support layer is to make it easy for users to create, operate, and grow their businesses. The system components of this layer represent functional extensions to the underlying online social network and provide extended support for: *(i)* business formation, *(ii)* execution, and monitoring of business workflow, *(iii)* calculation and verification of business reputation, and *(iv)* collection and distribution of payment for product or service[3].

3.1.1 Business Formation

A user who wishes to form a new business starts by installing the Social Farm application into her online social network profile. This provides both the Business Management Interface (BMI) and the Task Manager (TM) graphical interfaces. Through the BMI, the user initiates the creation of her new business, specifying the high-level business plan and the criteria that other potential members must meet to join the business.

Once created, the business is offered for other members to join based upon the invitation model and the member offer criteria. Once a potential member accepts the invitation, the business' Board Members will review the application to verify that all join criteria have been met and respond with acceptance or denial.

We envisage four invitation models to control how invitations are propagated through the online social network. The Friend-to-Friend (F2F) and Friend-to-Friend with Forwarding (FFF) models are similar in that a user may only forward invitations to her first degree friends in the online social network. They differ in that FFF allows a received invitation to be forwarded by a user who declines membership herself, while the F2F model only allows accepted business members to invite their friends. The General Public Advertisement (GPA) and Limited Public Advertisement with Link Validation (LPA) models both make use of a business formation message board, provided by the Social Farm. Under GPA, all users may view the announcement. This approach could face significant delays in gathering members because of the way public information travels in social networks [11]. LPA limits the announcement to those people who are linked to a business member in the social graph within N degrees (N being specified during formation). The purpose of this is to leverage the fact that short paths imply stronger trust relationships in the graph and to limit the propagation of invitations to within a certain "radius of trust" in the social graph. Since closer social relationships have also been shown to lead to more effective interactions [24], the LPA approach is likely to provide the most effective results.

Joe, the chairman of our running Netflix-like business example, utilizes the BMI to perform the initial business creation. In the interface, he specifies the details of the Business Charter and advertises his new business within his social network via the FFF model. He chooses this model, since he is not sure any of his directly linked "friends" will be interested in joining his business, but he believes that the friends of his friends may want to join. He also wants to be able to trace the social network path between himself and potential contributors, as a means of generating a referral path.

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[3]We stress that these are functional extensions. We would not require modifications to an underlying online social network that provides an application developers environment, e.g. Facebook. In that case, our system can be implemented through the online social network's application development kit.
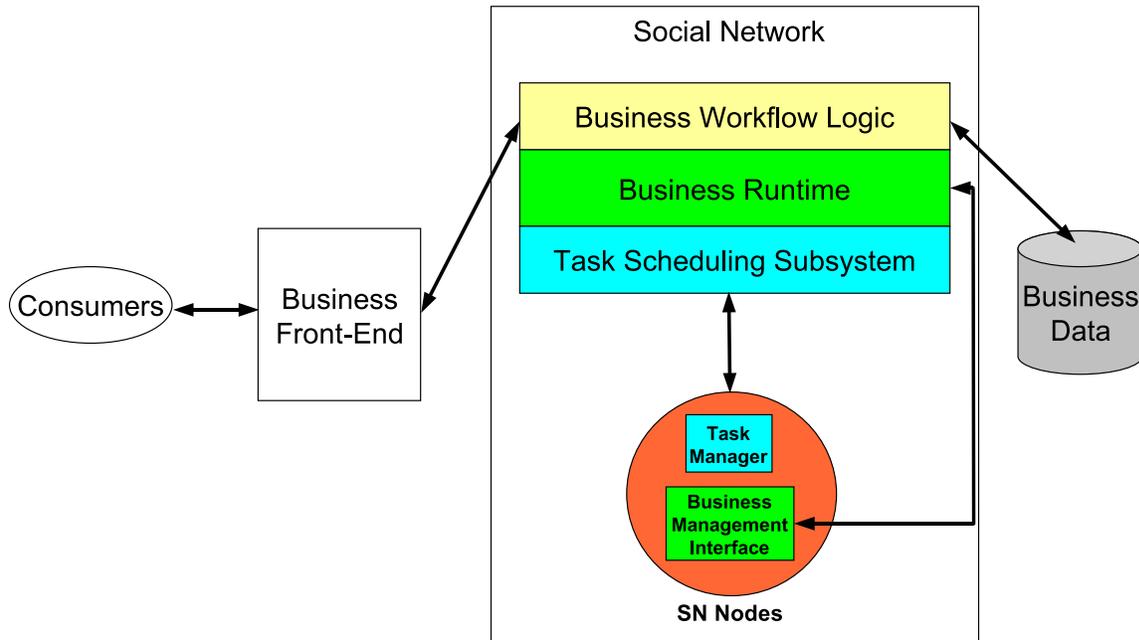
Figure 2: The Social Farm System.

