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## SUPPLY CHAIN MANAGEMENT OF HERBAL PRODUCTS

### - A Conceptual Framework

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#### **Abstract**

The supply chain environment in this new period is more complex than it formerly was, due to increased law enforcement, more regulations, access to new and unique markets, and significant technical advancements. It has become more challenging for single operator to carry out and meet the ever-growing consumer demands for speedy delivery, flexibility, cost effectiveness, quality, and customisation without having to integrate their vendors into the supply chain purview at all levels. Furthermore, they are unable to accomplish those criteria without gratifying the vendor, and, without successfully exceeding vendor expectations. Relationships are crucial in this process and play a crucial part in the coordination and integration of supply chain activities and processes as well as in maintaining the best relationship practices between customers and suppliers. Women have an obsession with appearance. They therefore, utilise a variety of herbal-infused beauty products to seem lovely and youthful. The use of Indian plants is well known around the world. A natural product that is in high demand on the global market is a herbal cosmetic. Because of their potent effects and comparably less or almost absent adverse effects as compared to synthetic medications, herbal formulations have long drawn significant attention. Spices and herbs have been utilised to preserve and improve human beauty. Indian women have historically utilised henna to colour their hairs, hands, and soles, sandalwood and turmeric for skin treatment, and

natural oils to perfume their bodies. The introduction, categorization, and common herbs used in cosmetics are all covered in this article.

**Keywords:**Herbal cosmetics, Herbal Cosmeceutical, Supply Chain Management, Natural Product.

## 1. INTRODUCTION

The Greek term that gave rise to the word "cosmetic" is having the ability to plan, organise, and use decorating. The history of cosmetics is an ongoing process, narrative as they evolved throughout human history. The first man, in 3000 BC, utilised colour for adornment to draw the creatures he wanted to hunt. Nevertheless, the individual escaped an opposing attack by adorning his body and colouring his skin as a form of defence to still dread in a foe (whether man or animal). The history of cosmetics was influenced by warfare, later linked to superstition, religion, and medicine.

Herbal cosmetics, hereby referred to as "Products," are prepared utilising a variety of cosmetic materials that are legal to use as base and one or more herbal ingredients to deliver certain cosmetic benefits solely.

Starting in the 1990s, cosmetic manufacturers adopted the term "cosmeceuticals" to refer to over-the-counter skin care products that included plant-based active ingredients such as alpha-hydroxy acid, retinoic acid, ascorbic acid, and coenzyme and assert therapeutic benefits. These active compounds have multiple functions, including improving skin suppleness, decreasing wrinkles, protecting against UV radiation, and preventing collagen degradation, amongst others. Every individual's skin and hair beauty are influenced by their health, lifestyle, jobs, climatic conditions and upkeep. Overheating during the summer leads the skin to become dehydrated, which results in wrinkles, freckles, pimples, pigmentation, and sunburns. The harsh winter can harm your skin by causing infections, maceration, cracks, and wounds. Skin conditions are prevalent across all age groups and can result from exposure to bacteria, chemicals, biological toxins as well as, to a lesser extent, malnourishment. The ayurvedic knowledge of nature was the only thing on which they could rely. The ayurvedic science has used a variety of herbs to create cosmetics for protection against the ailments and increasing attractiveness. The natural components of the botanicals do not have any negative effects on the human body; rather, they enrich it with vitamins, minerals, and other beneficial substances. The Medicines and Cosmetics Act defines cosmetics as substances that

are meant to be rubbed, poured, sprinkled, sprayed, injected into, or otherwise applied to the human body or any portion of it for washing, beautifying, increasing attractiveness, or changing the appearance. The cosmetic is not covered by a drug licence pre-approval. The term "herbal cosmetics" refers to products made with phytochemicals derived from a variety of botanical sources that influence skin functions and supply nutrients for healthy skin or hair. Herbal cosmetics refer to natural plants and their products that are utilised for their aromatic properties in the creation of cosmetics. The need for natural ingredients and natural extracts in cosmetic preparations was sparked by consumers' growing knowledge of the skin-harming effects of chemical-based cosmetics and their greater interest in herbal remedies. New opportunities in the cosmeceutical business have been opened up by the rising demand for natural products.

The Pharmaceuticals and Cosmetics Act states that herbs and essential oils used in cosmetics cannot make claims that they can penetrate deeper than the skin's outer layers or have any therapeutic properties. The legal requirement and the regulatory procedures for herbal cosmetics are same as chemical ingredients used in cosmetic formulations.

