

**Cognitive Factors in U.S. Small Business Planning**

Logan Lofland

University of Wisconsin – Madison

## COGNITIVE BIAS IN SUCCESSION PLANNING

### **Abstract**

Millions of small business owners are nearing retirement age but lack succession plans which could imperil their businesses and lead to loss of income and employment. Small business owners may be susceptible to cognitive biases, such as delayed discounting and cognitive dissonance, impeding their creation of legal succession plans. This study examined these two cognitive biases in a sample of 42 small business owners. Results found that a majority (76%) of business owners did not have a succession plan. Business owners included delayed discounting (45%) and cognitive dissonance (28%) reasons for not creating a succession plan. These findings are important since cognitive biases can be changed and future research may focus on approaches to combat such cognitive biases leading to business owners creating succession plans.

*Keywords:* Cognitive bias, delayed discounting, cognitive dissonance, succession planning, small business owners.

### **Cognitive Factors in U.S. Small Business Planning**

Despite most owners of private businesses nearing retirement age, many lack proper succession plans (Darger et al., 2024). Small business owners (i.e., entrepreneurs) face conditions which further heighten their vulnerability to cognitive biases due to facing uncertain outcomes (Baron, 1998). Although the business literature has focused on environmental factors in describing when small business planning fails, a proper mechanistic understanding of the underlying causes responsible for counterproductive behavior is necessary (Durst & Wilhelm, 2012; Ip & Jacobs, 2006; Sambrook, 2005). Two cognitive biases will be examined including Delayed Discounting, the preference for present over future rewards, and Cognitive Dissonance, the tension that arises from conflicting thoughts (Chung & Herrnstein, 1967; Festinger, 1957). A full scientific understanding of these cognitive biases is needed to design effective interventions to aid small business owners in their decision-making. In this thesis, I examined how discounting and dissonance-related mechanisms influence entrepreneurs, making them more susceptible to irrational decision-making.

People may fail to plan the proper arrangements in case of their untimely death or incapacitation. This failure to plan may be due to individuals making many decisions by evaluating the likelihood of uncertain future outcomes (Kahneman, 2011). People tend to rely on general rules of thumb, known as heuristics, to reduce the complexity of assessing the probability of uncertain events. Relying on heuristics can be beneficial to make simpler judgments, but can lead to systematic errors or biases. Since entrepreneurs face highly uncertain outcomes, they may rely more on the use of heuristics, increasing their susceptibility to cognitive biases. Cognitive biases can be a reason why many entrepreneurs fail to develop a succession plan. Baron (1998) suggests that entrepreneurs, compared to others, are further exposed to conditions that increase

## COGNITIVE BIAS IN SUCCESSION PLANNING

susceptibility to systematic errors (e.g., information overload, fatigue, high time pressure).

However, the impact of existing theoretical frameworks related to the causes of entrepreneurs' bias susceptibility is not fully known. The present study investigates how delayed discounting and cognitive dissonance frameworks may form the basis for this bias and result in a failure to develop a succession plan.

Delayed discounting theory (Chung & Herrnstein, 1967) predicts people will value a reward lower if it is delayed over a longer period of time, regardless of the reward's overall worth. In terms of temporal gains or losses, the purpose of a succession plan is to mitigate major losses in the distant future. A decline in the effectiveness of rewards over time may explain why people may focus their attention on the immediate issues before them, delaying attention to matters of greater importance in the future. Thus, delayed discounting theory predicts small business owners would prioritize smaller daily issues versus preparing for larger future events such as saving the business in case of their unexpected absence.

Cognitive dissonance theory was developed to understand the consequences when one's actions contradict one's attitudes or beliefs (Festinger, 1957). This theory suggests that we have an inner drive to hold our attitudes and behaviors in harmony and avoid disharmony, or dissonance, which is known as the principle of cognitive consistency. Cognitive dissonance may lead to small business owners failing to create succession plans because the idea of being unable to continue running the business (e.g., retirement, illness, the business failing) may be inconsistent with the owner's vision of growing their business. In a way, these are opposite thoughts which are in conflict and may lead a small business owner to justify why a succession plan is not needed.

## COGNITIVE BIAS IN SUCCESSION PLANNING

Almost half of all private businesses in the U.S. are currently owned by individuals who are at or near retirement age, accounting for 1.9 million companies and 32 million workers (Greenbaum, 2023: *Main Street's Tidal Wave of Transition*). Darger et al. (2024) found that over 50,000 small businesses in Minnesota have owners who are 55 years or older, yet over 85% of these businesses lack a formal succession plan. The transition of these businesses to new owners, or the failure to transition, can have a profound impact on people's lives and the economy. In most cases, because small business owners are the only ones who can run their business, an owner's unexpected death or disability would destroy the business unless preparation was done in advance. Exploring barriers faced by small business owners to develop succession plans may benefit business owners and their families, while saving jobs and benefiting the economic well-being of communities.

This study had two goals. First, this study sought to replicate previous work (Darger et al., 2024) finding that many small business owners do not have succession plans. Second, this study aimed to investigate the owner's thought processes and reasoning for having or failing to have a succession plan. This study may assist with connecting succession planning reasoning to theoretical frameworks for future interventional research.

Recognizing the importance of mitigating the closures of successfully operating small businesses due to the lack of succession planning, this study investigated how delayed discounting and cognitive dissonance result in small business owners' failure to develop a succession plan. It was hypothesized that:

H1. The majority of small business owners interviewed will not have created a legal succession plan.

## COGNITIVE BIAS IN SUCCESSION PLANNING

H2. Small business owners without a succession plan will more frequently cite reasons overemphasizing short-term losses over medium-term and long-term ones, consistent with delayed discounting.

H3. Small business owners without a succession plan will more frequently cite reasons reflecting cognitive dissonance theory than other types of reasons.

I anticipated that most small business owners have not implemented a legal succession plan and that much of their reasoning may be consistent with delayed discounting and cognitive dissonance. Such findings are important because they enable the development of interventions designed to counteract cognitive biases and reduce associated errors. By understanding how specific biases produce unwanted behavior, strategies can be formed to guide individuals toward more rational decisions. More knowledge about factors increasing bias-susceptibility may inform an approach to rectify this shortcoming, educate business owners, and save businesses from unnecessary failure.

