Consumers attitude towards subscription-based shopping and sustainable disposal practices

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ABSTRACT

Sustainable production should be one of the core values of any organization. Organizations should be well aware of the adverse impact it creates on the environment due to their operations and should take steps to produce their goods in sustainable manner. Clothing brands should encourage their consumers to adopt sustainable disposal behavior and communicate their messages regarding sustainable development. Every year million tons of clothes are dumped into landfills which is an environmental concern. With increasing clothing waste, there's lack of landfill sites for disposal. Circular Economy is a term mainly used when we talk about waste reduction. The term basically deals with recycling used products, extracting starting materials and sending it back to manufacturers for producing a new set of products. Thus, the main objective of this paper is to understand consumers' attitude towards sustainable disposal practices and their willingness toward an alternate way of shopping clothes. The study involved an exploratory research by quantitative analysis of responses collected from millennials. Factor analysis was performed using SPSS to determine components. Findings reveal that consumers would participate in recycling activities if brands offer such policies and had shown moderate interest towards subscription-based shopping.

Keywords

Subscription-based shopping, Reverse logistics, Sustainable Disposal Behaviour, Circular Economy, Millennials

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Introduction

With increasing population and per capita income, consumption has increased significantly. In case of textile industry, increase in consumption can be mainly attributed to rapid-changing, fast and affordable fashion which in turn has resulted into increasing amount of textile waste. Textile production involves series of steps, bulk materials and extensive consumption of utilities which ultimately affects the environment. Energy consumption, water, dyes, chemicals, green-house gas emissions adversely affects our environment[1]. Thus, one can say that textile manufacturing is one of the most polluted industries in the world.

Consumers are rapidly changing their styles mainly due to lower prices in shorter time cycles offered by clothing industry. It has been evident that fast-fashion is a successful and attractive business model in which brands are offering affordable and throwaway goods at low prices with multiple seasons instead of the conventional two seasons per year. With ever growing consumption of fast-fashion clothes and textile disposal, share of textile among solid waste has also increased manifold. Textile ranks third after plastic, paper and compost in terms of waste generated but the concept of circular economy is still not applied in the apparels industry in India. The industry has been following linear economy, unlike circular economy which promotes reduce, reuse and recycle policy for products and materials. The transition from linear economy (LE) to circular economy (CE) is a daunting task for many organizations as it involves several changes throughout the value chain such as forming new partnerships, restructuring product design, closed-loop cycle to convert waste into a valuable resource and changing business models. CE focuses on maximizing

product's lifecycle from end-to-end supply chain, from product usage to disposal, promoting practices such as zero-waste, reusability, repairability and resource sharing [1]. Every year more than 1 million tons of textile waste is generated and is expected to rise in the future where major chunk of waste is dumped into landfills or is incinerated. Thus, circular economy is the need of the hour with sustainable disposal practices being held at core of the business model.

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Sustainability for fashion industry could be achieved by making use of Eco-fashion materials in fashion design where these materials are made of organic, recyclable and renewable materials. Recycling is one of the most common terms used in sustainable development so this could also be an alternate path for textile industry to achieve its sustainability goals. We all are familiar with the term recycling but Eco-fashion clothes is newly introduced. Eco-fashion clothes could be defined as any type of clothes which are designed with organic and recycled materials. The environmental impacts caused by using virgin textile for production could be compensated by reuse and recycle of used or unwanted clothes [2].

Brands are extensively focusing on promoting sustainable apparels through transparent communication and awareness campaigns regarding sustainability in order to follow sustainable practices [1]. However, this communication is most often ignored or avoided by consumers and thus it results into lack of knowledge about sustainable apparels that are being produced. Despite being less harmful to the environment, buyers for sustainable clothes are abysmal. Consumers lack information regarding adverse impacts created on the environment due to their disposal activities. Since, focus on apparels made of recycled materials or sustainable disposal is still at nascent stage consumers are

unaware of benefits of using clothes made of recycled materials. Appropriate communication channels should be deployed in order to educate consumers and spread awareness regarding sustainable disposal practices. The main objective of this research is to understand consumer's attitude toward subscription-based shopping and sustainable disposal practices by giving away their used or unwanted clothes for recycling.