**The necessities for basic skin care are as follows:**

- a) **Cleaning Agent:** which clears the dirt, dead skin cells, and dust that clog skin pores. Vegetable oils including coconut, sesame, and palm oil are some of the popular cleaners.
- b) **Toners:** Toners aid to tighten the skin and shield it from various environmental pollutants and many of the chemicals that are present in the air. Witch hazel, geranium, sage, lemon, ivy, burdock, and essential oils are a few of the herbs used as toners.
- c) **Moisturizing:** Moisturizing makes the skin supple and velvety. Those who moisturise have a healthy glow and are less likely to age. Vegetable glycerin, sorbitol, rose water, jojoba oil, aloe vera, and iris are a few of the herbal moisturisers.

**The following major categories can be used to classify Herbal Cosmetics:**

- a) Cosmetics that improve the look of facial skin.
- b) Cosmetics for maintaining and growing hair.
- c) Skincare products, especially for teenagers with acne, pimples, and maintaining skin.
- d) Soaps, powders, shampoos, perfumes, etc.
- e) Miscellaneous kinds.

Last but not the least, one should keep in mind that at the height of the Supply Chain Management System with collaborative logistics, every supplier will have a buyer, and vice versa, and all of these partners have shared objectives and obligations, as well as collateral and reciprocal risks. It is the most difficult type of collaboration because the strength of the partnership totally depends on the leadership interests and attitudes of the two parties. This model, which serves as a tool for harvesting the potential of supply chain management, will be the most rewarding model and offer the highest potential to all partners involved if vendor satisfaction in the supply chain is achieved. It will be suitable for manufacturing or production industries in general and for the manufacturing and servicing of herbal products in particular. The realisation that "VasudhaivaKutumbakam" ("the world is one family") is at the core of all these arrangements, which are essential to the SCM's success when together with mutual trust and open communication, will come into reality.

## **2. MAJOR COMPONENT OF NATURAL COSMETICS USED FOR SKIN AND HAIR**

In modern times, when the negative consequences of food processing and overmedication have taken on alarming proportions, herbs play a crucial role. They are now being used more in alternative medications, meals, and beverages as well as cosmetics and teas. The drive towards changing lifestyles includes the growing interest in herbs. This concept is founded on the idea that plants have a huge potential for use as therapeutic agents.

**Oat (*Avena sativa*)** that is grown for its seed, which is referred to by the same name (often in the plural, unlike other grains). In addition to being eaten for their nutritional value, oats are also known to have soothing and therapeutic effects. The complete oat kernels' biological worth is preserved thanks to the delicate extraction method utilised for oat oil. Oat oil is a natural emollient, a good source of vital fatty acids, and an antioxidant. Since its qualities bring special benefits, oat oil is utilised in numerous lotions, creams, face oils, salves and balms.

**Tulsi (*Ocimum sanctum*)**, often known as holy basil, is a staple of Hindu religion. It's possible that the "holy" connotation came from its use as a medicinal herb.

**Ghritkumar (*Aloe vera*)** is a very clever combination of an antibiotic, an astringent coagulating agent, a painkiller, and a growth stimulator (sometimes known as a "wound hormone"), and it is used to hasten the healing of wounds. It is applied both externally and internally and is used to treat sunburn, scratches, and haemorrhoids as well as for body or skin purging and pain relief. It promotes the growth of new tissue and slows the progression of skin cancer brought on by the sun.

**Chamomile (*Matricaria chamomilla*)** is the annual plant, popularly known as scented mayweed or German chamomile (sometimes written camomile), is a member of the broad Asteraceae family. Moreover, chamomile is used cosmetically, primarily as a rinse for blonde hair and a yellow fabric dye.

**Vertiver and Chandan (*Usheer*)** was administered to the face and entire body as washes and face packs to remove dead skin cells, promote the formation of new cells, and give skin a youthful appearance.