### **Method**

#### **Participants**

Participants included 42 small business owners ranging from 30-79 years in age, with the majority ranging from 40-59 years in age. Participants identified as male ( $n = 23$ ) and female ( $n = 17$ ), or preferred not to report their gender ( $n = 2$ ). Participants identified as White (34), Black or African American (1), American Indian or Alaska Native (1), and Hispanic (1), or preferred not to report their race (5). Most participants have owned their businesses for at least 8 years ( $M = 11.79$ ,  $SD = 10.80$ ) and have at least 5 employees ( $M = 67.26$ ,  $SD = 117.5$ ). Business owners were recruited from the UW-Madison Office of Business Engagement, LinkedIn, and by word-of-mouth. Participants received a digital \$10 Amazon gift card in compensation after

## COGNITIVE BIAS IN SUCCESSION PLANNING

completing the online survey. Participants 18 years of age or older, with a completion time of more than 180 seconds, and with IP addresses that repeated two or less times, were included.

### **Design**

This study was an exploratory survey with a non-experimental design. The primary dependent variable was whether or not participants had a succession plan. Predictor variables included: (1) reasons cited by participants without succession plans reflecting delayed discounting or cognitive dissonance, and (2) the levels at which participants exhibit delayed discounting or cognitive dissonance on validated questionnaires. Dependent variables were assessed using generalized linear modeling of participants' responses to self-report questionnaires. Control variables consisted of participant's age, gender, number of employees, business-age, and highest level of education.

The measurements in the current study relate to our hypotheses in the following manner: Hypothesis 1 will be supported if a significantly larger proportion respond 'no' (rather than 'yes') to having a succession plan. Hypothesis 2 will be supported if participants select a response on a questionnaire that is consistent with delayed discounting when asked their reasoning for not having a succession plan, and if such responses compared to other options were selected at a higher frequency across participants. Hypothesis 2 will have further support if their delayed discounting response is correlated to their score on the Delayed Losses Questionnaire (described below;  $H_2$ ). Hypothesis 3 will be supported if participants select a response on a questionnaire that is consistent with cognitive dissonance when asked their reasoning for not having a succession plan, and if such responses compared to other options were selected at a higher frequency across participants. Hypothesis 3 will have further support if their cognitive

## COGNITIVE BIAS IN SUCCESSION PLANNING

dissonance response is correlated to their score on the Revised Dissonance Scale (described below; H<sub>3</sub>).

Because no prior studies have examined the prevalence of discounting and dissonance frameworks in entrepreneurial succession planning, the number of participants needed to achieve statistical power is unknown. Thus, the results of this study could also be used to help calculate statistical power when designing future studies on this topic.

### **Materials**

Two previously published questionnaires, as well as a newly created succession planning questionnaire, were used to measure the extent to which a person discounted delayed losses, or endorsed cognitive dissonance, and how they may relate to business succession planning.

#### ***Delayed Losses Questionnaire***

The prevalence of delayed discounting was assessed using a questionnaire modeled after the Monetary-Choice Questionnaire, where participants were given a choice between a smaller, intermediate, or a larger delayed monetary reward to analyze how discounting rates changed with reward magnitude (Kirby & Marakovic, 1996). The Monetary-Choice Questionnaire consisted of 27 items asking participants, “Which would you prefer to receive \$ $X$  now or \$ $Y$  in  $N$  days?”

The context of the Monetary-Choice Questionnaire focuses on the discounting of delayed gains, while the decision to create a succession plan is framed around the discounting of a major delayed loss, which is a noteworthy difference. Therefore, this study utilizes a loss-framed design of the Monetary-Choice Questionnaire. Myerson et al. (2017) developed the Delayed Losses Questionnaire (DLQ) analogous to the Monetary-Choice Questionnaire, containing 27 questions asking participants, “Which would you prefer to pay \$ $X$  now or \$ $Y$  in  $N$  days?” The DLQ increased the initial delays used in the Monetary-Choice Questionnaire due to evidence

## COGNITIVE BIAS IN SUCCESSION PLANNING

pointing out that people discount losses at a lower rate than gains (i.e., sign effect, Frederick et al., 2002; as cited in Myerson et al., 2017).

Items in the DLQ consisted of three groups of nine questions, where each group has small, medium, or large delayed losses. These losses were logarithmically spaced to represent a hyperbolic function. Responses to the DLQ were analyzed at the individual level through taking the proportion of the participant's choices of the delayed outcome. A lower proportion would indicate a higher level discounting the delayed "\$Y in N days" option, and more frequently selecting the "\$X now" option. In other words, participants with lower scores on the DLQ exhibited higher rates of delayed discounting (Myerson et al., 2017; See Appendix A).

### ***Revised Dissonance Scale***

The prevalence of cognitive dissonance was measured through investigating the reasoning behind failing to create a succession plan. In the current study, we estimated the extent of dissonance of a participant regarding succession planning in a similar manner to how it has been used to investigate post-purchase consumer behavior (Sweeney et al., 2000). Participants received a shortened version of the self-completion Revised Dissonance Scale (RDS) used by Sweeney and Soutar (2000): a three-dimensional, 12-item questionnaire containing an emotional dimension (5 items), concern over the deal dimension (3 items), and wisdom of purchase dimension (4 items; Sweeney & Soutar, 2006). Each item was rated on a seven-point Likert scale (1 = *not at all*, 7 = *extremely*). The magnitude of cognitive dissonance was gauged by the total score of the twelve questions. A higher score indicated a higher level of cognitive dissonance.

As the RDS developed by Sweeney and Soutar (2006) was used to determine post-decisional dissonance, participants received this questionnaire after answering items about whether or not they have a succession plan in order to maintain the empirical validity of the

## COGNITIVE BIAS IN SUCCESSION PLANNING

questionnaire. The questions were revised to fit the context of small business succession planning (See Appendix B).

### *Demographics*

Demographic data such as age, gender, nationality, number of employees, business-age, ownership status, business type, and highest level of education were collected (See Appendix C).

### **Procedure**

After receiving approval from UW Madison's Institutional Review Board (ID: 2025-0070), small business organizations and others were contacted to identify willing participants who then received an email with a brief study description with the survey attached via hyperlink. See Appendix D for the full procedure outline.

The survey was administered via Qualtrics over an approximately 6-week window and took about 5-8 minutes to complete. Participants taking the survey first read the consent form and signed indicating informed consent to take part in the study. Consenting participants were given two initial questions related to succession planning, (1) confirming they were small business owners and (2) whether or not they had a succession plan (Y/N). Depending on the participant's response, they answered a different set of follow-up questions.

Participants with succession plans were directed to a set of free response questions. This set of questions asked participants what their succession plan looked like, what led them to create a succession plan, and how many years ago they created their succession plan.

