

A Study on the Relationship between Sustainable Development Strategies in the Funeral Industry and Eco-friendly Natural Burials

Quan Fu Yu¹

Abstract

Taiwan's total population in 2023 will be 23.42 million, 442, with only 135,571 newborns and 205,368 deaths throughout the year.

The population has begun to grow negatively since 2020. When the birth rate continues to be lower than the death rate, it means that the business crisis of the funeral industry has emerged.

The funeral industry is a highly polluting industry. Taiwan has been promoting environmentally friendly natural burials since 2001. However, the processing of ashes is the final stage of body processing. The real major pollution is during the funeral period and the cremation of the body. Correcting these two Process can truly achieve the purpose of reducing pollution and protecting the environment.

If environmentally friendly natural burials are fully popularized, funeral expenses will be greatly reduced, which will impact the overall income of the funeral industry. Therefore, how to balance environmental protection and sustainable management of the funeral industry is an issue that cannot be ignored.

This study hopes to provide suggestions on the correlation between environmentally friendly natural burial and the sustainable development of the funeral industry, and to achieve the common development of environmentally friendly natural burial and the funeral industry, thereby achieving the goals of environmental friendliness and sustainable development.

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¹ Program of Business, Feng Chia University.

1. Introduction

It has been nearly 400 years since the Dutch took over Taiwan in 1624. During this period of colonization, Taiwan has embraced the culture of these colonial countries, including the funeral culture of the colonial countries. It has also been spread and used, coupled with Taiwan's original funeral customs. Since its evolution, this special culture has been firmly rooted in the hearts of the people. This is also the most difficult part to solve in the process of promoting environmentally friendly natural burials.

Due to the low cost of land in the early days and the lack of strict enforcement of government laws, people in Taiwan were mainly buried after their deaths, and the choice of burial land was based on Feng Shui geography as the primary consideration. This resulted in the destruction of soil and water conservation and natural landscapes. When the cost of land increased and the social structure changed, the government began to promote cremation and concentrated the ashes in ossuaries, which solved part of the land problem. However, as environmental issues became more important, the environmental pollution caused by cremation became a problem that must be solved immediately, so the government began to promote environmentally friendly natural burials in 2001. In 2006, there were more than 200 cases nationwide, and in 2009, it exceeded 1,000 cases. By 2016, there were 6,774 cases, which has increased by about 20 times in the past 10 years, showing that more and more people agree with environmentally friendly natural burial. However, compared with the number of deaths nationwide, those who choose environmentally friendly natural burial are still in the minority.

There are two main reasons why environmentally friendly natural burial has not yet been fully accepted. One is the constraints of Taiwan's unique funeral culture; the other is the deprivation of the interests of funeral industry operators.

There are two biggest differences between Taiwan and other countries in terms of funeral culture:

1. The mourning period in Taiwan is relatively long, about 10 to 15 days.
2. After the funeral in Taiwan, there are subsequent annual sacrificial activities.

Four kinds of pollution caused by death due to the above two factors:

1. Work pollution related to funeral rituals and customs
2. Carbon pollution caused by body disposal
3. Environmental pollution of ashes placement
4. Pollution from folk customs during festivals and festivals

As for whether the profits of funeral industry operators will decrease, they must first understand the source of profits. The main factor that determines the operating income of the funeral industry is not just the number of cases, but the overall funeral expenses of the case, including the use of surrounding facilities and product sales.

Each family's funeral expenses are controlled by four factors:

1. Average household and individual income.
2. Differences in religious beliefs.
3. Urban and rural environment and family population structure.
4. Changes in burial methods.

The overall cost of a funeral in Taiwan is mostly shared by the children. However, the income and population of each family are different. In addition, family members also have different religious beliefs and have different opinions on the final disposal of the body. These variables will affect The facilities and execution methods necessary for funeral processing will of course also affect the revenue of funeral industry operators.

Taiwan's population has shown negative growth for four consecutive years and is expected to enter a super-aged society in 2025, which shows that the financial burden on young people has reached an unprecedented critical point. Housing prices continue to rise and there is no one else to share the cost of raising children. When facing a funeral, we can only adopt cost-saving measures, including the option of environmentally friendly natural burial. Because these interfering factors will greatly reduce funeral revenue and profits. In the future, the funeral industry will face comprehensive reforms in its business methods.

