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Floristry goods import operations introduction and integration with existing export operations in Traffic B.V. The supply chain perspective

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ABSTRACT

The Dutch floristry industry is currently in the process of changing. The Netherlands is moving from being a pure export country into a transit country. The annual rise in imported flowers and plants are shifting the Netherlands from being a export country into a transit country, where floristry goods are efficiently moved through the Dutch national borders with intermodal transportation. This trend sets pressure to the supply chain and the organization responsible for the transit operations.

One of the critical aspects of this report was to investigate the statistics of Dutch imports an exports of cut flowers and pot plants, and examine what is the state of the floristry industry in the Netherlands and how it is evolving. The main point of the research, is to provide know-how to conduct the transit operations from a supply chain perspective.

The statistical data of imports, the supply chain theory, and the practical view of the case study proves the increase of imported floristry goods, its benefits as a business venture, and the construct of managing those particular operations from a supply chain point of view. This report describes the operational and intellectual capacity needed to run the floristry import and transit operations effectively and efficiently from the supply chain perspective. The section concludes that the statistics of growing imports and exports shape the future of the whole industry in respect to the statistics.

The first section describes the history, current state, and the future of the Dutch floristry industry, and explains the basic importing procedure. The second section discusses the supply chain theory, which provides the basis for understanding the aspects of the supply chain in the case study. The third section, the case study Traffic B.V., discusses the practical supply chain of imported flowers and plants from a supply chain viewpoint.

Keywords: supply chain, floristry industry, import, transit, intermodality

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Foreword

The imports of cut flowers and pot plants to The Netherlands are increasing on a yearly basis, thus restructuring the whole traditional floristry industry. This trend is according to statistics set to last bringing once small perishable import business as a force to be recognized in the world markets. The trend of imports has its roots in low cost production countries in Africa and South America where the surroundings are fertile for flower production. To be able to purchase outstanding quality with a low price is very appealing to consumers and the increase in the demand of these goods brings ahead several points that have to be taken under consideration before the desired goods are in the hands of the final customer; this indicates the importance of the efficient and effective supply chain.

This report investigates the current state of the Dutch floristry industry and pictures the inevitable future where imports play an important part of the floristry business changing the Netherlands. Statistics provide the current data of the development of the floristry industry with the keen interest in imports and how exactly the industry is changing. The supply chain brings out the perspective to the movement of perishable goods from South America and Africa to The Netherlands and how the goods are re-exported onwards to the final customer all over the world.

The first section overviews the Dutch floristry industry through theory and statistics, and provides a steps for importing, including the relevant documentation and procedures. The history, the present state, and the future of the Dutch floristry industry are discussed in the first section in order to lay the foundation for the statistics. The import and export statistics state the change in the Dutch floristry industry; understanding the current state and history of the market is relevant to understand and draw conclusions for the future of the industry.

The second section discusses the theory of the supply chain, setting the basis for understanding the complexity and vastness of the actual supply chain that describes the logistics of the floristry industry in its new situation. The supply chain, the flows within it, and the management of the chain are discussed. The theory explains the supply chain model and the principals to manage a supply chain. Most importantly the theory also enables the comprehension of the case study.

The case study is the third section of the thesis, which brings the theory of the supply chain and the statistical data together. The case study explains from the supply chain perspective the position of Traffic B.V., a experienced flower exporter, currently and also in the future, considering the development of imports drawn from the statistical data. The case of Traffic B.V. gives perspective from real life situation where the implementation of flower imports provide new business opportunities and new supply chain challenges.

In Aalsmeer 18th November, 2005

Tuomo Virolainen

1. The Dutch floristry industry

1.1 Overview and statistics

1.1.1 Introduction

The Dutch floristry industry has long traditions in production and the Netherlands itself is the largest exporter of floristry goods. In this report the history of the industry is described in brief to lay the foundation for the current state of the floristry industry and point out the relevance of imported flowers and pot plants and how those goods are mainly re-exported. The re-exporting of imported goods means transiting them forward and the section describing the Dutch floristry industry explains the shift turning from production and export country into a transit country where imports play an important role. The main focus of the import statistics will be on South America and Africa, the two emerging continents for the floristry industry.

1.1.2 Overview of the Dutch floristry industry

The Dutch floristry industry has been a huge producer of cut flowers and pot plants for centuries and thus the Netherlands has specialized in exporting those goods. Exports of cut flowers totaled over three billion Euros in 2004 and pot and garden plants 1,6 billion Euros in 2004 (The Flower Council of Holland; Facts & Figures 2004). This indicates the vast export share that the Netherlands has in the world. In the early nineties the Netherlands had a 59 % export share in cut flowers and 48% in pot plants in the world market, thus making it the largest exporter of both commodities (A View of International Competitiveness in the Floristry Industry; 1992: 18). Today the overall market share has diminished to about 50 % due to the competition from South America and Africa and weak US Dollar exchange rate against the Euro.

On the other hand the imports are rising and most of the imported floristry goods are becoming more important export commodity for the Netherlands all the time. Import of cut flowers via the Associated Dutch Flower Auctions totaled to little over 480 million Euros in 2004 with 4,5 % increase from 2003. Pot plant imports via the Associated Dutch Flower Auctions totaled in 39 million Euros in 2004 with 17 % increase from 2003 (The Flower Council of Holland; Facts & Figures 2004). The total amount of imports is even greater due to the fact that not all imports are auctioned but transited through the Netherlands to other destinations. The role of imports and more detailed statistics are described in the later part of this report.

The economic variables such as the price of oil and the Euro- US Dollar currency ratio play also a vital role in the success of flower trading. High oil price influences transportation making it more expensive to any destination and the expensive Euro against the US Dollar discourages the large North American market to buy flowers from Europe.

1.1.3 History and structure of the Dutch floristry industry

The regional growers (First: North of Amsterdam near Alkmaar, second: south of Amsterdam around Aalsmeer, and the third one: near Rotterdam and The Hague Westland and Rijnsburg) formed cooperatives from early on crating auction system that provided a place where prices would be set and information concerning market tendencies shared. The cooperative stimulated the creation of an education system that enabled a strong knowledge base and the investments in infrastructure created extraordinary growth of the industry in the beginning of the 20th century and especially after the Second World War. (Elshof 1998: Part 2, 1. History)

Today the trade of flowers and plants is still concentrated in the grower owned auctions. The auctions play a vital part in the supply chain of perishable goods and act, besides from price setters, also as hubs for foreign markets. The auctions have proven their effectiveness because more than 60% of the international trade in cut flowers and 40% of that in the house plants is conducted from the Netherlands

(VBN, The Dutch Flower Auction Association; http://www.vbn.nl/en/cijfers/index.asp). The development of the Dutch floristry industry along with the cooperative system has introduced better availability and greater efficiency in the business chain, thus enabling reduced prices and improved availability of flowers and plants. This trend indicates that the demand for cut flowers and pot plants is becoming less income related (A View of International Competitiveness in the Floristry Industry; 1992: 9).

1.1.4 Basic and high quality production factors

	Strong	**Weak**
Geography	• Situation favorable with respect to Europe • Low transportation costs	
Climate	• Mild climate without many extremes	• Cultivation in heated greenhouses essential
Raw materials	• Gas relatively cheap	• Strong dependence on non-renewable energy sources • Land is expensive • good irrigation water is scarce; requirements for this are rising because of substrate cultivation • Fertilizer and pesticide emissions to the soil, air and water
Labor	• Labor costs are stable • High productivity	• Labor costs are high • Difficult to find workers • Labor management not professional
Capital	• Cheap capital (5,5 % long-term interest; EU Council Decision 98/317/EC of 3 May 1998) in principle • Low inflation 1,4 % (est. 2004, CIA Word Factbook)	

Infrastructure	• Roadway network and air travel well developed • Auctions developing teleprocessing networks permitting fast communication	• Hold-ups at auctions not located on the motorway
Knowledge infrastructure	• Extensive courses and study club network • Open knowledge structure; sector has money for knowledge • Information spreads rapidly • Much research, from fundamental to practice-oriented • Good quality training courses at various levels	• Little marketing knowledge • Information from market slow to penetrate to producers • Shortage of higher trained personnel

Table 1; Basic and high quality production factors; (A View of International Competitiveness in the Floristry Industry; 1992: 19)

Writers comment: In the table the strong point in the raw materials section indicating gas being cheap is stated in the beginning of 1990's. The cheap gas mentioned is not as valid as it was back in 1992.

1.1.5 Infrastructure and transport

The Netherlands is located geographically very favorably in respect to Europe, but also in respect to the Africa-Europe and Trans-Atlantic transportation links the location is great. The infrastructure, road and rail network, seaports and airports are in good condition and the logistical network provides the continuous flow of goods everywhere in the world. The teleprocessing networks of the auctions permit rapid change of information which is extremely important when discussing logistical efficiency and effectiveness.

The road network enables fast movement of the perishable goods throughout Europe and the highly developed air transportation facilitates expeditious deliveries to far away destinations. Naturally the rail and inland waterway networks are very sufficient in the Netherlands, but as perishable commodities cut flowers and pot plants are better suited in road and air transportation modes.

The auctions, especially the one located in Aalsmeer, provide an excellent logistical hub that has no other match in the world. The Amsterdam airport Schiphol, which is one of the biggest in Europe, is located approximately five kilometers from the Aalsmeer flower auction. Because of this the airport acts as the main florist goods airfreight hub in Europe, providing enormous value for the industry. Also there are a vast amount of exporters and transporters located at the auction, or in the surrounding area, providing services reaching everywhere in the world. The relevance of the auctions is discussed in the following section.

1.1.6 Auctions

As mentioned earlier the auctions among other things provide and excellent logistical hub for imports and exports to be drawn together and redistributed to the markets. The role of the auctions, seven in total, is to play a central part in the chain where demand and supply are concentrated. “The auction system is responsible for price formation and creates a transparent market.” (A View of International Competitiveness in the Floristry Industry; 1992: 22) The auctions organize logistics and some market and product research, and also increase the exchange of information.

In the future the auctions need to reset their logistical excellence to meet the demand of growing competition from increasing imports. The auctions aim to improve their operations by:

- Strengthening the cooperative
- Increasing commercial power
- Improving logistics
- Reinforcing the physical centre

For example the vision of the Aalsmeer Flower Auction (The other of the two biggest auctions in the Netherlands) states the following: Bloemenveiling (Flower Auction) Aalsmeer wants to live up to and consolidate its position as the leading market for floriculture products. Bloemenveiling Aalsmeer can realise optimal prices for its members by providing excellent services to suppliers and buyers, by commercializing floriculture products, and by taking care of logistics. (Annual Report 2004; Bloemveiling Aalsmeer; 2004: 4)

This indicates the want to retain and expand its international position as the leading market place, thus generating investment for developing communication services. Also the enhancement of services for its customers and creation of more fertile work environment that inspire business among its members are the key issues for the Aalsmeer Auction. The better service quality for the Auctions' customers, spark a stronger position in the chain and reduces the supply chain costs.

By acting as a thriving force with sales and also providing a solidarity factor among colleagues in the flower business, the auctions strengthen the economic variables, system values and indeed the whole network.

1.1.7 Strategy and competition

Even thought the Netherlands has a solid position in the international market due to its competitiveness. Optimum interchange between production factors, incentives from demand, the networks in the product column, and economic variables are the factors where the Netherlands obtains its competitiveness. Continuous innovation is the main key that provides the edge for the Dutch floristry industry. The Netherlands is the number one supplier of knowledge, parental material, innovations, and flowers in the world in the cut flower sector.

To compete against countries, where production values are much lower than in the Netherlands, with volume based strategy will not have a desired results. This is because the Dutch floristry industry cannot compete with low prices due to high production costs that might rise even more. Instead the Netherlands utilizes, with regards to its position, a market leader strategy. The market leader strategy can be characterized as somewhat of an extension of the volume based strategy, which also includes segmenting the market. (A View of International Competitiveness in the Floristry Industry; 1992: 44)

A single Dutch grower is able to produce a variety of selection, whether talking about flowers, plants, or both. The low production cost countries do not have this advantage. These countries rather focus on a single commodity, for example roses, and produce enormous quantities of it. Therefore the specialization is the key for success in the Dutch floristry industry.

As the Netherlands remains as the center of international flower and plant trade the efficient distribution systems that has been a major advantage for Dutch domestic growers interests also foreign suppliers. The benefits from this system are evident for Dutch growers, but the foreign suppliers want also have the same advantages.

The competition is turning fiercer every day and in the future the Netherlands is forced to forfeit some of its market share to countries where the production costs and variety of flowers provides a competitive edge. Especially countries in South America and Africa are increasing their margins of the total flower and plant exports by supplying quality products with low prices. This means that the Netherlands needs to prepare for the inevitable situation by using its extensive knowledge base for turning the industry from production and export mentality to more favorable towards imports and transit market. The next section discussing imports will explain the trend in more detail by analyzing statistics and the importance of transit in the Dutch floristry industry.

1.2 Statistics

1.2.1 Introduction

Following are presented the import statistics of cut flowers and pot plants to The Netherlands from 1996 to 2004. The statistics are categorized firstly by type of commodity, whether flowers or plants, and secondly by continents, Africa and South America. The same formula will be used to explain all the statistics presented. This means that the statistics will be explained and after that the indication of the meaning and the future will be discussed.

1.2.2 Import and export totals

To understand the extensiveness of the amount of imports from South America and Africa and what kind of competition level they set for the Netherlands in the international flower market the total numbers of imports and exports are discussed first.

The amount of exports is steadily rising every year but the attention must be drawn to the growing amount of imports because the high import rate is one aspect in the growing export figure. Already in the beginning of the 1990's approximately 70 % of imported cut flowers and about 40 % of imported pot plants were re-exported outside the Netherlands (A View of International Competitiveness in the Floristry Industry; 1992: 19). That trend has only strengthened by the increased demand for imported flowers.

Dutch import cut flowers from 2000-2004 (Total)
In € 1.000.000 via the Associated Dutch Flower Auctions

2000	2001	2002	2003	2004
453	459,6	481,7	460,1	480,8

Table 2 (The Flower Council of Holland; Facts & Figures 2004)

Dutch export cut flowers 2000-2004 (Total)
In € 1.000.000 via the Associated Dutch Flower Auctions

2000	2001	2002	2003	2004
2.844	2.901	2.990	3.008	3.052

Table 3 (The Flower Council of Holland; Facts & Figures 2004)

When comparing the total import figures via the Associated Dutch Flower Auctions and the total import figures from Africa and South America, it is clearly seen that the African continent provides almost half of the cut flower imports to the Netherlands. Also the emerging South American market has a fair portion of the total imports to the Netherlands. This indicates the magnitude that these two markets have not only for the Dutch import figures but also the whole international floristry industry.