Participants without a succession plan were first directed to a separate set of checkbox questions. A checkbox list of 10 items was first displayed, where participants were instructed to select the reasons describing why they have not created a succession plan yet. One of these 10 items gave participants the opportunity to freely provide additional reasons and/or to elaborate

## COGNITIVE BIAS IN SUCCESSION PLANNING

on other selected items. Elaboration was included to allow participants to expand on their responses (See Appendix E). Participants were then given and instructed to complete Revised Dissonance Scale items used in Sweeney and Soutar (2006).

Following the succession planning questions, all participating small business owners answered a questionnaire consisting of: (1) Delayed Losses Questionnaire items used in Myerson et al. (2017), and (2) demographic-related items. Upon completion of the entire survey, participants provided their name and email to receive their compensatory \$10 gift card on a separate Qualtrics form. The purpose of including a separate Qualtrics form was to ensure participants' previous responses were not matched to any identifiable information.

### **Analysis**

The first hypothesis was analyzed by conducting a binomial test for the differences between the proportions of those with vs. without a succession plan and whether the proportion of participants without a succession plan significantly differed from our hypothesized proportion of 0.5. If a significant difference was observed between our hypothesized proportion and the proportion of participants without a succession plan, this hypothesis would be confirmed.

The second hypothesis related to delayed discounting was analyzed by conducting two separate Chi-Square Tests of Independence to determine differences between the selection frequencies of items 3 or 8 and all other options on the checkbox list (Item 3: *"I'm too busy dealing with running the business to take the time to make the succession plan now,"* Item 8: *"The amount of time and effort I spend on day to day tasks is more important than making a succession plan"*). If participants endorsed either item 3 or 8 at a significantly higher frequency than endorsing other options, this hypothesis would be confirmed.

## COGNITIVE BIAS IN SUCCESSION PLANNING

To determine the validity of items 3 or 8 on the created checkbox list as reflections of delayed discounting, participants' selections of items 3 or 8, or lack thereof, were each correlated with their DLQ scores to assess the strength of the relationship between these measures. A statistically significant correlation would indicate the initial validity of items 3 or 8. Additionally, separate independent samples t-tests were conducted to compare average DLQ scores between participants who did vs. did not select item 3 or item 8. Binary logistic regressions were conducted to assess if DLQ scores predicted participants' selection of items 3 or 8.

The third hypothesis related to Cognitive Dissonance was analyzed by conducting two separate Chi Square Tests of Independence to determine differences between the selection frequencies of items 6 or 9 and all other options on the first part of the questionnaire (Item 6: "*I don't think anything will happen that will interfere with me running the business for a long time so it is not needed yet,*" Item 9: "*I don't want to think about leaving my business or having someone else run my business*"). If participants endorsed either item 6 or 9 at a significantly higher frequency than endorsing other options, this hypothesis would be confirmed.

To determine the validity of items 6 or 9 on the created checkbox list as reflections of cognitive dissonance, participants' selections of items 6 or 9, or lack thereof, were each correlated with their RDS scores to assess the strength of the relationship between these measures. A statistically significant correlation would indicate the initial validity of items 6 or 9. Additionally, separate independent samples t-tests were conducted to compare average RDS scores between participants who did vs. did not select item 6 or item 9. Binary logistic regressions were conducted to assess if RDS scores predicted participants' selection of item 6 or item 9.

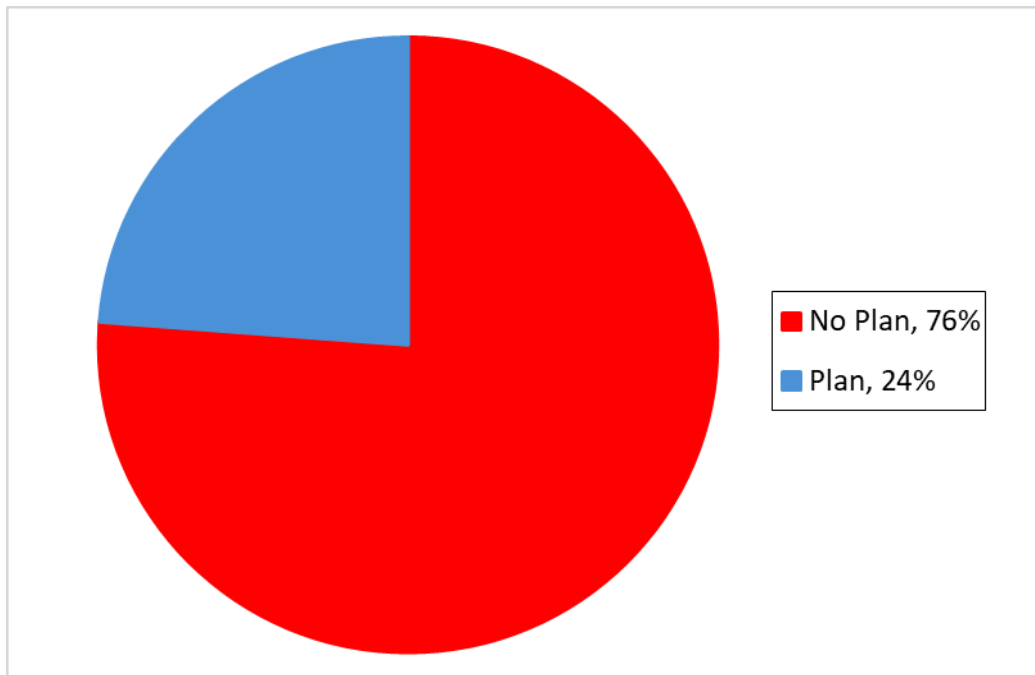
## Results

### Succession Plan Questionnaire

A percentage score was calculated to determine how many small business owners endorsed having a legal succession plan, finding 24% having such a plan, while 76% did not have a succession plan (Figure 1). A binomial test was conducted to determine whether the proportion of participants without a succession plan differed significantly from the hypothesized proportion of 0.5. This sample consisted of 42 participants, with 10 having and 32 not having a succession plan. The results indicated a significant deviation from the hypothesized proportion,  $p < .001$ . Specifically, the proportion of participants without succession plans was .76 (32 out of 42), which is significantly higher than the hypothesized proportion of 0.5. The proportion of participants with a succession plan was .24 (10 out of 42).

**Figure 1**

*Percentage of Small Business Owners with Succession Plans*



*Note.* Mean proportions between participants without a succession plan (76%) significantly differed from the participants who had succession plans (24%).

