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EFFECTUATION: AN ALTERNATIVE APPROACH FOR DEVELOPING SUSTAINABLITY ARCHITECTURE IN SMALL BUSINESS

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ABSTRACT

Many business firms are incorporating sustainability initiatives into their business plans. Sustainability integration typically utilizes a resource intensive comprehensive planning process. Implementation of sustainability initiatives into a business is not likely to be equally accessible amongst firms. Larger, more established firms may have greater resources to bear the costs while smaller firms may face significant impediments that preclude taking a similar approach (Schick et al., 2002). Thus, an alternative approach to sustainability integration is suggested to accommodate the specific issues common to smaller businesses. This study develops an alternative approach for small businesses based on the concept of effectual reasoning as described in the collective works of Sarasvathy (2001, 2008). We provide a rationale for using effectuation, demonstrate how the process applies to sustainability integration within the context of small firms, and suggest roles for business consultants in the implementation of the process.

INTRODUCTION

Sustainability[1] initiatives are becoming an important issue to business organizations. The motivation for taking on such initiatives varies. Firm value may be enhanced through multiple sources of sustainability-oriented influences that go beyond financial performance, an idea that is exemplified in the holistic value proposition of O'Neill et al. (2009). Business risks may be reduced by firms that establish and maintain policies related to environmental, social, and governance (ESG) issues (Garz et al., 2007). In response, many larger firms have established departments supervised by

[1] Sustainability is used in the context of Triple Bottom Line as described by Elkington, J. (1999) Cannibals with Forks: The Triple Bottom Line of 21st Century Business (Oxford, UK: Capstone).

Chief Sustainability Officers who develop and integrate sustainability policies and architectures into these organizations.

The decision about how to integrate sustainability initiatives and create a sustainability architecture within the firm can be complicated. In this paper, we propose that in lieu of a costly and time-consuming business planning exercise, owners of smaller enterprises can employ the effectuation process to achieve their objectives. Effectuation allows small, incremental steps in choosing the 'low-hanging fruit' in terms of easily executed sustainability initiatives that can be gradually adopted. We provide a hypothetical example of this process and discuss the important role that management consultants can play.

Sustainability and Small Business

Although many individuals still argue that sustainability has become a buzzword and is the latest management fad which will fade over time, increasing numbers of practitioners, academicians and management consultants are convinced that it represents a major paradigmatic shift away from 'business as usual' and requires serious consideration and rethinking of traditional business practices. New ventures and smaller firms are embracing sustainability initiatives by incorporating sustainable business processes and/or by developing innovative products and services. In some cases, these firms have become prominent forces for sustainability innovations that are influencing views of contemporary capitalism (Hart, 2010, Gibbs, 2009, Hawken, Lovins and Lovins, 1999) and the actions taken by larger established firms (Hockerts and Wustenhagen, 2010). Some smaller businesses have embraced sustainability out of necessity as larger firms pressure suppliers to initiate sustainable business practices, or risk elimination from their supply chain (Block, 2009). The motivation to incorporate sustainability into new and smaller firms may also be based on the founder's values and aspirations (Austin et al. 2006) and the manner in which entrepreneurs perceive their stakeholder relations (Schlange, 2009).

Building a Sustainability Architecture

The term 'strategic architecture' was first introduced by Prahalad and Hamel (1990) in their classic Harvard Business Review article 'The Core Competence of the Corporation' (O'Shannassy and Hunter, 2009). They defined it as 'a road map of the future that identifies which core competences to build and their constituent technologies.' Kiernan (1993) emphasized the need for constructing strategic architecture for corporate survival into the twenty first century. He identified the following core elements of strategic architecture: 1) organizational learning, 2) innovation/experimentation, 3) constructive contention, 4) empowerment/shared leadership, 5) optimized value potential, 6) corporate sustainability, and 7) strategic re-framing. In his discussion of corporate sustainability, he initially adopted the traditional interpretation of developing a competitive advantage that is durable and is 'sustainable' over time. But he also discussed environmental sustainability as a second perspective of the term, and while acknowledging that corporate resistance to the environmental revolution was underway, many leading-edge environmentally conscious firms that made sustainable development the cornerstone of their strategies display healthy financial performance. Roberts (2009) was one of the first to bring together strategic architecture and sustainability in introducing a planning framework that supports the development and application of industrial ecology. We introduce the term 'sustainability architecture' as a firm's basic orientation toward adopting sustainability initiatives into its business model, including interfaces with suppliers and customers. We also employ the term 'sustainability integration' when referring to the action of incorporating a specific sustainability initiative into a firm's existing business plan.

