The Integrator Market

Actors and Their Strategies

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Abstract— **Integrators – companies that offer vertically integrated, time-definite, door-to-door transport – have a significant market power. However, insight into the market structure and the cost structure of these companies, as well as into the consequences of their expansion and cooperation strategies, is lacking. The purpose of this paper is to analyse the integrator market from an organizational perspective, describing the strategic behaviour of the market participants. This paper provides a clear insight into the major actors of the integrator market and their expansion and cooperation strategies.**

Integrators; strategic behaviour; expansion; cooperation; industrial economics

I. RATIONALE AND SETTING

The globalization of the world economy involves that companies are reorganized, resulting in a worldwide spread of their production systems. In the 'global village', where production and consumption are increasingly internationalized, transport and logistics services are crucial to reduce cycle times and increase products' speed to market. Logistics service providers with an extensive network allow to keep the transport costs of international trade down, while realizing a more efficient use of production factors.

However, during the past decade, the requirements for transport and logistics have become stricter and more numerous. The share of high-value and/or time-sensitive goods with a short economic life cycle (e.g. high-tech products, textiles, pharmaceuticals, etc.) has increased. Therefore, there is a growing need for fast and reliable transport that allows companies to gain access to global markets and supply chains.

Integrators are crucial for the delivery of those transport services. Since they are able to control the total supply chain ('one-stop shopping'), the strategic and operational importance of integrators for the commercial and production processes of shippers is extremely high. Inventory costs and total distribution costs can be minimized by factors such as speed, reliability, guaranteed delivery within a certain time, visibility and flexibility [1]. In addition, integrators enlarge companies' catchment area and their options for the location of production and assembly facilities [2].

Besides the importance of integrators for shippers, the competitiveness of a region is also partly determined by the presence of one or more integrators. This can be illustrated very well by the relocation of DHL's hub activities from Brussels National Airport to Leipzig in 2008, which will have far-reaching microeconomic and macroeconomic consequences for the airport and for the Belgian economy in general.

Over the past decade, international express has grown at more than twice the rate of total worldwide air cargo[1] traffic, averaging 12.9%[2] annually [3]. The integrators account for almost 85% of the world's express shipments [4]. Currently, only four players are fully integrated across all transport modes, including air transport: UPS, FedEx, DHL and TNT.

A market structure in which only a few sellers account for a substantial proportion of total sales, is an oligopoly. The main challenge for the analysis of an oligopoly is strategic behaviour or strategic interdependence between competitors, which means that each firm's optimal behaviour depends on its assumptions about its rivals' likely reactions [5].

Despite the importance of integrators for shippers and economic regions (embedment), the strategies of integrators are hardly examined in literature. Insight into the market structure and the cost structure of these companies, as well as into the consequences of their expansion and cooperation strategies, is lacking.

This paper aims at an analysis of the integrator market form an organizational perspective, focusing on the growth and relational strategies of the market participants. This analysis fits in a broader industrial-economic analysis of the

[1] According to Boeing, air cargo consists of freight, express and air mail. In some publications, air cargo is used as a more general term than air freight. In this thesis however, both terms will be used without any distinction.
[2] Measured in revenue tonne-kilometers (RTK).

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integrator market. Section 2 gives an overview of the research questions and the methodology. The results of this paper correspond with the first step of a four step methodology. Section 3 provides a definition of integrators. Section 4 outlines the business positioning of integrators within the air cargo industry. In section 5, the Big Four integrators and their main expansion and cooperation strategies are considered. Section 6 deals with new competitors in the market. Section 7 finally summarizes the main conclusions of this research.

II. RESEARCH QUESTIONS AND METHODOLOGY

This paper gives the framework in which four main hypotheses will be tested:

1. Each integrator will finance its growth independently.
2. New players will enter the integrator market.
3. Total costs for vertically integrated companies (integrators) offering an integrated, door-to-door supply chain are lower than the sum of costs for companies offering parts of the supply chain.
4. Integrators will get involved into different types of horizontal and vertical cooperation outside the integrator market.

For testing these hypotheses, a four step methodology will be used. The research methodology, including inputs and outputs, is depicted in figure 1.