## COGNITIVE BIAS IN SUCCESSION PLANNING

For the participants who indicated they did not have a succession plan, a baseline percentage score was calculated to determine the degree to which they endorsed delayed discounting items or cognitive dissonance related items as an explanation for not having a succession plan. On the Succession Plan Questionnaire, items 3 and 8 assessed delayed discounting, with 38% and 9% of participants endorsing these items, respectively. Items 6 and 9 assessed cognitive dissonance, with 16% and 9% of participants endorsing these items, respectively.

A Chi Square Goodness-of-Fit Test was conducted to determine whether the distribution of item selections on the Succession Plan Questionnaire differed significantly from a uniform distribution. The test was not statistically significant at the conventional  $\alpha = .05$  level,  $\chi^2(9, N = 76) = 15.84, p = .07$ . While the p-value was relatively low, this alone does not provide sufficient evidence that the distribution of choices over all items did not differ from what would be expected by chance. This result may warrant further investigation with a larger sample size.

### **Delayed Discounting Reasoning**

A Chi-Square Test of Independence was conducted to determine whether the 32 participants without a succession plan selected reasons reflecting delayed discounting (item 3 or item 8) more frequently than expected assuming the probability of equal selection across all options.

For item 3 on the Succession Plan Questionnaire, results indicated no significant difference in selection frequencies between item 1,  $\chi^2(1, N = 32) = 0.01, p = .923$ ; item 2,  $\chi^2(1, N = 32) = 0.77, p = .379$ ; item 4,  $\chi^2(1, N = 32) = 1.28, p = .258$ ; item 5,  $\chi^2(1, N = 32) = 2.67, p = .102$ ; item 6,  $\chi^2(1, N = 32) = 0.77, p = .379$ ; item 8,  $\chi^2(1, N = 32) = 1.99, p = .159$ ; item 9,  $\chi^2(1, N$

## COGNITIVE BIAS IN SUCCESSION PLANNING

= 32) = 0.03,  $p = .876$ ; and item 10,  $\chi^2(1, N = 32) = 0.71, p = .399$ . A significant difference was only found between item 3 and item 7,  $\chi^2(1, N = 32) = 4.43, p < .05$ .

For item 8 on the Succession Plan Questionnaire, results indicated no significant difference in selection frequencies between item 1,  $\chi^2(1, N = 32) = 1.73, p = .188$ ; item 2,  $\chi^2(1, N = 32) = 0.61, p = .434$ ; item 3,  $\chi^2(1, N = 32) = 1.99, p = .159$ ; item 4,  $\chi^2(1, N = 32) = 1.99, p = .159$ ; item 5,  $\chi^2(1, N = 32) = 1.53, p = .216$ ; item 6,  $\chi^2(1, N = 32) = 0.79, p = .375$ ; Item 7,  $\chi^2(1, N = 32) = 0.46, p = .497$ ; item 9,  $\chi^2(1, N = 32) = 2.24, p = .135$ ; and item 10,  $\chi^2(1, N = 32) = 1.10, p = .294$ .

### **Cognitive Dissonance Reasoning**

A second Chi-Square Test of Independence was conducted to determine whether participants without a succession plan selected reasons reflecting cognitive dissonance (item 6 or item 9) more frequently than expected assuming the probability of equal selection across all options.

For item 6 on the Succession Plan Questionnaire, results indicated no significant difference in selection frequencies between item 1,  $\chi^2(1, N = 32) = 0.54, p = .461$ ; item 2,  $\chi^2(1, N = 32) = 1.10, p = .295$ ; item 3,  $\chi^2(1, N = 32) = 0.77, p = .379$ ; item 4,  $\chi^2(1, N = 32) = 0.02, p = .900$ ; item 5,  $\chi^2(1, N = 32) = 0.08, p = .773$ ; item 7,  $\chi^2(1, N = 32) = 0.01, p = .938$ ; item 8,  $\chi^2(1, N = 32) = 0.79, p = .375$ ; item 9,  $\chi^2(1, N = 32) = 0.61, p = .434$ ; and item 10,  $\chi^2(1, N = 32) = 1.98, p = .160$ .

For item 9 on the Succession Plan Questionnaire, results indicated no significant difference in selection frequencies between item 1,  $\chi^2(1, N = 32) = 1.53, p = .216$ ; item 2,  $\chi^2(1, N = 32) = 0.79, p = .375$ ; item 3,  $\chi^2(1, N = 32) = 0.03, p = .876$ ; item 4,  $\chi^2(1, N = 32) = 0.03, p = .876$ ; item 5,  $\chi^2(1, N = 32) = 1.53, p = .216$ ; item 6,  $\chi^2(1, N = 32) = 0.61, p = .434$ ; item 7,  $\chi^2(1, N = 32) = 1.53, p = .216$ ; item 8,  $\chi^2(1, N = 32) = 0.79, p = .375$ ; item 9,  $\chi^2(1, N = 32) = 0.61, p = .434$ ; and item 10,  $\chi^2(1, N = 32) = 1.98, p = .160$ .

= 32) = 0.46,  $p = .497$ ; item 8,  $\chi^2(1, N = 32) = 2.24, p = .135$ ; and item 10,  $\chi^2(1, N = 32) = 3.07, p = .080$ .

### **Succession Plan Questionnaire x Delayed Losses Questionnaire**

Additional analyses were run to ascertain the degree to which the items created for the Succession Plan Questionnaire measured delayed discounting as compared to a previously published DLQ assessing delayed discounting.

A Pearson's correlation analysis was used to correlate scores on the DLQ to the two delayed discounting items created (items 3 and 8) for the Succession Plan Questionnaire. No significant correlation was found between participants selecting item 3 and their DLQ score ( $r = -.13, p = .48$ ), indicating no strong relationship between selecting item 3 and DLQ performance. Similarly, the correlation between participants selecting item 8 and their DLQ score was not statically significant ( $r = .08, p = .68$ ), finding no meaningful relationship between participants selecting item 8 and their DLQ scores. Overall, these results indicate participants selecting either items 3 or 8 did not have systematically higher or lower DLQ scores compared to those who did not select these options.

