

## A CONCEPTUAL FRAMEWORK EXPLAINING PROGRESSIVE TRUST FORMATION WITHIN SOUTH AFRICAN FRESH PRODUCE MARKETS

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### ABSTRACT

The use of electronic self-service solutions as a method for delivering services is increasing. To deliver services in this manner on various platforms, the challenge is to retain the trust of the end user. Fresh produce spot markets are high trust environments and the introduction of self-service solutions has proved to be challenging. This sector has not seen the large scale adoption of self-service technologies within southern Africa. In this paper, we propose a conceptual framework to enhance our understanding of trust formation using self-service technologies. A qualitative research approach, based on a case study, was followed to create the conceptual framework. This case study offers insight into how the dynamics of the product, supporting services and the technology shapes trust-forming behaviour.

**Key words:** Self-service, trust, governance, fresh produce.

### INTRODUCTION

Technology has the potential to play a pivotal role in enhancing the various services in food markets. But to implement self-service technologies (SST) in food markets, one has to consider the broader service context. One has to move away from the narrow transactional and single dimensional view of SSTs as simply about automating pre-existing processes. SSTs give us the opportunity to interact with products, services, and people in new ways. According to Parlanti, Giuli, and Pettenati (2006:64) the "...rich set of signals that can be cognitively exploited to access reciprocal 'moral' attitudes..." through physical contact are partially removed with the user interpreting trust through digital channels. Rowley (2006) referred to it as an "impoverished experience" that removes the multitude of cognitive signals used by the trusting party to engender trust in the "trustee" (object, person, or environment). But as Mansell (2005) states:

"Is this not about trustworthiness and trusting behaviour? We have to distinguish between reported perceptions of trust and the way in which people actually behave. We know little about the basis upon which people are prepared to trust others on the Internet or to believe in the trustworthiness of ubiquitous systems." (Mansell, 2005:14-15)

Within a transactional context, users engage transactional decision in phases. Initially exploratory actions are performed to identify potential transactional opportunities. These are for instance stages of search, contract formulation and contract enforcement, each carrying different levels of risk. As this process intensifies and moves towards final contractual stages, greater levels of risks manifests. Under purely electronic encounters the need to provide a richer spectrum of trust signals are required to facilitate trust forming behaviour.

The question arises of how one is to approach the challenge of enhancing trust within this progressive interaction using electronic “signals”. This paper proposes the concept of “progressive trust” within a self-service context in order to explain this process. A conceptual framework is used to illustrate how progressive trust formation within a broader service context should be approached.

This paper forms part of a broader study that focused on the interplay between trust and self-service provision within electronic food exchanges.

## **METHODOLOGY**

A qualitative approach based on a case study was employed in combination with a review of the literature related to trust formation. Case study is defined as “... a systematic inquiry into an event or a set of related events which aims to describe and explain the phenomenon of interest” (Bromley, 1990:4). Single case studies offer the opportunity for in-depth investigation of a phenomena resulting in a rich description and understanding (Walsham, 1995) and is an accepted method for research into information systems (Avison and Pries-Heje, 2005). Walsham (1995) sees the case study as the most suitable form for conducting interpretive research, an approach that can achieve scientific objectives through alternative means. A single qualitative case study approach has the following advantages within the fresh produce market environment:

- The commission markets in South Africa all operate under the same business model using pure commission as the main income stream for both the market authority and the agents. The commission percentages are set the same as 5% of gross turnover to the market authority and 5% - 9% (negotiable) to the agent.
- These fresh produce markets are characterised by the same institutional governance framework which is aimed at protecting the interests of the various stakeholders and particularly the grower.
- Stakeholders compete against each other for produce sales and procurement under structured conditions.

A single case study offers multiple viewpoints of trust's dynamics with the fresh produce trading environment. Multiple semi-structured interviews were conducted over a six month period. Interview data was processed using the Alpha.ti tool.

## **FINDINGS AND LITERATURE REVIEW**

### **Background to case study**

Fresh produce markets in South Africa have unique qualities and are built on very high levels of trust between the grower and the agent. The establishment of market agents dates back more than 100 years to 1888 to when the first market agent was registered. Although the system was potentially in place from the 1700s, the earliest registered market agent was W.L. Osche & Co (Johannesburg market) registered in 1888 (IMASA, 2012).

Taylor (2009) highlights the fact that the characteristics of supply and demand are different to other manufactured products and should not be approached in the same manner. Claims of the uniqueness of food spot markets especially in South Africa, might not only lie in the specific claims around business model, price discovery or ownership aspects, but in the similar challenges that they

all face as an industry (Grimsdell, 1996). Since its formalization the rules and processes have been institutionalized within the channel through a combination of enforcement and self-regulation.

There are no contractual agreements between the growers that supply these markets and the agents responsible for selling the produce. Produce is sourced from growers through trust relationships built up over many years.