Entrepreneurial Processes

Recent advances in our understanding of entrepreneurial processes have led to new thinking into how business ventures evolve. Sarasvathy (2001) has made a significant contribution to this topic by identifying two approaches, causation and effectuation. Causation assumes a predictable environment where extensive analysis and planning are used to achieve a predetermined goal. Causal reasoning implies "to the extent we can predict the future, we can control it." This approach is logical when applied to well-developed markets where incremental innovations are often employed, which is more typical in a corporate setting. In such environments, models and analysis can help guide management decisions toward achieving specific goals.

Entrepreneurial environments are often characterized by high levels of uncertainty and outcomes that cannot be predicted. Sarasvathy (2001) found that expert entrepreneurs take a different approach when compared to CEOs from predictive environments, for developing a concept into a viable business opportunity. Instead of defining a goal and then pursuing it, expert entrepreneurs start out with an idea and develop the market for it. Effectual reasoning assumes "to the extent that we can control the future, we do not need to predict it." This process provides them with an element of control over their environment and eliminates the need to predict outcomes that are largely unpredictable. They engage in a process that utilizes existing means, proceeds in small steps, limits financial risk, leverages contingencies, and forges strategic partnerships.

Textbook procedures for new venture development commonly suggest that aspiring entrepreneurs develop an idea or concept based on the causation approach. Consistent with this line of reasoning, they suggest that aspiring entrepreneurs engage in extensive planning and analysis before introducing a new product to market. Expending time to develop comprehensive business plans for new ventures may be a questionable practice when considering the speculative nature of such projections and that new ventures often deviate significantly from their original concepts. Sarasvathy (2001) provided an alternative view of new venture development that challenges textbook treatments of entrepreneurship by making a strong case for effectuation, a process based on the manner in which expert entrepreneurs think and act.

In this study, we argue that the effectuation process used by expert entrepreneurs can also be employed as an effective approach for small business sustainability integration in part, because it circumvents many impediments to implementation. Robinson and Pearce (1984) indicate that business owners often preclude extensive planning due to time and/or financial resource constraints. Effectuation provides a remedy in that focusing on only one aspect of a new initiative and its development minimizes time allocation. The process is also less taxing mentally because it reduces the need for extensive information gathering and complex analysis that can limit the founder's intellectual ability to correctly process information, otherwise known as bounded rationality (Simon, 1997). The commitment of financial resources is also minimized by placing a ceiling on funds allocated to a smaller experimental initiative and seeking "partners" to offset costs and/or supply additional resources. In addition, effectuation incorporates the logic of control, and involves attempts to shape and create a potential market (Sarasvathy et al., 2001). This aspect of effectuation may be of particular importance to SME's because the solutions that evolve can be innovative and provide a custom fit to meet the needs of the business and its customers, with the added benefit of fulfilling the owner's aspirations. Lastly, although the potential benefits of planning in small business are well documented (Hodges and Kent, 2007), practical concerns indicate a need for a low-cost, yet effective, alternative for implementing major initiatives such as sustainability integration.

Effectuation

Effectuation begins with a set of means and allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with (Sarasvathy, 2008). Four general principles guide the basic process: means driven action, affordable loss, formation of strategic partnerships, and leveraging contingencies. The first principle, means-driven action, begins with introspection in order to generate an initial idea or concept. The entrepreneur performs a self-assessment of the means they currently possess. They develop answers to the questions of "who am I," "what do I know," and "who do I know." These means not only generate ideas, but also take the entrepreneur down a path of development. Chandler et al., (2011) aptly describes effectuation as a process of experimentation. The entrepreneur engages in an iterative process that consists of act, learn, repeat (Keifer et al., 2010).