In summary, this study hopes to understand the close connection between environmentally friendly natural burial and the sustainable development of the funeral industry through reasonable regulations and systems, advanced technology applications, not departing from traditional funeral customs, and timely adjustments to market demand. Revising traditional funeral practices and leading to customized and refined funeral planning can achieve the common development of environmentally friendly natural burials and the funeral industry, thereby achieving the goals of environmental friendliness and sustainable development.

2. Preliminary Notes

In Taiwan, the term "eco-friendly natural burial" has only been mentioned in the past two decades. However, the public's understanding of eco-friendly natural burial is limited to "tree burial" and "sea burial," which contains a significant logical error. This is because cremation, the process of burning ashes at high temperatures, and the pollution resulting from the cremation process and funeral arrangements are rarely mentioned and even deliberately downplayed. The reason for this is that relevant authorities are unwilling to touch upon the taboos of "traditional funeral customs," and funeral practitioners are passive in execution, only able to fully cooperate with the needs of the family.

According to the article "Energy-saving and Carbon-reducing Environmental Funeral" by Tseng, Huan-Tang from the Institute of Life and Death Education and Counseling at the National Taipei University of Nursing and Health Sciences in 2010, (Tseng, Huan-Tang, 2010) "Green Burial" is defined as: "Not using

preservatives, expensive hardwood coffins or stainless steel, copper coffin ornaments, or cement burial chambers, avoiding high-temperature cremation, and managing cemeteries without spraying various pesticides, chemical fertilizers, or reducing the use of lawnmowers, allowing the deceased to bid farewell in the most natural way, reducing pollution to soil, water resources, and air resources." Therefore, any funeral method that is environmentally friendly falls under the category of eco-friendly natural burial. However, it is important to distinguish between "funeral" and "burial"; "funeral" refers to the funeral process, while "burial" refers to the way the remains (or ashes) are placed. Both "funeral" and "burial" should not be neglected under the premise of environmental protection, and their execution processes differ, resulting in different pollution sources and solutions. The reason for combining "funeral" and "burial" into one term is mainly because the relationship between funeral practitioners and bereaved families belongs to a "contracting system," and the needs of the families are to be met from start to finish, leading to a misunderstanding that funerals are the same thing. According to the research paper "The Relationship between Environmental Burial and Conscientious End-of-life Care" by Wu, Shu-Chen in 2011(Wu, Shu-Chen, 2011), all funerals are composed of a series of rituals rather than a single ceremony.

3. Main Results

The conclusions obtained from the literature discussion and field interviews are concentrated on "burial," which is the way the body and the remains (ashes and bones) are placed. The burial part belongs to the hardware facilities. Although promoting it requires effort, it is easy to achieve the expected results. However, in the "funeral" part, the pollution caused is not less than that of "burial," and the difficulty in promotion is several times that of "burial" because "funeral" belongs to the emotional and belief aspects, which are extremely complicated. The reason for this is that Taiwan has been under colonial rule for a long time, and some of the cultural customs of these colonial regimes have been preserved and long been used and observed by the people, internalizing into elements of folk customs over generations. Another influential factor that cannot be ignored is religious beliefs. According to the book "Taiwan's Dream for Four Hundred Years" by Hsieh, Chen-Kuan in 2023 (Hsieh, Chen-Kuan, 2023), starting from the Dutch rule of Taiwan, followed by 38 years of rule by the Zheng Chenggong of the Dongning Dynasty, then 212 years of rule by the Qing Dynasty, and later ceded to Japan for 50 years until the Nationalist government came to Taiwan in 1945. Until now, Taiwanese people have intermarried with people from various countries, and over hundreds of years, through several generations and the baptism of Eastern and Western cultures, the turnover of life and death, many customs of handling funerals have been deeply rooted in people's hearts, and the accumulated traditions over hundreds of years cannot be changed overnight. Moreover, Taiwan's religious beliefs are extremely open and diverse. In addition to traditional Buddhism and Taoism, various religious beliefs have been introduced to Taiwan, and within the same religion, there are also

distinctions among sects. These religious beliefs, combined with folk taboos and legends, have a great influence when handling funerals, enough to influence the overall planning and execution of funerals.