“ ... markets are built on trust, that is why in many cases you find that a grower will stay with an agent or salesmen, he knows him and he has built up a relationship with him. “ (Interview L8, Personal communication, 2014)

Produce is consigned to the relevant agent with ownership only changing after a sale is made to the buyer. The grower pays a sales commission to both the agent and to the market's authority (who in most cases are the city council) for various services within the market facility. The industry (specifically the agents) is highly regulated with the market authority acting as an independent third party. Each of the stakeholders, grower, agent and market authority, play a part in the creation of a trustworthy sales environment.

The markets are very competitive and exhibits very low switching costs for growers (growers can consign their product to another agent even after delivery has taken place at no cost to the grower). Produce is presented in a central facility accessible by all parties and thousands of buyers compete for the various produce available. Prices are negotiated for every transaction and there are no fixed term prices. All transactions are recorded on a central computer system controlled and owned by the relevant market authority. The resulting average prices for all the different lines of produce sold is released to all the participants. These aggregated market average prices are freely available to decision makers and form the benchmark for the decision-making across the entire South African fresh produce industry. With this price discovery function, fresh produce markets play a critical role in the fresh produce industry.

In 2012/2013, roughly R11 billion was transacted in this manner, making this both an important and remarkable industry (DAFF, 2013). All this activity is governed by an invincible layer of trust amongst its participants and provides an interesting backdrop for trust research. Providing electronic exchanges for these markets through self-service, given the high existing trust levels, should be a simple matter. One would expect that these high trust levels could easily be “ported” to an electronic channel. This has not been the case.

### **Key definitions**

Certain key elements are defined in order to avoid confusion. Aspects like market and agent for instance carry a very specific meaning within the market environment.

- **The Market:**

The market refers to a physical fresh produce market in South Africa, functioning according to a commission based business model with registered market agents procuring and selling produce. Reference is made to markets in the literature as spot markets or wholesale markets (see Knox and White (1999) and Vasileiou and Morris (2006)), but there is no differentiation between wholesale and commission markets. The general definition of agents on markets falls under the wholesale definition (Grimsdell, 1996). Within the context of this paper, the definition explicitly refers to a commission-based (on consignment) business

model where the agent's income is calculated as a percentage of the sales price. This distinction is important, because the trust relationship under a commission-based model is significantly different to that of a wholesale model (one where the agent takes ownership of produce from the grower and then sells it at a profit). According to the commission-based model, the product stays the property of the grower and the agent has to act in the best interest of the grower at all times. High levels of trust between the grower and the agent are required to facilitate the flow of produce. In South Africa, a fresh produce commission agent is by law not allowed to act as a wholesale agent (take ownership of produce) as well.

- The Fresh Produce Agent (FPA):

A fresh produce agent is defined as "... an agent acting as such with regard to any agricultural product...on the basis that the risk of profit or loss at all times remains with the principal..." (Republic of South Africa, 1992:2).

- Self-service is defined as "...any facility that enables consumers to produce services for themselves without assistance from firm employees." (Beatson, Lee and Coote, 2007:1)
- Buyer: For the purposes of this discussion, a buyer is defined as the party purchasing the produce and taking ownership. Buyers could range from retail consumers to large retailers.
- Grower: The grower is the owner of the produce being sold. Also referred to as the principal in the Act 12 of 1992, the grower carries the ownership and risk until the product is sold by the FPA. Importantly the sales commission paid by growers collectively form the revenue stream of the market facilities.

## Trust

Trust has received a significant amount of academic focus over the past sixty years. From the 1960s trust as a subject has enjoyed the attention of multiple academic disciplines (Mayer, Davis and Schoorman, 1995). Initially, the study of trust was limited to social contexts, but later expanded into the organisational and technological domain. Trust is an important social construct and is influenced by these changes, which might explain the topic's repeated resurfacing. Trust is present in all our interactions, be it between individuals, firms, institutions or objects or any combination of these.

Online, related trust research has seen a significant influx of work from various authors, countries, and industries (See for example Carter, Schaupp, Hobbs, and Campbell, 2011; Chau, Hu, Lee and Au, 2007; Gefen, Benbasat and Pavlou, 2008; Lee and Turban, 2001; McKnight et al., 1998; Zhang, 2005). Research tends to focus on a set of antecedents and trust elements between a trusting party and a trustee, for example, why users trust or distrust the online tax system, internet vendor or a website. Lanktona (2014) states the following:

"Most past IS trust research has examined trust in humans or human organizations such as the e-commerce vendor, virtual team member, or trade partner. However lately, despite differences between human-technology exchanges and interpersonal exchanges, more and more researchers acknowledge that many people also trust the technological artifact itself." (Lanktona, 2014:2)

Rousseau, Sitkin, Burt and Camerer (1998) differentiate between truster (the trusting party), trustee (trusted party), the trust object, and the trust environment. Each of these aspects affects the way we approach the concept of trust. For the purposes of this discussion, the term trustee will refer to the collective self-service environment of the market.

