Exploring user profiles for deadbot adoption: A cluster-based analysis

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Abstract
This study explores the characteristics of potential users of "deadbots"—AI-based digital replicas of deceased individuals—among Italian Millennials and Generation Z. A structured questionnaire was administered online to a purposive sample of 415 individuals. Using constructs adapted from UTAUT2 and related literature, the survey measured performance expectancy, subjective norm, positive and negative anticipated emotions, moral norms, trust, and uncanniness toward using a deadbot. To identify distinct user profiles, a k-means cluster analysis was conducted, resulting in a two-cluster solution: Uncanny-averse (58%) and Thoughtfully curious (42%). These findings highlight two distinct user profiles with different levels of openness toward this type of technology. The study offers initial insights into the segmentation of emerging markets for grief tech and highlights the need for further modeling to predict behavioral intentions toward deadbot adoption.

Keywords: Deadbots, UTAUT2, Cluster analysis, Italy.

1. Summary of relevant literature

Deadbots are a type of chatbot built on large language models, which allow them to generate personalized responses to textual inputs in a flexible manner and to be trained to emulate the distinctive speech patterns, lexical choices, and conversational style of someone who is no longer living [1]. These digital entities replicate the beliefs, desires, and preferences of deceased individuals using comprehensive collections of digitally recorded information about a person and processed by an intelligent system capable of reproducing a person's personality [2]. Much of the literature focuses on the relationships individuals may form with a deadbot and the challenges that can arise when, instead of serving as a supportive tool to cope with the loss of a loved one, the deadbot becomes a barrier to acceptance, ultimately hindering a successful grieving process [1]. In managing emotions after a loss, a deadbot may take on a dysregulating role [3], fostering overreliance or even dependency in users and leaving them increasingly vulnerable to manipulative practices or deceptive communication by digital recreation service providers [4]. Thus, unlike passive acts of remembrance, deathbots simulate an ongoing presence, which can lead to emotional confusion or prolonged attachment, ultimately encouraging the formation of continuing pseudo-bonds [2], where "the virtual relationship with the dead becomes a chronic coping strategy of denial" [4, p. 475].

Given the psychological, emotional, and ethical complexities associated with deadbot use, it becomes crucial to investigate the profiles of potential adopters. Understanding

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the motivations that drive individuals to embrace such technology is essential for anticipating future consumer behavior and informing responsible innovation in this emerging field. Despite growing academic interest in deadbots, empirical studies focusing on user acceptance remain scarce, with existing research primarily concentrated in non-European contexts [6–7]. This study aims to fill that gap by exploring the characteristics, perceptions, and behavioral intentions of Italian consumers in relation to deadbots, offering initial insights into how this controversial technology might be received across different segments of the population.

2. Research design

This study employed a structured questionnaire administered via the Prolific platform to a purposive sample of Italian individuals in May 2025. Participants were required to be Italian and born between 1980 and 2007, corresponding to Millennials and adult members of Generation Z. A total of 417 completed questionnaires were collected. After data cleaning, 415 valid responses were retained for analysis.

Participants were first presented with a product concept description (deadbot) in line with concept testing methodology [8]. The following questionnaire comprised eight sections and 27 items, with measures developed based on a modified version of the UTAUT2 model [9]. Performance expectancy and subjective norm were adapted to the context of deadbot usage. Instead of hedonic motivation—which focuses on product use with a temporal frame oriented to the present or immediate future—the emotional dimension was assessed through anticipated affective reactions, both negative and positive. These represent the prefiguration of emotions expected to occur in the future by using the deadbot [10]. Following prior studies [e.g., 11], trust was included as a known significant predictor of behavioral intention, particularly in chatbot usage contexts. Given the ethically sensitive nature of "digitally resurrecting" a deceased loved one, personal moral norms were examined as well [12]. These norms reflect the ethical standards and principles that guide consumer behavior, expressing individuals' deeply held beliefs about what is right or wrong in consumption. Finally, the construct of uncanniness was assessed, referring to the psychological discomfort experienced when a human-like technology—such as AI agents—appears almost, but not quite, human [13]. All construct items were measured using a five-point Likert scale, ranging from 1 = totally disagree to 5 = totally agree, capturing participants' level of agreement with each statement. Lastly, participants were asked about their prior knowledge of deadbots and frequency of AI conversational agent use.

3. Results and discussion

From a sociodemographic perspective, the sample is composed of 50.1% males, 50.8% Millennials, and 42.7% students. Additionally, 53.5% are employed either full-time or part-time, 16.1% are unemployed and job seeking, and 30.4% fall into another category (not in paid work, due to start a new job within the next month, etc.).

To identify distinct respondent profiles, we conducted a cluster analysis following a multi-step preprocess aimed at ensuring data quality and dimensional adequacy [14]. First, we assessed the presence of multicollinearity among items by examining inter-item correlations. Items exhibiting multicollinearity were removed. Next, for each construct,

we computed mean scores by averaging the retained items, thereby reducing dimensionality while preserving the theoretical structure of the data. These composite variables were then z-standardized to prevent variables with larger variances from disproportionately influencing the clustering solution. We applied the k-means clustering algorithm, which partitions observations into mutually exclusive clusters based on proximity in multidimensional space. To determine the optimal number of clusters, we evaluated solutions ranging from 2 to 4 clusters using the Silhouette index [15], an internal validity criterion that measures cohesion and separation. The two-cluster solution yielded the highest Silhouette coefficient, equal to 0.52, indicating a well-defined partition with satisfactory internal consistency and between-cluster separation. The larger cluster was labeled Uncanny-averse (UA) (N=242; 58%), and the other one Thoughtfully curious (TC) (N=173; 42%) (Table 1). From a sociodemographic perspective, the TC cluster includes a higher percentage of males and, behaviorally, is characterized by individuals who use AI-based conversational agents more frequently. These findings are not discussed in the present paper due to space limitations.