The same goes for plants as well. Even though the amounts are significantly lower than in flower imports the annual growth figure tremendous. Especially the growth of South American plants is becoming a significant competitor for traditional plant exporters such as the Netherlands, Denmark, and Belgium.

Dutch import pot plants 2000-2004 (Total)
In € 1.000.000 via the Associated Dutch Flower Auctions

2000	2001	2002	2003	2004
26,4	28,8	29,9	33,3	39,0

Table 4 (The Flower Council of Holland; Facts & Figures 2004)

Dutch export pot plants 2000-2004 (Total)
In € 1.000.000 via the Associated Dutch Flower Auctions

2000	2001	2002	2003	2004
1.175	1.250	1.394	1.547	1.611

Table 5 (The Flower Council of Holland; Facts & Figures 2004)

1.2.3 Cut flower import from Africa and South America

The African continent, lead by Kenya and Zimbabwe, has been a strong competitor for The Netherlands in the cut flower market. Because the climate is favorable for growing flowers and workforce is relatively cheap the prices for quality flowers are low making African flowers very appealing to consumers.

Dutch Import fresh cut flowers
x 1000 euro
source: Eurostat

	1996	1997	1998	1999	2000	2001	2002	2003	2004
AFRIKA	**103.324**	**122.785**	**142.710**	**162.526**	**200.165**	**222.373**	**237.448**	**238.426**	**229.748**
Marokko	364	448	363	337	523	369	345	287	123
Tunesië			46	250	696	224	50	199	40
Egypte	120	157	36	101	42	133	248	569	474
Ivoorkust	525	501	610	840	976	1.251	1.196	938	658
Ghana		2	9	82	141	88	52	214	12
Togo	16	7	18		5	2			
Nigeria	6								
Kameroen								93	328
Centr.-Afrikaanse Republiek	16								
Rwanda				188	531	2.887	282		165
Boeroendi						164	451	309	314
Ethiopië	83	111	125	110	59	33	151	218	872
Eritrea		58	32		4	84	90	9	68
Kenia	56.378	66.179	73.843	85.385	99.888	110.736	123.849	135.490	144.248
Oeganda	2.646	3.582	4.274	5.016	10.207	11.858	14.736	16.902	20.322
Tanzania	2.077	2.161	3.315	5.592	6.198	6.114	6.247	3.660	3.391
Mozambique							4	126	251
Madagaskar		1							
Mauritius	1	6	3	3		2	1		
Zambia	6.046	7.752	11.515	15.237	16.690	17.725	21.494	16.945	13.271
Zimbabwe	30.609	37.521	43.574	44.617	59.455	64.688	62.132	54.748	37.104
Malawi	1.907	1.500	2.107	964	657	796	484	493	240
Zuid-Afrika	2.504	2.786	2.839	3.784	4.079	5.194	5.585	7.226	7.867
Swaziland	26	13	1	20	14	25	51		

Table 6; Dutch import fresh cut flowers from Africa

The import from Africa to The Netherlands has grown gradually year by year. In 2004 African imported cut flowers totaled € 229.748.000,00 (yearly totals per continent shown bolded) proving the significance of African flower imports in the Dutch floristry industry. Kenya has remained its position as the leading country of Dutch import flowers from Africa and Zimbabwe has lost its share in the 21st century to other emerging countries. Even though the total volume of imports from Africa is growing Africa faces tough competition from South America.

Dutch Import fresh cut flowers

x 1000 euro

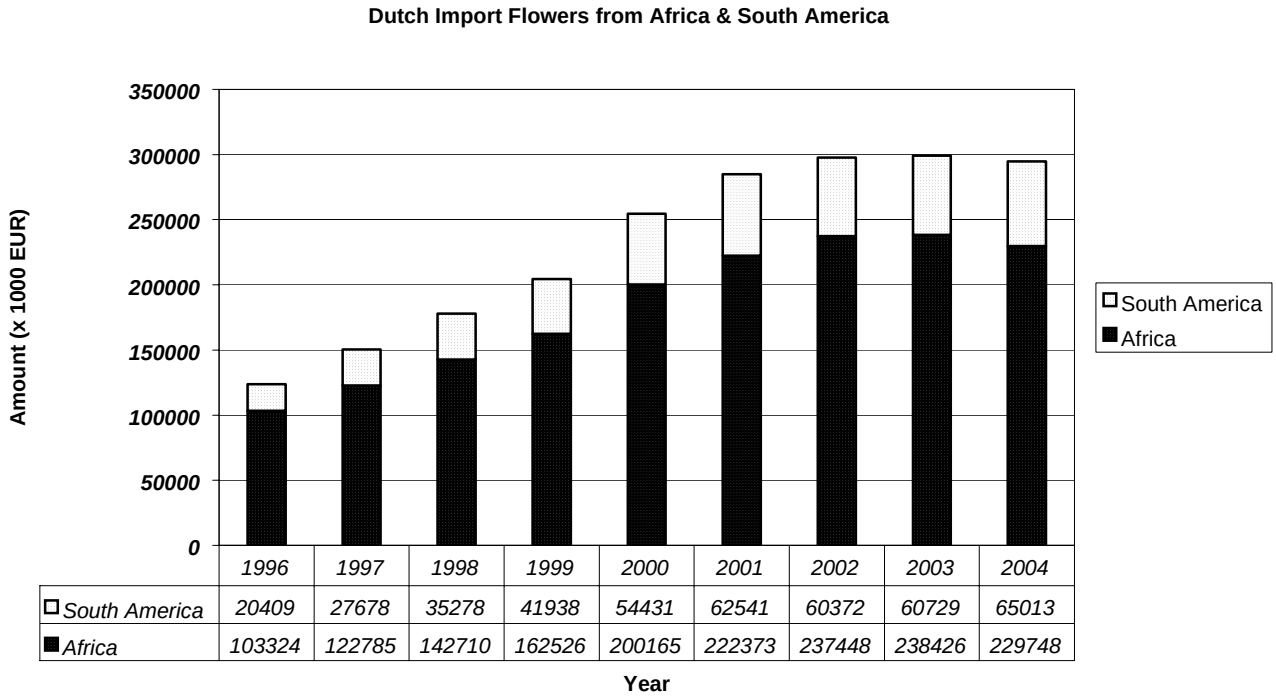
source: Eurostat

	1996	1997	1998	1999	2000	2001	2002	2003	2004
AMERIKA	**21.031**	**28.049**	**35.533**	**42.261**	**54.715**	**62.795**	**60.693**	**61.220**	**65.438**
VS van Amerika	622	371	255	315	275	254	316	490	405
Canada				8	9		5	1	20
Mexico	67	10	4	9	14	50	4	4	3
Guatemala	140	78	88	66	21	38	16	30	125
Honduras	1								
El Salvador									2
Costa Rica	1.104	1.262	1.054	1.123	976	889	1.036	1.397	778
Panama			1						
Turks-en Caicoseilanden		1							
Dominicaanse Republiek	5		4		11		3	3	11
Antigua en Barbuda			19					1	
Jamaica	64	54	39	27	5	2	1		
Saint Vincent en de Grenadines	1	1							
Barbados	1								
Aruba				2					
Colombia	10.223	11.318	11.382	12.420	15.900	19.400	21.201	21.506	18.437
Venezuela		1							
Suriname	162	306	287	295	467	254	138	21	51
Ecuador	8.452	14.196	22.222	27.781	36.639	41.361	37.028	35.763	42.649
Peru	150	427	133	164	315	319	349	475	595
Brazilië	1	15	21	50	83	161	515	1.120	1.774
Chili	25	9	24	1		65	81	409	586
Bolivia	8								1
Uruguay									1
Argentinië	5					2			

Table 7; Dutch import fresh cut flowers from America

The amount of cut flower imports from Africa has more than doubled in less than ten years and the import amount from South America has more than tripled in less than ten years. This signals the increasing demand of African and South American flowers in the flower market and the trend seems to shape the whole industry placing imports as an significant part of the flower business and the supply chain.

In Southern America Colombia and Ecuador are two major players in the floristry sector and from those two countries The Netherlands imports most of its South American originated flowers. Ecuador for example has already surpassed Zimbabwe in imports to The Netherlands.



	1996	1997	1998	1999	2000	2001	2002	2003	2004
South America	20409	27678	35278	41938	54431	62541	60372	60729	65013
Africa	103324	122785	142710	162526	200165	222373	237448	238426	229748

Figure 1; Dutch import flowers 1996-2004

Import of cut flowers to the Netherlands in volume (x 1000kg) and in percentage

	2001	**% 2001**	**2002**	**% 2002**	**2003**	**% 2003**
Africa	57.905	60,1	63.207	62,6	65.245	64,3
Middle East	25.621	26,6	24.159	23,9	21.386	21,1
South America	11.558	12,0	11.724	11,6	13.637	13,4
Asia	822	0,9	661	0,7	752	0,7
Europe, excluding EU	410	0,4	1.228	1,2	401	0,4
North America	28	0,0	52	0,1	96	0,1
TOTAL	96.344	100,0	101.031	100,0	101.517	100,0

Table 8; Dutch import cut flowers in volume and percentage (Kengetallen 2004: 25)

The Table 8 validates that the amount of imports are actually growing and not only a phenomenon caused by the currency fluctuations. The volume of imported cut flowers are increasing as well, and also in this perspective the Africa and South America show steady development.

Figure 1 is drawn from tables 6 and 7, and figure 2 is drawn from tables 9 and 10 in order to illustrate the statistics in more receptive manner.

1.2.4 Pot plant import from Africa and South America

The growth in the pot plant import sector has been phenomenal especially the commodities from Africa are popular. The Netherlands mostly imports plants from Denmark, Belgium and Germany, but the new increasing import trend has emerged also the plant markets in low production countries. Africa alone has increased its share in the pot plant sector with almost a ten fold and already strong South American imports are steadily rising.

Dutch Import potplants
x 1000 euro
source: Eurostat

	1996	1997	1998	1999	2000	2001	2002	2003	2004
AFRIKA	**3.733**	**5.230**	**9.482**	**16.247**	**22.182**	**27.956**	**30.341**	**32.607**	**35.289**
Marokko	14	62	108	342	120	145	43		
Tunesië		112	171			5	3	24	16
Egypte		60	65	225	310	373	407	425	306
Soedan						2			
Senegal				2					
Guinee	20	2	17	7		4			3
Sierra Leone	1			6	1				
Liberia		1				2			
Ivoorkust	85	159	92	72	48	74	69	16	58
Ghana		2							
Togo	195	270	625	624	665	621	406	213	29
Nigeria	13	12	6	1				1	
Kameroen	19	18	7			1		8	
Centr.-Afrikaanse Republiek			3	1					
Equatoriaal-Guinea	1					2			
Rwanda	33						4		
Boeroendi				25					20
Ethiopië									
Kenia	1.015	1.906	3.209	6.937	10.034	10.904	11.840	13.577	14.164
Oeganda	111	559	1.228	2.658	4.007	5.529	7.358	6.834	8.519
Tanzania	122	193	614	1.783	2.752	3.960	3.627	4.680	4.737
Seychellen							1		
Madagaskar	27	29	26	17	4	9	2	5	21
Zambia				8		1	61		
Zimbabwe	8	26	106	362	643	1.015	628	603	644
Malawi			2						
Zuid-Afrika	2.069	1.819	3.203	3.177	3.598	5.309	5.892	6.221	6.772

Table 9; Dutch import pot plants from Africa

Dutch Import potplants

x 1000 euro

source: Eurostat

	1996	1997	1998	1999	2000	2001	2002	2003	2004
AMERIKA	**42.392**	**48.010**	**51.412**	**51.619**	**56.915**	**54.553**	**54.752**	**53.079**	**51.199**
VS van Amerika	2.573	3.458	2.935	2.521	2.516	2.368	2.045	1.497	1.392
Canada	4	4	12	34	11	72	23	1	34
Mexico	219	396	632	897	1.229	1.048	787	612	501
Bermuda							8		
Guatemala	7.995	8.061	6.968	9.118	11.146	8.546	9.387	9.534	8.623
Belize			1						
Honduras	2.750	3.612	4.031	4.875	5.307	4.689	4.392	4.723	4.736
El Salvador	895	954	1.152	375	536	489	903	1.434	1.793
Nicaragua								17	1
Costa Rica	21.704	26.069	27.546	28.183	30.303	31.509	31.340	29.072	27.676
Panama	18	2					28		1
Cuba	578	566	642	778	423	487	141	30	
Bahamas							11		
Dominicaanse Republiek	1.404	1.625	3.864	1.076	1.186	661	899	925	833
Antigua en Barbuda								7	
Dominica		5					4		
Jamaica		10	35	1					
Saint Lucia	17	15							
Montserrat								2	
Trinidad en Tobago		1							
Colombia	57	95	77	71	56	26	39	123	211
Venezuela		6							17
Guyana			1						
Suriname	50	25	12	4	1		18	73	22
Ecuador	11	96	41	4	33	10	10	54	30
Peru		2		6		1			
Brazilië	3.952	3.008	3.384	3.560	3.933	4.554	4.703	4.902	5.174
Chili	164		79	114	235	93	14	7	155
Uruguay	1								
Argentinië				2				66	