Literature Review

Consumers' purchasing decision is highly determined by price rather than sustainability factors. Researchers found that consumers consider price and quality of an apparel as significant factors while sentimental and social to be important but only supplementary to their purchasing decision. It's observed that sustainability is given low priority by consumers while making a purchase decision. The concept of sustainability will sound more profound for people who are concerned about the environment. However, for young consumers sustainable fashion is still a utopian concept and for them fashion and sustainability are different concepts although they appreciate the idea of sustainable fashion [1,3].

Looking at the other spectrum of consumer behavior -Disposal practices for Indian consumers is slightly different. Most of the apparel consumers give away their clothes to charity, family or friends or reuse it for other purposes while only a few give away their clothes for recycling. Fast-fashion apparels has resulted into excessive disposal of used clothes since it offers lower turnaround time, rapid production and plays with consumers psyche by generating scarcity of new fashion apparels [4]. Brands have started realizing the fact their existing practices are adversely impacting the environment. Thus, they're trying to adopt newer business models in order to achieve sustainable goals. Hence, apparel brands are moving towards circular economy. In circular economy, recycled materials are introduced in the value chain through repetitive processing and manufacturing steps which degrades the quality of fibers and hence making it less useful for manufacturing new clothes [5]. Therefore, companies will have to focus on innovative techniques for recycling used clothes to ensure quality fibers are obtained and in turn can be used for manufacturing new apparels.

LE to CE involves a series steps for smooth transition one such proposed strategy could be three-tier framework which can be categorized as District, Aggregator, and Peripheral level involving many stakeholders and several steps. Some countries have started implementing circular economy, China follows a top-down approach with horizontal and vertical landscape and has been derived through political agenda. Europe follows bottom-up approach with environmental activists, citizens, and NGOs as key drivers. Their demand is for greener products and active participation from both private brands and government institutions [5, 6]. Across the globe, circular economy is still at introductory stage and highly focusing on recycle rather than reuse.

Clothes recycling basically refers to reprocessing preconsumption and post-consumption textile waste. There are three possible routes for recycling namely – mechanical, chemical or thermal. Chemical recycling is a process in which polymers are depolymerized or dissolved to obtain molecular level chemicals where polymers are re-spun to produce new fibers but before recycling mechanical treatment is done. Based on the level of recovering materials we have different recycling stages. Fabric recycling – fabric of the product is retained and reused in manufacturing new products. On further processing we get recycled fibers where fabric is broken down and fibers are recovered and used for manufacturing new products and the terminology used is fibers recycling. Monomers and oligomers could also be recycled on further processing [7, 8]. There are two types of recycling - downcycling and upcycling. Downcycling is the process in which the recycled material obtained is of lower quality than its original form. Most of the existing textile recycling processes are downcycling. Clothes and household textiles are downcycled into rags, blankets, and insulation materials. Whereas, upcycling is the process in which the recycled material obtained is of higher quality than its original form. Fabric and fiber recycling will yield downcycled materials. Recycling process can also be categorized in terms of closed-loop and open-loop. If the recycled material is used in similar product then it's called closed-loop recycling. On the other hand, if the recycled material is used in different product then it's called openloop recycling [7, 11].

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Reuse, recycle or disposal of used or unwanted clothes will totally depend on sorting process [9]. Therefore, a protocol should be prepared for sorting method and a few firms have already started preparing standard operating procedure for sorting and separation process of apparels [10]. Sorting process is typically classified into various stages. For recycling, used or unwanted clothes can be collected from recycling bins located in public places, NGOs that organize clothes recycling drives or doorstep pick-up. Partnering with clothes recycling firms to collect used clothes from consumers can play a pivotal role in successfully running take-back initiatives organized by leading brands [6,8]. In conclusion, collection and sorting processes are vital before undertaking recycling activities. There's scope for improving waste management and waste reduction by adopting sustainable disposal practices but due to lack of awareness and low media coverage on sustainable aspects majority of consumers are still following traditional route for disposing their used or unwanted clothes.