Change and uncertainty produce risk, and risk requires us to re-evaluate our trusting beliefs (McKnight, Cummings and Chervany, 1998) and adjust our perceptions in order to form trust perceptions. According to Mayer et al. (1995), trust is defined as:

“...the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the truster, irrespective of the ability to monitor or control the other party.” (Mayer et al., 1995:712)

Rousseau et al. (1998:395) refers to trust as “... a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another.” For the purposes of this discussion, these definitions are utilised.

The understanding of how progressive transactional trust relationships within electronic exchanges are established is however, not being addressed. The concept of progressive trust refers to the process of establishing trust during a transaction's life cycle (using self-service solutions). From the initial enquiry phases, commitment to a transaction and the post-transaction phases, trust gradually intensifies. For example, general search type enquiries about product- availability pose low risk levels to the truster. On the other hand, committing to a financial transaction would require higher levels of trust. Through this progressive engagement, the specific self-service solution needs to consider these factors and find creative ways to establish a trustworthy environment.

### **The service eco-system**

The following section describes various aspects of the case study relevant to the structure of the conceptual framework. Although there are multiple services that could potentially be provided via self-service type solutions, focus falls on the sales services offered by agents to growers and buyers. These two services are significantly different in focus and characteristics, and are described separately.

A careful analysis of the service eco-system is important to identify direct, indirect, explicit, and implicit components of the service environment. To contextualise the service environment of the agent, two frameworks are employed; firstly Lovelock and Wirtz (2007)'s flower of services and secondly IBM (2013)'s “smarter commerce”. The roles and key services of each market participant are outlined using these frameworks.

### **Fresh Produce Agents' Service**

It is important to note that a fresh produce agent offers two distinctly different services. A sales service to the grower (as a representative of the grower in the transaction) and a sales service to the buyer as part of selling the physical product.

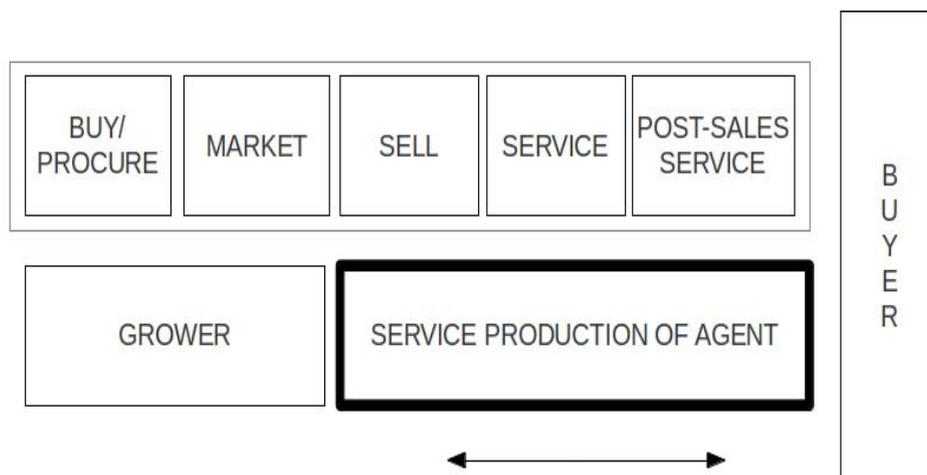
“...the market sells a service, not a product. It is created as a channel, the product creates the suction power, from the grower to buyer and back.”  
(Interview L6, Personal communication, 2014)

Understanding the service is central to understanding the transactional dynamics. The agent sells two categories of services:

- Selling a service to the grower: selling and handling the product on the grower's behalf.
- Selling a sales service: selling the actual physical product on behalf of the grower to the buyer.

The “smarter commerce” concept of IBM is used to provide a conceptual view of the commercial process (Figure 1) on markets. Viewing the fresh produce supply chain as a “farm-to-fork” process creates the perception of a single transactional flow. Within the transactional flow on markets however, there are distinct service points that require a separate focus.

The “smarter commerce” process is broken down into the procurement of goods (growing the produce in the case of growers), marketing, selling and service stages. The grower focuses on the production of the product and the marketing of produce across various channels. As part of the marketing process, the grower develops a trust relationship with the agent through the use of the commission system on markets. Within this service environment there are distinct and clearly separable services being offered to different role players (See Figure 1). Within the process the sales, service, and after-sales service are the domain of the agent as an extension to of the growers marketing channel. The agent functions exclusively as a service intermediary on behalf of the grower. The sales function forms the touch point between the dual service provisions. At this point price is discovered and agreed on and the financial transaction is concluded. It is also the stage where risk intensifies.