Table 10; Dutch import pot plants from America

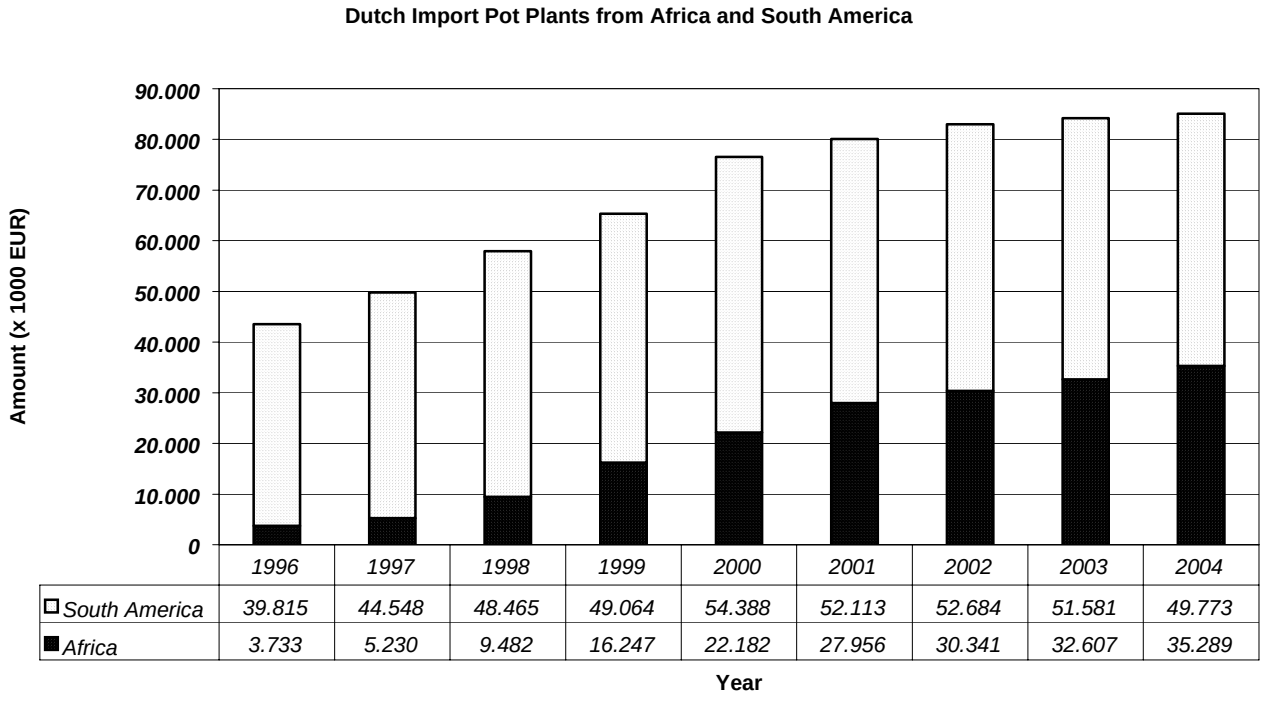


Figure 2; Dutch import pot plants 1996-2004

Import of pot plants to the Netherlands in volume (x 1000kg) and in percentage

	2001	**% 2001**	**2002**	**% 2002**	**2003**	**% 2003**
South America	30.693	63,8	31.147	58,8	36.088	55,5
Asia	11.496	23,9	14.763	27,9	20.794	32,0
Africa	2.964	6,2	3.204	6,0	3.164	4,9
Europe, excluding EU	1.136	2,4	1.953	3,7	2.936	4,5
Middle East	1.028	2,1	985	1,9	1.216	1,9
North America	763	1,6	910	1,7	831	1,3
TOTAL	48.080	100,0	52.962	100,0	65.029	100,0

Table 11; Dutch import pot plants in volume and in percentage (Kengetallen 2004: 27)

Table 9 validates the same for pot plants as Table 8 does for cut flowers. Meaning that the pot plant imports are rising, proving the actual increases of imports not only in monetary value but also in volume.

1.2.5 Transit and intermodality

The emerge of imports lead by these two regions Africa and South America proves the change in the Dutch floristry industry, especially due to the fact that the increasing imports is a growing trend. Because The Netherlands continues to be the largest export country of floristry goods it indicates that most of the imported flowers are exported onwards to the hands of the final consumers. As discussed earlier, already in the beginning of the 90's over 70% of imported flowers were re-exported (A View of International Competitiveness in the Floristry Industry; 1992: 19) and that trend expands because of the limits of domestic consumption.

In the case of Dutch floristry industry transit means that the incoming floristry goods pass through the country and continue to their final destination. The other aspect is transit logistics, which is the practical side of the transit operations. The rise of imports and continuing large export figures imply that The Netherlands is becoming larger transit country. Even bigger flower hub for the world than before.

Transiting flowers and plants that origin from Africa and South America require efficient intermodal logistics operations within the supply chain. Intermodal transport indicates the use of two or more modes (air, road, sea, rail, pipeline) to move a shipment from its origin to its destination.
(DeWitt, Clinger; Intermodal Freight Transportation; [online] http://gulliver.trb.org/publications/millennium/00061.pdf)
Flowers and plants mainly use two modes of transportation: air and road. The combination of these two modes is vital because the goods are perishable and come from great distance. Therefore the long-distance terminal-to-terminal transport is conducted with air transportation and distribution within Europe is done by using road transportation. Intermodality will be discussed in detail in the supply chain section and also from Traffic B.V.'s view point.

1.2.6 Conclusion

As a conclusion from the import statistics, it can be stated that the amount of imports is getting larger and larger every year placing growing importance to the logistics system in the Netherlands. Most of the imports go directly outside The Netherlands only passing through the country, making transit operations more and more important. Africa and South America continue to grow as exporters due to the demand from Europe and North America. The Netherlands can match this competition not by production increases but with adapting to the situation and investing in expertise to develop the transit system. Accepting the current market situation and focusing on the strong points in importing, transiting and intermodality, then the Dutch floristry industry can continue to be a significant business environment.

1.3 Importing and exporting

1.3.1 Introduction

Importing is one of the main topics in this report. When investigating the increase of imports, its supply chain and the business opportunities behind it, the pure theory must be acknowledged. Because this report is focused on importing, the export operations are not described in such detail. The documentation, which is extremely relevant, is discussed. [The export documentation needs to be understood because otherwise the import operations could be successful without proper exporting procedures.]

1.3.2 Main functions

Importing involves the purchase and shipment of goods from an overseas source. (Lambert et alia: 390) Meaning that a company's activities include bringing goods, raw materials, parts, components, supplies, or finished goods from outside the country the company is located in.

There are several key issues involved in importing that have to be taken care of. This is one reason why many find importing and its procedures complicated and difficult. The main topics in importing are:

- Documentation
- Customs regulation
- Role of the government
- Trade zones

Basically the customs is the key figure in importing, because it controls the regulations and protects the government's interests. Documentation is mainly done for the customs to improve the speed in the customs clearing.

1.3.3 Documents

The documentation for a shipment is drawn for export and the importing party receives these documents when importing. First of all the documentation must be correct for the shipment and filled accordingly. The documentation can be divided into two sections: sales documentation and transportation documentation.

The sales documentation includes:

- The sales contract
- Letter of credit
- Departure contract
- Shipment contract
- Arrival contract

For any international business transaction the initial document is the sales contract. The document states the goods and describes them, their price, payment terms, transportation arrangements, insurance requirements, carriers, and specialties involving the transaction. Letter of credit is the most usual method of payment. It is a bank insurance that states that the buyer will make payment as long as the seller meets the sales terms stipulated in the sales contract. This is why the letter of credit holds such a protection. Other methods of payment are cash, consignments, and open account.

Depending on the sales terms, Incoterms, the contract for departure, shipment, or arrival is drawn. The terms define and divide the responsibilities for both the buyer and the seller. The Incoterms indicate the responsibility of the buyer and the seller for:

- Export packing cost
- Inland transportation (to the port of export and from port of import)
- Export clearance
- Vessel or plane loading

- Main transportation cost
- Cargo insurance
- Customs duties
- Risk of loss or damage in transit

1.3.4 Departure contract

E Terms. The E-Terms consist of only one sales term, which is Ex Works (EXW). It is called a departure contract due to the fact that the buyer holds total responsibility for the shipment. The seller is obligated to make the goods available at its facility.

F Terms. There are three F-Terms and they mandate that the seller is liable for the cost of delivering the shipment cleared for export to the carrier designated by the buyer. The buyer is liable to take care of the transportation and its costs, insurance, and customs clearance. The terms include Free Carrier (FCA), Free Alongside Ship (FAS), and Free on board (FOB). FCA , the seller delivers the goods to the carrier named by the buyer and the buyer takes care of the risk of damages from that point on. It can be used in any mode of transportation. FAS, As in FCA the risk of damages are on the list of the buyer's responsibilities as soon as the goods are delivered alongside the ship, and also the costs of loading the ship are on the buyer. FAS is for water transportation only. FOB, also for water transportation only, states that the risk of damage transfers to the buyer when the goods are actually on board. The seller must pay the loading charges.

1.3.5 Shipment contract

C Terms. The four C terms obligate the seller to obtain and pay for the main carriage and / or cargo insurance. (Fundamentals of Logistics Management; Page 389) The terms are: Cost and Freight (CFR), Carriage Paid To (CPT), Cost, Insurance, Freight (CIF), and Carriage and Insurance Paid To (CIP). CFR and CPT

are similar and they both state that the seller must select and pay for the main carriage, to the port of destination the seller is liable for the costs, and risk of damage shifts to the buyer when the goods pass the ships rail (CFR) or when they are delivered to the main carrier (CPT). CPT is for any mode of transportation while CFR is for water transportation only. CIF and CIP demand that the seller pays main carriage and the cargo insurance. The risk of damage is the same as CFR and CPT. CIF is for water transport only and CIP is intermodal.

1.3.6 Arrival contract

D Terms. There are five D terms and they obligate that all costs and risk of damage regarding the delivery of the shipment to the foreign destination are incurred by the seller. The terms are: Deliver at Frontier (DAF), Delivered Ex Ship (DES), Delivered Ex Quay (DEQ), Delivered Duty Unpaid (DDU), and Delivered Duty Paid (DDP).

DAF, which can be used in all modes, indicates that the transportation and risk of damage to the named point at the place of delivery at the frontier of the destination country are the responsibilities of the seller. DES and DEQ, both for water transport, say that the seller must select and pay for the main carriage. The difference between DES and DEQ comes when drawing attention to the risk of damages. The risk shifts to the buyer when the commodities are available to the buyer on board the ship, uncleared for import at the port of destination. The buyer is responsible for clearing the goods at customs. Under DEQ the risk transfers to the buyer when the goods, that have not been clearer for import, are unloaded on the quay at the port of destination.

When using DDU, the seller is responsible of taking care of all costs to the named place in the country of importation, except the import duties. The risk of damages transfers to the buyer when the goods are made available at the named place, import duties are unpaid. The obligations of the seller are similar in DDP as in DDU, except the DDP ads the clearing of the goods and the payment of the import duties to the seller.

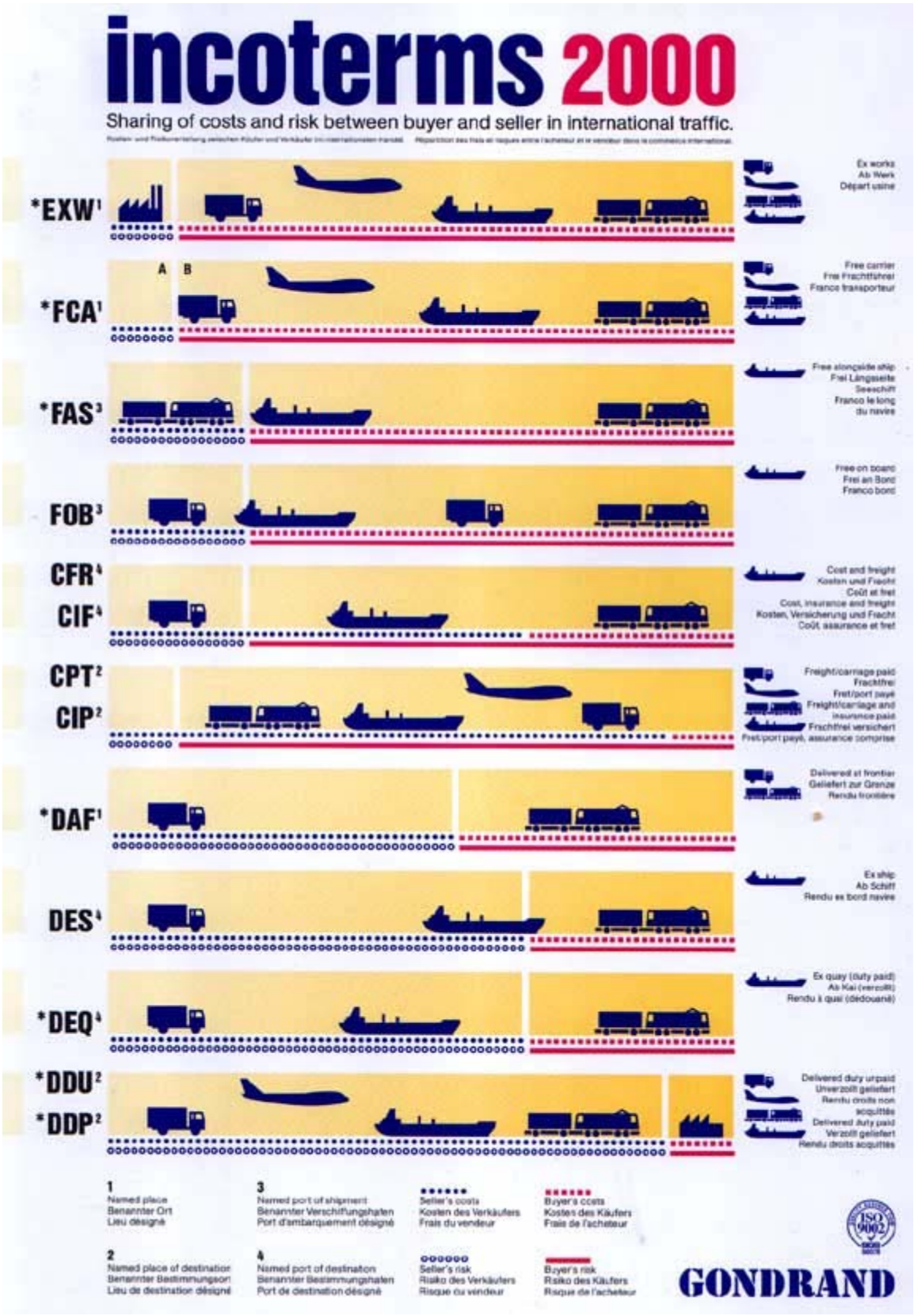


Figure 3; Incoterms (http://www.gondrand.ch/en/pages/index_information.htm)

1.3.7 Transportation documents

The transportation documents include:

- Export declaration
- Export license
- Invoices
- Carnet
- Bill of lading
- Dock receipt
- Airway bill

The *export declaration* includes information about the shipment's nature and value. Commonly the declaration states the description of the commodity, the shipping weight, list of marks and numbers on the containers, the number and dates of required export licenses, the place and the country of destination, and the transaction parties. The export declaration is issued to the customs in the country where the goods are exiting. The information from the declaration is provided to the Department of Commerce by the customs.

