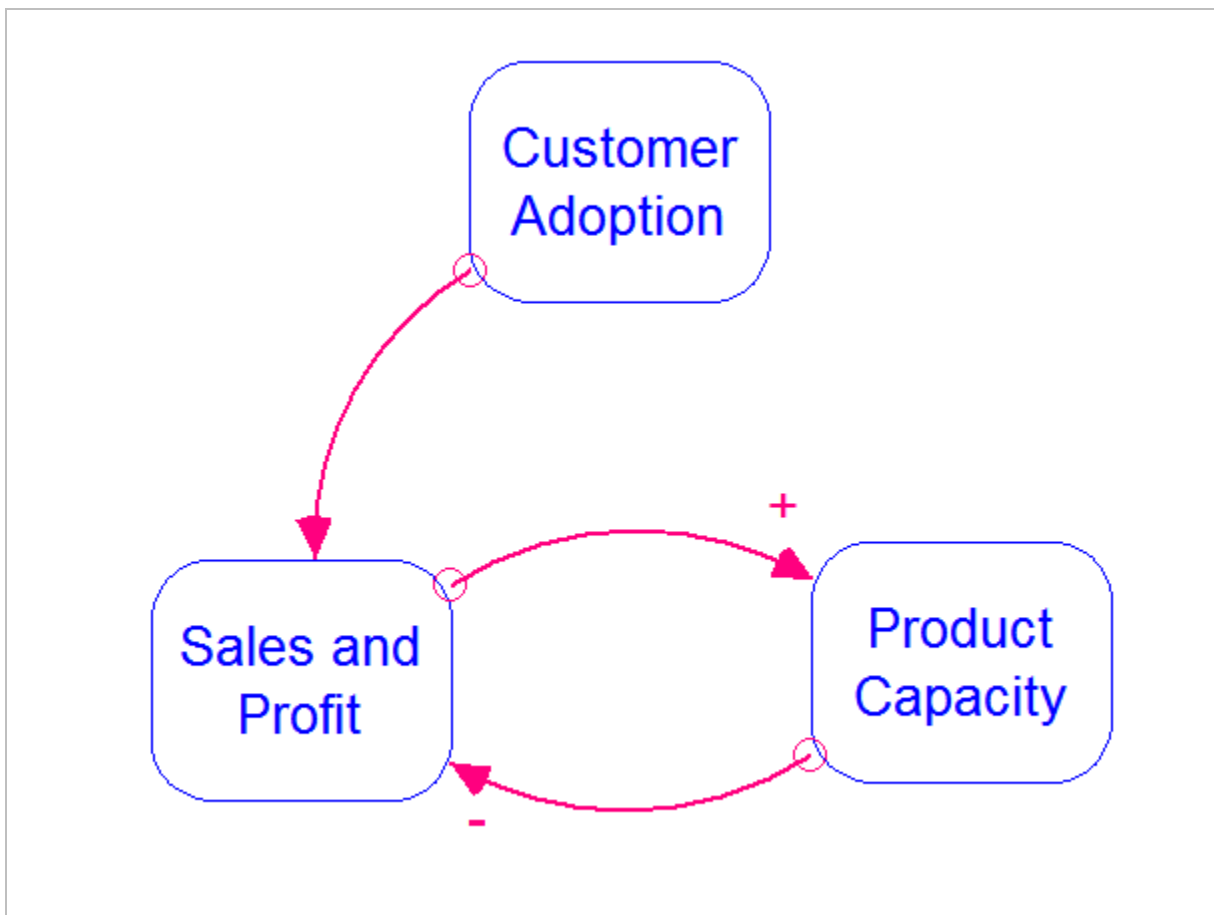


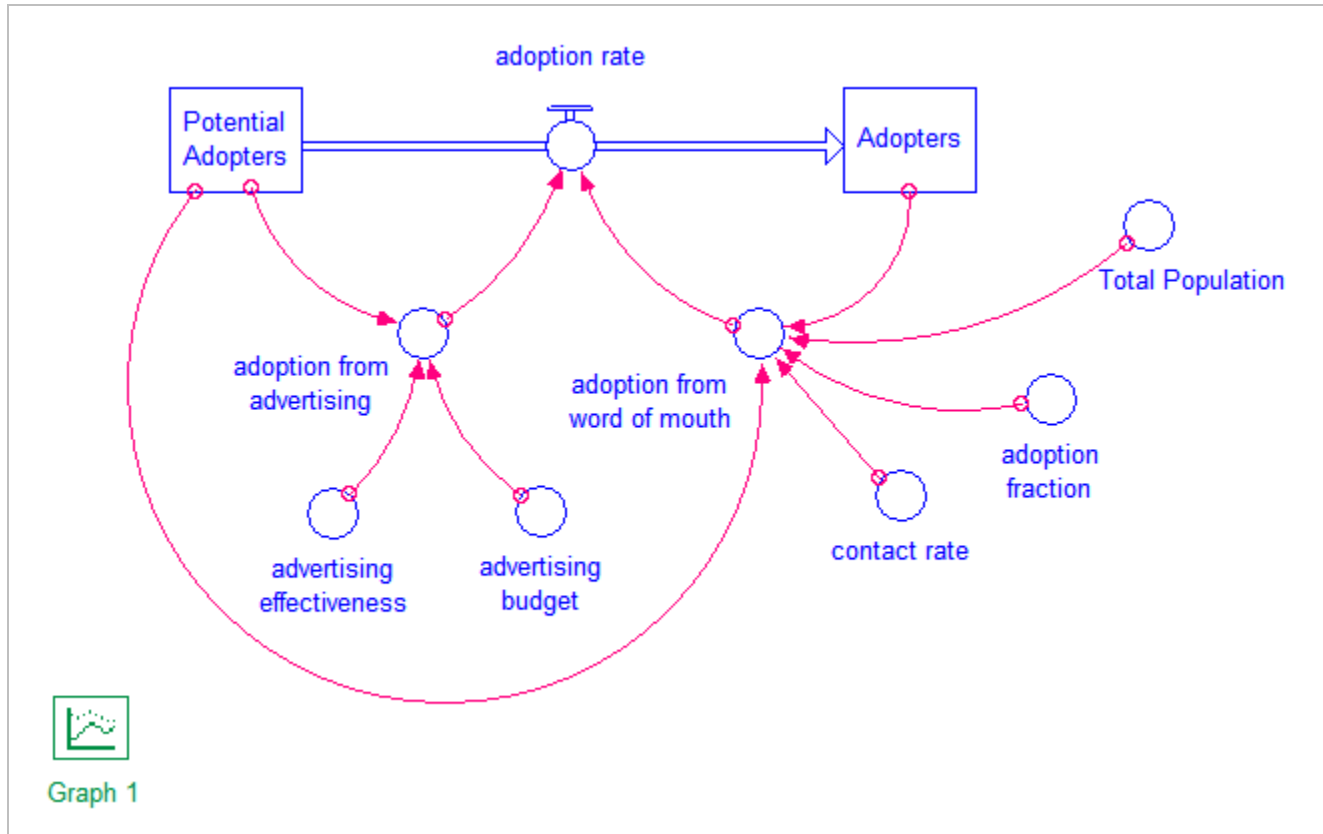
“Getting Started with STELLA and iThink”

International System Dynamics Conference

Bass Diffusion Model 1 (Causal Loop Diagram)



Bass Diffusion Model 2 (Customer Adoption Module)



Adopters = 10 {customers}

Potential_Adopters = Total_Population – Adopters {customers}

adoption_rate = adoption_from_advertising + adoption_from_word_of_mouth

adoption_fraction = 0.015 {people per person per year}

adoption_from_advertising =
advertising_effectiveness*advertising_budget*Potential_Adopters {customer/yr}

adoption_from_word_of_mouth =
(contact_rate*Adopters)*(Potential_Adopters/Total_Population)*adoption_fraction
{customer/yr}