**Haldi (*Turmeric*)** together with usheer (vertiver), was applied to the face as a face pack and as an antibacterial.

### **3. COSMETICS MADE WITH MEDICINAL HERBS**

Experienced sages who have studied ayurveda generally agree that the purpose of ayurvedic medicines is to purify blood and eradicate vitiated doshas (Vata, Pitta and Kapha), which are

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mostly to blame for skin conditions and other illnesses. The sage Charakh included various medicinal plants in Varnya Kashaya, which is among the documented knowledge on ayurveda such in Charakh Samhita. The aforementioned herbs can be used to achieve a radiant complexion. Chandana, Nagkeshara, Padmak, Khus, Yashtimadhu, Manjistha, Sariva, Payasya, Seta (Shweta Durva), and Lata are among the herbs whose descriptions and uses can be found in Ayurveda inscriptions (Shyama Durva). There is also mention of a number of KushthagnaMahakashaya herbs, including Khadira, Abhaya, Amalaki, Haridra, Bhallataka, Saptaparna, Aragvadha, Karavira, Vidanga, and Jati, which are good treatments for skin conditions. Like the notifications of charakh and other sages, Sushrut said that EladiGana contains, -Ela, tagar, kusstha, jatamansi, tvak, dhmamaka, patra, nagkeshar, priyangu, harenuka, vyaghranakha, shukti, sstouneyaka, choraka, shriveshta, khus, goggol, sarjarasa, turushka, kundaru, agaru, ushira, devdaru, keshara, and padmakeshara. All of these herbs can help the body get rid of toxins, clear up the skin's appearance for a healthy glow, and treat boils, kusstha, and puritus.

Few are the basic hair care tips for daily purpose:-

**a) Therapy for Dandruff**

The most popular herbs used in Ayurvedic medicine include Neem, Kapoor (naphthalene), Henna, Hirda, Behada, and Amalaki. Other herbs include Magic Nut, Bringaraj, Rosary Pea, Sweet Flag, Cashmere tree, and Mandor.

**b) Henna**

Lawsoniainermis, a member of the Lythraceae family of plants, contains the colour molecule Lawsone, which when processed yields henna powder. Henna can "stain" the colour onto the hair shaft because of its inherent affinity with the proteins in our hair.

**c) Amla**

The plant Emblica Officinalis, which belongs to the Euphorbiaceae family, provides amla. Amla is abundant in vitamin C, tannins, and minerals like phosphorus, iron, and calcium that nourish hair and also encourage hair to darken. Hibiscus contains calcium, phosphorus, iron, vitamin B1, riboflavin, niacin, and vitamin C, which are used to promote the growth of thicker hair and delay the onset of greying.

#### d) Almond Oil

The *Prunus dulcis* tree yields the almond oil. 78% of this fat is really found in almond oil. Super-unsaturated Omega-3 necessary fatty acids are present in extremely modest quantities in this oil. It softens and strengthens the hair and is incredibly nutritious. Moreover, almond oil shows to be an excellent cleaner. Even before almond oil became widely utilised as a commercial agro-product, it has been used for many millennia.



Source: <https://univdatos.com/report/india-herbal-personal-care-product-market>

**During the next five years, the market for herbal beauty products is anticipated to grow at a 6.7% CAGR.**

- a) Over the projected period, it is predicted that the propensity for improved looks and appearance along with rising consumer adoption of herbal products would favour the growth of the herbal beauty products market globally. Due to growing consumer knowledge of the negative consequences of the chemicals added to beauty products, there is an increased demand for herbal beauty products.
- b) In order to reach more people who are becoming increasingly passionate about clean, green, and herbal goods, beauty corporations have begun buying herbal beauty and personal care brands. The growing popularity of cosmetics including naturally derived herbal ingredients like lavender, chamomile, rosemary, jojoba oil, aloe vera, etc. to

cure acne, and hair problems is predicted to fuel the market for herbal beauty products.

- c) Herbal extracts are mainly used in beauty products because they typically have potent antibacterial and antioxidant actions as well as pigmentation inhibition. Furthermore, vitamins, witch hazel, willow herb, green tea extract, and botanical extracts are among the herbal elements that shield skin from UV radiation and pollutants. The demand for herbal beauty products will rise as a result of all of these causes.

#### **4. OBJECTIVES OF THE STUDY**

The objectives are as follows:

- a) To understand the concept of supply chain management of herbal products.
- b) To determine how the supply chain management is affecting the availability of herbal products.
- c) To examine whether the factors of supply chain management effects the market of herbal products.
- d) To highlight the importance of supply chain management in herbal product market.

#### **5. REVIEW OF LITERATURE**

The modern manufacturing techniques and the societal acceptance of herbal cosmetics have led to an oversupply of herbal formulations on the market. Herbal cosmetics have recently received widespread attention and grown in popularity. These goods made claims about their effectiveness and inherent acceptability based on their regular usage in daily life and the absence of negative effects, sometimes associated with synthetic products. These skin cosmetics are made with multifunctional herbs that are antioxidant, anti-inflammatory, antiseptic and antibacterial. In addition to scientific information and the potential aesthetic value of the herbs used in the manufacture of these formulations (Ashawat, et. al 2009).