*Figure 1: The commercial process mapped based on IBM's Smarter Commerce concept:*

*Produce, Market, Sell, Service.*

A further distinction is made between the core service and the supplementary service following Lovelock and Wirtz (2007)'s “flower of services” model (See Table 1). The flower of services centralises the core service, which in the case of the agents, is the price discovery function. Supplementary services include operational and logistic support, information distribution, administrative and payment functions. Facilitating the service in a self-service environment requires

each of the core and supplementary services to be electronically mapped to underlying trust supporting activities.

As can be seen from Table 1, most of the services can be potentially replicated by self-service solutions in a virtual exchange. With the exception of perhaps the price discovery function, other processes are facilitated via electronic means and do not require human intervention. A failure to clearly identify and define the various dynamic relationships could be a reason for the slow adoption of self-service systems in fresh produce. In the physical market context, the micro elements are institutionalised to the point where it becomes ubiquitous. Within the self-service context, however, the challenge is to facilitate each service element explicitly.

*Table 1: Core and supplementary services of the agent adapted from Lovelock and Wirtz (2007).*

	Service to the grower	Service to the buyer
Core service	Price discovery: determination of the correct price to sell the produce	Price information Procurement: obtaining the required product
	Maintaining the relationship with the grower through communication	Price and availability information
	Provision of delivery and storage facility	Financial assistance
	Communication of relevant sales information	24 hour buying service
	Administrative functions	Delivery and logistical service

The service environment of the fresh produce agent is characterised by well-established institutionalised roles and processes. The differentiation between the two services (to the grower and to the buyer) provides two distinctly different approaches to viewing the agent's service. A different approach towards facilitating trust signals, for both the buyer and the grower, are required. Within the commission market buyers, growers and agents are not only aware of their own roles, but are also familiar with each other's role and the processes. People's actions and re-actions are seen as more predictable. Well-established processes and role definitions reduce opportunistic behaviour of participants. This provides a high level of situational normality and structural assurances (McKnight et al., 1998) that reduce the perceived risk of participation.

### **Nature of regulation on markets**

Regulation on markets focusses on the transactional process to ensure transparency, firstly to the grower as the owner, and secondly to other parties on the market. The market's system captures every transaction relating to a grower's consignment and makes this available back to the grower. This is done through the integrated use of the computing infrastructure, governance structures and enforcement of by-laws. For a grower who is in most cases very far from the actual market, this provides an assurance that an objective third party is enforcing the integrity of information flows.

Participants are registered on the market's computer system and no anonymous users are allowed. The identity of the other transacting party is at all stages known to all participants. Without a strong presence of a third party as independent regulator, the perceived risk could increase. An independent third party creates a sense of objectivity and confidentiality. An example of the role of third party assurances as a source of trust is provided in the following:

“... to buy something without physically seeing the product, somebody must have referred the specific SST which means they had a good experience over time, or you must have a high risk profile if you just trust it blindly, or there must be some sort of certification attached to this service which cause you to trust it, or there should be some sort of claim that if the product that arrives that you for no risks can send back or give back or only pay when you are satisfied with it.” (Interview L1739, Personal communication, 2014)

Two challenges facing exchanges, according to Bijman (2006), are coordination and safeguarding, i.e. the coordination of activities between the involved parties and safeguarding against transactional risks. Centralised control of the system creates a coordinated system that allows for the real-time monitoring of activities and to pro-actively provide assurances. As discussed previously, the high levels of transparency contributes to the reduction of transactional risk to the grower and buyer.

“...the wholesalers do not want a transparent system, because if it is transparent they cannot wheel and deal, market users wants a transparent system. You would like to not pay more than another buyer. Because prices fluctuates due to the spot market you would like to know that you are not becoming less competitive the more information available the better.” (Interview L1381, Personal communication, 2014)

Through the technology platform, the authority is able to enforce business rules, governance and assurance functions for the physical trade of produce. Aspects like transparency can be enforced onto the participants in the trading environment. As Das and Teng (1998) illustrated, trust in the actual monitoring system supports trust-forming behaviour. The importance of an assurance framework within service settings is also highlighted by Spohrer and Maglio (2008) and Lee and Turban (2001). According to Bijman (2006), governance structures can be classified as a set of public and private rules that governs transactions. A strong regulatory environment provides pro-active assurance that any opportunistic behaviour will be addressed with potential recourse provided.

According to Das and Teng (1998), electronic enabled exchanges are particularly risky because:

- Buyer and seller are not known to each other.
- Platforms are less known (in the case of general e-commerce).
- Product access is limited.
- One cannot monitor the use of personal information.
- One cannot predict the behaviours of the other party.

When viewed against the backdrop of the discussion above, it can be seen that some of these elements are naturally addressed by the business model and structure of the markets. Buyers and

agents are known to each other and personal information is deemed safe in the hands of the third party provider (market authority).