The second principle, affordable loss, determines an upper bound on the amount of funds the entrepreneur is willing to place at risk in order to start the venture (Dew, et al., 2009). Affordable loss is appropriate for situations where uncertainty, as opposed to calculable risk, is dominant. In the effectuation world, entrepreneurs do not assume the presence of a market for their idea. Their objective is to create a market that doesn't currently exist. Thus, they willingly assume Knightian uncertainty, an extreme form of uncertainty characterized by unknowable distributions and outcomes (Knight, 1921). In the world of causation, distributions and outcomes can be reasonably determined so that risk can be quantified and returns can be estimated. Since expert entrepreneurs cannot quantify the risks of a market that doesn't exit, they mitigate the need to predict risk and return by only committing an amount to the venture that they can afford to lose. Attainment of additional resources is dependent on the third principle.

The third principle is to seek and form strategic partnerships. Instead of assuming there is a market for their product, the expert entrepreneur takes her new product to potential customers to obtain pre-commitments. This step provides necessary feedback that the entrepreneur uses to refine the product offering and, in addition, provides an opportunity to obtain additional resources such as access to manufacturing capabilities, distribution channels, and additional sources of financing. This helps keep capital outlays low, and helps determine the market or markets ultimately served (Sarasvathy, 2008). In addition, the ability to receive a pre-commitment validates the entrepreneurs' idea and serves as a proxy for market testing.

The last principle is leveraging contingencies. Seasoned entrepreneurs are experts at knowing how to take unexpected outcomes and leverage them into opportunities. This equates to what Sarasvathy (2008) describes as the lemonade principle, as in "when life gives you lemons, make lemonade." It is based on the idea that every situation, even worse case scenarios, can become opportunities that may ultimately define the development of the final product and success.

Effectuation and Sustainability Integration

The formal strategic planning process has been criticized for not allowing opportunities for learning and entrepreneurial process (Mintzberg, 1987, Quinn, 1980). Similarly, although there are many proponents of the business plan (Barringer, 2009; Sahlman, 1997), many question the validity of a formal planning process in high-growth firms. Allred, Addams and Chakraborty (2007) provide an extensive review of the literature and, based on a survey of the Inc. 500, conclude that both formal and informal planning processes are important. Hodges and Kent (2006) found that increased planning sophistication does improve firm performance. Effectuation can be a powerful alternative to expensive, time-consuming planning processes which may inhibit quick responses to temporary windows of opportunity that require immediate attention. It can be particularly useful when developing a sustainability architecture that involves significant changes from traditional 'business as usual' practices.

There are similarities between the effectual process as applied to concept development for a new venture, and the manner in which a new strategy initiative may be developed and integrated into small businesses. We argue that effectual reasoning offers important advantages over predictive/causal processes for developing and integrating a sustainability architecture into small businesses. We specifically apply the process within the context of sustainability integration to demonstrate how it facilitates organizational change.

Potential Advantages of Effectual vs. Predictive Approaches

As is the case in the literature for entrepreneurship, predictive approaches form a dominant paradigm for the methods employed by business sustainability planning consultants and authors. Many experts suggest that business owners go through an intensive, comprehensive planning process in order to institute the best sustainability initiatives[2]. These approaches place extensive demands on small businesses that may act as a deterrent to sustainability integration. In newer or smaller businesses, a comprehensive organizational make over may not be feasible or practical given resource constraints. From a risk management perspective, a dramatic transition to a sustainability architecture could result in unanticipated outcomes that are both costly and potentially catastrophic to a smaller business.

Effectual reasoning provides a pragmatic alternative for integrating sustainability into a new or smaller business. The attractive

[2] A good example of the consultant's approach can be found in "The Step-by-Step Guide to Sustainability Planning" by Hitchcock and Willard.

features of the effectual approach are simplicity (it is easy to understand), ease in implementation, and an affinity towards financial loss minimization from failed initiatives. The process is oriented at the individual making it particularly applicable to new ventures and smaller businesses where strategies and decisions are often developed and executed by founders. Of course, the benefits of employing effectuation should be weighed against the potential benefits from using a predictive/causal approach.