To further examine these relationships, separate independent samples t-tests were conducted to compare the mean DLQ scores of participants who selected item 3 vs. those who did not, and item 8 vs. those who did not. No significant difference was found between participants who selected item 3 and their scores on the DLQ ( $M = 0.33, SD = 0.21$ ) compared to those who did not select item 3 ( $M = 0.39, SD = 0.22$ ),  $t(25) = -0.73, p = .47$ . Similarly, participants who selected item 8 had no significant difference in DLQ scores ( $M = 0.42, SD = 0.30$ ) compared to those who did not select item 8 ( $M = 0.36, SD = 0.21$ ),  $t(2) = 0.31, p = .78$ .

## COGNITIVE BIAS IN SUCCESSION PLANNING

To determine whether scores on the DLQ predicted the likelihood of selecting items 3 or 8, separate binary logistic regressions were conducted.

The first binary logistic regression was conducted to examine whether participants' scores on the DLQ predicted their likelihood of selecting item 3. The overall model was not statistically significant  $\chi^2(1, N = 33) = 0.54, p = .463$ , indicating predictors did not reliably distinguish between those who selected item 3 and those who did not. Participant scores on the DLQ also did not significantly predict the likelihood of selecting item 3 ( $B_1 = -1.26, SE = 1.72, Z = -0.73, p = .463$ ), with an odds ratio [ $Exp(B_1)$ ] of 0.28 (95% CI: 0.01, 8.30). This suggests that for each unit decrease in DLQ score (higher discounting) was associated with higher odds of selecting item 3, though this effect was not statistically significant.

The second binary logistic regression was conducted to examine whether participants' scores on the DLQ predicted their likelihood of selecting item 8. The overall model was statistically significant,  $\chi^2(1, N = 33) = 4.01, p < .05$ , indicating that the predictors reliably distinguished between those who selected item 8 and those who did not. However, participant DLQ scores did not significantly predict the likelihood of selecting item 8, ( $B_1 = 1.28, SE = 2.99, Z = 0.43, p = .669$ ), with an odds ratio [ $Exp(B_1)$ ] of 3.59 (95% CI: 0.01, 1258.46). Although the odds ratio suggests increased odds of selecting item 8 with higher DLQ scores (lower rates of discounting), the wide confidence interval and nonsignificant p-value indicate high uncertainty in this estimate.

These results indicate that despite 45% of participants selecting delayed discounting-related reasons (items 3 or 8) no further significance was found for the selection frequencies of these two items. Additionally, weak relationships with no further significance were found between the selection of items 3 or 8 and higher rates of discounting (lower DLQ

## COGNITIVE BIAS IN SUCCESSION PLANNING

scores). These findings are consistent across correlation analyses, mean comparison, and logistic regressions, suggesting an overall weak relationship between DLQ performance and the selection of either items 3 or 8.

### **Succession Plan Questionnaire x Revised Dissonance Scale**

Additional analyses were run to ascertain the degree to which the items created for the Succession Plan Questionnaire measured cognitive dissonance as compared to a previously published RDS assessing cognitive dissonance.

A Pearson's correlation analysis was used to correlate scores on the Revised Dissonance Questionnaire to the two cognitive dissonance items created (6 and 9) for the Succession Plan Questionnaire. A significant positive correlation was found between participants selecting item 6 and their RDS score ( $r = .52, p < .01$ ). Unlike item 6, there was no significant correlation found between participants selecting item 9 and their RDS score ( $r = -.20, p = .27$ ). These results indicate participants who selected item 6, but not item 9, tended to exhibit higher levels of cognitive dissonance.

To further examine these relationships, separate independent samples t-tests were conducted to compare the mean RDS scores of participants who selected item 6 vs. those who did not, and item 9 vs. those who did not. Participants who selected item 6 had higher scores on the RDS ( $M = 46.00, SD = 1.41$ ) than those who did not ( $M = 23.89, SD = 14.56$ ), and this difference was statistically significant  $t(28) = 7.69, p < .01$ . Participants who selected item 9 had slightly lower RDS scores ( $M = 17.67, SD = 15.70$ ) than those who did not ( $M = 28.34, SD = 15.57$ ), but this difference was not statistically significant  $t(2) = -1.12, p = .38$ . These results confirm that significant differences in RDS scores were based on participants' selection of item 6, but not item 9.

## COGNITIVE BIAS IN SUCCESSION PLANNING

To determine whether higher scores on the RDS predicted the likelihood of selecting items 6 or 9, separate binary logistic regressions were conducted.

The first binary logistic regression was conducted to examine whether participants' scores on the RDS predicted their likelihood of selecting item 6. The overall model was not statistically significant,  $\chi^2(1, N = 33) = 2.16, p = .141$ , suggesting that RDS scores did not reliably distinguish between those who selected item 6 and those who did not. Participant RDS scores did not significantly predict the likelihood of selecting item 6 ( $B_1 = 0.60, SE = 0.41, Z = 1.47, p = .141$ ), with an odds ratio [ $Exp(B_1)$ ] of 1.82 (95% CI: 0.82, 4.05). This indicates that while higher RDS scores were associated with increased odds of selecting item 6, the effect was not statistically significant.

The second binary logistic regression was conducted to examine whether participants' scores on the RDS predicted their likelihood of selecting item 9. The overall model was not statistically significant,  $\chi^2(1, N = 33) = 1.19, p = .274$ , indicating that RDS scores did not reliably distinguish between those who selected item 9 and those who did not. Participant RDS scores did not significantly predict the likelihood of selecting item 9 ( $B_1 = -0.05, SE = 0.04, Z = -1.09, p = .274$ ), with an odds ratio [ $Exp(B_1)$ ] of 0.96 (95% CI: 0.88, 1.04). This suggests that each unit increase in RDS score was associated with slightly lower odds of selecting item 9, but this effect was not statistically significant. Consistent with the findings related to item 6, findings related to item 9 suggest no strong relationship between participants' RDS scores and the likelihood to select item 9.

These results indicate a positive relationship and direction of higher RDS scores among participants selecting item 6 vs. those who did not. There were no significant findings between

## COGNITIVE BIAS IN SUCCESSION PLANNING

RDS scores and item 9 selection. Results also illustrated that RDS scores did not increase or decrease the likelihood of selecting either item 6 or item 9 compared to those with lower scores.