3.1 Advantages

From an environmental point of view, although the current funeral process in Taiwan is relatively lengthy, and the demand for a comprehensive environmentally friendly burial cannot be achieved in a short period of time, in terms of economic benefits, the long funeral process means that the family members have to pay relatively high costs; and complex funerals Etiquette restrictions can make the elements of funerals more diversified, which can greatly improve the business performance of funeral-related industries. Based on the current effectiveness of Taiwan's promotion of environmentally friendly natural burials, it is estimated that 70% of people will choose environmentally friendly natural burials by about 2050. In terms of the funeral industry's research and development of new products and the gradual acceptance of the public, future business opportunities can still be expected.

3.2 Cost

Taking the majority of Buddhism and Taoism as an example, they are often mixed with many taboo elements, which include emotional connections to deceased relatives. In the thesis "From Collective Symbolism to Daily Simulation: The Transformation of the Meaning of Taiwanese Funeral Paper Offerings" by Hsiao, Wei-Shan in 2017 (Hsiao, Wei-Shan, 2017), it can be seen that "from traditional symbolic symbolism, gradually transformed into daily life because of love and burning chains, a medium for dialogue between two worlds." Therefore, in the "funeral" part, the greatest source of pollution comes from the burning of joss paper and paper offerings, as well as the deceased's clothing, which is also the most serious and difficult to eradicate part. Originally, the burning of joss paper and paper offerings and the deceased's clothing were completely unrelated to religious beliefs and were only classified as emotional offerings to deceased relatives. However, they have long been regarded as part of religious beliefs, precisely because of the grief for deceased relatives, so joss paper, various paper offerings, and even the deceased's clothing are burned incessantly. According to statistics from the Environmental Protection Agency and related public and associations, the current annual import of joss paper and domestically produced joss paper totals more than 200,000 tons. If each kilogram of joss paper burned produces about 1.5 kilograms of carbon emissions, the carbon emissions exceed 300,000 tons in a whole year. The burning of joss paper also releases a lot of carbon monoxide and volatile substances such as toluene and xylene, as well as toxic carcinogens such as dioxins. Although the phenomenon of burning joss paper and paper offerings has been slightly improved in the six municipalities due to policy regulations, it is still maintained in agricultural production areas for decades. The situation of burning large amounts of joss paper and clothing is still prevalent.

The funeral industry belongs to a labor-intensive industry, which means that the labor force required is greater than the capital equipment. From the time a patient enters the terminal stage until death, including body transportation, funeral arrangements, and cremation or interment, the overall process for traditional Buddhist and Taoist funeral

arrangements typically requires a basic labor force of about 60 to 80 people, which can increase to 150 to 200 people if the scale of the event expands. The labor cost of these personnel exceeds 50% of the overall funeral expenses. If the material cost is deducted, the actual profit of funeral service providers is not high. Therefore, the profit source of funeral service providers currently focuses on "additional services." The so-called "additional services" refer to additional items added to the original contract. Among these, the items with higher profits are bone urns and private niche burials. However, these two sources of income were originally only encountered occasionally, with only about 10% to 30% of families having such demands. Now that eco-friendly natural burials are gradually accepted by the public, these two sources of income will decrease year by year. Moreover, with the low per capita income and the rising prices of housing and commodities, "economical burials" are a foreseeable trend in the future. The overall funeral expenses will enter the low-price market, severely affecting the survival of funeral service providers. Being in a red sea, funeral service providers can no longer meet market demands with lower prices. Instead, they should make good use of "customized and refined funeral services" to meet the needs of families and obtain higher profits from professional services.

According to the 108 statistical bulletin of the Ministry of the Interior, there are 3,963 legally registered funeral service companies nationwide, and the total number of deaths in the country that year was 175,424. If evenly distributed, each funeral service company's annual number of cases is 44.3, or 3.68 per month. If the number of pre-purchased pre-contracts and the number of monopolized funeral companies operated by regional families are subtracted, the number of cases per month for small-scale funeral service providers will be less than 2, indicating significant competitive pressure. However, smaller operators with fewer employees have relatively lower personnel costs, stronger adaptability to activities, and no regional burdens, so the probability of successful implementation of "customized and refined funeral services" is relatively increased.