Product access, however, stands out as a particular challenge, especially due to the perishable nature of the product. Risk of quality related issues affects the reliance on self-service solutions, as the technology cannot quantify all relevant quality related variables. One is obviously anonymity:

“... biggest issue for most people online is that they do not know who they are dealing with there is no physical interaction they are not meeting face-to-face with the person” (Interview L1441, Personal communication, 2014)

Product related risks are noted as being a major hurdle to self-service implementations on markets:

“... one cannot be without the other, the product that makes you use the self-service technology must be such that it was what they bought, and also the self-service technology service needs to be good, if there is admin errors like double invoicing, so that you do not know if the transaction was successful, whether the product has been delivered, and when so that you do not have the visibility and transparency in the transaction, regardless of how good the product was you are not going to use it. “(Interview L1472, Personal communication, 2014)

Das and Teng (1998) highlights the fact that trust in e-commerce is driven partly by trust in the seller, the seller's product and partly by the electronic channel itself. Trust within electronic exchanges need to be viewed as more than merely a truster/trustee relationship and as an extended interaction with the service environment and the physical product. Recognising product access as a hurdle, the design of a self-service solution should consider this when designing the transactional process, specifically relating to the relevant signals required to support trust-forming behaviour.

### **Progressive trust formation**

As the buyer (or grower) engages with the market environment, various distinct phases can be identified (See Figure 2). Initially a search phase is entered where general information of the market is scrutinised to identify opportunities. Canavari, Fritz, Hofstede, Matopoulos and Vlachopoulou (2010) offer the following example of stages identified within the fresh produce context:

“A buyer at Dutch food specialities wholesale company who is always on the lookout for new procurement opportunities follows the following steps:

- scout market/fairs;
- sample taking and testing; if ok then;
- check on the firm (e.g. certificates or audit); if ok then;
- make specifications for the product; if ok then;
- agree on price, quantities, dates; if ok then;
- buy.” (Canavari et al., 2010:323)

Within this example, one can see the progressive nature of the engagement. As the consumer narrows in on the potential service providers, further assurance is sought (“certificates”) and only

once these specifications and assurances are in place, the price negotiations and ultimate purchase transaction.

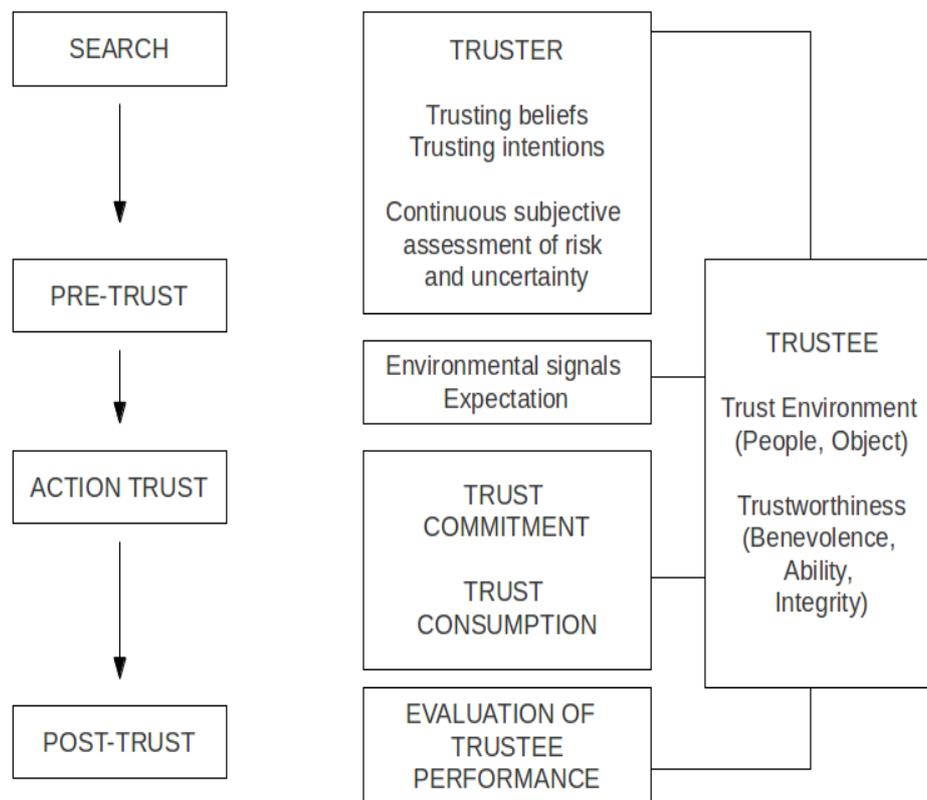


Figure 2: Basic trust elements. Based on trust elements highlighted by Maglio, Srinivasan, Kreulen and Spohrer (2006), Mayer, Davis and Schoorman (1995).