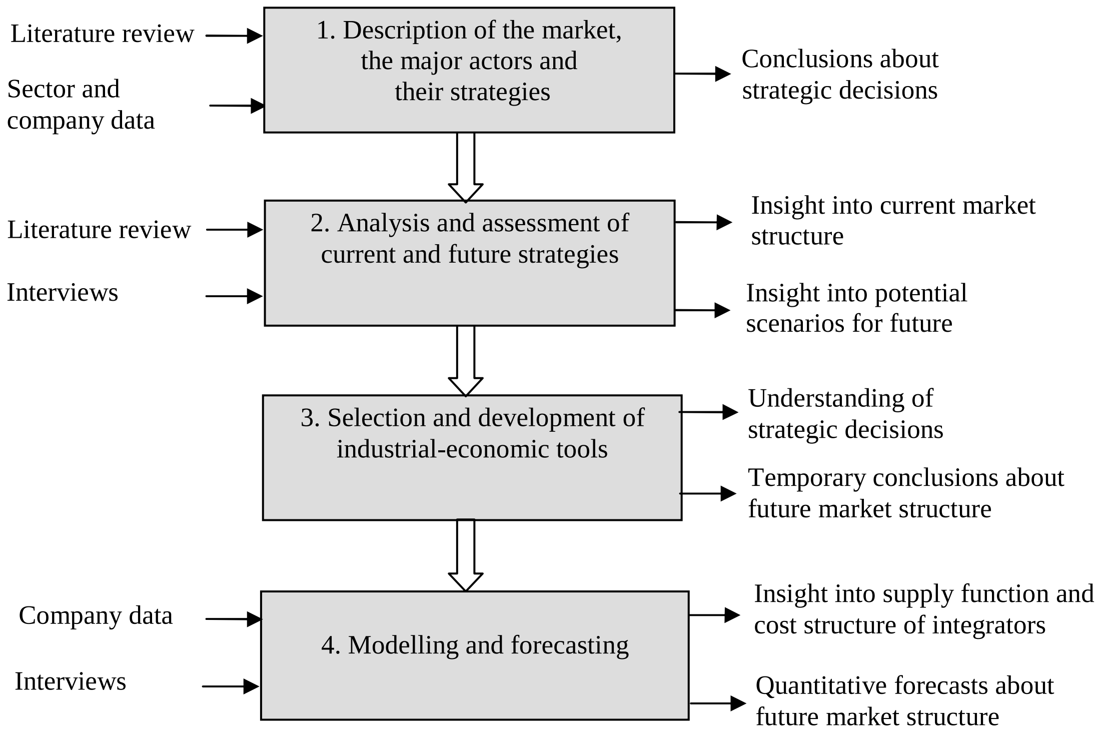

Figure 1. Research Methodology

First, the integrated express market will be analysed from an organizational perspective, describing the behaviour of the market agents. The first step will result in some important conclusions about the expansion and cooperation strategies adopted by the integrators in the past. In the second step, the integrators' expansion and cooperation strategies will be analysed from an industrial-economic perspective. Based on this analysis, an insight will be gained into the current market structure and the future development of the market. In a next step, industrial-economic tools will be selected and developed in order to understand the expansion and cooperation strategies adopted by the integrators in the past. Subsequently, an industrial-economic simulation model applicable to the integrator market will be developed. This model will allow understanding, explaining and forecasting strategic behaviour of the current market players. Finally, the model will be used to make forecasts about the future market structure and the economic consequences of strategic decisions.

III. INTEGRATED EXPRESS CARRIERS OR INTEGRATORS: A DEFINITION

Many definitions of integrators can be found in the literature. In this paper, the following definition, based on [6], will be used: "integrators are vertically integrated express companies that provide time-definite, door-to-door services and, for that purpose, perform their own pick-up and delivery services, operate their own fleet of aircraft and trucks and tie it all together with advanced information and communication technologies."

This definition contains the most important characteristics of integrators, namely:

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- integrated door-to-door service;
- own transport assets;
- strongly developed ICT-skills (e.g. tracking and tracing)

IV. BUSINESS POSITIONING OF INTEGRATORS WITHIN THE AIR CARGO INDUSTRY

Within the air cargo industry, two major cargo types can be distinguished, namely general cargo (heavy lift) cargo and express cargo [7].