Leveraging appropriate communication channels can encourage consumers to recycled clothes, and sustainable clothes. Most consumers are unaware of how apparels are manufactured, environmental consequences of using synthetic fibers and intensive textile production [12]. Increased media coverage and strong communication regarding superior-quality clothing and sustainability is to be conveyed in order to educate consumers. Communication should be brief, engaging and comprehensive for the target audience. Celebrities, designers, advocates and entrepreneurs play a key role in effectively communicating the message [1].

Social media platforms are widely used by brands to engage and communicate with their consumers. By leveraging this channel, brands should educate their consumers about sustainable consumption and introduce eco-fashion clothes [2]. Brands should also focus on store appearance while introducing sustainable apparels besides product-linked attributes such as price, quality, and design [12]. It is evident that communication creates an impact on consumer behavior and also influences their disposal behavior [1]. Currently, there's lack of knowledge regarding where and how clothes are being disposed of and therefore, it is important to educate consumers to adopt sustainable disposal practices by encouraging them to give away their clothes for recycling or drop at collection points. Few brands such as H&M, Mark & Spencer, and IKEA have started with take-back schemes to encourage their consumers to bring their used or unwanted clothes for recycling as an initiative towards sustainability [12].

The cognitive parameters that gets affected when exposed to a particular media message are attitudes, norms and self-efficacy. Consumers' attitude towards buying sustainable apparels totally depends on the benefits derived from these apparels after purchasing them. Couple of norms such as subjective and descriptive influences consumers' purchase intentions. Subjective norms such as pressure to follow social environment to purchase sustainable apparels and measures to comply with this environment. Whereas descriptive norms refer to individual's belief to follow peers who are buying sustainable apparels within his social environment. Self-efficacy also affects consumers' purchase intention towards sustainable apparels since it describes their potential to buy such products [12].

Media exposure influences purchase intention of consumers. Social media platform and fashion magazines play crucial roles in influencing consumers' purchase intention. Further, it is known that different media channels will provide different extent of information regarding sustainable apparels [1, 12]. This difference in effectiveness of media channels will have varied impact on consumers cognition and purchase intention to purchase sustainable apparels.

Research methodology

Millennials and Gen-Z are growth drivers for fast-fashion apparels and they're the ones who have started raising concerns related to environmental ill-effects. This is an exploratory research and thus, it focusses on millennials and Gen-Z to understand their purchase and disposal behavior. The responses were collected via means of snowball sampling and also the form was shared across social media platforms for wider reach. Snowball sampling also referred as network-chain sampling is a non-probability and nonrandom method in which parameters to be determined of sample respondents are seldom and difficult to trace. It seems to be very difficult to obtain the relevant contact and later the level of complexity will depend on the willingness of respondents to share contacts and give your reference. This sampling method involves one sample respondent nominating another corresponding respondent for the research. Snowball sampling method is usually generating additional respondents through referrals from initial respondents. Therefore, while applying this sampling method sample respondents are obtained via referrals forming a chain-network. There are different types of snowball sampling methods namely Linear, Exponential discriminative and Exponential non-discriminative sampling method. For this research, Exponential non-discriminative sampling method is used for collecting responses [13].

As per research objectives, a survey questionnaire consisting of close-ended questions was prepared to evaluate demographics, existing purchase behavior, disposing activities, environmental concern, willingness to participate in recycling, likelihood to opt subscription-based shopping. The questionnaire involved mixed of multi-choice and Likert scale questions with one means strongly disagree/very unlikely and five means strongly agree/very likely. In the past research conducted were focused on – a) reverse clothing supply chain where value-creation for each supply chain components was the objective, b) pilot run of in-store garment take-back initiatives and associated challenges, and c) Consumers' purchase intention for Ecofashion clothes (made of recycled materials).