### **Discussion**

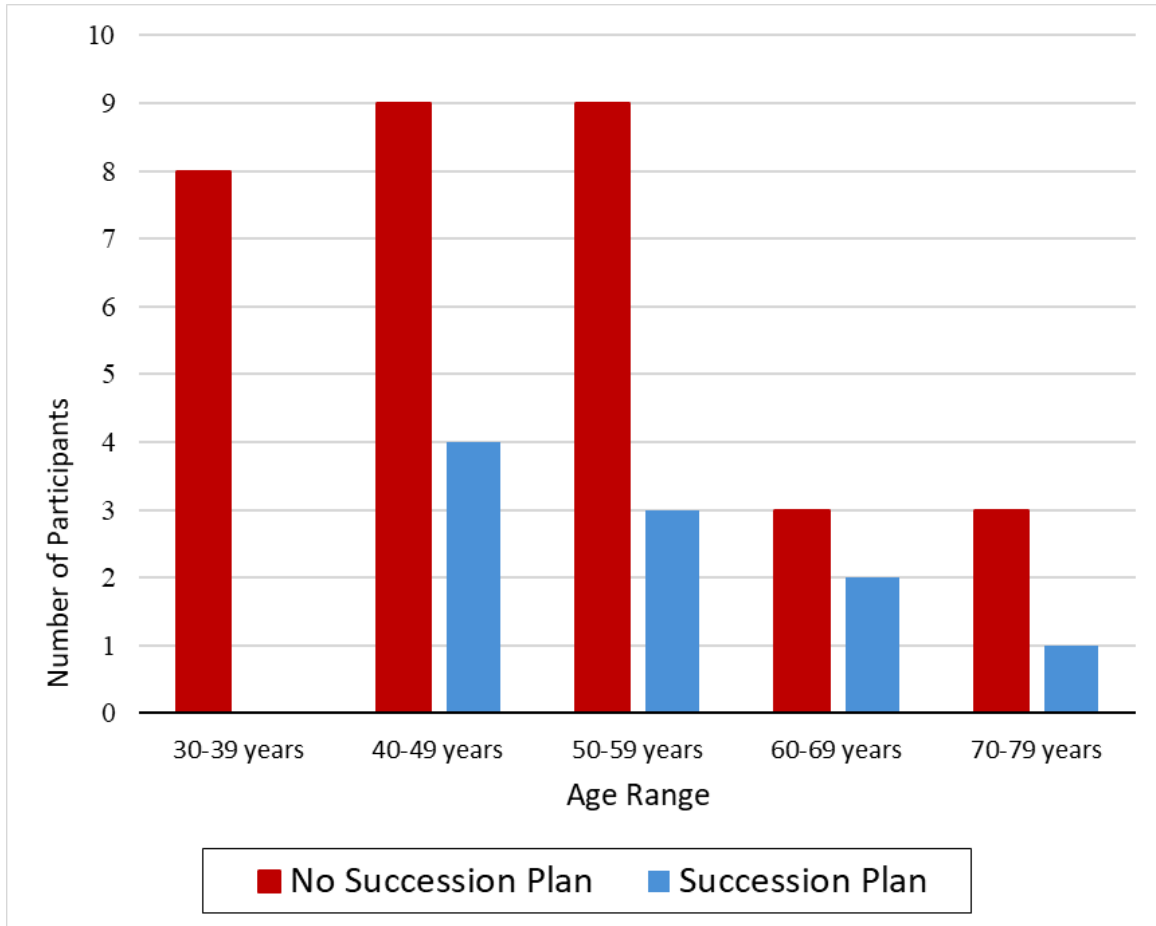
The present study found that a significant number (74%) of small business owners did not have a succession plan. When assessed for existing cognitive biases which may have interfered with small business owners implementing such a plan, delayed discounting was found to play a role in 45% of the participants depending on how the questions were asked. Similarly, in the case of cognitive dissonance, 28% of participants indicated this cognitive bias existed. The small business owners who had a succession plan were asked the open ended question “What led you to decide to create a succession plan?” Their responses were reviewed and found to be devoid of cognitive biases such as delayed discounting and cognitive dissonance. Rather, the participants with a succession plan commonly provided a rationale highlighting the importance of planning for the unexpected or emphasizing the value of the business and motivation to protect it and avoid failure. It was found that a majority of participants did not have succession plans regardless of age range (Figure 2).

The first primary hypothesis of this study was supported in that the majority of small business owners (76%) were found to not have a succession plan. The second and third hypotheses received partial support. More than 25% of participants without succession plans cited reasons consistent with either delayed discounting or cognitive dissonance. These two hypotheses had no further support due to nonsignificant findings for differences between item selection frequencies. In addition, there were nonsignificant findings assessing the relationships between item selection frequency and scores on the DLQ and RDS. The only exception was significant findings of participants selecting item 6 having higher RDS scores. Item 6 may have

## COGNITIVE BIAS IN SUCCESSION PLANNING

**Figure 2**

*Differences in Succession Planning by Age*



*Note.* The majority of participants had no succession plan when age was held constant by decade.

been the exception due to potentially being seen as an indicator of cognitive dissonance and delayed discounting. Item 6 stated, “*I don’t think anything will happen that will interfere with me running the business for a long time so it is not needed yet.*” Despite item 6 initially being classified as a reason related to cognitive dissonance, it could have been reframed as discounting the possibility of a major future loss as a justification for not creating a succession plan. This reframing of item 6 would be consistent with delayed discounting theory.

## COGNITIVE BIAS IN SUCCESSION PLANNING

The primary findings from this study have important, real world implications as millions of small business owners are approaching retirement age and/or having increased risk of unexpected medical events which could interfere with them running their business. The unnecessary loss of small businesses has great costs to the business owner, the owner's family, employees, clients/customers, and communities in the form of lost tax revenue. Identifying a barrier to establishing succession plans may be beneficial in guiding policy to encourage small business owners to overcome biases which interfere with completing this important task.

Key limitations of this research included the small sample size, which may explain the nonsignificant results for more complex analyses such as comparing item selection to the DLQ and RDS. The small sample size may also explain the nonsignificant results highlighting little to no significant differences between selection frequency of the 10 items. Due to the high level of variability involved with the multiple-select question containing the 10 items, the smaller sample may have led to a higher fluctuation in the item selection frequency and increased difficulty analyzing selection frequency between the different items. It is also important to note that this study did not use a true experimental design and cannot comment on causation based on significant results.

Future studies may investigate whether or not the current level of partial support for hypotheses 2 and 3 would be impacted by a larger sample size, or by individually assessing items as to why participants do not have a succession plan. Future research may use these findings to conduct a randomized controlled trial implementing a policy to decrease cognitive biases in small business owners to increase the number of succession plans created. Such a study could determine if the experimental group receiving the intervention to reduce cognitive biases had the desired outcome of more business owners creating succession plans. If successful, following

## COGNITIVE BIAS IN SUCCESSION PLANNING

these participants to assess the impact on businesses, tracking a reduction in business failures, job loss, etc. may prove useful for business owners and their families, employees, clients/customers, and society.