Initial trusting beliefs and intentions (Mayer et al., 1995) inform the truster's actions through the search and identification of potential service providers. Once an opportunity is identified, further engagement is made with the other party to negotiate the terms of the transaction. The next stage is performing the transaction itself. Each one of the stages comprises different levels of trust intensity, each of which requires specific facilitation within a self-service context.

Progressive trust refers to this changing nature of trust within the transactional process. In the preceding example, trust intensity changes from low (search phase) to high (transactional phase). Progressive trust could assist us in understanding how these changing trust levels have to be accommodated within a self-service solution.

To support the notion of various distinct transactional phases, two models were identified (See Table 2). The model of Mills and Morris (1986) offers a view of service interaction from a marketing perspective. Mills and Morris (1986) highlight the interaction with a "service" through pre-encounter, initial encounter and decoupling phases. Shultz (2006) provides a view of the various stages within a trust transaction referring to the preceding phase, the trust situation and subsequent phase.

*Table 2: Transactional stages from Mills and Morris (1986) and Shultz (2006)*

Mills and Morris (1986)	Schultz(2006)
Pre-encounter	Preceding phase
Initial Encounter trust situation	Trust situation
Decoupling	Subsequent phase

During the pre-encounter phase, various expectations and value judgements are formed by the trustor. In Mills and Morris (1986), aspects such as role expectations (observation, participation, imitation), predispositions, and role enactment are listed as initial activities that inform these expectations. Shultz (2006) refers to a “proceeding phase” in which the trustor determines the trustworthiness of the trustee. Mills and Morris (1986) refer to the search activity and highlight the high-level interplay between the trustor and trustee in creating initial perceptions.

“...even before a prospective client actively searches for a service, he or she may have some picture of the service the organisation has to offer and the role he or she is to perform in the production of service inputs.”  
(Mills and Morris, 1986:729)

According to Mills and Morris (1986), the initial encounter is characterised by negotiation and role related activities (role acquisition, role determination, and role making). Shultz (2006) refers to this as the “trust situation”, the situation in which the trustor forms a perspective of how trustworthy the trustee is. Mills and Morris (1986) refers to the decoupling stage where both parties view the service as complete whereas Shultz (2006) refers to a “subsequent phase” in which actual behaviour is observed and compared to the expected behaviour.

## **CONCEPTUAL FRAMEWORK**

This section describes the basic building blocks of the proposed framework. As users engage with the service, distinctly different stages of engagement can be identified, each posing a different perceived level of risk. For example, using the general search facility in the self-service solution carries a different level of potential risk than filling in personal credit card details and committing to a transaction. Table 3 presents the proposed phases that are used within the framework.

### *Search phase*

The initial stage for grower and buyer comprises general searching activities (See Figure 3). During this phase, the consumer of the service (this could be applied to both the grower and buyer) seeks a partner to provide a specific service. Various contacts are made and potential service providers are identified. From the grower's perspective, the driving force is the marketing of its available produce. From the buyer's perspective, demand-pressures drive the need to engage with the market. Both parties approach the market as trustors and search for a potential service provider (the agent/trustee).

*Table 3: Proposed stages of trust compared to Mills and Morris (1986) and Schultz (2006)*

<b>PROPOSED PHASES</b>	<b>Mills and Morris (1986)</b>	<b>Schultz (2006)</b>
SEARCH PHASE	Pre-encounter	Preceding phase
PRE-TRUST	Initial Encounter	Preceding phase
ACTION TRUST	Initial Encounter	Trust situation
POST TRUST	Decoupling	Subsequent phase

*Pre-trust*

Prior to engagement, an evaluation is made of the trustee. The truster, through his trusting beliefs and trusting intentions (McKnight et al., 1998), evaluates the multiple signals (risk and uncertainty) from the environment and creates a risk profile of the trustee. A positive confirmation of the initial expectation yields a pre-trust commitment. It is interesting to note that McKnight, et al. (1998) highlight an initial trust paradox. One would expect trust to be low during initial interactions when parties are unfamiliar with each other. It was found that trust does not evolve from a low level and then grows to an acceptable level as the relationship matures. A certain default level of trust is however, initially shown towards the trustee and only diminishes when trust failure occurs. Once the truster is satisfied with the trustworthiness of the trustee a transaction is entered into.

*Action trust*

After evaluation of the trustee, a commitment is shown by entering into a transaction. This action is viewed as a critical step in the trust relationship. It is important to note that commitment or non-commitment to the transaction should not be attributed to elements of trust behaviour alone. The nature of the transaction involves multiple factors of which commercial motives might rate as the strongest. However, commitment to a transaction involves a higher level of risk. Thus, committing to the transaction should imply that the user (of the service) views trust to be at an “acceptable” level. The relationship between the grower/buyer and agent shifts from being a potential one to a contractual one. Both parties to the transaction inherit obligations and performance expectations. The agent's role intensifies due to the contractual delivery of the service and this conduct of the service provider now becomes the focus of trust evaluation by the user.