Herbal cosmetics are created by mixing one or more herbal substances with other cosmetic elements to treat a variety of skin conditions. By virtue of their name, herbal cosmetics are supposed to be all-natural and free of any potentially dangerous synthetic chemicals that could hurt the skin. Natural cosmetics are safer to use than other cosmetics.

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Cosmeceuticals are cosmetic-pharmaceutical hybrid products created with the goal of enhancing the health and beauty of the skin by achieving a particular goal, such as reducing the appearance of wrinkles or controlling acne. Depending on the sort of functional substances they include, cosmetics provide therapeutic advantages that influence how the skin functions biologically. These cosmetics are intended to treat a variety of skin conditions in addition to aesthetic purposes. With the promotion of collagen formation, elimination of the damaging effects of free radicals, preservation of the keratin structure and improvement of skin health, these products enhance the functionality and texture of the skin. Many herbs are found in nature and have a variety of purposes in cosmetic treatments for the skin, hair and as antioxidants (Joshia and Pawar, 2015).

The development of natural herb-based health sciences such as Ayurveda, Unani, Siddha, and homoeopathy is concentrated in India (AYUSH). For the future growth of the Saundarya Prasadka category (herbal cosmetics), the Ayush Pharmaceutical business has significant potential. Cosmetics assist in displaying and enhancing human attractiveness and personality traits. Natural beauty is a privilege. Known Ayurvedic, Siddha, and Unani (ASU) medications active component are correlated with the preparation known as Saundarya Prasadak, which serves as a cosmetic basis. For Saundarya Prasadana Karma, individuals in the traditional past employed a variety of Lepas, including Alepas, Pralepas, Udavartans, and Prakshalans. Nature has provided a means of maintaining that balance and using herbs is one such method. A plant or plant extract that contains parts of plants such as leaves, bark, berries, roots, gums, seeds, stems and flowers that are particularly high in nourishing and healing components is called 'Herb'. The skin and other body parts cannot be properly cared for by cosmetics on their own; instead, Organic components must be combined to prevent skin damage and ageing. The popularity of herbal cosmetics has grown significantly among the general public. Due to regular usage in everyday life, herbal cosmetics were said to be effective and intrinsically acceptable and to prevent the unpleasant effects that are frequently observed in synthetic products. (Bijauliya, et al. 2017).

Patanjali Ayurveda Limited's (PAL) distinctive advertising strategies has greatly influenced the current market conditions. With a population of over 1.35 billion people, people's lifestyles are changing and becoming more health-oriented, which is why their preference for natural and Ayurvedic products is steadily increasing. Many customers have

chosen Patanjali products with ease because to Baba Ramdev's innovative marketing strategies, promotions, and branding of Patanjali Ayurvedic Products (Sharma, 2015)

Advertising is one of the main communication techniques that may affect customers' purchasing attitudes. Given that the organisation captures customers' attention to the items and helps the company in increasing its market power. Advertisement for herbal products should be made often using proper advertising strategies and convincing themes. Therefore, it is crucial for the herbal company to fully concentrate on using powerful advertising tools like radio, television, outdoor and other conventional forms to promote the herbal products because advertising is a potent way of raising consumers' awareness and cultivating favourable perceptions in their minds (Mensah and Asemanyi, 2021).

## **6. SUPPLY CHAIN MANAGEMENT OF HERBAL COSMETICS**

Although the broad processes of plant procurement are pretty simple, creating consistent high quality and secure consumer product using ingredients that are sustainably grown is very difficult. Similarly, different plants and plant components require distinct methods. Aerial components require a different approach than roots or barks, and flowers require more tender loving care than leaves. Every business has its own standards that serve as a guide for choosing where to get raw materials, how to process them, and where to conduct testing at each stage:-

**Stage1:** At first the business creates specifications for the particular attributes required for each raw material. This information covers the time of harvest, the appropriate handling and processing of the plant material, and which plant part is required to have the desired effect (leaf, flower, stem, or bark).

**Stage2:** Then the corporation asks potential producer groups for raw material samples. In most cases, producer groups are a primary processor who sources from farmers and/or collectors. They want to see if these organisations can regularly produce the calibre required to have the desired effect.