The air cargo industry consists of different actors, which can be categorized into three main sub-industries:

1. general or traditional air cargo industry;
2. air express industry;
3. postal services industry.

This categorization is presented in figure 2.

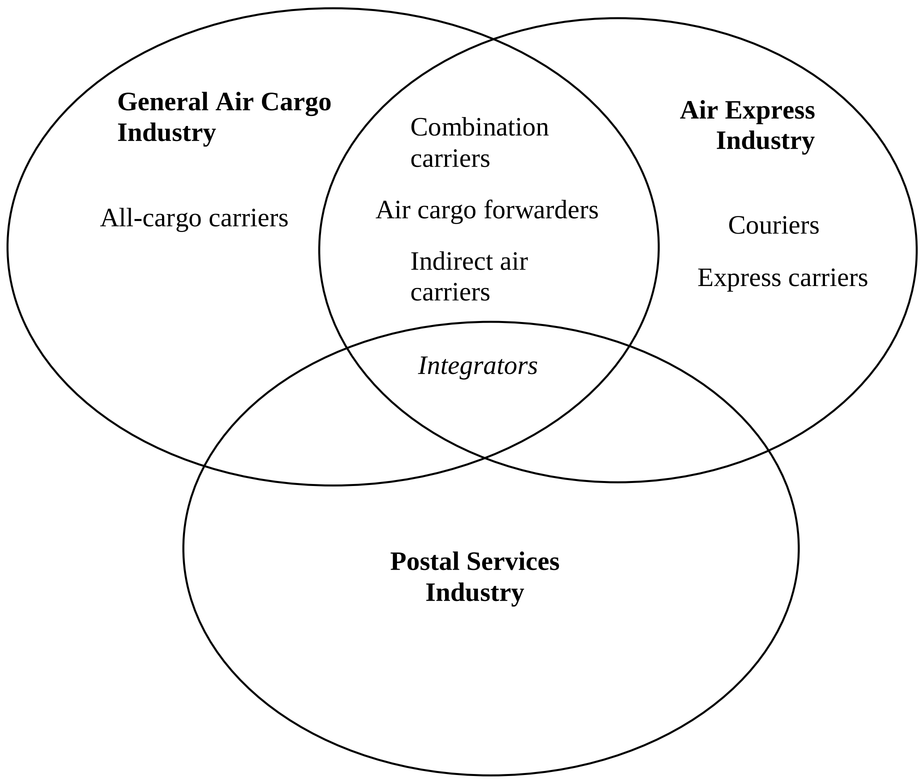

Figure 2. Categorization of the air cargo industry

The general or traditional air cargo industry consists of actors providing airport-to-airport services. General air freight is the most common type of air cargo movement. General air freight companies focus on the transportation of specialized and/or consolidated freight, consisting of individual shipments from many different customers grouped together and transported as one large shipment in an air container [8]. All-cargo carriers, such as Cargolux, Polar Air Cargo, Nippon Cargo Airlines and MK Airlines, belong to the general air cargo industry.

The air express industry is described as "an industry of which the core business is the provision of value-added, door-to-door transport and deliveries of next-day or time-definite shipments, including documents, parcels and merchandise goods" [9]. Typical characteristics of the air express industry are time-definite delivery of goods, door-to-door delivery and full tracking control of shipped goods. Two main types of players are part of the air express industry, namely couriers and express carriers. Examples are GeoPost, General Logistics Systems and Ziegler Express.

Combination carriers, air cargo forwarders and indirect air carriers are positioned at the intersection of the general air cargo industry and the air express industry. Due to the strong competition of integrators, some combination carriers try to stay competitive by offering time-definite, door-to-door services themselves and, thus, are entering the air express industry. This strategy can be illustrated by the case of Cathay Pacific, which expanded its services to the express industry by offering its Wholesale Courier and Cargo Express services. Despite the fierce competition between integrators and combination carriers, both types of market players can also be complementary to one another. This is illustrated very well by

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the case of Northwest Airlines, which will lose DHL Express, its most important cargo customer, as from the end of 2008. Northwest Airlines is obliged to reconsider its cargo activities due to this loss.