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The questionnaire was prepared using Microsoft forms and the link was forwarded to sample respondents. Total 166 responses were collected and there was a diversity among respondents such as students from various backgrounds and working professionals. To determine whether respondents purchase fast-fashion clothes, a yes/no item was prepared; "Do you purchase apparel products from outlets that stores fast-fashion brands such as Zara, UCB, etc.". To determine number of apparels purchased in a year, multiple choice question with item range was prepared; "How many apparels do you purchase per year?" and the respondents were supposed to select an option with 5-apparels interval such as below 5, 5-10, 11-15, 16-20, and above 20. To determine the number of apparels disposed of by consumers per year, multiple choice question with item range was prepared; "Number of apparel items you dispose of per year?". To understand consumers' current disposal activities, and environmental concern, a five-point Likert scale for measurement was prepared with 1 indicating strongly disagree and 5 indicating strongly agree. Similarly, to measure consumers' willingness to opt for clothes recycling and willingness for subscription-based shopping; a five-point Likert scale for measurement was formed with 1 indicating very unlikely and 5 indicating very likely.

Results And Analysis

Descriptive statistics, correlation among variables/items, and number of factors/components were calculated using SPSS as a statistical tool for analysis. Factor analysis was performed to determine number of components and categorize these components

Microsoft form comprising of structured questionnaire was circulated among respondents and a total of 166 responses were collected. Table 1 shows the demographic profile of respondent. 75% of total respondents were male while remaining 25% were female. Majority of respondents belong to (18 - 24) years and (25 - 30) years age group category. 52% of respondents belong to (18 - 24) years and 42% of respondents belong to (25 - 30) years age group category. From descriptive statistics, it could be observed that 79% of respondents purchase their apparels from stores which are having fast-fashion brands while remaining 21% don't visit such retail stores. On an average, 43% of respondents spend between (5000 - 10000), 31% spend less than 5000, 16% spend between (10001 - 15000) and remaining 11% spend above 15000 per year on apparels. It was found that 45% of respondents bought (6 - 10), 33%

bought less than 5, 15% bought (11 - 15), 4% bought (16 -20), and remaining 3% bought more than 20 apparels in a year. On the other hand, number of apparels that were disposed of per year by respondents – 82% of respondents disposed of lesser than 5 clothes, 15% disposed of (6-10), and only 3% disposed of (11 - 15) clothes per year. To determine consumers' disposal behavior, they were asked a question related to discarding method and it was found that 41% of respondents give away their clothes for charity, 30% give away to their family/friends, 23% reuse for other purposes, 4% throw-away, and only 2% recycle their used clothes. When respondents were asked whether they're currently giving away their used or unwanted clothes for recycling, 85% responded no and only 15% responded yes.

DEMOGRAPHIC PROFILE TABLE I. RESPONDENTS

Terms	Category	Responses	% Responses
Gender	Male	124	75
	Female	42	25
Age	Below 18	4	2
	18 – 24	85	51
	25 – 30	69	42
	Above 30	6	4
Total		166	100

TABLE II. APPAREL SPENDS PER YEAR

Category	Responses	% Responses
less than 5000	51	31
5000 - 10000	71	43
10001 - 15000	26	16
Above 15000	18	11
Total	166	100

TABLE III. APPAREL PURCHASED PER YEAR

Category	Responses	% Responses
Less than 5	55	33
6-10	75	45
11 – 15	25	15
16 – 20	6	4
More than 20	5	3
Total	166	100

Factor analysis method was employed to identify different components based on responses collected. In factor analysis, maximum likelihood method with Promax rotation was applied in order to get better results. Following tables are obtained using SPSS:

KMO and Bartlett's test A.

From table 4, it can be commented that there's significant correlation among variables since sig value is less than 0.05. Also, KMO value is greater than 0.5 which indicates sample adequacy.

В. Communalities

Table 5 indicates the amount of variance of each variable with respect to all other variables.

C. **Eigenvalues**

There are three factors with eigenvalue greater than 1 and thus, this indicates there are three components or factors on which all variables have loaded. In this case, cumulative eigenvalue of all three factors is 72% as it can be observed from table 6.

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D. **Pattern Matrix**

Pattern matrix is more preferred because itclearly indicates factor loadings of variables on a given factor. This indicates the number of variables that are loaded on a given factor. Five variables are loaded for factor 1, three variables for factor 2, and two variables for factor 3 as it can be observed from table 7.

E. **Factor correlation matrix**

Components are not highly correlated with each other by selecting Promax rotation as it can be observed from table 8.