**Stage3:** Choosing the sourcing location is influenced by the company's values. Some companies give preference to plants that are sourced locally. Others place more emphasis on

domestic farming. The business must make sure the plant has the chemical makeup required to have the effects described on the label, regardless of where it is cultivated. Turmeric cultivated on a tiny organic farm in Karnataka, India's Western Ghats.

**Stage4:** Business representatives visit the production group's location to evaluate its capabilities. Again, based on the company's size and values, different preferences have an impact on this choice. Direct collaboration between businesses and farmer or collector groups is possible. However, the majority of herb businesses engage through producer associations or processing businesses, who in turn deal directly with farmers or gatherers. The processing firm is the main point of contact for finished product during these site visits and is in charge of much of the on-the-ground work (combining lots of processing, testing, storage, and shipment).

- a) Finding a small manufacturer who can supply the necessary quantities is crucial for tiny herb businesses who want to stay that way. Successful interactions in this sector depend on matching scale (size of producer and/or processing group and finished product company).
- b) If a larger herb company wants to expand, it will probably need to find more than one producer. As businesses grow, they must develop techniques for distributing risk to account for disruptions brought on by political unrest, weather-related issues, etc. The majority of the businesses I spoke with have a strategy of having at least two sources for the majority of the raw materials they need.

**Stage5:** Finally the herb business should take the following factors into account when selecting a vendor:

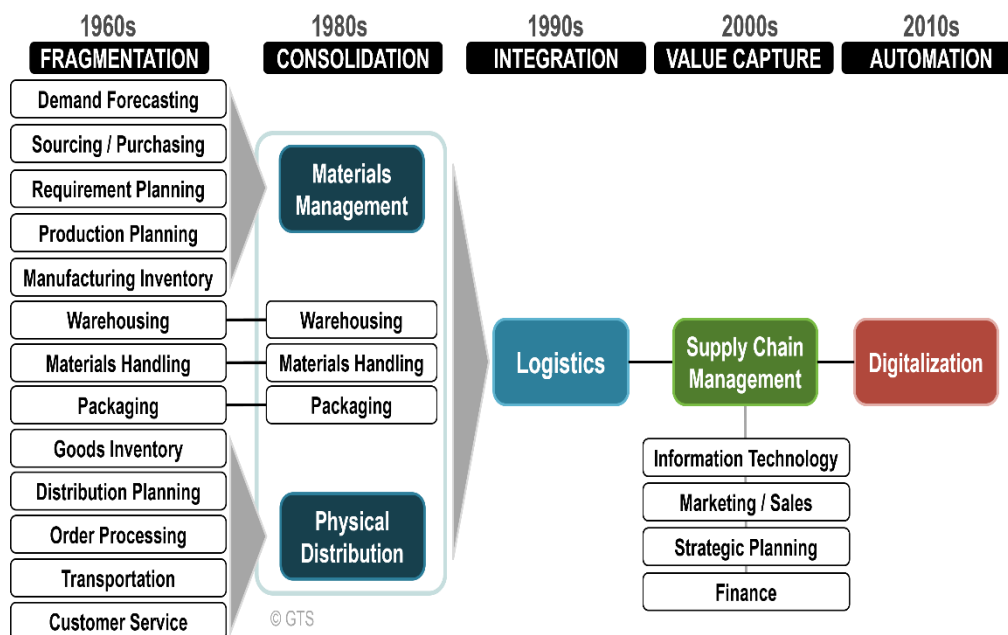
- a) Are the production groups capable of regularly upholding the company's quality standards?
- b) Are they a successful company?
- c) For how long have they existed?
- d) How successful have they been at bringing products to market?
- e) Can they put standards into effect?
- f) What will it take for them to obtain certification and meet the requirements for certification?

- g) Can they accomplish this with or without your technical assistance?
- h) What are the costs associated with certifications and who is responsible for them?