Ryan, CEO of the largest funeral service provider in the United States, Service Corp. International, said: "This industry used to rely on selling coffins, but now it relies on providing memorial services." And Rex, CEO of Foundation Partners Group, also said: "Holding a funeral is no longer called a funeral, but a gathering." "Customization" has many interpretations in the literature, including customerization and customization, in short, "understanding customer needs and providing the most suitable services." In the thesis "Discussing the Successful Strategy of Enterprise Customization as a Mirror with IEPS" by Lai Sheng-Fen in 2010 (Lai Sheng-Fen, 2010), it is mentioned that "the development of enterprise customization strategy is a key element in creating benefits for capital, labor, and

customers," so customized and refined funeral services are not just predictions of future business trends but are also current active demands. The so-called "customized and refined funeral services" differ from traditional contractual practices. Before conducting the funeral, it is necessary to thoroughly communicate with all members of the bereaved family to understand their needs and economic affordability and to deeply understand the interests and life details of the deceased. After evaluation, plan a funeral that can present the deceased's wishes and meet the needs of the family. Of course, customized funeral services are quite challenging to implement overall, and the quality of planning personnel must undergo professional training. However, the ultimate results and feedback are positive.

There is a characteristic of funerals: "Things must be completed in a short time, and there is no chance to do it again." To complete a perfect customized funeral includes communication, design, modification, and execution. These stages are intensive in manpower and material resources. The final result of the investment may only last for a short three hours, but what is left to the family is an eternal memory.

Taiwan's funeral industry has always been in the labor-intensive stage, and although the materials used have been designed and updated, they are still superficial technologies. Therefore, imitation has become a common problem in the funeral industry, resulting in different local customs but the same products. scene.

The new business model of customized funerals can currently only be implemented in niche markets. However, the main source of customers in Taiwan's funeral industry relies on family relationships. Therefore, the customer churn rate encountered when transforming into a customized funeral business model can be reduced to at the very least, it will not cause performance decline during the transformation period, and the reputation established through successful case execution can even achieve segmented marketing to attract special consumer groups. Sweden pioneered the "natural organic reduction burial law" as early as 2005, and the state of Washington in the United States passed relevant regulations in 2019, establishing the world's first "human composting facility" in Seattle in 2021. The treatment method involves decomposing soft tissues of the body into fertile soil within 30 days at a temperature above 55 degrees Celsius. If even the bones need to be decomposed, it will take another two months. A Swedish company named Promessa has introduced the "cryo-burial" green burial method, mainly using liquid nitrogen at minus 196 degrees Celsius. Through the rapid freezing process of liquid nitrogen, the body is turned into a crystalline state, then shaken to turn the crystals into granules, which are then collected for freeze-drying. After these processes, the volume and weight of the body are significantly reduced. For example, for a body weighing 70 kilograms, the processed volume is only 30% of the original, and these granules will eventually be removed of impurities by a special device and then placed in custom-made green coffins, buried underground to provide nutrients for plants and completely return to the soil.

4. Research Methods

This study adopts a qualitative research approach. In order to ensure that the research results are in line with market operations and expectations, it is divided into two parts: "in-depth interviews" and "on-site surveys".

Interview subjects include private tower operators, funeral industry operators, and ordinary bereaved families.

Expert interviews:

1. What is your unit and job title?
2. How many years have you been working in the funeral industry?
3. What is your level of acceptance of the current environmental natural burials. (including tree burials, sea burials) and cremation into towers?
4. Do you think there is room for improvement for tree burials and sea burials in Taiwan?
5. Based on environmental protection, what suggestions do you have for improving funeral hardware facilities?
6. If all the columbariums in Taiwan are fully utilized, would you recommend building new columbariums or recommend enforcing regulations to use environmental natural burials uniformly?
7. Crematorium facilities cause air pollution. Do you think there are alternative ways to replace them?

Interviews with ordinary bereaved families:

1. When did your loved one pass away?
2. What was your relationship with the deceased?
3. What is your religious belief and the religious belief of the deceased?
4. What method was adopted to handle the deceased? Burial, cremation into tower, tree (sea) burial? Why?
5. Are you satisfied with the funeral method chosen for your loved one this time? What parts need improvement?
6. If environmentally natural burials are adopted and do not leave behind the ashes of loved ones, would you want to keep the tablet for worship? Why?