3.1.2 Business Execution and Monitoring

Once the Board Members have completed the formulation of the business execution workflow (see Section 3.2), the business is ready to be formally opened and to start processing customer requests.

The business workflow is executed by the Business Runtime component which performs the business task scheduling, routing, and monitoring within the Social Farm. Tasks represent the smallest unit of work that can be assigned to a business member to process. They are created in response to either a consumer request or periodically by the runtime as specified in the Business Workflow Logic. Once created, tasks are scheduled according to the workflow and ultimately assigned to one or more members for processing. Once a task has been processed, its status is updated and it is removed from the workflow by the runtime. Tasks may also include a deadline and the runtime prioritizes such tasks according to their deadlines.

As stated earlier, each business member has a Task Manager installed in her online social network profile. Through the TM she can access, accept, update, or reassign any tasks assigned to her, as well as, inspect the currently running workflow and review the status of any active task in the workflow.

Within the confines of our movie rental example, the contributors all utilize their own instances of the Task Manager (TM) interface to view the pending tasks that have been assigned to them, and to signal back to the workflow system when these tasks have been completed. Those with the proper authority to view the entire workflow, can also monitor the progress of tasks within the workflow using the TM. This provides a way to determine the real-time status of tasks and to view performance statistics for individual contributors. Joe keeps a close eye on how tasks are handled within the business, to ensure high customer satisfaction to continue to grow the business and its reputation.

3.1.3 Reputation Verification and Distribution

As for any customer-focused activity, the reputation of a business carries substantial weight and must be handled carefully by the system in order to ensure the integrity of the reputation metric. We leverage the reputation of the online social network as a foundation of trust for the businesses that are operated within its confines. Therefore, it is the online social network, through the extended support provided by the Social Farm system, that is responsible for verifying a business' reputation.

All reputation is created by customers. This means that any customer who has completed a transaction with a business may rate that business with a transaction score (as described in Section 2.1). Reputation flows from customers to individual business members according to the established distribution percentages for the business. Each business specifies the percentage of a reputation rating that goes to Key Contributors, Board Members, and other members.

The following functions describe the general case for all stages in the business lifecycle. When a new business is formed, we initially calculate the business reputation as:

$$R_{Business} = avg\{R_{BoardMember}\}$$

Thereafter, we use the following formula to calculate the business reputation, each day:

$$R_{Business} = max\{R_{Business}, avg\{R_{Member}\}\}$$

Should a board member decide to leave while the condition $R_{Business} < avg\{R_{BoardMember}\}$ holds, we reset the business reputation to:

$$R_{Business} = max\{avg\{R_{BoardMember}\}, avg\{R_{Member}\}\}$$

The reason for making this choice is that in the initial stages of business formation, new members may not have high enough reputation to result in fair business reputation. The appropriate reputation aggregation method is selected automatically by the business management layer.

3.1.4 Payment Distribution

Payment distribution is handled similar to reputation, but does not require any historical information to be kept by the system. The Board specifies the per-transaction payment distribution percentages to be paid to Key Contributors, Board Members, and others. For each transaction, the Social Network verifies the transaction, possibly through an agreement with a third party payment vendor [29], and distributes the funds as per the payment distribution specification.

One difference between the reputation system and the payment system is that it is possible for a customer to request a refund. To handle this case, the online social network holds all payments in escrow for a period of time specified by the business as the *refund period*, beyond which a refund for a given transaction will no longer be granted. This guarantees both transparency of the refund terms prior to the transaction and availability verification of funds to cover the refund during the refund period for a customer by the online social network.

3.2 Business Workflow Layer

Business workflows have traditionally been modeled through a variety of techniques. These have been used to analyze business workflows to improve efficiency or control. While there

Modeling Technique	Salient Features
Flow chart	Relationship between tasks.
Gantt chart	Performance and progress of tasks assigned to contributors.
Workflow	Flow of tasks between contributors in specific roles.
PERT/CPM	Workflow completion analysis based on the critical paths within a set of dependent tasks.

Table 1: Business Workflow Description Methods.

exist a number of business workflow modeling techniques (see Table 1), they differ by stressing particular aspects of business workflows [5]. Since these techniques have been used to model a large number of real world activities, they represent a suitable template for defining arbitrary businesses.