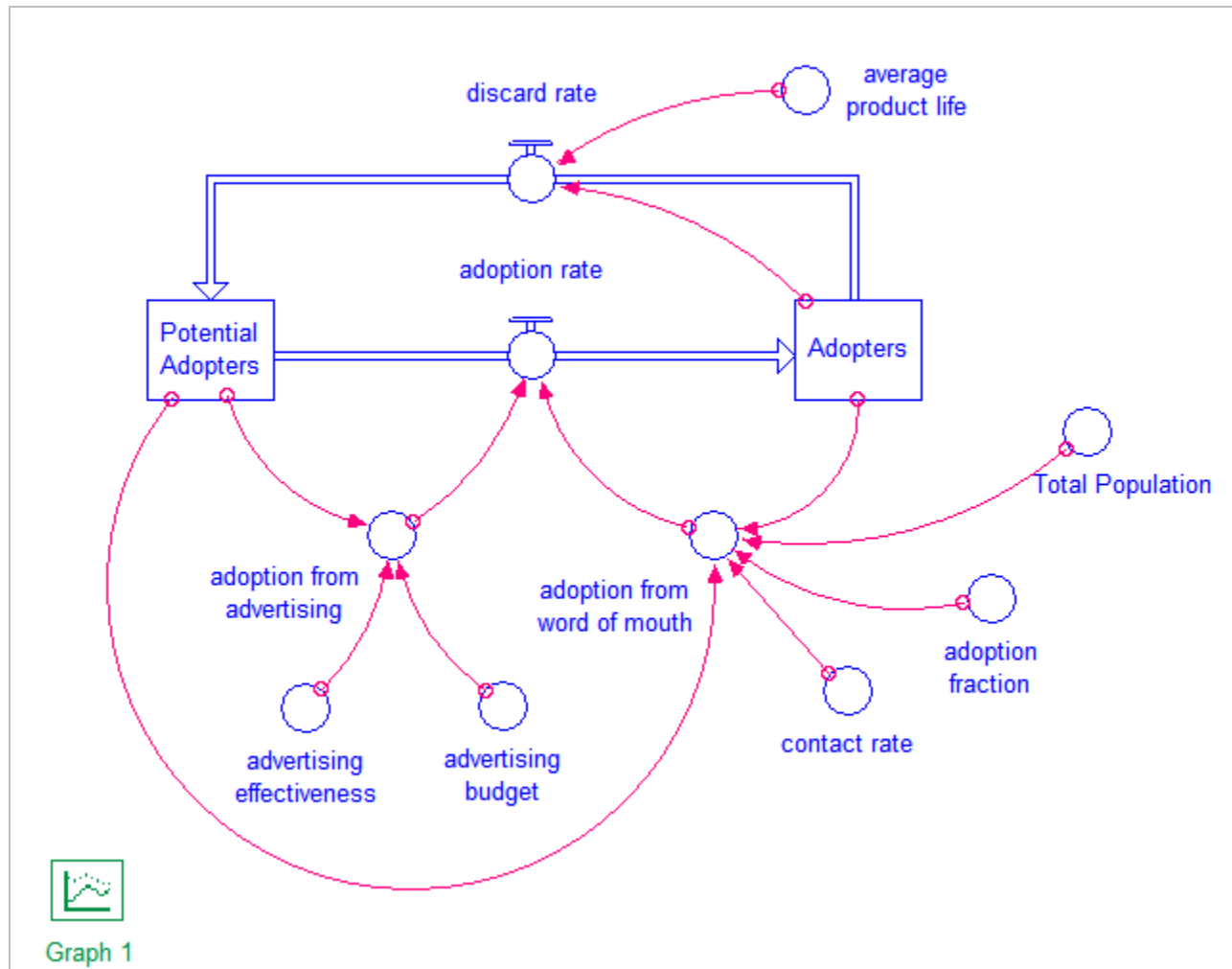
advertising_budget = 10 {US dollars per year}