Based on environmental protection, can various customs during the mourning period be simplified? Which parts can be simplified? Why?

Analysis of the interview content of experts and the general public is summarized in the following table:

- 1) Do you agree with the full implementation of environmentally friendly burials?

Experts	4	4	2	5	2
General public	2	1	1	2	5

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

2) Do you think Taiwan's environmentally friendly burials need to be reviewed and improved?

Experts	1	1	5	1	1
General public	1	1	1	1	1

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

3) Do you agree that ashes should return to nature but ancestral tablets must be retained?

Experts	1	1	1	5	2
General public	1	2	2	2	2

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

4) Do you agree to use more environmentally friendly methods to replace the pollution caused by cremation?

Experts	3	4	4	5	5
General public	2	2	5	5	2

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

5) Do you agree that the government should continue to build new columbariums when the tower space is insufficient?

Experts	3	3	2	4	4
General public	2	2	1	5	5

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

6) Do you agree that the current funeral process can be further simplified?

Experts	2	2	3	3	2
General public	1	1	4	2	2

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

7) Do you agree that environmentally friendly burials can significantly reduce funeral expenses and affect the funeral industry's output value?

Experts	1	1	1	1	1
General public	1	1	2	2	5

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

8) Do you agree that holding nighttime farewell ceremonies in funeral homes also falls within the scope of environmental protection?

Experts	2	4	4	1	2
General public	2	1	2	5	5

1. Strongly Agree 2. Agree 3. Strongly Disagree 4. Disagree 5. No opinion

4.1 Analysis

Through the analysis of interview content, it is found that:

1. Environmentally friendly natural burials can be generally accepted by families, but the implementation and subsequent actions must be more meticulous, as matters of life and death should not be taken lightly.
2. From the perspective of funeral industry operators and private columbarium operators, there is opposition, as the market size is gradually shrinking, funeral expenses are decreasing year by year, and the compression of profit space is an undeniable fact.
3. Regarding the placement method of cremation into towers, the opinions of experts and the general public are quite close, indicating that traditional practices are more acceptable.
4. Based on traditional funeral customs, although environmentally friendly natural burials dispose of ashes, both experts and the general public unanimously agree on retaining tablets.
5. The simplification of the funeral process is agreed upon by both experts and the general public, which can be a reference indicator for future funeral planning.

The trial of holding nighttime farewell ceremonies in funeral homes can solve the problem of insufficient space and is acceptable, but adjustments must be made to the overall operational process to accommodate the working hours of crematorium and funeral home employees.

5. Labels of figures and tables

Table 1: Population Births and Deaths Overview Table

Our country's recent population birth and death statistics			
Year	Number of births	Number of deaths	Natural increase
2016	208440	172405	36035
2017	193844	171242	22602
2018	181601	172784	8817
2019	177767	176296	1471
2020	165249	173156	-7907
2021	153820	183732	-29912
2022	138986	207230	-68244
2023	135571	205368	-69797

**Table 2: Manpower Allocation Table for Funeral Services
(Estimated based on Buddhist and Taoist practices)**

Execution Item Number	People
Medical staff	2
Body transportation	2
Placement of the spirit tablet	3
Religious rituals	15
Canopy construction	3
Backdrop and carpet	2
Flower arrangement	3
Band/music	13
Funeral procession	8
Catering	5
Vehicles	6
Coffin carrying for burial	12
Crematorium	4
Various processions	20~60