Means Assessment: Who Am I?

In the effectual reasoning process, an important aspect of realizing a successful outcome is establishing the entrepreneur's passion for creating a new venture. This is referred to as the "Who am I" question during the introspective stage of the process. In many cases, entrepreneurs have an interest in developing a business that is driven by reasons extending beyond the pursuit of acquiring wealth (Austin et al., 2006). Since personal aspirations often play a role in obtaining successful outcomes, it is important that small business owners understand their internal motivation for integrating sustainability into their business or business plan. A passion for sustainability will help them stick with the process and see the initiative through to the end. The following questions may be helpful in facilitating this phase of self-evaluation:

Who are you?:

- Why is sustainability important to you?

Practical reasons: reduces costs, brings in new customers, pressure from an important vendor who must establish a supply chain of sustainability-oriented firms.

Aspirations: goes beyond financial performance - envelopes the "big picture" and may include a deep concern for local community and the environment.

- What life experiences may have driven you to think about sustainability issues?
- What is your gut feeling about sustainability in terms of:

Planet: the natural environment

People: community, suppliers, vendors....

- What are your feelings toward altruism?
  Do you place importance on giving to charities?
  Would you sacrifice a percentage of profits to utilize local suppliers over less costly alternatives?

How much perceived satisfaction or value would be gained by engaging in sustainable practices?

- Would you be willing to trade off financial performance to gain greater personal satisfaction? How much? What percentage?
- Would you be willing to incur a 5, 10, 20 percent reduction in income to live a more sustainably consistent lifestyle or operate a sustainable oriented business?

Introspection is used to ascertain the level of commitment. It is a process that reveals the underlying motives and affinity for pursuing a sustainability initiative. It does not require affirmative responses to all questions. It does not require the business owner to be a zealot for environmental issues. However, if the business owner has no compelling reasons for pursuing sustainability aside from superficial interest, they probably should reflect harder on their ability to see a new initiative through to the end.

Means Assessment: What Do I Know?

Entrepreneurs often develop an idea for a product or service based on possessed knowledge and/or expertise. In the effectual reasoning process, the entrepreneur performs a self-assessment of not only "who I am," but "what I know," In a similar fashion, small business owners must first understand what they know about sustainability practices. The following questions may be helpful:

What do you know?:

- Which, if any, of your present practices may be consistent with sustainable business practices?
- Are you familiar with existent technologies that may reduce energy consumption or carbon footprint?
- Do you know how to measure your carbon footprint?
- Can you anticipate how your customers will react to a sustainability re-orientation?

What you know can become important in determining the initial action step. Effectual reasoning does not require one to become an expert in sustainability, but does require some basic knowledge and/or the ability to obtain adequate understanding of the topic. If an individual has extensive knowledge of sustainability practices, they can probably establish a more practical starting point for integration. On the other hand, a knowledgeable individual may have a propensity to take too large of an initial step that places too many resources at risk prior to obtaining feedback. If a business owner has little knowledge, they may need to spend time acquiring that knowledge through self-study, or with the aid of a consultant.

Means Assessment: Who Do I Know?

The third part of the means phase, "who do I know," entails identifying those who can become important sources of financial knowledge, and business resources. In new venture formation, taking on partners who are willing to invest in the business helps spread financial risk. These contacts also provide important sources of information and feedback that help mitigate errors and make necessary adjustments. The same advantages can accrue to small business owners.

Who do you know?:

- Friends, relatives, other business owners, industry experts, vendors, suppliers, customers, government resources.... all constitute potential sources for idea presentations, feedback, and financial backing.

Affordable Loss and Contingencies

Once business owners have determined their level of commitment to sustainability integration, assessed their knowledge of the topic, and identified potential strategic partners, the next step is to determine the amount of funds they are willing to allocate to the pursuit of the new venture. A major advantage of effectuation is the treatment of uncertainty. As one proceeds forward by taking small incremental steps, the amount of resources placed at risk during each step is constrained to that constituting an "affordable loss." Determining the specific amount of funds to commit to an initiative depends on the business owner's subjective assessment of competing uses for funds (opportunity cost), the perceived opportunity cost of not engaging in the initiative, and other preferences (Dew et al., 2009).