All business workflow modeling methods associate a set of attributes with each task, and a contributor responsible for performing it. Tasks also have completion status, expected and actual durations, start and finish times, and possibly a set of pre-requisites. These pre-requisites can function as a starting or completion criteria for the task. Pre-requisites include any resources needed to complete the task, as well as, the status of predecessor tasks upon which this task may depend. Since some of the modeling techniques prohibit loops, we require each task in the business to be specified in terms of pre-requisite tasks and resources. This allows designers to create task templates with pre-requisite relationships. Particular aspects of tasks, e.g., start/finish times, contributing member assignments, resource status, and predecessor task status will be assigned by the business application layer at execution time. The Social Farm allows business Board Members to specify the workflow in one of these methods (Table 1) and translated into a program to be executed by the Workflow Runtime.

3.3 Customer Interface

To the external world, the Social Farm provides a web-based portal through which customers may search or browse for businesses that provide the service or product of interest. This default interface is provided by the Social Farm and is available to any Social Farm business. A business may also choose to construct its own web-based business front-end external to the Social Farm, which interacts with the other Social Farm layers for all interactions between customers and the business.

A customer decides to rent a movie from Joe's Netflix-like business. She pays for her selection through the Social Farm payment interface, and the funds are held in escrow until the transaction has been completed. A task is created by the workflow system and routed to a contributor based upon the business workflow logic. Remember, Joe specified this logic prior to opening the business. In this example, the logic dictates that the task be routed to a contributor that has an available copy of the selected movie. That contributor accepts the task, ships the movie to the customer, and signals that the movie has shipped. Once the customer returns the movie, the contributor signals completion of the transaction. At this point, the Social Farm asks for customer feedback and updates contributor reputation. It also delivers the escrowed payment to the contributor.
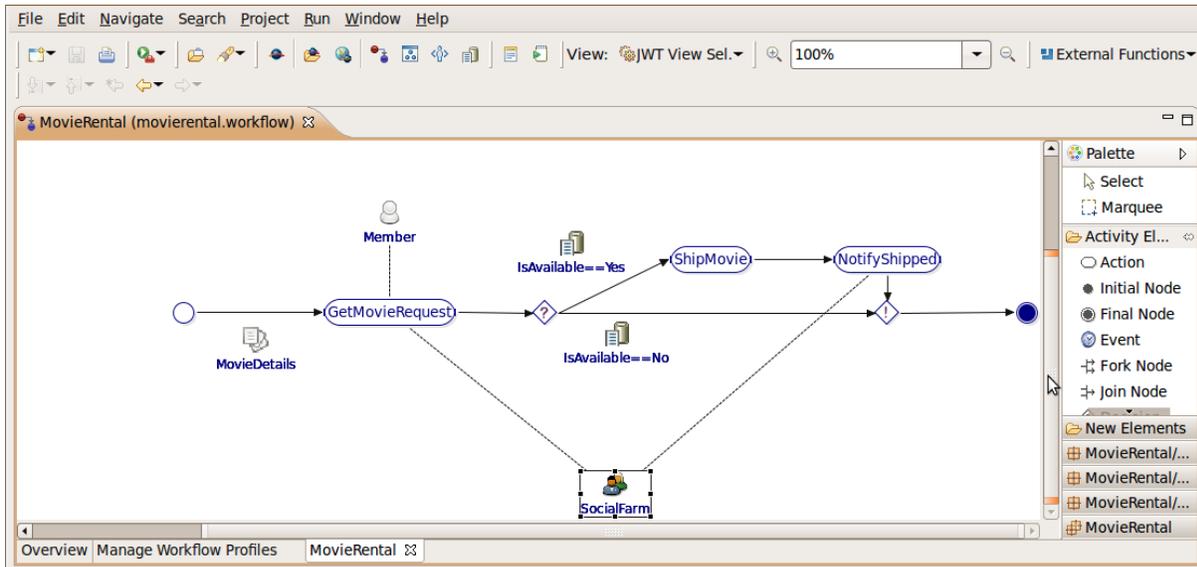
Figure 3: Graphical tool for creating work flows specifying businesses on the Social Farm.

4 The Social Farm Prototype

We are currently implementing a prototype Social Farm business as a Facebook application [17, 18]. We are using the Django [15] web framework and the Python [31] programming language. Since we cannot directly extend the service provided by Facebook, we are implementing the various components as application logic external to, but accessible within Facebook. Our components use the standard Facebook application development kit. We chose to implement the prototype Social Farm within Facebook simply due to the fact that it provides a rich application development environment. Social Farm is not restricted to Facebook and can be implemented on top of any online social network that provides a similar application development capability.

