ADVENTURE WORKS CYCLES BUSINESS SCENARIOS DOCUMENTATION

INTRODUCTION

Adventure Works Cycles, the fictitious company on which the AdventureWorks sample databases are based, is a large, multinational manufacturing company. The company manufactures and sells metal and composite bicycles to North American, European and Asian commercial markets. While its base operation is located in Bothell, Washington with 290 employees, several regional sales teams are located throughout their market base.

In 2000, Adventure Works Cycles bought a small manufacturing plant, Importadores Neptuno, located in Mexico. Importadores Neptuno manufactures several critical subcomponents for the Adventure Works Cycles product line. These subcomponents are shipped to the Bothell location for final product assembly. In 2001, Importadores Neptuno, became the sole manufacturer and distributor of the touring bicycle product group.

Coming off a successful fiscal year, Adventure Works Cycles is looking to broaden its market share by targeting their sales to their best customers, extending their product availability through an external Web site, and reducing their cost of sales through lower production costs.

Important
The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious. No association with any real company, organization, product, domain name, e-mail address, logo, person, places, or events is intended or should be inferred.

SALES AND MARKETING SCENARIO

Customer and sales-related information is a significant part of the AdventureWorks sample database. This topic provides details about the customers that are represented in the sample database, a schema of the major customer and sales tables and sample queries that demonstrate table relationships.

CUSTOMERS TYPES

As a bicycle manufacturing company, Adventure Works Cycles has two types of customers:

- Individuals. These are consumers who buy products from the Adventure Works Cycles online store.
- Stores. These are retail or wholesale stores that buy products for resale from Adventure Works Cycles sales representatives.

The **Customer** table contains one record for each customer.

Customer type	Number of customers	Additional information
Individual	18,484	Sales and demographic data have been trended for data mining scenarios. Demographic data (income, hobbies, number of cars, and so on) is stored as xml data in the Demographics column of the Individual table.
Store	701	Data has been trended for Analysis Services scenarios. Stores are categorized by size: large, medium, and small. Demographic data stored as xml data. Store contacts are employees of the store who interact with Adventure Works Cycles sales representatives. For example, the store owner or purchasing manager would be typical contacts for Adventure Works Cycles salespeople.

PRODUCT SCENARIO

This topic provides details about the product information that is represented in the AdventureWorks sample database, a list of product-related tables, and sample queries that demonstrate common table relationships.

PRODUCT OVERVIEW

As a bicycle manufacturing company, Adventure Works Cycles has the following four product lines:

- Bicycles that are manufactured at the Adventure Works Cycles company.
- Bicycle components that are replacement parts, such as wheels, pedals, or brake assemblies.
- Bicycle apparel that is purchased from vendors for resale to Adventure Works Cycles customers.

- Bicycle accessories that are purchased from vendors for resale to Adventure Works Cycles customers.

The following table contains a brief description of the data stored in the product-related tables.

Schema.Table	Contains this kind of content	Comment
Production.BillOfMaterials	A list of all the components used to manufacture bicycles and bicycle subassemblies.	The **ProductAssemblyID** column represents the parent, or primary, product, and **ComponentID** represents the child, or individual, parts used to build the parent assembly.
Production.Culture	The languages used in localized product descriptions.	Product descriptions are available in Arabic, English, French, Hebrew, Simplified Chinese, and Thai.
Production.Location	A list of the locations within Adventure Works Cycles where products and parts are stored as inventory. For example, paint is stored in both the Paint Storage location in the warehouse and in the manufacturing work center, Paint Shop, where the bicycle frames are painted.	
Production.Product	Information about each product sold by Adventure Works Cycles or used to manufacture Adventure Works Cycles bicycles and bicycle components.	The **FinishedGoodsFlag** column indicates whether a product is sold. Products that are not sold are components of a product that is sold. For example, a bicycle would be sold, but the sheet of

		metal used to create the bicycle frame would not.
Production.ProductCategory	The most general classification of products. For example, bike or accessory.	
Production.ProductCostHistory	The cost of products over time.	
Production.ProductDescription	A full description of products in various languages.	Product descriptions are provided in Arabic, English, French, Hebrew, Simplified Chinese, and Thai.
Production.ProductInventory	The inventory level of products by their location. See **Production.Location** previously mentioned.	
Production.ProductListPriceHistory	The list price of products over time.	
Production.ProductModel	The product models associated with products. For example, Mountain-100 or LL Touring Frame.	The **CatalogDescription** column contains additional product information by using the xml data type. The **Instructions** column contains product manufacturing instructions by using the xml data type.
ProductModelProductDescriptionCulture	Cross-reference between product models, product descriptions, and the languages the description has been localized to.	
Production.ProductPhoto	Images of products sold by Adventure Works Cycles.	The images are stored by using the varbinary(max) data type.
Production.ProductReview	Customer reviews of Adventure Works Cycles products.	
Production.ProductSubcategory	Subcategories of product categories. For example, Mountain, Road, and	

	Touring are subcategories of the category Bike.	

At Adventure Works Cycles, the purchasing department buys raw materials and parts used in the manufacture of Adventure Works Cycles bicycles. Adventure Works Cycles also purchases products for resale, such as bicycle apparel and bicycle add-ons like water bottles and pumps. The information about these products and the vendors from whom they are obtained is stored in the AdventureWorks sample database.

This topic provides details about the vendors represented in the sample database, a schema diagram of the major vendor-related tables and sample queries that demonstrate common table relationships.

The following table contains a brief description of the data stored in these tables.