It is important to determine the amount of resources to place at risk. One approach is to identify "low-hanging fruit" in order to take an initial action that requires a relatively small investment of time and resources. The formulation of ideas is highly subjective, so there is no way to definitively define a best idea other than to say it should be easy to implement and have potential for providing initial feedback that can be reflectively assessed and provide direction for future actions. As is true to situations requiring effectual reasoning, the ultimate outcome is ex-ante unknowable.

Once the amount of resources constituting an affordable loss has been determined, the business owner can immediately take action. She can take a first action step to test the idea, obtain feedback, and adjust the process. This also includes forming strategic partnerships in order to spread risk, gaining access to essential resources, and offering others a share in potential rewards. Some ways to form partnerships may include:

- Utilizing vendors of sustainability-oriented products that can provide attractive financing or leasing arrangements
- Negotiating a trial period with vendors to see how customers respond and/or assess the effects on business operations without capital investment
- Asking for discounts based on co-promotions of supplier's product(s)
- If the venture is newer and truly innovative, ask supplies if they would take an equity position in the firm in return for product (Equity interest may be the funding wave of the future if banks continue to resist lending to all but the most credit worthy)
- Entering into barter arrangements (may be of particular interest to local suppliers and vendors)

The last principle to employ relates to contingencies in relation to unexpected outcomes. Since these are unexpected outcomes, the business owner should expect the unexpected by embracing challenges. Expert entrepreneurs tend to use a frame of thinking that creates positives out of failures by using such events to generate new opportunities (Sarasvathy, 2008).

Role of the Business Consultant

The application of effectual reasoning to sustainability integration may appear simplistic, but execution is its biggest challenge, and this is where business consultants can plan an important role. An exciting aspect of effectuation is that it is a process that can be taught and is now being integrated into some premier university entrepreneurship programs[3]. Our study contends that effectuation is well-suited for applications in extant small businesses, but as is the case in new venture entrepreneurship, the process must be introduced and instructed. A hypothetical case that demonstrates sustainability integration via the effectual process is included in Appendix A.

[3] The entrepreneurship programs at Babson College have integrated effectuation (referred to as CreAction) into its curriculum and also forms the basis for its Entrepreneurial Thought and Action® paradigm. The Darden School of Business at the University of Virginia is now promoting a new form of entrepreneurship competition based on effectual reasoning.

Sustainability business consultants can play a vital role in helping founders successfully develop a sustainability architecture by employing effectuation. There are multiple roles that the consultant can play including instructor, mentor, and evaluator. The consultant can become involved in almost all aspects of the effectuation process including:

- assessing current level of sustainability integration
- introducing effectuation as a low-cost, low-risk alternative to extensive planning
- describing how the process works
- assisting the founder in assessment of means and determining an affordable loss
- acting as a mentor throughout implementation
- leveraging contingencies into new opportunities
- identifying strategic partners
- acting as a knowledge resource for sustainable practices and future developments
- providing post-implementation impact assessments on financial performance, valuation, and customer/founder/employee satisfaction.

In addition, there are a number of additional benefits that are likely to accrue to the consultant's own business. Since effectuation follows an approach that seems natural to clients, they may demonstrate a greater comfort level with the process. This can result in added credibility for the consultant. Taking a client through the means assessment of "who they are," "what they know," and "who do they know" provides the consultant with information that can lead to a better understanding of the client and also provide opportunities to work with members of the client's business network without the need to directly ask for referrals. Since an important aspect of the process is the mentoring role, the consultant can build a more intimate relationship with the client that can result in higher client satisfaction and retention rates. Once effectual consulting has been implemented on a wider scale, future research will be needed to properly assess our conjectures and provide better insight into the true costs and benefits of the process, especially in comparison to predictive/causal planning approaches.