For the initial prototype, we are focusing only on work flow and reputation management. Payment management will be implemented in a later release version. The objective of implementing the prototype is to empirically determine the effectiveness of Social Farm as a framework for developing businesses on Facebook.

The prototype allows users to graphically create social farm businesses. This is done by using the Java Workflow Tooklit (JWT) from the Eclipse development environment [1]. As shown in Figure 3, its workflow editor can be used to graphically define Social farm workflows. Workflows are exported from JWT into the XML based standard XPDL process definition language for execution. Our prototype enhances the workflow specification by noting the tasks that shall be delegated to the social network.

The social farm prototype executes the workflow described in process definition language. This is done by instrumenting the open source Scarbo workflow execution engine to execute the specified workflow [35]. The workflow engine is modified to use the social network for task assignment. This allows the business to operate on the social farm. As shown in Figure 4, we also provide a graphical monitoring and management console for social farm businesses. It is
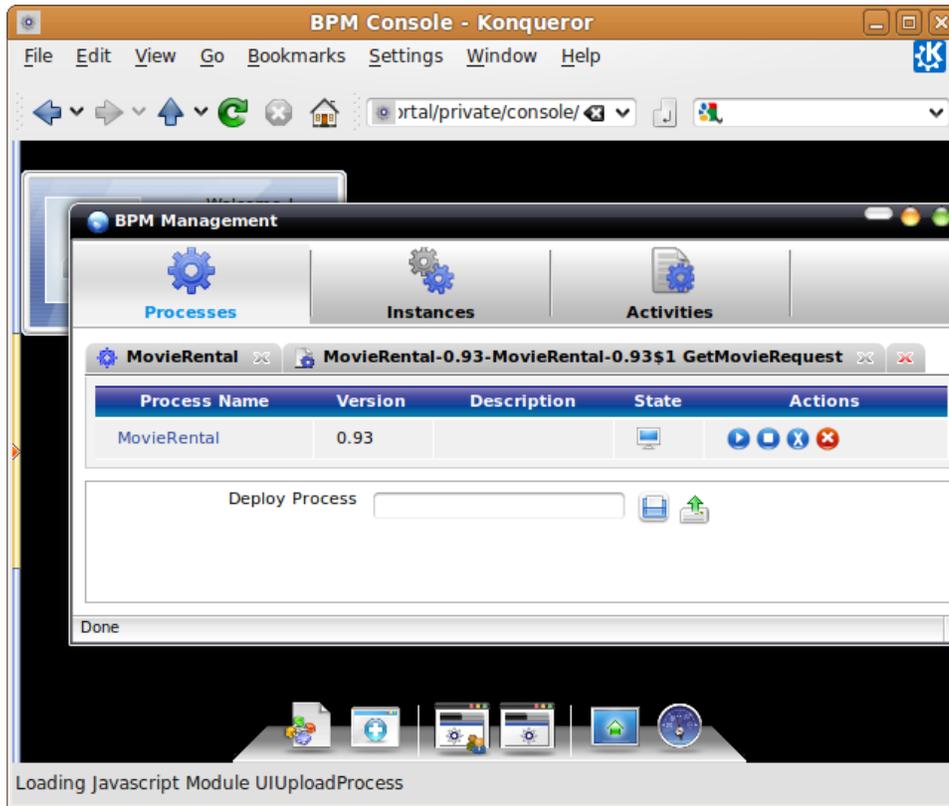
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Figure 4: Console for monitoring and managing businesses on the Social Farm.

based on Bonita monitoring and management console available with the workflow engine. The console allows monitoring and management of specific tasks as well as entire workflows.

5 Research Plan

We expect to gather greater insight into the Social Farm infrastructure by implementing it, and operating it on a test basis through the free virtual library service. We plan to explore the following research directions:

- **Reputation distribution**
  We have described a number of possible reputation distribution methods in Section 3.1.3. Further research shall focus on determining a suitable metric for evaluating the effectiveness of a reputation management approach. The reputation management methods may also exhibit different levels of effectiveness depending on the usage scenario. We plan to identify the advantages and limitations of the proposed reputation management techniques. We also propose to investigate additional reputation mechanisms like peer review, and allowing customers to override the default reputation handling approach.