Air cargo forwarders and indirect air carriers are also positioned at the intersection of the general air cargo and the air express industry since they are increasingly offering value-added, logistics services and door-to-door delivery. Whereas in the past they were merely considered as intermediaries between shipper and airline, they are increasingly acting nowadays as integrated logistics service providers. Examples of these market actors are Kuehne + Nagel, Schenker and Panalpina.

Public postal operators, which originally belonged only to the postal services industry, are currently positioned at the intersection of the postal services industry and the air express industry. The reason for this is the entering of postal service providers (e.g. Deutsche Post World Net, TPG, La Poste, etc.) in the air express market.

Integrators are part of all three sub-industries since they are offering a broad service portfolio including general air freight services, express services and mail services.

The most important conclusion of this section is that the boundaries between the different segments of the air cargo industry are blurring since the services offered by the different players start to overlap. This intensifies competition and leads to various forms of cooperation. An example of the overlap between different segments of the air cargo industry is the case of Austrian Post, which is increasingly developing its B2B express parcels business by the acquisition of parcel carriers such as trans-o-flex (Germany, 2006), Scherübl (Austria, 2007), Merland Express (Hungary, 2007) and Road Parcel (Hungary, 2007). Austrian Post aims at becoming a niche player in the European B2B express market. Another example is Lufthansa Cargo, which created time:matters in 1992, a subsidiary specialized in sameday, door-to-door express transport.

V. EXPANSION AND COOPERATION STRATEGIES OF THE BIG FOUR

The Big Four integrators have very different origins and were founded in different eras. This influences their corporate culture and, hence, results in distinctive ways of strategic thinking and decision-making. Therefore, to understand strategic decisions made by the key players in the industry, the historical development of these companies was investigated, as well as their recent acquisitions and cooperative agreements. The impact of strategic decisions on the integrators' service portfolio and geographical coverage is shown in tables 1 and 2.

TABLE I. ORIGINAL AND CURRENT SERVICE PORTFOLIO OF INTEGRATORS

	Original focus	Main reasons for shift in focus	Current focus
UPS	Ground	Creation of UPS Airlines (1985) Acquisition of Fritz Companies (2001) & Menlo (2004)	Ground Air Ocean
FedEx	Air	Acquisition of Caliber (1997)	Air Ground
DHL	Air	Acquisition by DPWN (2003) Acquisition of Danzas (1999) & Exel (2005)	Air Ground Ocean
TNT	Ground	Creation of European air network (1987)	Ground Air

Source: Company Websites

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TABLE II. ORIGINAL AND CURRENT GEOGRAPHICAL FOCUS OF INTEGRATORS

	Original focus	Main reasons for shift in focus	Current focus
UPS	US	Cooperation with Sinotrans (China, 1988) Acquisition of LYNX Express (UK, 2005) Acquisition of Challenge Air (US, 1999)	US, Europe, Asia-Pacific, Latin America
FedEx	US	Acquisition of Flying Tigers (China, 1989) and route authority from Evergreen International Airlines (US, 1987) Acquisition of Flying-Cargo (Hungary, 2007) Acquisition of Prakash Air Freight (India, 2007)	US, Asia-Pacific, Europe
DHL	US	Acquisition by DPWN (Germany, 2003)	Europe, US, Asia-Pacific
TNT	Europe	Acquisition of Speedage (India, 2006) Acquisition of Hoau (China, 2007) Acquisition of Mercúrio (Brazil, 2007)	Europe, Emerging Markets (China, India, Brazil, etc.)

Source: Company Websites

As illustrated in table 1, UPS was originally founded as a ground-based delivery company. The company entered the overnight air delivery business in the 1980s and created its own airline, UPS Airlines, in 1985. Since its primary focus was on ground delivery, its current ground network is still larger than that of its rivals. On the contrary, FedEx originally focused on overnight air express parcel services, a niche that did not exist at the time. The acquisition of Caliber in 1997 diversified FedEx's product portfolio and brought it in direct competition with UPS's ground-based services. DHL was founded as a company shipping documents by airplane. Through the cooperation with Deutsche Post, it gained access to the most extensive network of ground-based operations in Europe. Until now, the main strength of DHL is its air network, rather than its ground-based operations. TNT was created as a company focusing on road and rail transport services. In 1987, TNT started to operate its European air network.