advertising_effectiveness = 0.002 {per US dollar}

contact_rate = 100 {Unitless}

Total_Population = 1000000 {customers}

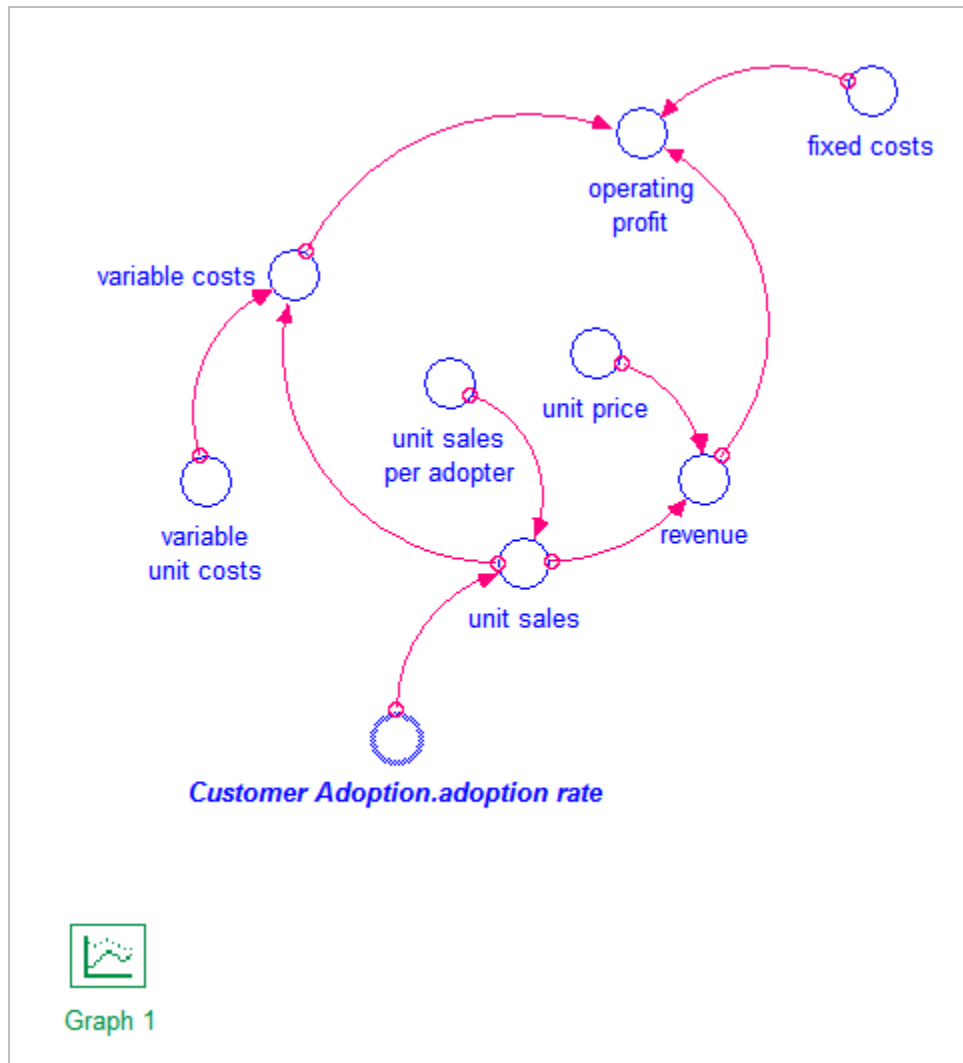
Bass Diffusion Model 3 (Customer Adoption Module)



$\text{discard_rate} = \text{Adopters} / \text{average_product_life} \quad \{\text{customer/yr}\}$