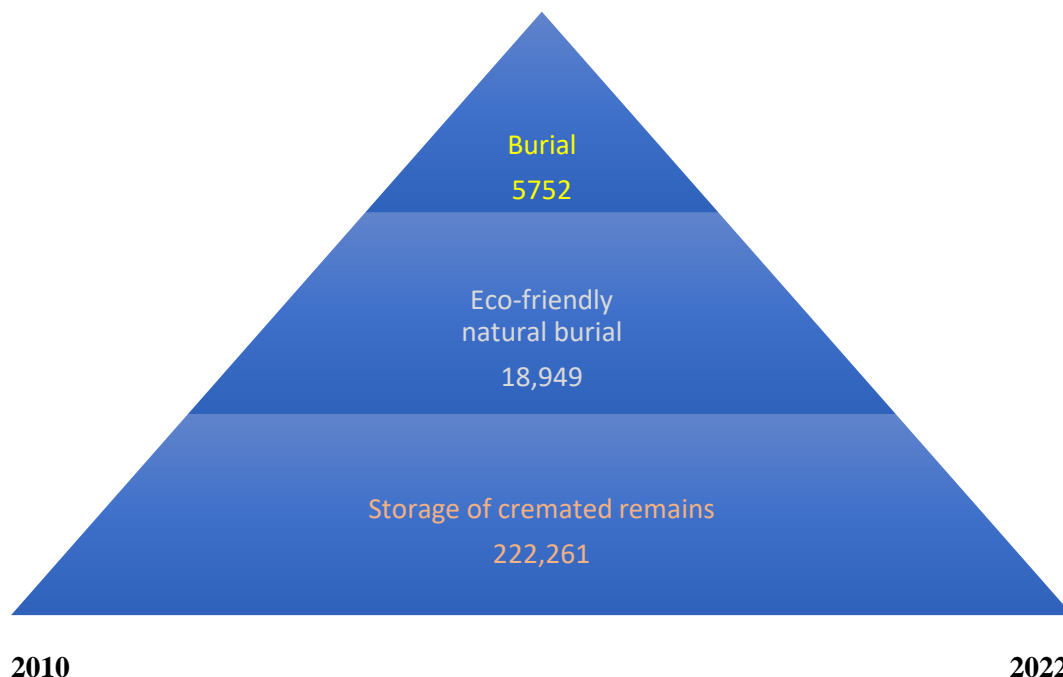


Figure 1: Statistics on Ash and Remains Disposal Methods

6. Conclusion

The funeral industry is a commercial activity primarily driven by profitability. Through interviews with funeral industry operators, it is clear that funeral industry operators and private columbariums are extremely reluctant to promote environmentally friendly natural burials. The resistance to promotion is not because environmental protection is undervalued; rather, the primary reason is that it would significantly reduce business profit. However, when families explicitly request environmentally friendly natural burials, operators must still assist in facilitating them.

On the other hand, as people increasingly embrace environmental efforts, environmentally friendly natural burials have become a trend. However, there is often a significant gap between the perceived process and the actual experience after handling the deceased's ashes, leading to regrets. Unfortunately, funeral events cannot be replayed, leaving lingering regrets.

Through in-depth interviews and literature review, it is evident that environmentally friendly natural burials only address the disposal of ashes in the later stage. The biggest sources of pollution are the religious rituals and traditional funeral customs during the funeral process, as well as cremation of the body. For example, in the case of Buddhist and Taoist funeral rituals, descendants often burn large amounts of paper money (joss paper) to express filial piety, resulting in massive consumption of paper resources. Advocacy efforts by government agencies and religious groups are necessary, and basic education on funeral rites should be implemented in schools to teach young students, who will be the main organizers of future funeral events, how to preserve essential funeral customs while adapting to contemporary environmental demands.

Additionally, addressing the pollution generated during the cremation process presents the most significant challenge in implementing green burial practices. While Taiwan may face limitations due to traditional customs, learning from other countries' approaches and promoting policies and educational initiatives through various channels can lead to progress over time.

The funeral industry has operated on a specialized division of labor model for nearly two decades, entrusting various tasks to professional manpower companies and material suppliers, while funeral service companies undertake planning, coordination, and supervision. Given the maturity of the specialized division of labor system in the funeral industry, both small-scale and large corporations employ the same pool of labor and materials. This is an opportune moment for micro-funeral service operators to transition into "funeral planning brokers." Funeral planning brokers primarily assist families in customizing funeral arrangements, and once approved by the families, they outsource the execution to suppliers. The key difference between funeral planning brokers and traditional funeral service companies lies in their profit sources. While traditional practices involve funeral service companies not charging service fees but earning profits from markup on material and labor costs, funeral planning brokers primarily earn income from

service fees without markup on material and labor costs. Comparatively, consumers can save more money, and funeral expenses can become more transparent.

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