**References**

- Baron, R. A. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, *13*(4), 275–294.  
[https://doi.org/10.1016/S0883-9026\(97\)00031-1](https://doi.org/10.1016/S0883-9026(97)00031-1)
- Chung, S. H., & Herrnstein, R. J. (1967). Choice and delay of reinforcement. *Journal of the Experimental Analysis of Behavior*, *10*(1), 67–74.  
<https://doi.org/10.1901/jeab.1967.10-67>
- Darger, M., Petel, A., Macht, C., Hebeisen, J., Reed, C., & Dragotta, J. (2024, November 15). *What New University of Minnesota Extension Research reveals about Business Owners' plans for the future transition of their firms*. Minnesota Department of Employment and Economic Development.  
<https://mn.gov/deed/newscenter/publications/trends/march-2024/transition.jsp>
- Durst, S., & Wilhelm, S. (2012). Knowledge management and succession planning in SMEs. *Journal of Knowledge Management*, *16*(4), 637–649.  
<https://doi.org/10.1108/13673271211246194>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time discounting and time preference: A critical review. *Journal of Economic Literature*, *40*, 351–401.  
<https://doi.org/10.1257/002205102320161311>
- Green, L., Myerson, J., Oliveira, L., & Chang, S. E. (2014). Discounting of delayed and probabilistic losses over a wide range of amounts. *Journal of the Experimental Analysis of Behavior*, *101*(2), 186–200. <https://doi.org/10.1002/jeab.56>

## COGNITIVE BIAS IN SUCCESSION PLANNING

- Greenbaum, K. (2023, December). *Olin-Brookings panel probes “Main street’s tidal wave of transition” in closely held business*. WashU Olin Business School.  
<https://olin.wustl.edu/about/news-and-media/news/2023/12/olin-brookings-panel-main-streets-tidal-wave-transition.php>
- Ip, B., & Jacobs, G. (2006). Business succession planning: a review of the evidence. *Journal of Small Business and Enterprise Development*, 13(3), 326–350.  
<https://doi.org/10.1108/14626000610680235>
- Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291. <https://doi.org/10.2307/1914185>
- Kirby, K. N., & Marakovic, N. N. (1996). Delay-discounting probabilistic rewards: Rates decrease as amounts increase. *Psychonomic Bulletin & Review*, 3(1), 100–104.  
<https://doi.org/10.3758/BF03210748>
- Mizak, S., Ostaszewski, P., Marcowski, P., & Białaszek, W. (2021). Gain-loss asymmetry in delay and effort discounting of different amounts. *Behavioural Processes*, 193.  
<https://doi.org/10.1016/j.beproc.2021.104510>.
- Myerson, J., Baumann, A. A., & Green, L. (2017). Individual differences in delay discounting: Differences are quantitative with gains, but qualitative with losses. *Journal of Behavioral Decision Making*, 30, 359–372. <https://doi.org/10.1002/bdm.1947>
- Sambrook, S. (2005). Exploring succession planning in small, growing firms. *Journal of Small Business and Enterprise Development*, 12(4), 579–594.  
<https://doi.org/10.1108/14626000510628243>

## COGNITIVE BIAS IN SUCCESSION PLANNING

Sweeney, J. C., & Soutar, G. N. (2006). A Short Form of Sweeney, Hausknecht and Soutar's Cognitive Dissonance Scale. In *Proceedings of the 20th Annual Conference of the Australian and New Zealand Academy of Management*. Yeppoon, Queensland, Australia; Central Queensland University. <https://hdl.handle.net/10018/9764>

Sweeney, J. C., Hausknecht, D., & Soutar, G. N. (2000). Cognitive dissonance after purchase: A multidimensional scale. *Psychology & Marketing*, 17(5), 369–385.  
[https://doi.org/10.1002/\(SICI\)1520-6793\(200005\)17:5<369::AID-MAR1>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1520-6793(200005)17:5<369::AID-MAR1>3.0.CO;2-G)

**Appendix**

**Appendix A: Delayed Losses Questionnaire (Myerson et al., 2017)**

Please select your preference for each item.

1. Which would you prefer to pay? \$60 now or \$165 in 4 months.
2. Which would you prefer to pay? \$66 now or \$75 in 78 months.
3. Which would you prefer to pay? \$162 now or \$240 in 18 months.
4. Which would you prefer to pay? \$159 now or \$180 in 76 months.
5. Which would you prefer to pay? \$123 now or \$225 in 15 months.
6. Which would you prefer to pay? \$75 now or \$90 in 46 months.
7. Which would you prefer to pay? \$103 now or \$150 in 17 months.
8. Which would you prefer to pay? \$84 now or \$90 in 106 months.
9. Which would you prefer to pay? \$99 now or \$240 in 8 months.
10. Which would you prefer to pay? \$72 now or \$105 in 17 months.
11. Which would you prefer to pay? \$240 now or \$255 in 92 months.
12. Which would you prefer to pay? \$147 now or \$180 in 52 months.
13. Which would you prefer to pay? \$207 now or \$255 in 54 months.
14. Which would you prefer to pay? \$81 now or \$150 in 12 months.
15. Which would you prefer to pay? \$102 now or \$105 in 108 months.
16. Which would you prefer to pay? \$201 now or \$225 in 69 months.
17. Which would you prefer to pay? \$33 now or \$90 in 4 months.
18. Which would you prefer to pay? \$120 now or \$165 in 36 months.
19. Which would you prefer to pay? \$234 now or \$240 in 94 months.
20. Which would you prefer to pay? \$75 now or \$180 in 8 months.
21. Which would you prefer to pay? \$45 now or \$105 in 8 months.
22. Which would you prefer to pay? \$141 now or \$150 in 94 months.
23. Which would you prefer to pay? \$41 now or \$75 in 12 months.
24. Which would you prefer to pay? \$93 now or \$255 in 4 months.
25. Which would you prefer to pay? \$59 now or \$75 in 26 months.
26. Which would you prefer to pay? \$165 now or \$225 in 35 months.
27. Which would you prefer to pay? \$162 now or \$165 in 68 months.