Table 1 – Cluster means

Variables	**Means**	
	Thoughtfully curious	***Uncanny-averse***
Performance expectancy	2.9	1.6
Loneliness alleviation	2.8	1.6
Subjective norm	2.7	1.7
Positive emotions	2.6	1.4
Negative emotions	3.0	3.9
Trust	2.9	1.9
Personal moral norms	***2.7***	***3.9***
Uncanniness	***3.5***	***4.6***
Intention to use	3.1	1.3
Intention to create for own self	2.9	1.3
Curiosity to try	***3.8***	***1.7***

The results show that the scores of both intention to use the deadbot of a deceased loved one and intention to create one's own deadbot are modest. In the cluster labeled UA, both intentions are basically null, with a mean score of 1.3. Differently, the TC express a substantially neutral stance, with a mean of 3.1 for usage and 2.9 for self-creation. However, the TC respondents expressed a strong curiosity in trying the deadbot if the opportunity arose, with a mean score of 3.8, compared to 1.7 among the UA. This finding is interesting, as the literature suggests that curiosity enhances consumers' openness to exploring and engaging with new technologies or unfamiliar products, which can often lead to stronger purchase intentions [16]. This dynamic appears to be well understood by companies commercializing deadbots, as their pricing strategies often follow a freemium model or start with a very low entry cost—around €10—for triggering trials and increase progressively as the deadbot's interaction quality improves, reaching prices of over €100,000 for avatars.

Similar perceptions—extremely negative among the UA and largely neutral among the TC—emerge regarding the expected performance of the deadbot, which encompasses

both functional aspects (e.g., support in daily activities) and symbolic dimensions (e.g., assistance in grief processing and memory preservation) with means equal to 1.6 and 2.9 respectively, and the capacity of the deadbot to alleviate loneliness (1.6 vs. 2.8) anticipated positive emotions such as joy and happiness (1.4 vs. 2.6), negative emotions such as sadness and anxiety (3.9 vs. 3.0), and trust in the deadbot's sincerity, respect for privacy, and preservation of the deceased's dignity (1.9 vs. 2.9). The differences between the two clusters thus converge in outlining two distinct emotional–cognitive profiles: on one side, the UA express a markedly negative evaluation, dominated by distrust, negative emotional expectations, and a failure to recognize any potential benefit in using the deadbot; on the other, the TC show a largely neutral stance, characterized by moderate levels of expected performance, trust, and emotional involvement.

From a social perspective, the UA perceive strong disapproval from significant others regarding the potential use of a deadbot (M=1.7), whereas the TC once again exhibit a neutral perception, with a mean score of 2.7 on subjective norm. It is therefore plausible to hypothesize that one of the factors underlying low intention to use may be linked to the perceived social context—friends, relatives, partners, and so forth—which could discourage adoption.

Salient referents' disapproval toward the use of a deadbot may be linked to the significant ethical implications of digital immortalization, as it can be seen as an act that violates the dignity of the deceased and the traditional ways in which individuals are honored after death. Confirming the findings of previous studies that reveal widespread skepticism toward this technology—where most participants considered interacting with a digital replica of the dead to be disrespectful or even blasphemous [6]—the UAs show strong opposition based on their moral norms (M=3.9). Such opposition may be rooted in the Italian cultural context, where Catholic traditions strongly influence memorial practices and the veneration of the dead, preserving a spiritual divide between life and afterlife. Differently, a mean score of 2.7 among TCs regarding personal moral norms suggests that, for at least some individuals, deadbots are not in conflict with their value systems and ethical standards. This aligns with previous research which indicates that a post-secularization process is underway in Italy, leading to a shift in attitudes and practices surrounding death, particularly among younger generations [17].

Finally, deadbots are perceived as highly disturbing by the UA, showing a mean score of 4.6 with relation to uncanniness, while again a relatively neutral perception characterizes the TC (M=3.5). This finding is interesting when considering previous research that longitudinally examined the perception of uncanniness in interactions with the Facebook profiles of deceased individuals by their living "friends" [18]. Over a three-year period, from 2015 to 2018, the perception of "creepiness" associated with reanimated Facebook profiles disappeared, giving way to a growing sense of familiarity with this type of posthumous interaction. To date, digital memorialization practices and interactions with the profiles of deceased individuals on social media platforms are widespread and largely regarded as normal [19]. It is therefore plausible to assume that, given the scalability and qualitative improvement of the technology, as well as changes in the socio-cultural characteristics of consumers, deadbots may also become widespread within few years, representing just another way to remember those who are no longer with us while maintaining healthy continuing bonds. In this regard, it is enough to

consider that on Chinese e-commerce platforms, deadbots are available for as little as 10 yuan (around €1.30) [20].

4. Conclusion and future research

This study presents the results of an initial analysis aimed at exploring the characteristics of potential deadbot users within a sample of Italian consumers. The next steps of the research involve adopting more advanced statistical methods to test a conceptual model predicting the intention to use a deadbot, assessing if and to what extent the investigated variables influence behavioral intention.

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