Summary and Conclusion

Business owners work in dynamic and uncertain market conditions that necessitate periodic changes in order to insure the future success of a firm. The introduction of any new idea and/or strategy can be a daunting task that could result in costly errors. Those who seek changes or modifications to their current business models/strategies may encounter constraints that limit their ability to engage in comprehensive planning processes and exhaustive market studies that in the end, may not meet expectations.

Entrepreneurs who routinely develop new concepts into business ventures face a similar dilemma. They too must decide upon courses of action under highly uncertain conditions and with limited resources. Studies of successful serial entrepreneurs demonstrate that these individuals supplant effectuation for predictive/causal processes during the early stages of new venture development. The effectual process uses the entrepreneur's existing means to develop a concept, limits financial risk to an affordable loss, leverages contingencies into opportunities, and utilizes strategic partnerships to access additional resources. The process is implemented in incremental steps that enable learning through trial and error that ultimately helps the entrepreneur implement a feasible result.

This study suggests effectual reasoning as a process that is particularly suitable for smaller businesses as a means of integrating sustainable business practices into the firm. Utilizing this process provides business owners with a means to obtain new knowledge of customers and opportunities, develop a better understanding of their current market, and lead to the creation of new markets. Effectuation provides a low-cost, low-risk alternative to predictive-based processes, especially when these new initiatives involve highly uncertain outcomes that can be descriptive of sustainability integration.

Business consultants can play important roles in small business sustainability integration. By implementing an effectual consulting process, they play multiple roles as instructors/mentors/evaluators that assist business owners towards the creation of an organization that more fully reflects their aspirations and may result in unforeseen opportunities. Effectuation may also provide several benefits to consulting practices by helping to establish higher levels of credibility, enhanced client/consultant relationships, and provide for additional consulting opportunities. It may also lead to consulting opportunities in firms once considered too small, new, or resource poor to approach for services.

This paper introduces effectuation as a viable option for sustainability integration in small businesses. The process is generically adaptable as a tool for creating organizational change and developing new initiatives in extant firms. Still, effectuation is an untested process as an agent for change in small businesses. This opens the door to a variety of empirical and case studies aimed at evaluating the effectiveness of the process, identifying problem areas, performing comparative analysis with predictive methods, measuring the impacts on financial performance, and evaluating the effects on business survival rates, as a few examples. It is our hope that small business owners and consultants will consider this process as an alternative when predictive/causal approaches are not feasible, and that academics will engage in further study of this promising application.

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APPENDIX A

EFFECTUATION AND SUSTAINABILITY INTEGRATION: THE HYPOTHETICAL CASE OF MARY

Consider Mary, owner of an antique store in a small college town in rural Pennsylvania. She started the business one year ago after spending ten years working as a buyer for a large retail chain. Mary cares about the welfare of the people in her community and regularly supports charitable organizations. She is concerned about the conservation of natural resources and the preservation of resources for future generations. She wants to explore ways to align her personal values with her business operations. Following a web search, she found information from several Fortune 500 companies that implemented sustainability polices. Mary was excited about the possibility of re-orienting her business into a sustainable organization but the excitement was offset by concern. How should she proceed? Does she possess the knowledge to pull this off? What would it cost?

A friend of Mary's referred her to Bill, a management consultant who instructs business courses at the local college. During their first meeting, Mary expressed concern about the potential costs of re-organizing her entire business as a sustainable enterprise. Bill explained that a comprehensive planning approach, while common in larger, established organizations may not be practical or even feasible for a smaller business such as hers; but there was an alternative. He described how small businesses with limited resources can accomplish desired change by taking an effectual approach. He told Mary that effectuation is a viable solution for smaller businesses because it places a limit on resources at risk, focuses on a single actionable idea, and proceeds in small steps. He said the process was successfully used by expert entrepreneurs, and can easily be applied to business owners who desire organizational change. He explained that the potential costs and risks from developing and implementing a full-scale sustainability program could sink Mary's business if a large-scale initiative failed. Mary nodded her head in agreement, she intuitively knew going all out was too risky, the effectual approach to sustainability integration made sense. She realized that Bill's advice had just reduced a large insurmountable burden into a manageable project that she could act upon right away. Mary’s level of excitement escalated, all she needed was to decide upon an idea that would immediately put her on the path of sustainability integration. But how would she determine what idea was best?