UPS, as well as DHL, offer ocean freight services. UPS and DHL both entered the ocean freight segment by means of strategic acquisitions. UPS started to offer ocean freight services in 2002 after its acquisition of Fritz Companies in 2001. The purchase of Menlo in 2004 further strengthened UPS's position in the ocean freight market. The most important motive to add ocean freight to its product portfolio was not growth but customer satisfaction. DHL entered the ocean freight business in 1999 after the acquisition of Danzas Holding. The purchase of Exel in 2005 reinforced its logistics division.

UPS and DHL have been able to position themselves in logistics and supply chain management, in contrast with FedEx and TNT. UPS decided to become active in supply chain management on the request of its customers. Once decided to enter that business, UPS started to take over other companies with a suitable product portfolio in the first place and the right geographical coverage in the second place [10].

FedEx and TNT have a similar business model, as they mainly focus on transport and transport-related value added services. FedEx is less interested in logistics and 3PL services since the margins on these services are small. TNT even decided to exit the logistics and freight forwarding businesses [11].

While UPS and DHL want to offer all types of products (express and logistics) on a worldwide scale, FedEx and TNT are focusing more on specific products (particularly express transport) and specific markets. One of TNT's strategic choices is the development of special services, namely the transport of shipments with special requirements concerning volume, weight or other specifications which fall outside the normal standards for express transport [12].

Table 2 indicates that both UPS and FedEx have their origins within the US. UPS expanded to Europe, Asia-Pacific and Latin America through acquisitions and cooperative agreements. FedEx entered the Asia-Pacific market through the purchase of Flying Tigers in 1989 and the acquisition of Chinese route authority from Evergreen International Airlines in 1995. FedEx became active on the European market in the 1990s but its European operations were loss-making. The company decided to withdraw from Europe in 1993 and to concentrate on its core business, namely transatlantic services. The acquisition of Flying-Cargo Hungary Kft. in 2007 demonstrates FedEx's strategy to re-enter the European market and fits in the company's Eastern European expansion strategy. Flying-Cargo Hungary is FedEx's Hungarian global service participant since 2003. Table 3 provides an overview

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of the key facts of the Flying-Cargo Group, a logistics service provider offering solutions along the entire supply chain. FedEx will continue with acquisitions in Europe the coming years. It is expected that its acquisitions in Europe mainly are in the air freight business, since FedEx is not interested in offering ground-based services in Europe itself. Currently, FedEx offers ground-based services in Europe through alliances with e.g. La Poste. This is in contrast with DHL's strategy to establish its own ground network in the US.

TABLE III. FLYING-CARGO GROUP: KEY FACTS

Flying-Cargo Group	
Founded	1982
Headquarters	Lod, Israel
Employees	1200
Network	operations in 13 locations

Source: own composition based on http://www.flying-cargo.com/pages_eng/about.asp

DHL was founded in the US but rapidly extended its geographical network. The cooperation between Deutsche Post and DHL entailed a convergence of services, comparable to the service convergence resulting from the acquisition of Caliber by FedEx, which shifted FedEx into ground-based operations. DHL, originally focusing on air express services, gained access to the most extensive network of ground-based operations in Europe through the cooperation with Deutsche Post. Deutsche Post, on its turn, obtained access to an international air express network in Europe, Asia and North America [13].

TNT originally focused its business on Europe. Nowadays, TNT is the market leader in the intra-European express market. The company seeks to reinforce its intra-European market position, as well as its position in the European domestic markets, by means of organic growth. TNT aspires to a leading position in the emerging markets, of which two are located in the Asia-Pacific region, namely India and China. TNT is expanding its position in India and China mainly through acquisitions. Besides the connection of these markets with Europe, TNT plans to develop a domestic express network in these countries, both on the ground and in the air. This strategy differs from that of UPS and FedEx, which focus on international express and air freight in India and not on domestic traffic. DHL also has a different strategy in these markets as this integrator concentrates on the development of a domestic air network. Concerning TNT's strategy on the world's largest express market, the US, the company does not strive for a large market share on that market. TNT reconciles itself to the dominance of UPS and FedEx in the US and considers the US express market as a mature market with limited growth opportunities. In the US express market, TNT focuses on intercontinental express traffic, in cooperation with local partners, as well as on the development of services for niche markets such as the fashion industry or the financial industry [12].