Export license is required by the company conducting export operations. The type of commodities dictates the type of license, which indicates that special type of goods such as military hardware, require a special license.

The seller uses to determine the value of the commodity with the *commercial invoice*. This invoice is demanded by the letter of credit and companies or agencies in order to determine the correct value for insurance purposes and appraising import duties. Some countries demand a *consular invoice*, so they are entitled to gather import statistics.

A *carnet* is often issued when a shipment is carried in a sealed container and it indicates that the shipment is sealed at the point of origin and it is opened no until the final of destination. This means that the shipment is able to pass the customs without an inspection procedure, due to this carnet is extremely useful in transit and intermodal shipments.

The Bill of lading is the initiating document for any international shipment. The export bill of lading covers the domestic movement, intercountry movement and the foreign movement. Most shipments are moved under the combination of domestic and air / ocean bill of lading. The bill of lading conducts as the contract of carriage between the carrier and the shipper. Terms of shipment and distinguished origin and destination are mentioned, also information about the shipment: quantity, weight, freight charges, and special handling requirements are stated in the bill of lading. Conditions can be added by the carrier as long as they are in contradictory to law. The contract terms of the bill of lading concern the liability of the carrier, meaning loss of cargo, act of God, acts of public enemies, defects, or negligence of the shipper.

Order bill of lading provide evidence of the ownership of the goods, which enables the transforming the title of the goods. *Clean bill of lading* is issued by the carrier when the shipment arrives in good condition being unloaded from the carrier. In the case of damage a clean bill of lading will not be issued. A *ship's manifest* is prepared by the carrier after all the bills of lading are processed summarizing the cargo aboard listed by the port of loading and destination. A *dock receipt* is a proof of delivery issued by the steamship agent.

The *Airway bill* is a standardized document used by the air carriers on all international air shipments. The standard draft reduces processing costs and improves handling speed at the customs. Ocean bill of lading is used in water transports.

Packing list and *CMR* are other important documents to be mentioned. The packing list indicates the details of each package in the shipment and it's used by the customs for clearance and inspection. It's also important when claiming due to damages and / or shortage. CMR is the standard document for trucking and it acts as the air waybill or the bill of lading.

1.4 Import

1.4.1 Custom duties – Import to The Netherlands

When importing goods customs formalities, regulations and taxes need to be dealt with:

1.4.2 Importing from a country which is member of the EU

Import goods from EU member states are known as 'Intra-Community acquisition of goods'. There are no fiscal borders within the European Union member states except for goods such as tobacco, alcoholic products, mineral oils, sugar and sugar-based products. Commodities which come from any of the 25 EU member states can be transported within the EU without any customs formalities. This means that you only have to deal with the Inland Revenue.

What steps to take
Orientating on import
Discuss your import ideas
Surf on internet for information
Write your import (marketing) plan
Determine import costing and the selling price
Assessing you companies' import capacity
Define your companies' strengths and weaknesses
Follow an import course, attend a seminar
Marketing
Market research of import market
Determine effective forms of promotion
Identify potential new customers
Transport
Choose means of transport
Arrange transport yourself or through specialised transporters
Select a transport agent or transport company
Which Incoterm to use
Financial
Make a financial plan
Check the financial feasibility
Arrange additional financing if required
Determine payment terms
Juridical
What agreements to make with your client
Define role of your supplier (sales contract, importer, agent, distributor)
Determine your general terms
Insurance
Which insurances do you require (transport, liability, etc.)
Take on insurance
Customs & excise
What import tariffs are applicable
Which import documents and licenses are required
Arrange customs procedures

Table 12; How to import to The Netherlands: Standard steps of importing; The Holland Chamber of Commerce; http://www.holland.com/include/loadad.html?page=http://www.kvk.nl/home/homeUK.asp

1.4.3 Import duties in case of importing from a country outside the EU ('third countries')

VAT payment and import duties are to be paid on all goods which you bring into the Netherlands, which come from the countries out side the EU. Excise duties are also payable on goods such as tobacco, alcoholic products, mineral oils, sugar and sugar-based products.

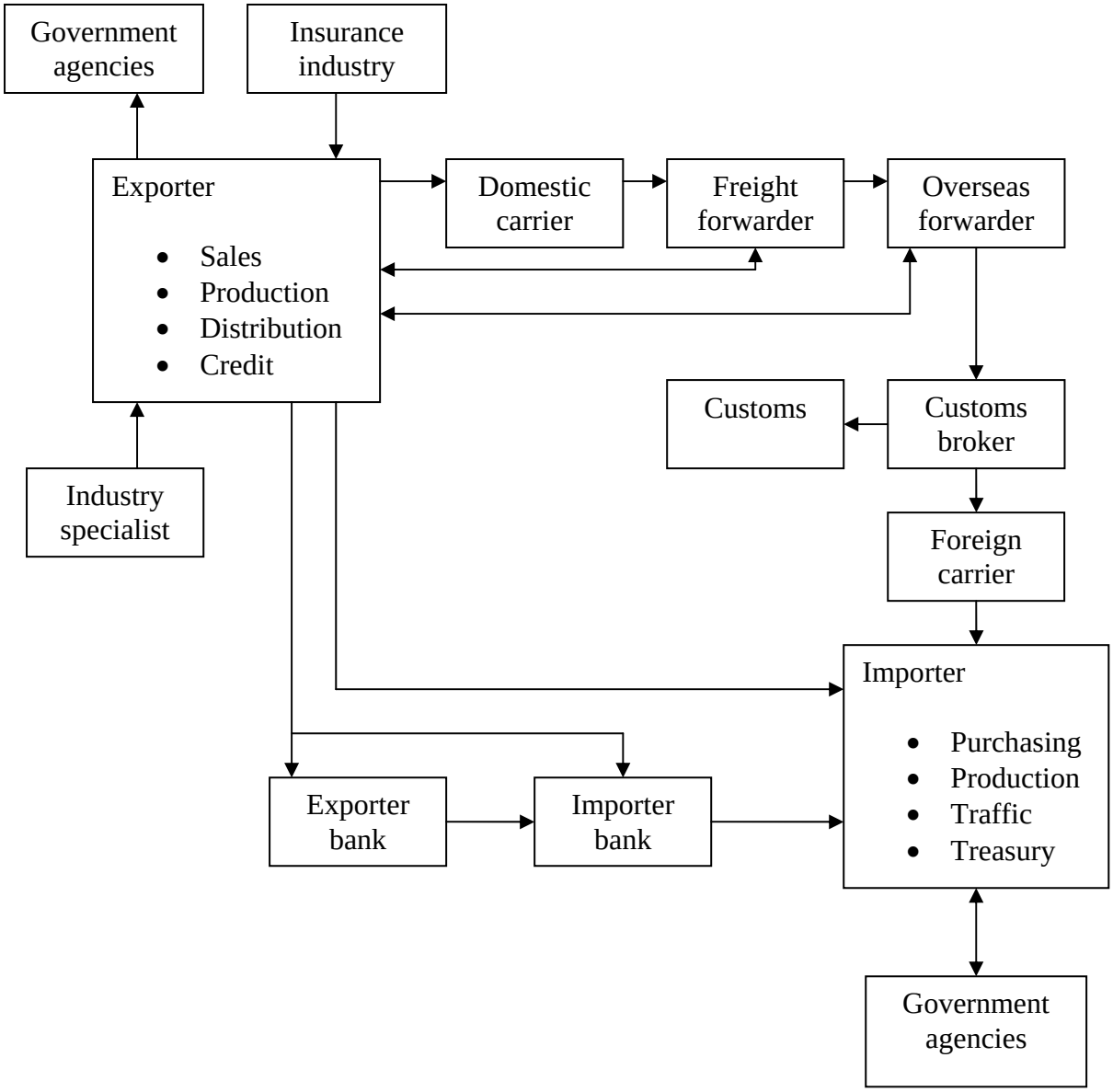


Figure 4; The export-import flow chart (Coyle et alia 2003: 176)

2 The supply chain

2.1 The supply chain theory

2.1.1 Introduction

The first part of this thesis is focused on import statistics and importing operations. The second part will discuss the supply chain of flowers and plants from Africa and South America. The theory of the supply chain and its aspects are introduced first and secondly the theory is explained in practice from Traffic B.V.'s point of view. The supply chain theory helps to explain the complexity of the supply chain and its variations in perishable supply chain.

2.1.2 The supply chain model

To understand the supply chain of flowers coming from Africa or South America the generalized supply chain model needs to be discussed first. The generalized model enables to explain the different phases and aspects of the supply chain.

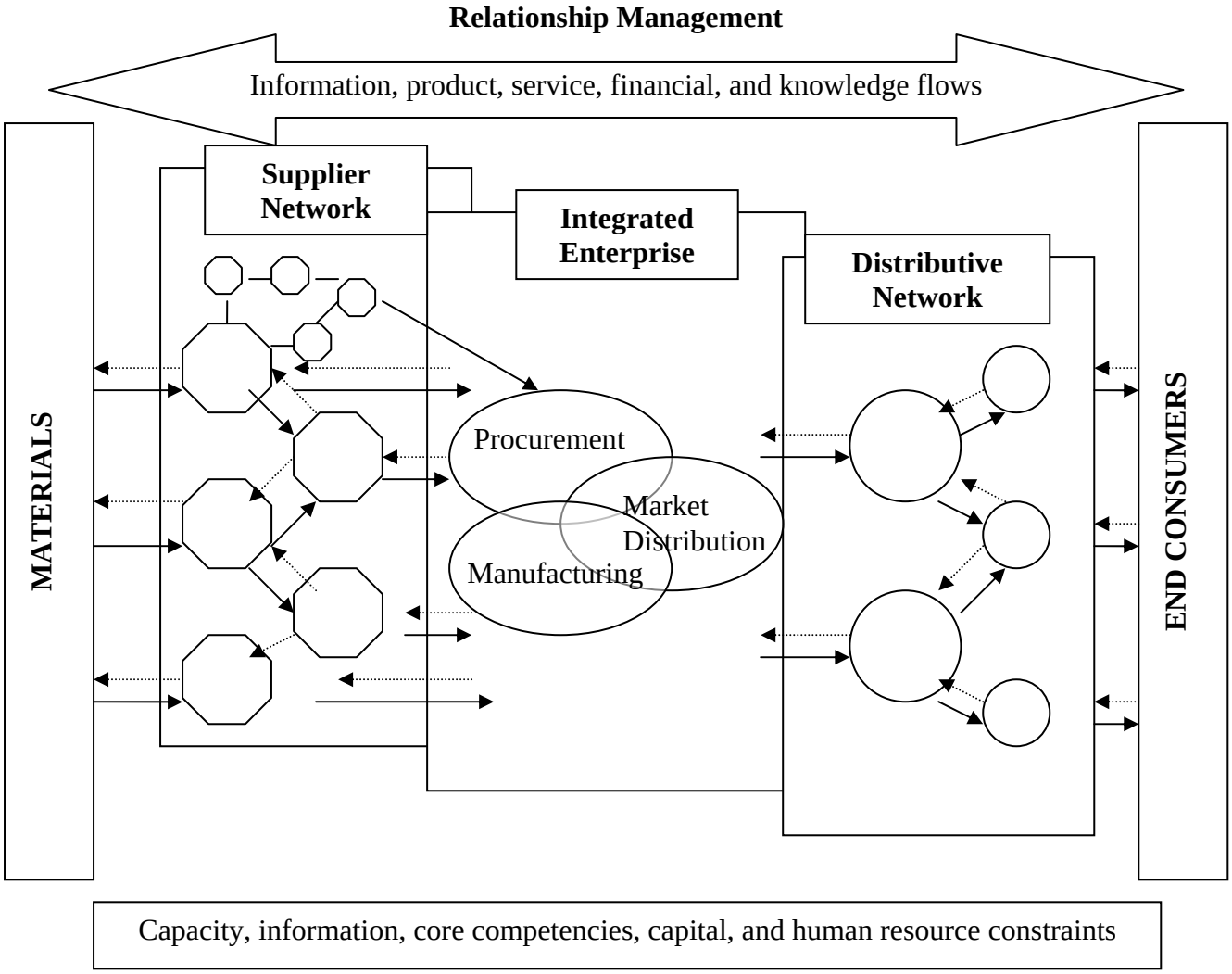


Figure 5; Generalized supply chain model (Bowersox et alia 2002: 6)

2.1.3 The context

> 'The context of an integrated supply chain is multifirm relationship management within a framework characterized by capacity limitations, information, core competencies, capital, and human resource constraints.' (Bowersox et alia 2002: 6)

Supply chain structure and strategy conclude operations from material purchase to delivery to be linked with the customers. By linking operationally an enterprise along with supply and distributive networks with the end customer, comparative advantage can be gained and value created.

In order to manage a supply chain efficiently and effectively the five flows of a supply chain need to be managed well. Managing the supply chain indicates the seamless coordination of supply management, operations, and integrated logistics. The five critical flows in a supply chain are:

- Information
- Product
- Service
- Financial
- Knowledge

The management of these flows creates a setting for tighter chain and it will result in managerially coordinated initiatives to boost market impact, efficiency, continuous improvement, and competitiveness. The supply chain structure and strategy are carried across most industries by the development of information technology, which is an obvious reason for more efficient and more effective supply chain, and also integrative management, responsiveness, financial sophistication, and globalization forces.

2.1.4 Integrated management

Three factors 1) collaboration, 2) enterprise extension, and 3) integrated service providers are the view points how integrated management can be interpreted. Integrated management cumulates from performing and measuring work on a functional basis. This functional emphasis is directed to process achievement in integrated management.

1.Collaboration. Some supply chain arrangements are in contrast with each other because of customer loyalty factor. The increased importance in collaboration has made the supply chain a primary unit of competition and the collaboration stimulates supply chain arrangement formations.

2. Enterprise extension. Control and influence of a single firm has facilitated joint planning and operations with customers and suppliers over ownership borders. By integrating business processes results in maximized impact on the customer, reduces risk, and improved efficiency. Information sharing is the main source for collaborative extension.

3. Integrated service providers. Integrated service providers indicate outsourcing specific functions; functions like transportation and warehousing are such activities that are often placed in the hands of specialists. Third party logistics providers (such as Traffic B.V.) are commonly described as integrated service providers. The third party logistics providers can be asset or non-asset-based entities depending on does the party own and operate its own transportation equipment and warehousing facilities.