TABLE IV. KMO AND BARTLETT' TEST Kaiser-Meyer-Olkin 0.78 Measure Sampling Adequacy. 724.381

Approx. Chi-Square Bartlett's Test of Df 45 Sphericity Sig.

> TABLE V. **COMMUNALITIES**

	Initial	Extraction
Recycling bins	0.399	0.645
Protect environment	0.4	0.547
Reduce Environmental effects	0.482	0.567
Brand Influence	0.643	0.77
Awareness regarding recycling	0.546	0.612
Take-back initiatives	0.574	0.508
Doorstep pick-up	0.584	0.512
Sustainable buying	0.462	0.561
Alternate buying	0.597	0.787
Personalization buying	0.509	0.591

Extraction Method: Maximum Likelihood

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TABLE VI. EIGENVALUES

TABLE VI. EIGENVALUES						
Factor		Initial Eigenvalues			Rotation Sums of Squared Loadings ^a	
		Total	Varia- nce%	Cumul- ative %	Total	
	1	3.89	38.9	38.93	3.191	
	2	1.77	17.7	56.65	2.471	
	3	1.58	15.8	72.46	1.326	
	4	0.69	6.94	79.4	0.0	
dimension0	5	0.47	4.71	84.11	0.0	
	6	0.39	3.93	88.05	0.0	
	7	0.39	3.9	91.95	0.0	
	8	0.29	2.87	94.81	0.0	
	9	0.28	2.83	97.64	0.0	
	10	0.24	2.36	100	0.0	

Extraction Method: Maximum Likelihood

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance

TABLE VII. PATTERN MATRIXA

	Factor		
	1	2	3
Brand Influence	0.897		
Awareness regarding recycling	0.77		
Reduce Environmental effects	0.752		
Take-back initiatives	0.661		
Doorstep pick-up	0.621		
Alternate buying		0.872	
Sustainable buying		0.777	
Personalization buying		0.715	
Recycling bins			0.804
Protect environment			0.732

Extraction Method: Maximum Likelihood

Rotation Method: Promax with Kaiser Normalization

A - Rotation converged in 4 iterations

TABLE VIII. FACTOR CORRELATION MATRIX

Factor		1	2	3	
dimension0	1	1	0.42	-0.07	
	2	0.42	1	-0.004	
	3	-0.07	-0.004	1	

Extraction Method: Maximum Likelihood

Rotation Method: Promax with Kaiser Normalization

Discussion

Findings from the SPSS tool has prompted that out of 13, 10 variables have loaded on three factors which could be named as Recycler Enthusiasts, Subscription-based shoppers, Non-environmental savvy. For subscription-based shopping, all three ¬variables loaded on a single factor and thus named it as Subscription-based shoppers. 3 out of 4 variables which were related to environmental concern loaded on a single factor and thus named as

Recycler Enthusiasts. Whereas in case of variables for anticipation for sustainable disposal, both variables loaded on Recycler Enthusiasts. Therefore, total 5 variables loaded on Recycler Enthusiasts. None of the variables related to existing disposal practices loaded on any factor except 1. Variables from disposal practices and environmental concern loaded on a single common factor which was named as Non-environmental savvy.

From correlation matrix, it was observed that variables related to environmental concern and anticipation for sustainable disposal were correlated to each other, variables under subscription-based shopping were correlated to each other. Three variables whose communalities values were less than 0.5 were not considered for analysis. Variables related to donation or charity, family or friends and reuse were eliminated.

Pattern matrix yielded three factors on which 10 variables are loaded. Here, variables with factor loading less than 0.3 have been eliminated for analysis. Initially, factor analysis was performed using principal component analysis method and varimax rotation which is an orthogonal rotation. Results from component transformation matrix were less convincing since factors 2 and 3 were highly correlated with each other. Hence, maximum likelihood method was preferred with Promax which is an oblique rotation and Kappa = 4. As per component transformation matrix, all three variables were not highly correlated with each other. Similar results were obtained with principal component method and Promax rotation.