## COGNITIVE BIAS IN SUCCESSION PLANNING

### Appendix B: Revised Dissonance Scale (Sweeney & Soutar., 2006)

Please complete the following items:

#### When thinking about not having a legal succession plan for my business...

**I feel frustrated.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I am in despair.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I feel sick.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I feel hollow.**

Not at all    0    1    2    3    4    5    6    7    Extremely

#### I wonder if...

**I really need to plan the succession of my business.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I should have considered succession planning.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I have made the right choice.**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I have done the right thing in making/not making a succession plan.**

Not at all    0    1    2    3    4    5    6    7    Extremely

#### After being questioned about not having a succession plan, I wonder if...

**I'm making a mistake**

Not at all    0    1    2    3    4    5    6    7    Extremely

**I'm delaying an important decision**

Not at all    0    1    2    3    4    5    6    7    Extremely

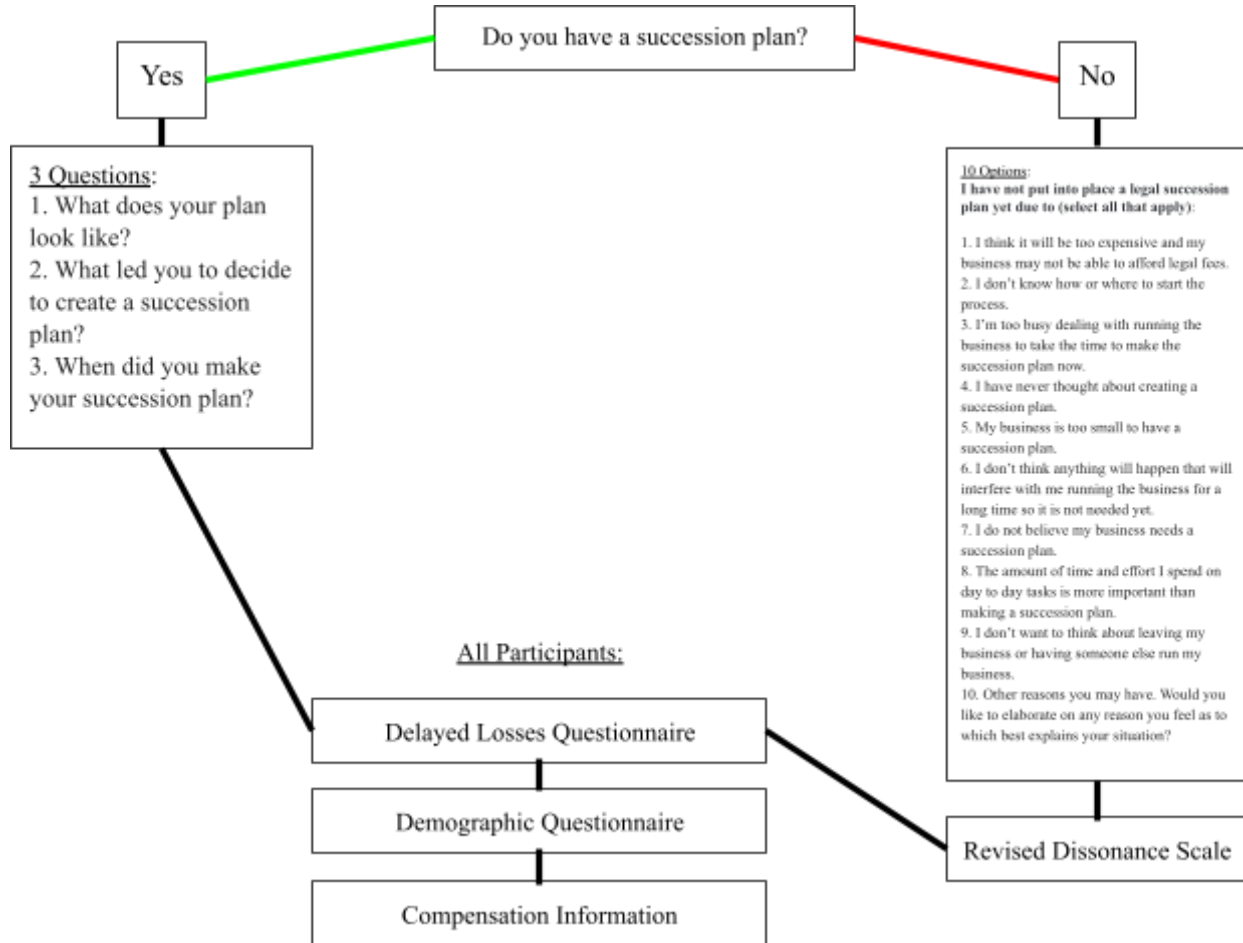
**There is something critical I'm overlooking**

Not at all    0    1    2    3    4    5    6    7    Extremely

**Appendix C: Demographics**

- Age: \_\_\_ years
- Gender: Male \_\_\_\_\_, Female \_\_\_\_\_, Other: \_\_\_\_\_.
- Race: \_\_\_\_\_.
- Nationality: \_\_\_\_\_.
- Number of years of education: \_\_\_\_\_ years.
- If college degree, what degree and major: Degree: \_\_\_\_\_. Major \_\_\_\_\_.
- Number of years owning the business: \_\_\_\_\_ years.
- Number of employees: \_\_\_\_\_.
- Type of business \_\_\_\_\_.

**Appendix D: Procedure Roadmap**



**Appendix E: Succession Plan Questionnaire**

Please read the items below and answer accordingly.

1) Do you have a legally documented succession plan in place for your business so if something happened to you today, others will know everything to keep the business running? (Yes, No)

- **If Yes:**

What does your plan look like? \_\_\_\_\_

What led you to decide to create a succession plan? \_\_\_\_\_

When did you make your succession plan? \_\_\_\_\_

- **If No:** “Please indicate ‘Yes’ or ‘No’ to every option below that describe reasons you have not yet instituted a legal succession plan.

I have not put into place a legal succession plan yet due to (select all that apply):

- 1. YES NO I think it will be too expensive and my business may not be able to afford legal fees.
- 2. YES NO I don't know how or where to start the process.
- 3. YES NO I'm too busy dealing with running the business to take the time to make the succession plan now.
- 4. YES NO I have never thought about creating a succession plan.
- 5. YES NO My business is too small to have a succession plan.
- 6. YES NO I don't think anything will happen that will interfere with me running the business for a long time so it is not needed yet.
- 7. YES NO I do not believe my business needs a succession plan.
- 8. YES NO The amount of time and effort I spend on day to day tasks is more important than making a succession plan.
- 9. YES NO I don't want to think about leaving my business or having someone else run my business.
- 10. YES NO Other reasons you may have. Would you like to elaborate on any reason you feel as to which best explains your situation?