These three aspects of integrated management stimulate improved relationships among the firms in a supply chain with information sharing, and operational specialization, and they also bring out new supply chain solutions.

2.1.5 Responsiveness

The increased exchange of information in a supply chain has presented two business models that represent the strategic part in the supply chain. The two models are called: anticipatory-based business model and responsiveness-based business model.

Figure 6; Anticipatory-based business model (Bowersox et alia 2002: 15)

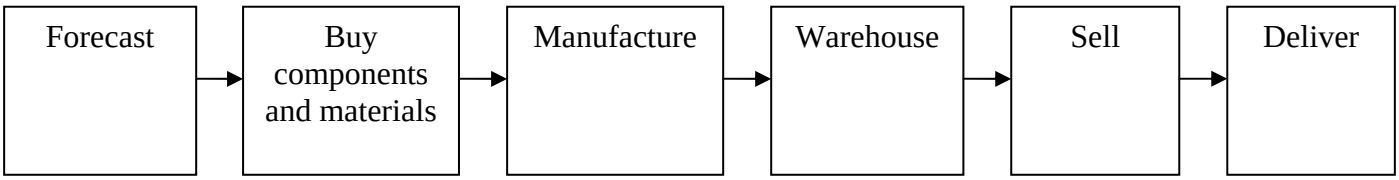
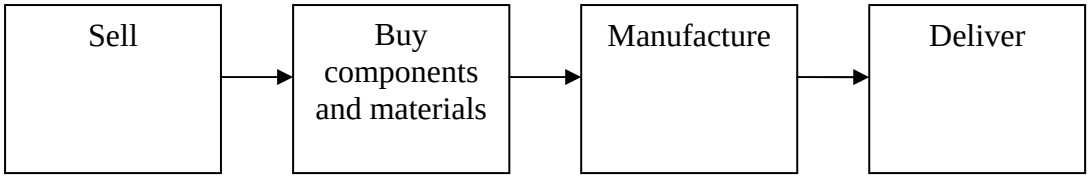


Figure 7; Responsive-based business model (Bowersox et alia 2002: 16)



The difference between these two business models is timing. The response-based business model tries to reduce the forecast function by joint planning and fast exchange of information. The anticipatory model however relies on forecasts. Due to the nature of these models, being time-based competition, postponement strategies and practices reduce anticipated risks in supply chain performance.

2.1.6 Financial sophistication

In value creation, faster, more flexible, and more precise customer service are justified methods when they can be provided at competitive prices. This trend to achieve working arrangements in a supply chain is to manage the chain in a timely manner, meaning reduced inventory and smaller number of distribution facilities. The aspects of financial sophistication are called cash-to-cash conversion, dwell time minimization, and cash spin.

Cash-to-cash conversion refers to the time required to convert raw material or inventory purchases into sales revenue. (Bowersox et alia 2002: 22) To turn inventory into cash quickly relates to increased inventory turns.

Dwell time is a measure of supply chain productivity. This means the ratio of time that a commodity is in storage to when it is contributing to achieve its supply chain objectives. Dwell time is reduced by eliminating overlapping and non-value-adding work and also by continuous inventory flow.

Cash spin is reducing assets across a supply chain to describe potential benefits to supply chain performance. Cash spin can be referred as a combination of cash-to-cash conversion and dwell time minimization. In other words it is a integration of financial attractiveness with effective collaboration.

2.1.7 Globalization

Globalization offers companies sales efficiency and operating potential. First, of all the global market provides opportunities to strategically source raw materials and components. Secondly, the global marketplace enables labor advantages from manufacturing locations and distribution facility locations. Thirdly, the performance of value-adding operations in some countries, are more attractive or favorable than in others due to the differences in tax legislation.

2.2 Supply chain management

2.2.1 Introduction

Supply chain management (SCM) can be defined as: ’The process of planning, organizing, and controlling the flow of materials and services from suppliers to the end users / customers. This integrated approach incorporates suppliers, supply management, integrated logistics, and operations.’ (Bloomberg 2002: 1) In layman terms this means that when supply chain in managed supply management, operations, and integrated logistics are coordinated.

Supply chain management helps to develop good relationships with other members in the supply chain and also high-quality products and services. It reduces the number of suppliers and carriers and the order cycle time and the SCM minimizes inventory levels. Information sharing is a vital part of the supply chain and it links the members together, thus building commitment to the chain.

2.2.2 Supply management

Purchasing commonly refers to supply management even though supply management holds several activities and not only purchasing. Supply management includes anticipating requirements, sourcing supplies, acquiring supplies, moving the supplies into the organization, and finally monitoring the supplies as having a current asset status. The key elements in supply management are: Purchasing; Supplier selection, evaluation and measurement; and Materials sourcing.

2.2.3 Purchasing

Purchasing is a important function of supply management because it generates cost efficiency and organizational effectiveness hence operational problems can be avoided with well coordinated purchasing. The purchasing success can be read from discussing the goals of purchasing. By obtaining goods and services successfully, demands the right materials, in the right quantity, in the right condition, at the right time, from the right source, with the right service, at the right place. The definition for the purchasing process can be characterized as recognizing a need, identifying a supplier, qualifying and placing an order, monitoring and managing the delivery process, and evaluating the purchase and the supplier. (Bloomberg et alia 2002: 15)

2.2.4 Supplier selection

The supplier selection is quite self-explanatory which is why this report does not discuss the process that extensively. The trend for supplier selection however is now changing from having multiple sources trying to achieve top quality and service to achieving a two way relationship where the purchasing manager would be as important to the supplier and the other way around. The evaluation of a supplier is made on the basis of price, quality, customer service, and delivery. The supplier's performance is measured along with the evaluation with price effectiveness, cost savings, workload, administration and control, and efficiency. The vendor's quality and delivery, material flow control, regulatory, societal, and environmental measures, procurement planning and research, competition, and inventory are measured as well.

2.2.5 Material sourcing

Material sourcing definition: Buying a product or service from outside the organization, rather than producing or providing it within the organization. (Bloomberg et alia 2002: 27) The term outsourcing is often used instead of material sourcing. The outsourcing reasons are gaining lower cost, better quality, etc. Third party logistics providers in some cases used to provide logistics services. The role of the third party logistics providers are discussed later in this thesis.

2.2.6 Operations

Operations mean the activities that create goods and services where inputs are transformed into outputs. Operations management starts with a forecast that determines the fundamental need for “what” and “where”. What kind of facilities are needed, where, and how large they need to be? What kind of machinery is required and the workforce need to suit the task accordingly? These forecasts set the capacity and workforce requirements. Scheduling is the next step when planning the operations. Timing and demand relation needs to be matched; this means that the capabilities of the capacity must be planned carefully. Shop floor control and monitoring the entire process are the last two phases in basic operations.

2.2.7 Integrated logistics management

The integrated logistics process anticipates customer’s needs and wants then acquires the capital, materials, people, technologies, and information necessary to meet the customer requirements. The integrated logistics management optimizes the goods or services producing a network to fulfill customer needs and it utilizes the network to do that task in a timely way.

There are three principle sets of activities in the integrated logistics process: inbound logistics, conversion / operations, and outbound logistics. The execution of the five primary logistics activities - transportation, facility structure, inventory management, material handling, and communication / information – are sustained in each of these three relationships. To draw the similarities to the perishable supply chain in the Traffic B.V. case, the main logistics activities need to be discussed in more detail.

Transportation is dealing with the movement of a product into, through, and out of the plant or a warehouse. The different modes of transportation mandate the velocity of the movement and the distances dictate the use of some modes. Transportation is the most expensive logistics activity setting approximately 50 % of the total logistics costs.

The strategic placing of warehouses, service centers, plants, and the type, location, and operation of those facilities are included in the facility structure function. Inventory management refers to raw material, work in process, and finished goods buffers. If no variation existed in transit time, in processing time, if there would be no loss, no damage, no volume discounts for transportation or products, and forecasting of demand would be accurate, then there would not be any need for storing products.

The efficient and effective movement of products inside the above mentioned facilities is encompassed in material handling. It embraces packaging, types of material handling systems, and the integration of these systems with the facility structure. Communication / Information links the different logistics systems together. Order processing, forecasting, scheduling, and the two way flow of information is the essence of the information exchange based logistics activity.

2.2.8 Logistics supply chain

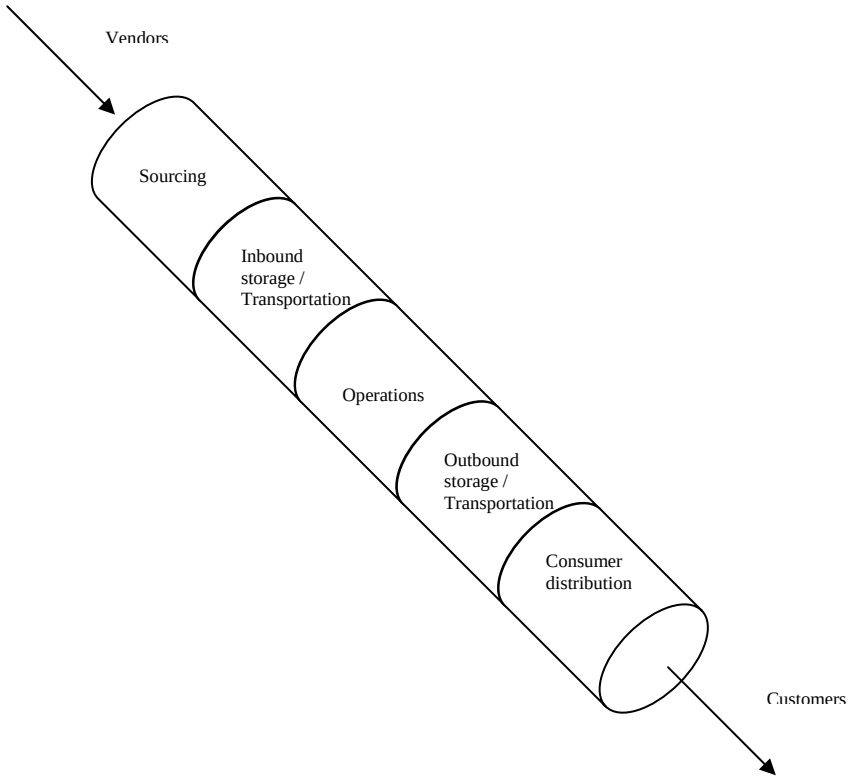


Figure 8; Basic logistics concept (Coyle et alia 2003: 16)

Supply chain can be viewed as a pipeline or conduit for the efficient and effective flow of products / materials, services, information, and financials from the second tier supplier (supplier's supplier) to through the various intermediate organizations / companies out to the second tier customer (customer's customer). Other way of looking at a supply chain is to regard it as the system of connected logistics networks between the original vendors and the ultimate final customer.

2.3 Transportation

2.3.1 Introduction

The transportation of cut flowers and pot plants requires, as mentioned earlier, strict temperature control and speed within the supply chain. The main character how to reduce time in the supply chain is by managing transportation effectively. Especially when discussing long distance deliveries from Africa and South America, the transportation is the key part in the whole logistics system. Because the perishable transportation mandates speedy terminal-to-terminal transport and also door-to-door deliveries there are two modes that are suited for these types of deliveries: Air transportation and road transportation. Sea and rail transportation are excluded from perishable transportation due to lack of cost efficiency and time consuming restraints.

2.3.2 Air transportation

Air transportation is the fastest terminal to terminal mode of transportation and that factor is a vital one when talking about transporting perishable cargo. Flowers are very sensitive when it comes to transportation and the same goes other floristry goods. The perishable nature of the goods dictates the strict temperature and time requirements that need to be followed, otherwise the goods will suffer considerable damage.

Air transportation is the most expensive mode of transportation, but the benefits received might overcome the expense factor. Speed is the power in air transportation and without speedy delivery goods such as flowers would perish in long distance transports. Also air transportation enables temperature control, which is necessary in flower transportation.

Because distance is a factor, considering links from Africa and from South America to the Netherlands, air transportation is the only possible solution for transporting flowers to the Netherlands. The direct links provide speedy deliveries and there is no need for stopover landings. Without effective air transportation the imports from Africa and South America would not be possible in their current scale and the perishable imports would not be a functioning part of the supply chain.

2.3.3 Road transportation

Road transportation is the only mode of transportation that enables door-to-door deliveries. Within mainland Europe, which also is a huge market for flowers and plants, road transportation is the most cost effective and fastest way of transporting goods. As mentioned earlier air transportation is faster, but only terminal;-to-terminal basis. Trucking provides deliveries to the customers doorstep if necessary, which no other mode of transportation can offer. The road transportation functions from Traffic B.V.'s viewpoint are explained in the export section, using Finland as an example of a country of destination.

2.3.4 Perishablity

As already mentioned several times in the text, perishable gods, such as flower and plants, have strict temperature requirements and time restrictions. Especially air transportation has specialized in perishable transportation, airlines have actively developed handling techniques and invested in facilities to support the perishable transportation and its growth. (IATA [online], http://www.iata.org/whatwedo/cargo_operations/perishables.htm

For air transportation there are precise packaging method applied to ensure both zero damage and efficient handling. With air transportation the packaging goes slightly further than in road transportation, because the use of special containers during transport. With road transportation however, the whole trailer acts as a container provided cooling for the perishable cargo.

2.3.5 Intermodality

Intermodal transportation is not a new extravagant concept that has recently been developed. In fact the concept itself is decades old, but the transportation modes have operated quite separately in the past. Intermodality refers to the use of two or more modes of transportation in order to move a shipment from its origin to its final destination. (DeWitt, Clinger; Intermodal Freight Transportation; [online] http://gulliver.trb.org/publications/millennium/00061.pdf) The intermodal movement involves the physical infrastructure, goods movement and transfer, and information drivers and capabilities under a single freight bill.

The expansion of intermodal operations, according to DeWitt and Clinger, will be driven and challenged by four factors. These factors are following:

1. Measuring, understanding, and responding to the role of intermodalism in the changing customer requirements and hypercompetition of supply chains in a global market place;
2. The need to reliably and flexibly respond to changing customer requirements with seamless and integrated coordination of freight and equipment flows through various modes;
3. Knowledge of current and future intermodal operational options and alternatives, as well as the potential for improved information and communications technology and the challenges associated with the their application;

4. Constraints on and coordination of infrastructure capacity , including policy and regulatory issues, as well as better management of existing infrastructure and broader considerations on future investment in new infrastructure

Intermodality increases supply chain flexibility and increases efficiency. The importance of intermodality will grow along with the increase in supply chain efficiency standards, therefore excellent know-how, information, equipment, and infrastructure must be existing in order to manage the whole supply chain effectively and efficiently.

