

2. Feature engineering

The new features created at this stage are presented in this table:

CSPP	<i>n_customers_per_product</i>	Product Feature	material_code	compute_Price_drivers_features	Number of customer per material	create_n_customers_per_product	Yes
CSPP	<i>n_products_per_customer</i>	Customer Feature	shipto_code	compute_Price_drivers_features	Number of product per shipto	create_n_products_per_customer	Yes
CSPP	<i>cpc_revenue_log</i>	CPC Level	soldto_code, soldto_group, material_code & gbu_product_family	compute_Price_drivers_features	Revenue per CPC in log scale	create_cpc_features	No
CSPP	<i>cpc_volume_log</i>	CPC Level	soldto_code, soldto_group, material_code & gbu_product_family	compute_Price_drivers_features	Volume per CPC in log scale	create_cpc_features	Yes
CSPP	<i>cpc_price_log</i>	CPC Level	soldto_code, soldto_group, material_code & gbu_product_family	compute_Price_drivers_features	Price per CPC in log scale	create_cpc_features	Yes
CS	<i>rev_within_soldto_grp_but_cpc</i>	CPC Level	soldto_code	compute_Price_drivers_features	Sold-to revenue but CPC	create_cpc_features	No
SP	<i>rev_within_shipto_grp_but_cpc</i>	CPC Level	shipto_code	compute_Price_drivers_features	Ship-to revenue but CPC	create_cpc_features	No
CSPP	<i>rev_within_family_but_cpc</i>	CPC Level	gbu_product_family	compute_Price_drivers_features	Family revenue but CPC	create_cpc_features	No
CS	<i>group_revenue_within_family_but_cpc</i>	CPC Level	soldto_group & gbu_product_family	compute_Price_drivers_features	Sold-to group revenue within Family but CPC	create_cpc_features	No
SP	<i>group_revenue_within_family_but_cpc</i>	CPC Level	shipto_group & gbu_product_family	compute_Price_drivers_features	Ship-to group revenue within Family but CPC	create_cpc_features	No
CS	<i>rev_outside_family</i>	Group Feature	soldto_code & gbu_product_family	compute_Price_drivers_features	Sold-to revenue outside Family	create_cpc_features	Yes
SP	<i>rev_outside_family</i>	Group Feature	shipto_code & gbu_product_family	compute_Price_drivers_features	Ship-to revenue outside Family	create_cpc_features	Yes
CSPP	<i>cpc_revenue_share_wrt_grp_family_revenue</i>	CPC Level	soldto_group & gbu_product_family	compute_Price_drivers_features	CPC ratio with respect to group revenue within the family	create_cpc_features	Yes
CS	<i>cpc_revenue_share_wrt_grp_soldto_revenue</i>	CPC Level	soldto_group	compute_Price_drivers_features	CPC ratio with respect to group revenue across all families	create_cpc_features	No
SP	<i>cpc_revenue_share_wrt_grp_shipto_revenue</i>	CPC Level	shipto_group	compute_Price_drivers_features	CPC ratio with respect to group revenue across all families	create_cpc_features	No
CS	<i>group_volume_within_family_but_cpc</i>	CPC Level	soldto_group & gbu_product_family	compute_Price_drivers_features	Sold-to group volume within Family but CPC	create_cpc_features	No
SP	<i>group_volume_within_family_but_cpc</i>	CPC Level	shipto_group & gbu_product_family	compute_Price_drivers_features	Ship-to group volume within Family but CPC	create_cpc_features	No
CS	<i>group_volume_but_cpc_label</i>	CPC Level	soldto_group & gbu_product_family	compute_Price_drivers_features	Split group_volume_within_family_but_cpc into categories using quartiles	create_group_volume_feature	Yes
SP	<i>group_volume_but_cpc_label</i>	CPC Level	shipto_group & gbu_product_family	compute_Price_drivers_features	Split group_volume_within_family_but_cpc into categories using quartiles	create_group_volume_feature	Yes
CSPP	<i>historical_unit_price_coalesce_ratio_on_12</i>	CPC Level	CPC	compute_Sales_evolution_features	Price evolution ratio between the last 1, 3 or 6 months and the last 12 months for a CPC	compute_coalesce_evolution_ratio	Yes
CSPP	<i>historical_sales_coalesce_ratio_on_12</i>	CPC Level	CPC	compute_Sales_evolution_features	Sales evolution ratio between the last 1, 3 or 6 months and the last 12 months for a CPC	compute_coalesce_evolution_ratio	Yes
CS	<i>COMPONENT_ratio</i>	Product Feature	material_code	compute_product_characteristics_features	the ratio contained by product for Component substance	product_composition_ratios	Yes
CS	<i>IMPURITY_ratio</i>	Product Feature	material_code	compute_product_characteristics_features	the ratio contained by product for Impurity substance	product_composition_ratios	Yes

CS	SOLVENT_ratio	Product Feature	material_code	compute_product_characteristics_features	the ratio contained by product for Solvent substance	product_composition_ratios	Yes
CS	n_components	Product Feature	material_code	compute_product_characteristics_features	the total count of substances by product	product_composition_counts_by_product	Yes
CS	Unit ICM/Price ratios	CPC Level	CPC & historical_month	compute_Sales_evolution_features	<p>The ratio between Unit ICM and Unit Price for one or average of several month.</p> <p>The activation of these features is managed by the "ICM_features" dictionary, in which the size of the interval of historical months can also be modified.</p> <pre> "ICM_features": { "use_ICM_features": false, "interval_sizes": [1, 3, 6, 9, 12] } </pre> <p>A coalesce ratio ("ratio_icm_sales_coalesce_ratio") is then created to obtain the first available value by ranking the intervals in descending order.</p>	get_ICM_price_ratio	No