## 7. SUPPLY CHAIN LOGISTICS

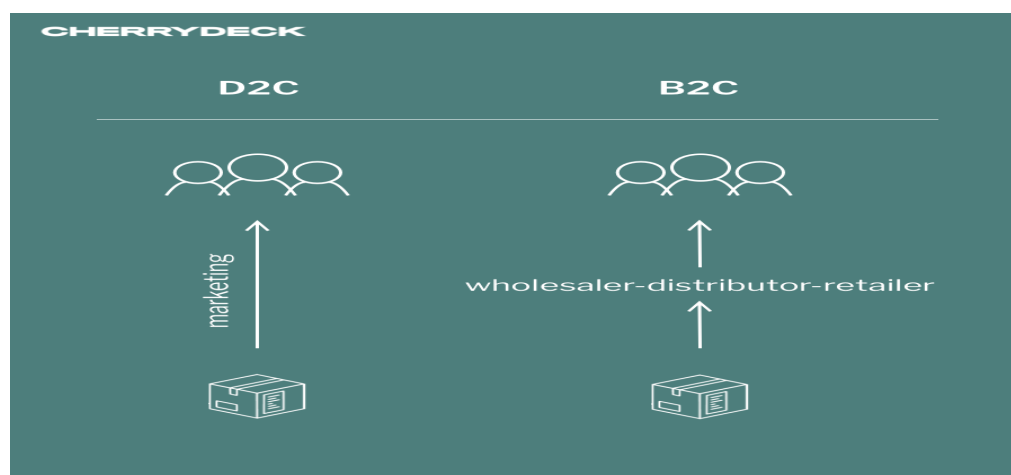
Technology has been the primary force behind this progress, and when viewed through a D2C lens, the ecosystem that is led by technology has functioned as a catalyst to hasten the expansion of these businesses. This ecosystem consists of technology-driven enablers for fulfilment, such as the pick-and-pack process and last mile, as well as for data-driven demand and supply planning and facilitating the complete customer purchasing experience.

For a very long time, the logistics enabler was considered to be the supply chain function. Throughout time, it has evolved into a business enabler function, enabling many firms to use supply chain as a strategic advantage. The Covid crisis has expedited this even more. The change of customer purchasing behaviour has been a significant factor in placing supply chain at the centre of company problem resolution. The rapid commerce or same day/next day deliveries, physically enabling D2C & omnichannel (an organization's presence across multiple channels) platforms, are a few recent interesting business difficulties where supply chain across industries has been playing a crucial role.



From a consumer's perspective, there are only three supply chain metrics that matter in consumer packed products (CPG) – Availability, Freshness and Pricing (which is influenced to an extent by cost). Supply chains, which are designed around managing these metrics are the most efficient ones and has the most business impact.

The researchers firmly believe in the concept of global vs. local optimization in the context of supply chains, and they think businesses that can adopt it will always benefit in the long run. An old-fashioned illustration of this would be that if a company tried to optimise its inventory without taking into account its effects on either upstream (i.e., suppliers) or downstream (i.e., B2B customer partners), even though it might achieve its working capital or revenue goals in the short term. This, however, would always have an impact in the long term. There is no perfect condition, but the trip there is worthwhile.



Source:<https://cherrydeck.com/blog/d2c-marketing/>

The life cycle of a product, including how it is created, stored, transported, and disposed of, has an enormous impact on an organization's sustainability strategy. Also, at each of these points in the product life cycle, supply networks might facilitate it. Putting this aside, sustainability has a much broader focus. For instance, in addition to the environmental impact, it also examines the social, economic, and human impacts.

The business environment will continue to be unstable and unclear, and supply chains will continue to develop quickly to support the shifting economic environment. The 4 supply chain enablers are:

- a) more interconnected supply chains;
- b) sustainability as a major focus;
- c) Technology and data as continuing to play a crucial role
- d) People in the supply chain evolving with more cross-functional skills.

Over time, the job of the supply chain has changed from one of back-office logistics administration to one that now involves helping to address specific business issues related to providing the best path to market for any brand. And for this, the new managers would need to develop more cross-functional competencies in business understanding, data analysis, and analytics, as well as a strong predisposition for execution.

## 8. CONCLUSIONS

The Indian cosmetic industry is booming and holds a distinct position compared to other industries. This industry craves for innovation. The cosmetic industry has come a long way and the market is set to achieve tremendous growth in near future. Among the customers, the grade of cosmetic products will continue to rise as long as improving physical appearance remains a top social priority. It is evident from the study that supply chain challenges faced by the cosmetic products sellers have a long way to go in order to have a smooth and issue free products to the consumers. The knowledge of medicinal plants used by the people seems to be well known to its culture and tradition. In the present study we identified many plants used by the people to cure dermatological disorders and as cosmetics. Some of the plants were found to have dual use, both as curative and cosmetic. Quality control test must be carried out for herbal cosmetics. It is assumed to be safe for longer periods of time.

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