VI. ENTRANCE OF NEW COMPETITORS IN THE MARKET

The Big Four integrators are facing increased competition from new market entrants. These are mainly traditional freight forwarders which are evolving towards integrated logistics service providers. ABX Logistics Worldwide, Kuehne + Nagel and Panalpina are considered as the main new competitors.

ABX Logistics Worldwide, acquired by 3i in 2006, ranks in the top 12 air and sea freight forwarders worldwide. The company divested its domestic road distribution activities in several European countries to concentrate on its core business: international air, sea and road freight forwarding. Since ABX Logistics is in the first place a freight forwarder and no pure logistics player, it forms alliances with large logistics service providers, e.g. alliance with Penske Logistics in 2006. This strategy allows the company to become one of the world's largest freight forwarders and logistics service providers and to enter into competition with the Big Four integrators. Two years after its acquisition, the private equity group 3i will sell ABX Logistics again. The company's total value in 2008 is estimated at € 600 million, compared with € 80 million in 2006. Table 4 provides some key figures of ABX Logistics Worldwide.

TABLE IV. ABX LOGISTICS WORLDWIDE: KEY FACTS

ABX Logistics Worldwide	
Founded	1993
Headquarters	Brussels (Belgium)
Revenues 2006	€ 2.3 bn
Employees	8000
Network	250 sites under its own name in more than 35 countries. Representation in a further 60 countries by its own exclusive agents

Source: own composition based on http://www.abxlogistics.com

Kuehne + Nagel (K+N) has evolved from a traditional international freight forwarder to a leading global provider of integrated supply chain solutions. In 2005, the company acquired ACR Logistics, one of Europe's leading contract logistics providers. The deal fits into K+N's growth strategy in contract logistics. Table 5 provides an overview of some of the company's key facts.

TABLE V. KUEHNE + NAGEL: KEY FACTS

Kuehne + Nagel	
Founded	1890
Headquarters	Schindellegi, Switzerland
Revenues 2007	CHF 20975 million
Employees	51075
Network	830 offices in more than 100 countries

Source: own composition based on http://www.kn-portal.com/

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Panalpina is described as a leading integrated freight forwarding and logistics company. The company has the intention to expand its global network further, through organic growth as well as by targeted acquisitions and alliances. More details about Panalpina are provided in table 6.

TABLE VI. PANALPINA: KEY FACTS

Panalpina	
Founded	1954
Headquarters	Basel, Switzerland
Revenues 2007	CHF 10592 million
Employees	15301
Network	500 branches in 90 countries. Cooperation with selected partners in other 60 countries

Source: own composition based on http://www.panalpina.com/www/global/en/about.html

VII. CONCLUSIONS

The analysis in this paper shows that the services offered by integrated and non-integrated service providers start to overlap, which leads to a blurring of the boundaries between sub-industries of the air cargo industry. This intensifies competition and leads to various forms of cooperation among service providers.

Concerning the strategies of the Big Four, it can be concluded that DHL and UPS are growing closer to each other as they want to offer all types of products (express and logistics) on a worldwide scale. On the other hand, FedEx and TNT have a similar business model, as they are focusing more on specific products (particularly express transport) and specific markets.

As far as the second research hypothesis is concerned, the results of this paper show that new players are entering the integrator market.

Regarding the fourth hypothesis, it turns out from this paper that it is crucial for integrators to have a global network. They aim to reach a global presence via acquisitions and cooperation agreements outside the integrator market.

According to the next step in the methodology, an industrial-economic analysis of the integrators' current and future strategies will be made. This involves a determination of the market structure. Although the integrator market is an oligopoly at first sight, the networks of the agents may overlap so that the aggregate market structure may be different. In order to complete the second step, industrial-economic literature will be reviewed, both theoretical and applied to comparable business sectors. In addition, interviews will be done with industry stakeholders in order to better understand the strategic decisions of the industry participants made in the past, as well as to assess the planned strategies and developments for the future.

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