- **Task assignment**
  The task assignment framework can assigns tasks to members based on their reputation,

capability, and availability. We intend to empirically investigate possible task assignment methods. Another related line of inquiry is to confirm that task assignments are robust under different distributions of customer ratings and worker performance.

- **Social network**
  The social farm businesses operate on top of social networks of people. We hypothesize that the social relationships present in the online social network are key to achieving the co-ordination required for operating the business. In order to test this hypothesis, we shall empirically study the impact of social network attributes like the strength of relationships, multiplexity, asymmetry, density, status, structural holes, and centrality on business performance.

- **Data privacy**
  Businesses are traditionally expected to maintain privacy of customer data. Data privacy is also a legal requirement in certain jurisdictions [28]. We propose to design an access control mechanism for the business workflow and for the customer data handled by it. We also plan to investigate the feasibility of a publicly available privacy assurance mechanism. It shall provide privacy ratings to Social Farm businesses by deducing the data inference implied by the business workflow.

- **Business transparency**
  Recently, open business models [3] have been proposed. The key idea is to allow innovation in business models to occur in an open fashion, similar to the open-source software movement. The Social Farm provides a well-placed venue to support such open business models. We shall investigate methods of allowing partial disclosure of business logic. This could allow proprietors to gather feedback and improve upon their business models.

  We also plan to investigate the feasibility of providing privacy preserving assurances on business workflows. An example could be a bank operating on the Social farm. It could provide an assurance that all customer deposits have been accurately reported to the investors, without disclosing the investments.

- **Collective bargaining**
  Businesses organized on the social farm use a common infrastructure for operation and attract customers through their reputation. This dependence can potentially be used to enforce electronic business-to-business agreements [32], thereby giving social farms businesses an economic advantage. A number of traditional business constructs like forward contracts and volume discounts depend on inter-business agreements. Although volume discounts have traditionally been available to large businesses, we shall investigate mechanisms for aggregating individual agreements in order to allow social farm businesses to take advantage of volume discounts. We shall also investigate mechanisms supporting electronic negotiation [23, 34] for goods and services through collective bargaining.

6   Related Work

Business process modeling is an established area of research. It has traditionally been investigated from the business information systems point of view with the goal of improving existing businesses. The evolution and contribution of business process modeling techniques is traced

in survey papers [36, 5]. On the industrial front, a number of popular business process management systems are in the market. The major ones being SAP, Baan, PeopleSoft, and Oracle. The role of business process models and business process management systems is to help analyze and monitor existing business processes. In contrast to the work done in the business process area, our Social Farm model is designed to foster the creation of new businesses on online social networks instead of analyzing or improving existing businesses.

Ecommerce related business processes and workflows have also been the focus of much research. Business workflows may also be mined out of implemented e-commerce systems as done by Hung and Ying [21], while the improvement of ecommerce site usability by providing contextual information from underlying business process definition is investigated in [38]. A procedure for automatically extracting workflows and depicting them graphically is discussed in [20].

The rise of organizations working through electronic hierarchies (complementary to electronic markets) has been predicted by Malone [26]. The social farm also realizes the electronic commerce research goal identified by Kauffman and Walden [22] that transformation of business processes within the firm should reduce the overall costs of doing business, and possibly replace the physical infrastructure of an organization with a virtual infrastructure. Such a move is expected to improve the firms immediacy and responsiveness while broadening its coverage in the marketplace. Constructing the social farm on top of the online social network continues the longer term trend towards highly networked organizations [30].

The open source movement allows co-operating users to aggregate their volunteer work into free software and content (e.g., GNU software and Wikipedia). The rise of the open source software movement, where unorganized volunteers can create better software than powerful corporations is an instance where digital connectivity trumps the advantage of traditional business organizations [9, 10]. Our proposal takes this trend a step further by allowing co-operative social network users to create, operate, and grow businesses on the Social Farm.

7   Conclusions and Future Work

In this paper, we have presented the Social Farm, a novel way to create, manage, and grow businesses. The Social Farm is built on top of online social networks and leverages a number of key properties present in online social networks, which we believe dramatically reduce the start-up, operational, and growth costs in time and effort that deters many would-be entrepreneurs from ultimately achieving their goals. Additionally, we have presented the Social Farm model and architecture, as well as, describing our current progress on implementing a Social Farm as a Facebook application. In the future, we intend to complete the prototype and build a number of proof-of-concept businesses as feasibility studies. We also plan to conduct user studies to assess the efficacy of our solution and better understand the cost reduction enabled by the Social Farm.

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