Conclusion And Recommendation

With increasing consumption of fast-fashion clothes, disposal of used or unwanted clothes is also increasing. This research was conducted to evaluate consumers' attitude towards their existing disposal practices, environmental concerns, and their willingness to opt for alternate shopping mode. Analysis of responses hinted that consumers purchase apparels not with an intent to protect the environment and currently they're not giving away their used or unwanted clothes for recycling. When respondents were asked questions related to participation in recycling activities, mean of their responses was around 4 which indicates quite certain about anticipating recycling of clothes but provided when brands are willing to educate their consumers and offer take-back schemes. Based on consumers' responses it could be concluded that there's lack of knowledge among consumers regarding sustainable disposal practices and they feel that brands should take initiatives to spread awareness regarding waste generated due to excessive disposal of used

or unwanted clothes and how it affects the environment, and how they can adopt sustainable practices to reduce this waste.

By analyzing consumers' responses for subscription-based shopping, it can be concluded that consumers had shown moderate interest in opting for an alternate mode of shopping provided it serves purpose of sustainability, meets their current expenses, and offers personalized subscription packages. Consumers' responses also indicated that majority of them are giving away their clothes to charity or donation, family or friends but only a few them were sending their clothes to recycling bins. Another insight that could be captured from analysis report is by comparing consumers' purchase and disposal behavior. Majority of consumers purchase 5-10 apparels in a year in contrast majority of them are disposing less than 5 apparels per year. It could be concluded that consumers are hoarding clothes and despite buying more clothes they're still not participating in recycling of clothes. Also, this research points out the gap between consumers' attitude towards environmental concern and disposal behavior.

There are some implications for fast-fashion clothes suppliers that could be pointed from this research. The way brand engages with its consumers before purchase of apparels similarly they should show same level of engagement with consumers for changing their disposal behavior. They should offer take-back schemes to collect used or unwanted clothes from consumers by providing services such as doorstep pick-up or incentives on returning used clothes. In fact, findings from this research have shown that consumers are more likely to give away their clothes for recycling if brands offer incentives or pick-up their used clothes via means of reverse logistics services.

It is recommended that brands should create content which educates consumers and promotes culture of sustainable consumption by means of relevant marketing communication channels. Communications through advertisements should focus on advantages of recycling such as solid waste reduction and manufacturing new products. Brands should keep eco-friendly clothes or clothes which are made of recycled materials so that consumers can get a feel of that product [1, 12].

Economic and Corporate responsibility are considered as key drivers for fashion brands which are planning to implement reverse logistics. Economic drivers indicate that reverse logistics has a potential to improve profit margins by reducing cost, increase customer reach, and higher revenues [14]. Although, reverse logistics may not provide immediate profits but it will provide other benefits such as better corporate image and competitive advantage which may improve company's future cashflow.

Limitations

This study is limited to consumers' disposal behavior and evaluating their willingness to adopt an alternate mode of shopping. Anticipation for recycling and alternate shopping mode could also be evaluated by other factors such as consumers lifestyle, shopping preferences, and purchase intention. Consumers who are materialistic, fashion-oriented and compulsive buyer thus, an independent research should be conducted to understand those consumers' disposal

behaviors. An independent research should be carried out to understand consumers' hoarding behavior because through this research it was observed that there's significant difference between apparels purchased and apparels discarded per year by consumers.

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The sample size of this research is limited to college students and young working professionals, and it was purposely restricted because these group of people are fashion-oriented and has higher consumption of fast-fashion apparels. Some researchers have also focused on older age groups to understand their purchasing and disposal behavior. It was found that older people are more responsible about disposing their used or unwanted apparels and also hoard more clothes than younger ones [4]. Future studies should consider older age group and understand their hoarding behavior and participation in recycling.

It's important to understand what challenges brands will face while engaging with reuse and recycling practices since it's a new task for fashion industry. Companies lack knowledge and experience with collection, redistribution and recycling and thus, they see reverse logistics as a big challenge. It is observed that there are lot of complexities involved with respect to collection method, infrastructure, location at which clothes are returned and destination of the product. Since, there are no ideal practices and laws guiding fashion industry companies find it very difficult to implement reverse logistics model which shall affect their profit margins. For brands which have global presence and complex distribution network for them take-back initiatives are really challenging and therefore they have to outsource this activity ensuring it provides benefits for both the company and the consumer [14].

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