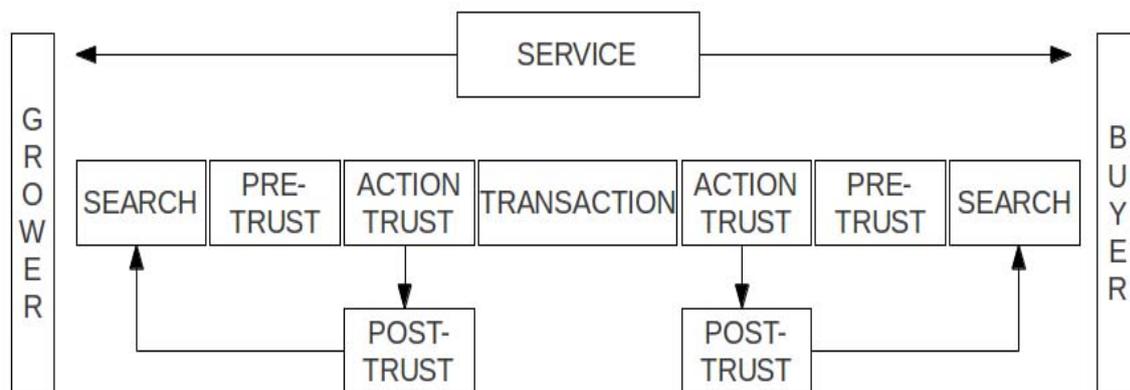
*Post-trust*

Once the truster consumed the service, a post-trust stage is entered into. The service experience is evaluated against the pre-trust expectation. Positive affirmation leads to a strengthening of the agent/grower and agent/buyer relationship and positively affects the next transaction. Negative affirmation on the other hand increases the perceived risk of an additional transaction.

Each one of these stages implies a different intensity level of trust between the various parties. None of these stages uses the same set of “signals” to form a trust judgement. The design of self-service systems needs to consider this progressive trust variation. The specific stages and the signals required within them, have to be replicated within a self-service solution. For example, when trust

intensity is high, communication levels needs to be high (more frequent and in detail). Assurance of product movement and quality related aspects have to be provided pro-actively rather than waiting for the customer to request it.

To illustrate the point, a short summary is presented of the various stages (Figure 3) as viewed from both the grower and buyer perspectives.



*Figure 3 Fresh produce agent dual service: Two distinct different services are provided, each with its own dynamics.*

The various stages of progressive trust formation were proposed in the preceding section. Each stage of service engagement requires a separate approach to ensure the appropriate trust signals are present. In the next section, these various sections are combined into a conceptual framework.

The case study highlighted the following issues affecting service dynamics:

- A careful analysis and definition of the dual nature of the agent's service is important to correctly contextualise trust.
- The identification of core and supplementary services identifies the key areas to focus on when identifying trust dynamics.
- Differentiated stages of engagement were identified where each stage represents different trust levels.
- Underlying influence of the service framework through people, process, technology, and assurance/legal issues. The role that people play cannot be separated from the technology functions.

Defining the service correctly is central to the development of the proposed framework. A casual definition of the agent's service would describe the fresh produce selling process as a singular process between the grower and the buyer, ignoring the fact that there are two different parties with distinct different requirements. Figure 4 highlights the fact that if one correctly defines the grower and buyer's various stages of the transactional process, different levels of trust is identified.