Intermodal transportation is also mentioned as a strong development factor within European transportation structure in the European Transport Policy white paper for 2010. The paper, named "The time to decide", discusses the importance of intermodal transport operations in the future.

Functional Logistical Groupings of Activities

Inbound traffic Outbound traffic International traffic Carrier selection Mode selection Public versus private carriage	Transportation
Warehouse management Warehouse planning Distribution center management Distribution center planning Plant site selection	Facility structure
Purchasing Raw material inventory Work-in-process inventory Finished goods in inventory Parts / service support Return goods handling	Inventory management
Salvage / scrap disposal Material handling Packaging	Material handling
Order processing Demand forecasts Production scheduling	Communication & information

Table 13; Functional logistical grouping of activities (Bloomberg et alia 2002: 50)

2.4 Supply chain management characteristics

2.4.1 Introduction

Previously in this text the design for resourceful supply chain management has been discussed and this section takes notice of the key factors of supply chain management. The key functions are: Inventory, cost, information, customer service, and relationships. Each of these factors is described in more detail.

2.4.2 Inventory

A central focus in supply chain management is inventory and the management of the flow of inventory and its level. It is also a vital performance metric for logistics success. The customers expect service and the inventory level aims to be sufficient enough to provide acceptable service, however at the same time low as possible to reduce supply chain costs. Managing this balance requires integrated management. The inventory needs to be tracked and the supply chain parties have to be aware where the inventory is, whether it sits in a warehouse or it is in transit.

To pull the inventory through the supply chain when responding to demand instead of pushing the inventory at the time of anticipating the demand adds the efficiency of inventory management. The push method leads to increased inventory levels, low inventory turnover, and it creates excess inventories.

2.4.3 Cost

Low costs or the activities trying to lower the costs are one of the most important supply chain objectives. Companies aim to minimize and optimize their own costs without thinking their supply chain partners and how these optimizations affect their efficiency and activities. In many cases these cuts made by companies end up being harmful to their supply chain partners and the selfish moves do not provide decreases to the total cost in the supply chain. The exchange of information is the only way to begin planning and realizing collaborative efficiency in supply chain costs.

2.4.4 Information

Managing the flow of information is a key factor for both efficiency and effectiveness in the supply chain. (The Management of Business Logistics; Page 23) This requires that the information moves actively to both directions providing and receiving information. When data is exchanged it diminishes uncertainty thus minimizing the amount of inventory buffers, and that can enable the information to be available in real-time basis. This indicates that the information shared is also very precise and honest. The negative side for businesses is the thought that they might lose their competitive edge when sharing information excessively. Even though the active share of information is the only way for management of a successful supply chain and it maximizes its potential.

2.4.5 Customer service

The ultimate goal of a supply chain is to serve the customer or provide added value for them. Information and its expeditious exchange enable the value to be added to the service. More cost effective supply chains operate efficiently and communication is a huge attribute in this process. When a supply chain becomes more efficient and gain competitiveness, the information exchanging provides these opportunities and it also indicated lower prices for the customers. When evaluating the suppliers and the supply chain efficiency, the customers pay attention to reliability, on-time delivery, and accurately filled orders.

2.4.6 Relationships

Relationships or collaboration relies heavily on information exchange, which was discussed previously but it is not entirely just that. A successful supply chain is as if it was a single entity and all functions would be handled collaboratively. Planning, strategy, and tactics would become tailored for the supply chain not just on individual organizations making the chain more compact and designed and naturally the important cost factors would diminish through an open collaboration.

2.5 Conclusion

The supply chain theory section explains in detail the supply chain concept, its characteristics, and how to manage it. The supply chain section links the Dutch floristry industry part and the Traffic B.V. case part together with theoretical aspects. Without the theory the connection between the first and the third part would be vague and the case study would be difficult to understand.

The generalized supply chain model, supply chain management characteristics, logistical activities, and focus on air and road transportation shift the focus from statistical data of the Dutch floristry industry to the case study. The supply chain theory section increases the understanding for supply chains, which is required in the third part of this thesis when the case supply chain is introduced.

3. The position of Traffic B.V. in the world market in respect to the Dutch floristry industry – Case Traffic B.V.

3.1 Traffic B.V. introduction

3.1.1 History

Traffic BV was established in 1921 and it belongs to the Gondrand Group. (Traffic B.V. Website [online]; http:www.traffic.nl) Gondrand is a leading global player in logistic services, with offices on every continent. Traffic B.V. itself is a third party logistics provider. A third party logistics provider can be considered as a strategic alliance due to the fact that the use of third party logistics provider is a outsourcing arrangement. (Johnson et alia 1999: 46) Traffic B.V. provides services for various modalities: Dangerous goods, distribution, warehousing and logistics, in-land shipping, air freight, sea freight, rail transport, information technology services, and flowers. ISO-9001 quality certification ensures a clear working procedures and constant, high quality levels of services.

3.1.2 Flowers

Traffic B.V. started with flowers in 1954 and has been one of the company's main modalities for decades. Traffic BV forwards flowers worldwide and delivers them within 24 hrs into the local flower shops. Traffic B.V. exports apprx. 3,5 Mln. Kg's by air and apprx. 4 Mln. Kg's by road. Most of the flowers handled travel to the USA, Switzerland, and Finland, but the service actually covers almost the entire world. Flower forwarding is a service that Traffic B.V. has provided for more than six decades. Within 56 hours can almost the entire Europe be reached.

3.2 The market

3.2.1 Introduction

As discussed in the section of the Dutch floristry industry, the whole industry is going through changes due to the competition from countries with lower production costs. The reconstruction is due to the increasing amount of import flowers and plants, which are forcing out the trends of transit logistics and intermodal transportation. This continuing development in increasing import amounts mandates the Dutch growers to alienate themselves from volume-based production and accept the fact that the only solution is specialization.

3.2.2 The Dutch floristry industry

Countries with low production costs in Africa and South America are gaining the Netherlands' product quality, and that combined with low prices makes those flowers very appealing for the consumers. The Dutch floristry industry still tries to cling on to the volume-based production, and that mentality combined with the current legislation and the economic situation with high oil price and unfavorable Euro-US Dollar ratio places the Dutch floristry industry in a difficult position.

The increasing volume in imported cut flowers and pot plants is becoming more relevant economic variable and this gradually alters the floristry industry especially in the Netherlands. The type of competition cannot be matched due to the cost effectiveness of low production cost countries. That is why the import goods are to be embraced rather than looked down upon. At the moment the import flowers and plants are the main competitors to the flowers and plants grown in the Netherlands.

Specialization in flower production is the strength if the Dutch floristry production. This has always been an advantage of the Dutch, because one grower can provide several different selections of flowers and the grower in low production cost countries compete only with volume, not variety.

Mr. Harry van der Scheur states that the Dutch growers have the ability to produce all species of flowers, which is a skill that the South American and African volume-based producers do not have. The specialization and the innovation to create new species is a Dutch specialty. (Scheur, Harry van der, Interview 2005)

As the statistics indicate, the amount of exports maintains to be on a high level as it has been for decades, but the amount of re-exports from imported flowers and plants accumulates a larger portion every year. Already in the early 1990's the amount of 70% of imported flowers were re-exported from the Netherlands. This feature continues to gain share due to the fact that the amount of consumption in the Netherlands is stable and the amount of imports are climbing. Similar data can be seen in the plant sector as well.

Because most of the import flowers are re-exported, the term transit is used frequently. Transit, mentioned earlier in this thesis, indicates the movement of goods through a particular place. In this case the passing of flowers and plants through the Dutch national borders. Referring to the case of Traffic B.V; the intention is to act as a third party, between the supplier and the customer, enabling effective and efficient transit of floristry goods from country of origin (e.g. countries in Africa and South America) through the Netherlands to the final destination.

3.3 Supply chain and Traffic B.V.’s position

3.3.1 Introduction

The supply chain theory section explains the fundamentals of a supply chain and discusses the vastness and the complexity of the operations within a supply chain. Operational links between suppliers and customers are explained along with the critical flows in the supply chain and just how these factors aim to improve business of all parties concerned. In this section the supply chain of floristry goods is reviewed from the Traffic B.V.’s perspective and how the company positions itself in the global supply chain. The theory part will not be re-written, but rather conclusions are drawn from it that aim to explain the operations more thoroughly.

3.3.2 The floristry goods supply chain

The company introduction discussed the organization type, summarized as a third party logistics provider, and that leads to the discussion of the position of Traffic B.V. in the global supply chain. The focus will be on the actual supply chain of flowers and plants from Africa and South America through Traffic B.V. in the Netherlands to the final customer.

The supply chain of flowers and plants from South America and Africa requires commitment and efficient communication between the companies within the supply chain. Only by linking the operations of different parties together, expanding the company boundaries, can the supply chain function effectively and efficiently. When the customers and the suppliers are linked properly, comparative advantage can be gained and value created.

Like in every supply chain the focus is on improving the business. The market impact, efficiency, aim to improve constantly, and gaining competitiveness are the main pieces in a well managed supply chain. With collaboration between the supply chain members, joint operations and processes, and improved efficiency influence the supply chain improving the business. Customer receives maximized impact and attention, risks are reduced, and various processes run smoothly and efficiently.

According to Mr. Van der Scheur, the goal of Traffic B.V. is not to challenge companies in the importing field, but to increase the service and create value for their customers. By combining operations and collaborating with the supply chain members the import operations can be completed successfully. (Scheur, Harry van der, Interview 2005)

3.4 Case Traffic B.V. supply chain

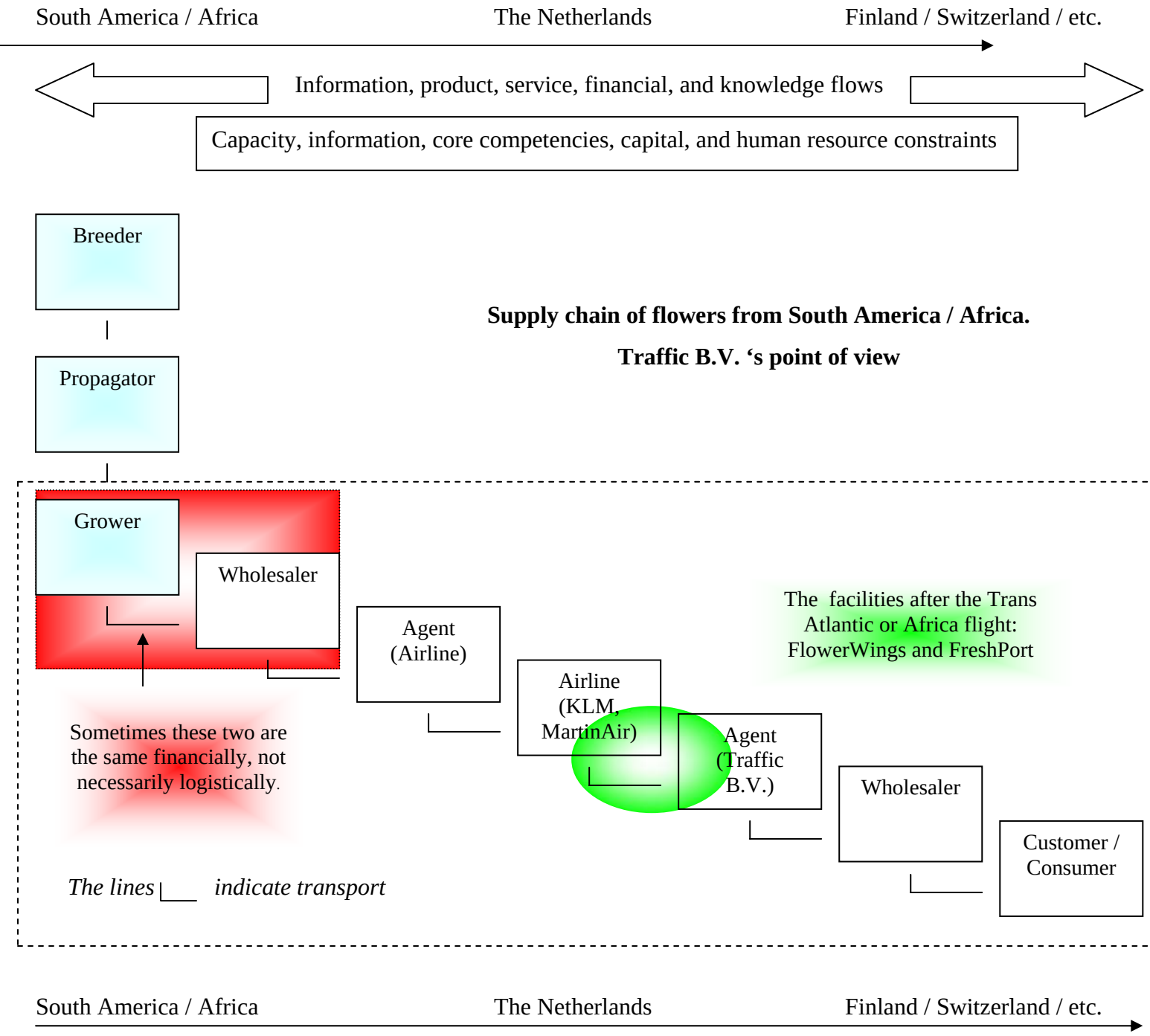


Figure 9; The supply chain of flowers and plants from Africa & South America

3.4.1 The flows in the supply chain

The five critical flows in any supply chain: Information, product, service, financial, and knowledge were discussed briefly in the supply chain theory section. In this section these five flows are explained from the practical point of view using the actual supply chain as the launching point and explicate Traffic B.V.'s role as a member of the supply chain.

3.4.2 Product flow

From the figure 9, the flow of product can be concluded somewhat easily. The movement of the product are those indicated in the figure 9 with facilities where the goods are handled. The most typical of such activities are cooling facilities and other temperature controlled facilities where the goods wait for transport until reaching the end customer. The logistics throughout the whole supply chain is to be handled precisely to optimize the speed in the chain and avoid complications.