Schema.Table	Contains this kind of content	Comments
Person.Address	Street address information for all customers. Customers may have more than one address. For example, a customer may have a billing address and a different address for shipping.	The associative table **VendorAddress** maps vendors to their addresses. The **Address** table also contains address information for Adventure Works Cycles employees and customers.
Person.Contact	Names of vendor employees with whom Adventure Works Cycles purchasing agents order products. A vendor may have more than one contact. For	The associative table **VendorContact** maps contacts to vendors. The column **AdditionalContactInfo** contains data such as additional telephone numbers (cell telephone, fax, and so on) specific to the contact. The column is an xml data type. For more information, see About the

	example, a sales agent and a sales manager. The Adventure Works Cycles purchasing agent may have the sales agent as a primary customer contact and the sales manager as a secondary contact.	Contact.AdditionalContactInfo xml Column.
Production.ProductVendor	Maps vendors to the products they supply. A product may be supplied by more than one vendor, and a vendor may supply more than one product.	
Purchasing.PurchaseOrderDetail	Details of the purchase order, such as products ordered, quantity, and unit price.	
Purchasing.PurchaseOrderHeader	Purchase order summary information, such as total due, order date, and order status.	The **PurchaseOrderHeader** and **PurchaseOrderDetail** tables together create a master-detail relationship.
Purchasing.ShipMethod	A lookup table that is used to maintain standard ways of shipping products.	The **ShipMethodID** column is included in the **PurchaseOrderHeader** table.
Purchasing.Vendor	Details about vendors, such as the vendor name and account number.	
Purchasing.VendorAddress	Links customers to address information in the **Address** table.	Addresses are categorized by type, such as billing, home, shipping, and so on). The **AddressTypeID** column maps to the **AddressType** table.

Purchasing.VendorContact	Street address information for all customers. Customers may have more than one address. For example, a customer may have a billing address and a different address for shipping.	This is an associative table. See the **Contact** and **Vendor** tables.

MANUFACTURING SCENARIO

This topic provides details about the Adventure Works Cycles manufacturing information that is represented in the AdventureWorks sample database, a list of manufacturing-related tables, and sample queries that demonstrate common table relationships.

MANUFACTURING OVERVIEW

In the AdventureWorks sample database, tables are provided that support the following typical manufacturing areas:

- Manufacturing processes:
  - Bill of materials: Lists the products that are used or contained in another product.
  - Work orders: Manufacturing orders by work center.
  - Locations: Defines the major manufacturing and inventory areas, such as frame forming, paint, subassembly, and so on.
  - Manufacturing and product assembly instructions by work center.
- Product inventory: The physical location of a product in the warehouse or manufacturing area, and the quantity available in that area.
- Engineering documentation: Technical specifications and maintenance documentation for bicycles or bicycle components.

MANUFACTURING TABLES

The following table contains a brief description of the data that is stored in the manufacturing tables.

Schema.Table	Contains this kind of content	Comment
Production.BillOfMaterials	A list of all the components used to manufacture bicycles and bicycle subassemblies.	There is an intrinsic recursive relationship in the bill of material structure that indicates the relationship between a parent product and the components that make up that product. For example, if the parent product is a bicycle, the first-level component might be a wheel assembly. The wheel assembly has its own components, such as reflectors, rims, spokes, tires, and tire tubes. The **ProductAssemblyID** column represents the parent, or primary, product and **ComponentID** represents the child, or individual, parts used to build the parent assembly. The **BOM_Level** column indicates the level of the **ComponentID** relative to the **ProductAssemblyID**. In the previous example, the wheel assembly would have a **BOM_Level** of 1, the components of the wheel assembly would have a **BOM_Level** of 2, and so on.
Production.Document	Engineering specifications and other technical documentation.	The **DocumentSummary** column uses the varchar(max) data type. The **Document** column uses the varbinary(max) data type.
Production.Illustration	Bicycle manufacturing illustrations.	The illustrations are rendered in the manufacturing instructions that are contained in the **ProductModel** table. This column uses the xml data type.

Production.Location	A list of inventory and manufacturing areas within Adventure Works Cycles in which the products and parts are stored as inventory or built. For example, paint is stored in both the Paint Storage location in the warehouse and in the manufacturing work center, Paint Shop, where the bicycle frames are painted.	
Production.Product	Information about each product sold by Adventure Works Cycles or used to manufacture Adventure Works Cycles bicycles and bicycle components.	The **FinishedGoodsFlag** column indicates whether a product is sold. Products that are not sold are components of a product that is sold. For example, a bicycle would be sold, but the sheet of metal used to create the bicycle frame would not.
Production.ProductInventory	The inventory level of products by their location. See **Production.Location** previously mentioned.	
Production.ProductModel	The product models associated with products. For example, Mountain-100 or LL Touring Frame.	The **CatalogDescription** column contains additional product information by using the xml data type. The **Instructions** column contains product manufacturing instructions by using the xml data type
Production.ScrapReason	A list of common reasons why bicycles or bicycles parts are rejected during the manufacturing process. For example, the scrap reason 'Paint failed' is used in the Paint work center to reject a bicycle frame for which the paint did not cure correctly.	The **WorkOrderRouting** table tracks the quantity scrapped and the reason for scrapping by product. Depending on the severity of the problem, the product must be fixed or replaced before the product can move to the next work center.
Production.WorkOrder	Defines the products and quantity that must be	

	manufactured to meet current and forecasted sales.	
Production.WorkOrderRouting	The details for each work order. This includes the sequence of work centers the product travels through in the manufacturing or assembly process. For example, bicycle handlebars are manufactured in the Frame Forming work center. They are moved to the Frame Welding work center for additional work, and then moved to the Subassembly work center, where they are added to the bicycle frame.	