Bill suggested that Mary develop answers to three questions, who am I, what do I know, and who do I know to help pinpoint an idea. Mary answered the questions which confirmed that she held a passion for sustainability. She also felt comfortable with her knowledge of sustainable practices but also realized she could learn more by obtaining feedback from trusted resources. She made a list of people she knew including other business owners, friends, relatives, frequent customers, and suppliers to whom she could present an idea and receive honest feedback.

Bill also suggested that Mary take time to make careful observations of her store and customers in order to generate ideas for her first initiative. He explained that a top design company named IDEO used a similar procedure for generating ideas. After spending the rest of the day observing her store and customers, she decided an

easy place to start was to replace some of the incandescent bulbs in her inventory of antique lighting fixtures with energy efficient CFLs. She decided to replace about 40 bulbs with CFLs, which would require a relative small outlay of funds. Mary set a budget of $200 for her "green lighting initiative", an amount she could fund from petty cash. Concerned about the esthetic qualities of the bulbs, she decided to randomly replace them in her lamp inventory and then ask her friends and relatives to visit the shop and comment on the changes. She also asked customers for their opinions and noted their comments.
Once the first action step has been taken, the business owner reflects on the action and tries to learn from the feedback received. In Mary's case, she examines her decision to replace incandescent lights with CFLs. What were the benefits? Did this choice provide the business with cost savings, are the CFLs esthetically attractive, what reactions did she receive from customers? Is the amount and type of light produced sufficient? How does she feel about this choice, is she satisfied? What about negative feedback? Bill advised her to take negative comments as positives that can create new opportunities. The answers to these questions will help determine how she proceeds with her next action step. If her answers are largely disaffirming, she should decide what adjustments or even contemplate abandoning the idea.

A month past and Mary decided to reflect on her decision. She found the electric bill was reduced. She also noticed that sales of some fixtures from the 1960's and 70's era actually increased while sales of older lamps declined. She checked her notes made on customer comments. She noticed a pattern in that several customers commented on how the new bulbs complemented the more contemporary designs but detracted from the look of the older lamps. Mary decided to make an adjustment. She found a supplier of CFL bulbs with a more traditional look (but much higher price tag) and also some newer decorative LED bulbs that were even more energy efficient. She decided to purchase ten CFL bulbs to replace those in the older lamps and five LED's for the 70's era fixtures. She also placed a sign stating "bulbs for display only".

Mary discovered that sales in the older lamps increased significantly with the inclusion of traditionally styled bulbs. She also noted many comment on the innovative look of the LED bulbs in the more contemporary vintage lighting fixtures. She observed that on Saturdays, when the local farmers' market was in operation, there was a significant increase in light fixture purchases of all varieties. Through conversations with Saturday customers, she discovered that most were coming to purchase local and organically grown produce and noticed the vintage light fixtures with the CFLs and LEDs bulbs which led them into the store. They thought it was a neat idea to purchase "used" lamps because they viewed this as a purchase of a "renewable" resource with the additional benefit of energy conservation from the energy saving bulbs.

Mary realized her antique store was sustainability orientated all along, she simply had not thought of it in this way. As Mary went forward with various action steps she compiled successes and failures that all led to new insights and occasional surprising results. Three months from their initial meeting, Bill stopped in for a follow up consultation. To his amazement, he found Mary had repositioned her entire business by creating a market for sustainable lighting solutions. She was quickly becoming a major retailer for vintage lighting fixtures in the region. Effectual reasoning led Mary to the creation of a new market for her products and established the sustainability architecture that fulfilled her aspirations - she accomplished far more than ever envisioned.

As demonstrated by the example of Mary, the effectual reasoning process can result in a number of learning opportunities and surprises. The effectual process to sustainability integration can lead to a better understanding of sustainability initiatives, better business performance, and knowledge that can be leveraged into new initiatives. New outcomes are tailored to the needs, desires, and preferences of customers and business owners without the need to take large risks or incur extensive expenditures of time and resources.