The product flow mean in its simplicity the physical flow of goods from the supplier to the final customer. This includes the customer returns, and the service flow is very tightly tied to the product flow function of the supply chain. Flowers and plants have many different restrictions and regulations while the goods are in transit and when they arrive across national borders. Especially when flowers or plants enter the European Union, various inspections await and constantly the products need to be in temperature controlled areas.

Traffic B.V. has a strong position in the supply chain due to its service capabilities and position as the receiver of the goods after they enter the Netherlands. Because the customs the clearing of perishable goods has to be in the hands of professionals, otherwise the swift and speedy operations suffer a setback. Directly from the airline carrier the goods are moved rapidly, after all necessary inspections, from the airport to the export dock of Traffic B.V. in the Aalsmeer Flower Auction and from there the goods are re-exported to their final destinations: Finland, Switzerland, etc.

3.4.3 Service flow

When it comes to flower and plant imports, Traffic B.V.'s services provide excellent value added service for the customers due to the handling of customs duties. Traffic B.V. as an entity distinguishes itself as a integrated service provider in the supply chain. The integrated service provider indicates a third party logistics provider, which is the overall function of Traffic B.V. Traffic B.V. is an asset-based enterprise operating and offering warehousing facilities and transportation vehicles. Yet the operations within the flower business constitute such a fast environment that long-term warehousing facilities are unnecessary and the company's own transportation vehicles are used only between the Amsterdam airport Schiphol and the Flower Auction in Aalsmeer.

The services provided by Traffic B.V. are, and also need to be, valuable to the customer. By specializing in the import-export intermediary and physically transiting the demanded goods Traffic B.V. creates value added service for the customer with its supply chain solution for perishables.

3.4.4 Information flow

Information flows through the chain along the same path as the product but the key is the exchange of information. When information is shared between the parties in an extensive scale and rapidly manner, full benefits can be shared. Benefits in this case mean successful handling of the materials, this case flowers and plants, correct deliveries (The seven right's: the right materials, in the right quantity, in the right condition, at the right time, from the right source, with the right service, at the right place). Thus the operations run more smoothly as long as the connection between the supply chain members is good.

Traffic B.V. has to maintain continuous connection with the Airline Agent in South American or in African end and also with the airline. This connection is relevant for the transportation of the goods and possible changes or obstacles are known immediately. Depending on where the goods come from, the communication with the host of the post arrival facilities is relevant. As explained the goods are highly sensitive to temperature and the facilities where the goods are stored after the flight need to be aware of the coming shipment in time to make the required adjustments.

Also the connection with the wholesaler in the country of export and perhaps all the way to the customer needs to be taken care of by the agent if Traffic B.V. in the Netherlands. Every piece of relevant information is to be shared with the customer, whether they are located in Finland, Switzerland, or where ever. Well managed communication between the supply chain members allows more flexible, yet efficient operations in the supply chain.

3.4.5 Knowledge flow

The exchange of information enables the effective flow of knowledge. The passing of knowledge influences the parties involved with better practice and a wider scale of thinking. As the useful knowledge passes through the chain to parties that can make use of it have the opportunity to improve their operations. This results with a tighter supply chain, which improves itself and gains competitiveness.

In many occasions good ideas and new innovations emerge, but the point is to be able to transfer that knowledge into company operations and practices. John Seely Brown says in a CSC interview:

> There are many examples of skunkworks that shunt people off to the side to give them the chance to do very creative things. But then they have a hard time reintegrating the inventions back into the company.

This indicates that the passing knowledge through to others requires more than just good communication, it also needs the resourcefulness to be able to implement the knowledge into practice.

In the case of Traffic B.V. and the floristry goods supply chain from Africa and South America the implementing the import practices to the export operations is exactly an innovation that increases competitiveness, and the implementation requires the knowledge and skill to complete the operations successfully and efficiently. This report is part of the knowledge flow providing a basis guide for the implementation of the operations of transporting flowers and plants from overseas.

3.4.6 Financial flow

Even though money flow is not the main topic of this thesis, it is on the other hand a very important part of the supply chain and daily operations. As an agency Traffic B.V. offers its position to customers, suppliers and transporters with financial solutions as well. For airlines agents are important, because the agents pay the shipments either beforehand or shortly after delivery. The airlines receive payment faster than they would from the end customers, thus the agents act as a security for payments received for the airlines.

For the suppliers the trucking services provided by Traffic B.V. are vital for the physical connection the suppliers want to have with their customer. For the customer an agent is also relevant, extremely so when discussing imported floristry goods. The reason is, in its simplicity, the customs. Customs is an entity that need to be dealt with in every case. The customs procedures can be tricky and it requires an experienced and above all skilful person to take care of the goods through customs. Especially with floristry goods the rules and regulations are strict and certain protocol needs to be followed along with sufficient paperwork.

More specifically the financial flow in the case of imported floristry goods from South America and Africa is considered, the movement of money through Traffic B.V. is as follows. When a South American or an African supplier via the company's agent ships its cargo via Traffic B.V. to the end customer there are two constructions for the money flow:

1. The South American or African supplier and its agent charging the customer directly out of South America or Africa and Traffic B.V. out of the Netherlands charges the supplier or the customer, depending on the contract terms, for the part executed by Traffic B.V.

2. The South American or African supplier is charging Traffic B.V. (Or shipping on collect basis) and Traffic B.V. is billing the customer for the whole route on one invoice. This saves administration costs for the customer and increases control.

3.5 Operational functions

3.5.1 import

In the case of Traffic B.V. the enormous implementation installation of import practices are not required in the full scale, due to the fact that the company already has import operations. Only the flower imports is a new venture. The logistics side of the import is the most important thing when the commodity is perishable as flowers and plants are. This dictates the transport and storage times. The goods must not be in transit nor in a warehouse for a long period of time and all the time the temperature requirements have to be met. This poses interesting pointers to the supply chain management because the final customer expects to receive the goods in perfect condition.

To maintain the condition of cut flowers and pot plants the above mentioned time and temperature are in the key role. Because temperature controlled transport and storage facilities are a specialty function they normally cost more than average systems. Also the speed in the supply chain increases costs. The supply chain for perishable goods might not be Just In Time management, but it does have similar features surfacing from the fast inventory turnover and timely delivery.

The challenge in this type of supply chain is that none of the goods can be left behind by postponement, because the commodities will not survive the mishandling. When the goods, flowers or plants, leave from the grower in Africa or Southern America they are to handled expeditiously and carefully. The tight schedules of the airlines dictate the work of the agents in the country if departure because the need of cooling, packing and storing for the long flight have to be done.

3.5.2 Transit & intermodality

The transit operations are noticeably on the surface when talking about perishable imports and intermodal transportation is the mean to conduct these operations. Transit operations concerning flowers and plants was already viewed in the Dutch floristry industry section and intermodality theory in the transportation section. In this part the view of transit and intermodality are explained from Traffic B.V.'s point of view.

The transit and intermodality are very much linked to each other. Transit is the movement of the perishable cargo through the Netherlands onwards to their final destination and intermodality is the tangible method of executing the transit function. Intermodal transportation is a part of transit operations, which include also communicative, financial, and administrative activities. The arrival of the perishable cargo, customs handling, and re-exporting are transit functions. While the intermodality refers to the use of transportation modes when conducting the transit.

Although intermodality is labeled as one of the key points in future transportation in the European Transport Policy, it is already the only effective and efficient method of transporting perishable cargo over long distances and distributing the goods to the final consumers. (European Transport Policy 2001: 17)

3.5.3 Locations

Traffic B.V. facilities that relate to the import and export of flowers are placed in Aalsmeer and in Lijnden, both close to Amsterdam. The import department located in Lijnden and export in Aalsmeer. During the process of writing this thesis the situation within Traffic B.V. changed when it was decided that the office in Hoofddorp, located in the Amsterdam airport, which held the airfreight import and export operations was no longer profitable enough and it would be merged with Aalsmeer office and Lijnden office.

This solution requires serious reconstruction efforts from the company to sustain its position in the logistics market, where it is a prominent entity. The solution will be put in action from the beginning of the year 2006. The upcoming situation will be not only settling to the new system but also a test of business capabilities and logistics solutions structure. Especially in the case of perishables that require extra attention.

While the export office in Aalsmeer gains strength, the import department will be located in Lijnden which is not the best solution logistically. Perishables require extra attention, and rapid, precise actions; concluding that the desired flower and plant import venture suffers its first set back before it has even started due to the reconstruction of the office locations. The fact that the airport office closes in the end of 2005 does not mean that the perishable import feature cannot be executed properly, however it does show that the flower and plant transiting now demands more effective communication between offices in order to carry out the perishable operations.

Only the future experience will tell how exactly the new location divide is going to work because there are various operations that need attention and perishables are one of them. Perhaps one solution to ponder is to strengthen the modality thinking that Traffic B.V. is enforcing and incorporating a perishable import agent in Aalsmeer.

3.6 The export operations

The transportation of flowers
from The Netherlands
Example country of destination: Finland

3.6.1 Introduction

The transport of flowers from the Netherlands is conducted mainly by road transport. Trucking is conducted in temperature controlled vehicles to be more exact. The handling of these operations requires precision in every aspect. Naturally the important points in transportation are applied in every transport: How much goods, destination, and the type of goods; meaning mainly the temperature restrictions that the goods possess. This passage will explain the export operations from The Netherlands to Finland in detail and provide the information from the forwarding agent's point of view.

Figure 10; Finland operations

- Contact suppliers
  - How much goods are to be transported?
  - The type of goods?
    - Flowers / Green
    - Plants
    - General cargo
  - What time the goods are ready for pick up?
  - Will the supplier bring the goods to export dock of Traffic B.V. or are the goods to be picked up?
  - Where the supplier is located, if not known?
  - Pick up location somewhere else than at the suppliers address?
  - Any specialties?
    - Peculiar temperature requirements?
    - Different cargo than usual?
- Collect information from fax and e-mail
- Make list
  - Own customers
  - Handled customers (Nybrok's customers)
- Calculate the amounts
- Send the list to the planner in Finland
- Review and set the list with the planner
  - How the planner is going to set the cars approximately?
- Make CMR / CMR's for the goods for Traffics own customers
- After receiving the planned lists from the planner make copies for the drivers ->
- Calculate the amounts per truck
- Look for the available space and specialties
  - Specialties:
    - Pick up from somewhere else than the auction
    - Special cargo
    - Unusual unloading address
    - Etc.
- Receive the goods at the dock
- Calculate the amounts
  - Look for differences
  - With own customers:
    - Calculate the goods in loading meters, square meters, and in volume (vol. = 333 x m^3)
- Make sure the goods are the type as told by the suppliers
- Check how much space the goods (flowers) actually take
  - Are the pallets full?
  - Is it possible to place something on top of the pallets?
  - Is it possible to place something under the pallets?
- While loading be aware of the space used and the space available
- Keep track what has been loaded and what has not by which truck.
- Constant contact with the main planner in Finland
  - Execute his plans, or
  - Execute the changes according to his wishes
  - Use your own head
- Constant contact with the drivers
- Collect all the documents from the goods delivered to the dock
- Collect all the documents from goods picked up from the suppliers
- Correct the amounts to the CMR's
- When finished prepare papers for the drivers to take
  - Invoices and CMR's divided by customers
- Prepare preliminary invoices for Traffic B.V.'s own customers
  - Include:
    - The sender/s
    - The vehicle license plate number
    - Square meters of pallets and boxes
    - The number of CC containers
    - The calculations according to these amounts
    - Germany road tax
    - Fuel surcharge
    - Handling cost
    - Final sum

For Traffic B.V. there are three departure days in a week for Finland: Monday, Thursday, and Friday. Tuesday is reserved for administration tasks and on Wednesday there are no specific procedures to be conducted for the Finland operations.

3.6.2 Information gathering

The first task on the days of departure is to contact the suppliers about how much goods they have for delivery on that day. Some suppliers have faxed the information earlier making the planning more lucrative. Also the type of goods is important to find out due to the temperature requirements, which hold a high significance in perishable transport. Cut flowers need to be transported in +5 degrees Celsius and plants in + 15 degrees Celsius. This feature is probably the most important one because the transport takes about one and half to two days from the supplier to the end customer in Finland. Warm temperature increases the flowers' progress and thus it will die faster. Plants on the other hand can freeze easily, so the warm transport and storage conditions are to be kept.

The agent also needs to find out what time the goods are ready for pick up and where they are to be picked up. Most of the suppliers are located in the VBA flower auction complex in Aalsmeer, The Netherlands, but some hold premises in the surrounding villages and towns. Some suppliers deliver their goods to Traffic B.V. export docks at the VBA, which can be the key point of departure for the Finland operations.

The total amount of transported goods is prepared on two lists (Annex I & II), which are sent to NYBROK Oy. In Finland. The difference of these lists are that the other states the customers of Traffic B.V. and the other the customers of Nybrok Oy. This is done mainly because of clarity and easier follow up. The main difference between the customers of Traffic B.V. and Nybrok is the transport invoicing. Traffic B.V. buys the space required from Nybrok and invoices it's own customers of the transport and handling. From the Nybrok's customers Traffic B.V. charges only the handling. The planning of the transport is mainly done by Nybrok and the agents task is to see that everything is done accordingly. Nybrok is also responsible for the trucking of the goods.

3.6.3 Packaging

The agent helps also with the planning by investigating the way the goods are packed for transport. Meaning, are the goods packed on a pallet or a container. There are a variety of containers with different sizes, but the commonly used containers are The Danish container, also known as the CC container and the Euro container approximately twice the size of a Danish container. The most used pallets are the FIN pallet (100cm x 120cm) and the EUR pallet (80cm x 120cm). The measurements of the packaging is extremely important due to the fact that the space in the truck is limited.

The vehicles used in the Finland transportation are 13,4 loading meters or 15,4 loading meters. The definition of a loading meter is one meter in the trucks loading space with the whole width of the loading space (2,48 meters) and the height of the loading space (2,81 meters) (http://www.nybrok.com/thermotrailer.htm). One truck of 13,4 loading meters can hold up to 43 Danish containers (Dimensions: 135cm x 56,5cm x 190cm - apprx. 0,32 loading meters) and 26 full FIN pallets and one EUR pallet. This is naturally an optimal situation thus the pallets received are hardly ever full and they need to be "filled up".

The agent reviews the list with the planner and they also set it according to how many truck are in use for that departure. The forecasting for the upcoming transportations come from the past statistics and experience. The amounts are about one to two trucks for Mondays departure, one for Thursday, and four to six for Friday. The season also makes a difference thus increasing the amount of vehicles. For example Mothers Day or the high school graduation increase the transported goods by three times the normal amounts.