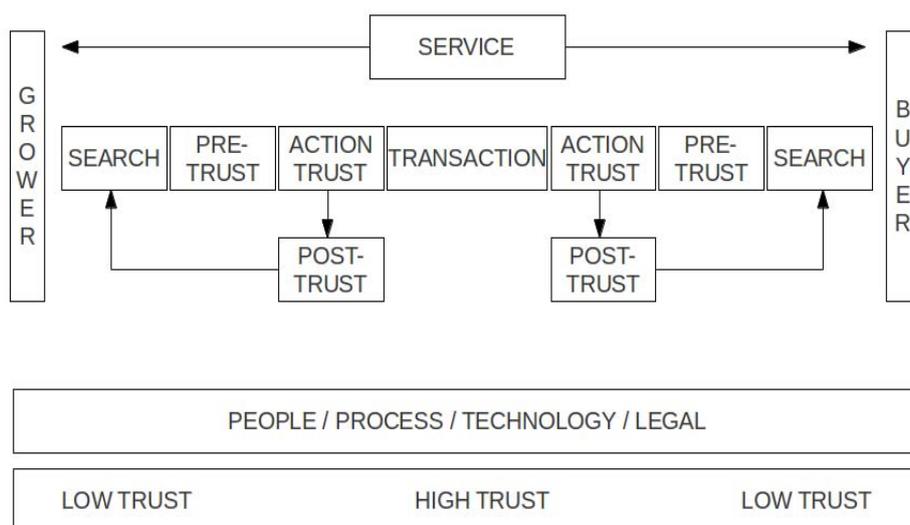


Figure 4: Conceptual framework for enhancing trust within SST

From the grower's view point

- SEARCH PHASE: Within the search phase, the required sales service is sought. The grower typically seeks to find the best price across the various marketing channels. Information like general price fluctuations and expectations are evaluated.
- PRE-TRUST PHASE: Initial negotiations on the expected prices and information exchange are negotiated and commitment is reached. The grower typically verifies information. The maturity of this relationship will determine to what extent additional verification will be sought before committing again.
- TRUST-ACTION PHASE: The grower commits to deliver/supply produce to the agent. This is done given broad price commitments made by the agent.
- POST-TRUST PHASE: Evaluation of expected and actual prices is done. Both performance and integrity of the service is evaluated.

From the buyer's view point

- SEARCH PHASE: Searching to fulfil a requirement (the purchase of produce).
- PRE-TRUST PHASE: Evaluation of prices and commitments relating to delivery and quality.
- TRUST-ACTION PHASE: Commitment as far as purchasing the product and ownership passes.
- POST-TRUST: Receiving the product and comparing quality, price, and other information supplied by the agent, versus what really happened.

Using such a framework would enable one to identify the different trust dynamics at every stage of the service encounter.

The progressive nature of the trust relationship (moving from low trust to high trust) lies in the movement of the consumer of the service through the various stages towards delivery and consumption of the service (the stages of engagement). The level of information distribution,

personalisation of the service, product information, communication, and security, as an example, takes on different forms as a stage of high trust is reached.

The initial search stage requires general type trustee information, marketing related communication, past performance, and references from other role players. Aspects such as legal recourse, other customers participating, and types of technology all contribute to create levels of perceived situational normality.

During the pre-trust stages, both buyer and grower would seek to intensify transactional activity. Assurance is sought by looking at past performance and the experience of previous consumers of the service. Within this interaction, constant evaluation of the service is taking place. The challenge for self-service solutions would be to create pro-actively the environment where both grower and buyer can formulate credible trust expectations.

Proceeding and committing to the transaction involves the highest level of risk (high trust). Using a self-service solution, deliberate transparency and tracking of all transactions are extremely important. This stage also requires direct assurance from the agent about the status of the transaction. On the grower's side, this includes constant communication of sale prices, values, and stock. In addition, growers also benchmark this performance against other consignments, similar products on the same and other markets, marketing expectations, and other grower's performance. The provision of functionality that allows the truster to access supportive information should strengthen the trust relationship.

The constant evaluation of the performance of the agent from both the grower and the buyer's side creates post-trust perceptions. Both grower and buyer have consumed the service and are in a position to evaluate pre-trust expectations. These transactional comparisons culminate in a perception of the agent's ability to perform and the level of integrity of its actions. If the grower/buyer is not satisfied with the performance, an alternative provider will be sought. This will involve returning to the search stage where a market is sourced for a new potential provider.

People, process, technology, and legal/assurance can potentially support trust formation. In the case of markets the existing market structures compliments the service agents provide. Integration of these elements into the self-service solution strengthens situational and structural trust elements. Aspects such as ownership and third party regulation of the self-service solution provide such indirect assurances. For a self-service solution to be effective, all aspects of the service environment have to be treated with equal priority.

The conceptual framework contextualises the provision of services and provides a framework within which progressive trust formation can be studied.

## **CONCLUDING REMARKS**

Various stages of trust formation were identified within the transactional flow on markets. A conceptual framework was proposed presenting the concept of progressive trust formation within the dual service of an agent. This study focuses the attention on the potential multiple service/trust dynamics that can be found in a self-service environment. A key point highlighted by the case study within the fresh produce industry, was the fact that if a functioning high trust environment such as the physical markets are effective, it involves more than merely porting the service to a self-service

solution. Special attention has to be given to trust dynamics that are taken for granted during interactions between people.

The conceptual framework highlights the following:

- The service environment needs to be clearly defined and the different elements mapped accordingly.
- The truster and trustee have to be identified within this service context.
- Both the core and supplementary services of the trustee require careful analysis to determine the service/trust dynamics of each service.
- The people, process, technology, and legal/assurance structures have to compliment the service environment.
- The trust environment as perceived through a self-service solution has to be created deliberately to introduce trust-forming signals.
- Provision has to be made for trust elements to be mapped for the various stages of trust formation. This requires a deliberate attempt to plan and design functionality that produces signals to enhance trust at that stage.
- The nature of physical products and the supporting services poses a challenge. Especially if these products are perishable or prone to natural defects as is the case with fresh produce.

A self-service solution requires a fully integrated service and trust environment. The entire trust ecosystem has to be functional to create a trusting self-service solution. No service component can be excluded. To ignore any aspect of the trust environment within self-service implementations will lead to non-adoption of the initiative.

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