The cars are set optimally according to the end customer and its location. The biggest customers are in Turku and Helsinki and Tampere is the third biggest final destination region. The loading is conducted mostly by placing one customer in one vehicle to avoid delivery imperfections. Naturally there has to be some trucks that have consolidated cargo, because the space limitations. Carriers with less than a truck load are not optimal for the transporter, having only a slight effect on the customer. To drive empty means losses for the transportation company and those situations are avoided to the last minute.

3.6.4 The route

The route used by the trucks is to drive from Aalsmeer, the Netherlands, to Travemunde in Germany to take the ferry to Malmö in Sweden. Other option is to drive through Denmark, but that means extra pressure and work for the driver. From Malmö the route runs through Sweden to Kapellskär, north of Stockholm where a ferry takes the trucks to Turku, Finland. At the moment this is the fastest and cost effective way for transport.

In Finland the trucks circulate and deliver the goods to the end customers thus completing their door to door service. The way back to the VBA auction goes through Germany, or Belgium, or the Netherlands, or a combination depending on the back loadings and the locations of those customers. One repeating back loading is windshields for trucks and busses in vehicle assembly plants.

3.6.5 Following the growth development of transported goods

The agent follows the amounts of the transported goods constantly in order to stay alert of the changes. For example if some supplier amounts grow enormously the agent needs to contact the planner in Finland, so that the required changes can be made and in some cases extra space is needed to be bought from other transportation companies.

The goods coming to the Traffic B.V.'s export dock are checked by the agent. The amounts are to be calculated and the sizes of the pallets and boxes are noted. The notation of the size is extremely important, especially when the pallets need to be consolidated to create more space. By combining the pallets it saves approximately 10-20 % of loading space required before combining. For example ten 220cm high FIN pallets can be squeezed to 8 to 9 full size FIN pallets. The efficient combining of pallets is difficult explain through theory, it is more due to experience of how to execute such a procedure.

3.6.6 Administration activities

The forwarding agent is also responsible for the paper work required for transport. The CMR documents are prepared by the agent and the invoices of the goods are prepared by the supplier and they are enclosed to the transport. One of the agent's tasks is to collect these invoices and enclose them on the shipment per customer. Some shipments continue their way to Russia and on these cases a export declaration is prepared and enclosed to the shipment.

The agent prepares a preliminary invoice of the handling activities and the space bought from Nybrok's trucks for Traffic's customers.

Other administration tasks include inputting the data of past shipments to the ERP (Enterprise Resource Planning) system Chainware. Saving the data to the Chainware system creates a dossier for every shipment and that is used e.g. to

invoice the customer. The agent prepares the invoices ready for the bookkeeper to finalize them and send them to the customers.

The invoice includes:

- The sender/s
- The vehicle license plate number
- Square meters of pallets and boxes
- The number of CC containers
- The calculations according to these amounts
- Germany road tax
- Fuel surcharge
- Handling cost
- Final sum

Occasionally, when the amount of delivered goods exceed the loading space in the reserved trucks by a truck load, an extra truck is needed. On these situations the agent is required to try to find a suitable external transporter with the planner to fulfill the task. When a suitable transporter is reserved, the details of the project are to be told to the driver.

3.7 Conclusion

The third part of this thesis describes the position of Traffic B.V. in the world market and in the Dutch floristry industry. The data drawn from the Dutch floristry industry part and the theory from the supply chain part are combined in the third case study section.

The actual supply chain for transiting flowers and plants through Traffic B.V. is under the focus, and how the flows within the supply chain run, and are controlled, from the perspective of Traffic B.V. The movement of the product, information, service, financials, and knowledge explain the different aspect of the vast and demanding supply chain. Also the operations that enable the efficient flow of the commodities through Traffic B.V. provide the integration of theory and practice.

As for the study itself, the investigation combined with the practical knowledge gained from work experience enabled the completion of a successful solution. The case study provides the knowledge that the integration of the import procedure is possible, and correctly assimilated profitable. The market definitely has a place for new importers of South American and African flowers and plants due to increasing demand and effective and efficient supply chain.

Conclusions

The amount of imported flowers and plants are growing annually with exports, even though the Dutch domestic production and domestic consumption remain on the same level. This indicates the growth of consumption of imported floristry goods, mainly from South America and Africa, in the world markets. The raise in import figures and continuing high export rate conclude the increase of transit operations within the Netherlands, meaning a challenge for the flower, plant, and all perishable logistics.

The validation of the increasing imports and the growing significance of transit operations set the basis for the case study of Traffic B.V. The company Traffic B.V. is interested in operating in flower imports as well as in export operations, and the trend would provide a better service for its customers.

The three sections: The Dutch floristry industry, the supply chain theory, and the case study are linked to each other very tightly in order to provide correct and understandable results. The first section titled “The Dutch floristry industry” provides an overview of the current position of the Netherlands in the world market. The second section introduces the theory of the supply chain. The basic model, how to manage a supply chain, and the characteristics for efficiently managing a supply chain is introduced in the theory section of the thesis.

The second section acts as a link between the information and statistical knowledge from the floristry industry section and case study of Traffic B.V. The theory of the supply chain is vital to comprehend in order to understand the aspects of the case study.

The third section: “The position of Traffic B.V. in the world market in respect to the Dutch floristry industry – Case Traffic B.V.” combines the two previous sections. Both the first and the second section are theoretical and statistical, and the third section approaches the subject from practical view point. For realizing the integration of flower and plant import operations with existing export operations the theory and statistics are relevant in order to map the situation of the Dutch floristry industry. The supply chain demands that the attention is drawn to the whole chain, not only in a few operational aspects, indicating that the operations, and supply chain flows need to be managed effectively and efficiently.

The imports of flowers and plants is a demanding venture that requires skill, knowledge, and well functioning supply chain network. Traffic B.V. has these mentioned qualities, but to rush into the field of import floristry goods or ambitions of gaining a considerable share from the market overnight cannot be accomplished. Traffic B.V.’s intention is to provide an added value service to their customers in Switzerland, Finland, etc., thus the supply chain operations must be planned extremely well.

The demand and the increases in import statistics indicate that there is definitely a position for Traffic B.V. in the import scene, but to integrate a new operation is a challenging venture, that requires theoretical and practical knowledge.

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Annexes

Annex I, Loading list Traffic B.V. (Example)

Annex II, Loading list Nybrok (Example)

Annex III, Interview with Harry van der Scheur, Branch Manager, Traffic B.V. Aalsmeer

SHIPMENTS TO FINLAND

FROM: TRAFFIC B.V.
Tel.: +31(0)297381601
Fax.: +31(0)297320380
Mob.: +31(0)620955399

Annex I

LOADING LIST Traffic B.V. (Example)

DATE:---------- Carrier license plate no.:--------

Receiver:	Sender:	CC:	Colli:	Code:	Extra:
TURUN	ROBERTSSON			34	
TUONTI-	VERBEEK & BOL			TT	
KUKKA	HUKRA			TTK	
	GHERSI			718/719	
	NEDFERN			TURUN	
	MAYAPLANT			FTURU	
LEPOLA	COPACKING			LEPOLA	
	FLORIST DE KWAKEL			LEPOLA	
	OLIJ ROZEN			LEPOLA	
KUKKA-	V.D. PUT			KJ	
TUKKU	FLORIMEX			102	
JANNELA	GRAGLIA FIORI			46	
	HUKRA			JAN	
	COPACKING			JANNELA	
JANNELAN	J. DE WIT			JANNELA	
PUUTARHA					
KILO	HILJO			FIHOKE	
PL. RAISIO	APH / FLOWER DIRECT			PL/TURKU	
PL. ITÄ-	APH / FLOWER DIRECT			PL/HEL	
VÄYLÄ					
PL. VANTAA	APH / FLOWER DIRECT			PL/VAN	

SHIPMENTS TO FINLAND

FROM: TRAFFIC B.V.
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Annex II

LOADING LIST Nybrok (Example)

DATE:---------- Carrier license plate no.:------

Receiver:	Sender:	CC:	Colli:	Code:	Extra:
HUISKULA	V.Z.H.			HUISKULA	
TURKU	GHERSI			720	
	GRUENEXPORT			HUI	
	FLORIMEX			TURKU	
	VERBEEK & BOL			HUI-1	
	NEDFERN			HUI-1	
	BAARDSE			HUI-1	
	V.D. PUT			HUISKULA	
	HILVERDA			HUI-0/1/6/8	
HUISKULA	HILVERDA			HUI-5	
TAMPERE	BAARDSE			HUI-5	
	NEDFERN			HUI-5	
HELSINGIN	DE GOOJIER			FIHK	
KUKKATOI-	BLUMEX			FIN-HKT	
MITUS	O.Z. EXPORT			HEF	
	GHERSI			750	
	GRUENEXPORT			C 20	
	FLORIMEX			HKT	
	V.D. PUT			HKT	
	COPACKING			HKT	
TAMPEREEN	A. V.D. HOORN / I.B.H.			TKT	
KUKKATOI-	DE GOOIJER			FITA	
MITUS	GRUENEXPORT			K-5	
	FLORIMEX			TKT	
	V.D. PUT			TKT	
+ 15					
HUISKULA	FLOREMA			HUI-1	
TURKU	FIDES			HUISKULA	
	I.B.H.			HUI-1	
	SELECTA			HUISKULA	
	BAARDSE			HUI-1	
HUISKULA	BAARDSE			HUI-5	
TAMPERE	I.B.H.			HUI5	
HELSINGIN	GASA			6071	
KUKKA-	I.B.H.			HKT	
TOIMITUS					
TAMPEREEN	I.B.H.			TKT	
KUKKA					
TOIMITUS					

Annex III

Interview with Harry van der Scheur, Branch Manager, Traffic B.V. Aalsmeer November18th 2005

1. *How long have you worked in the flower business?*

   A: 25 years. 6 Years with Schenker, and 19 with Traffic B.V.

2. *What is your educational background?*

   A: High school. HAVO in the Netherlands.

3. *How would you describe the history of Dutch floristry industry?*

   A: After the Second World War the flower industry grew along with the Germany's market. This was the beginning of the flower business we know today. France, Italy and Switzerland followed and these countries were the base market area for Dutch flowers. At that time all flowers were Dutch grown; 100%. The transportation started with trucking flowers to these countries.

   The co-operation among the growers began back in 1978 creating the auction system. Also the transporting flowers by air began the same year, Arabia and USA were the top two then. The flower business began to really bloom after that, because the expertise and the infrastructure were existing and investments were made to support that. In the end of the 80's – the beginning of the 90's, the decision to accept imported flowers and plants to be auctioned at the Dutch auctions was very controversial and the debate had already gone on for many years. Finally the decision was made, and quite frankly the industry would not have survived without the approval of auctioning imported flowers.

4. *How do see the present situation within the industry? What about the future?*

   A: The Dutch grower are still the only ones in the world who can offer all species of flowers to exported everywhere in the world. No-one can offer that. The growers in low production cost countries can usually offer only one species of flowers, the Dutch are able to offer the whole range including specialized flowers and totally new species.

   Businesswise the Eastern Europe and especially Russia are the sleeping giants in Europe. And as soon as the people gain enough money to spend it on flowers they will. It will happen soon, and that will keep the business running at least the following couple of decades. The Dutch growers will be able to offer even wider assortment than now due to the growing amount of new species, and the know-how and infrastructure already exists here to enable the growth of consumption in new markets.

5. *You have seen the import statistics. What do you think of them?*

   A: I have to admit, that they are bigger than I suspected. Other than that, my personal opinion is that the figures will stabilize eventually.

6. *Have the statistics altered your estimations or strengthened them?*

   A: As I said, the stats are bigger than I thought. Not only in value, but in kilo's as well. Although I estimated in the same direction the statistics went a little further.

7. *Talking about import, how would you describe the future of import-flower business?*

   A: Eventually the production cost in countries like Kenya and Ecuador, where those cost are low now, will increase in the future. The growers in these countries are always only going to able to offer single species of flowers, one has roses and the other has Lilies. Yet imports are here to stay and the whole industry needs to take notice of that.

Does Traffic B.V. want a slice from the pie?

A: Yes, absolutely. The ambition is definitely existing, but the motive is to offer our customers in Switzerland, Finland, etc. a wider service. Traffic's aim is not to compete against the big players in imported flowers, but to provide added value to the customer. Our aim is to provide a smooth service to our customers who are interested in imported flowers and combine those operations to our on-going trucking service, thus completing the Door-to-door service. I would say that we are talking about 10% market share of imported flowers.

8. *Can Traffic B.V. be competitive in perishable importing? How?*

A: Yes it can in its own level. Traffic's strong points are its flexibility, size, and its contacts. We are now focusing on improving our sales and marketing, in order to sell the idea to our customers more effectively. As I mentioned the aim is not to challenge the big players like V.D. Put, who has approximately 60-70% market share of imported flowers, but to provide better and desired service for our customers.

9. *The supply chain of import flowers… Transportation carriers and warehousing facilities determine a lot in the logistical supply chain. Time is another important factor; how does Traffic B.V. plan for this?*

A: The transit operations have to be managed quickly, there's no doubt about it. The inspections, cooling etc. including the departure from Traffic's export docks have to be done in one day. For example, if a plane from South America or Africa arrives to the Schiphol (Amsterdam) airport in the morning the goods have to be handled appropriately from customs and health inspections to cooling the goods and transporting them to the flower auction, and placed in the truck, so a customer in Switzerland has those flowers the following morning.

Traffic has no facilities for cooling and inspections so those need to be rented, but luckily our good contacts have that covered. The customs inspection is the trickiest part in this chain. Now that the office at the airport closed due to the cutting the costs of that branch, the import procedures have to be handled in Lijnden. Logistically this in not the best solution, because the import department should be at the airport, but something had to be done with the costs that the branch was struggling with.

10. *Transit: Is the Netherlands capable to act as a transit country when talking about flowers and plants?*

    A: Yes it is. The thing is whether the goods are staying in EU or going out the EU. If the goods stay in the EU the inspections, especially customs inspections, have to be completed in the Netherlands when the plane arrives. But for example in the case of Switzerland the inspections can be done when the goods reach Switzerland, this saves time. Of course it's up to the customer, if the customer wants that all the inspections are handled in the Netherlands, so that's what is done.

11. *Where does this trend lead to?*

    A: I would say that the transit operations will increase and that changes the thinking in the Netherlands.