$\text{average_product_life} = 5 \quad \{\text{years}\}$

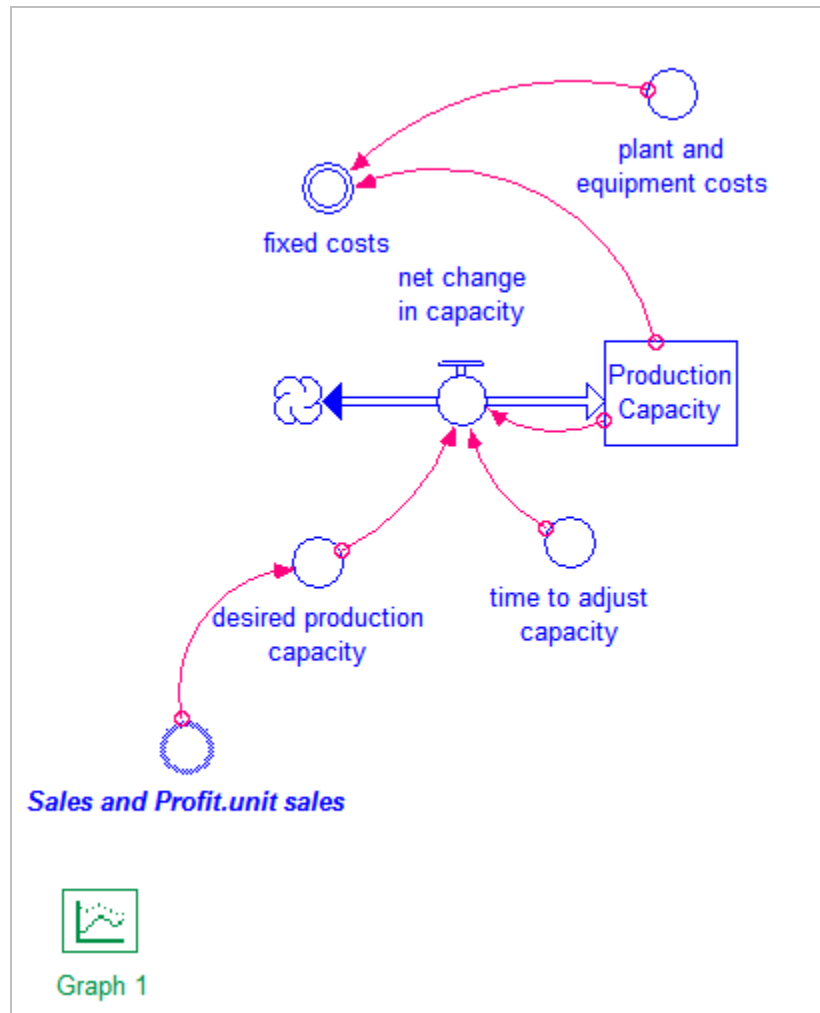
Bass Diffusion Model 4 (Sales and Profit Module)



```

fixed_costs = 100 {US dollars per year }
operating_profit = revenue - fixed_costs - variable_costs {US dollars per year }
revenue = unit_sales*unit_price {US dollars per year }
unit_price = 100 {US dollars per widget}
unit_sales = unit_sales_per_adopter*Customer_Adoption.adoption_rate
{widgets per year}
unit_sales_per_adopter = 1 {widgets per customer}
variable_costs = variable_unit_costs*unit_sales {US dollars per year}
variable_unit_costs = 15 {US dollars per widget}
    
```

Bass Diffusion Model 5 (Production Capacity Module)



$\text{Production_Capacity} = \text{desired_production_capacity} \text{ \{widgets per year\}}$

$\text{net_change_in_capacity} = (\text{desired_production_capacity} - \text{Production_Capacity}) / \text{time_to_adjust_capacity}$

$\text{desired_production_capacity} = \text{Sales_and_Profit.unit_sales} \text{ \{widgets per year\}}$

$\text{fixed_costs} = \text{plant_and_equipment_costs} * \text{Production_Capacity} \text{ \{US dollars per year\}}$

$\text{plant_and_equipment_costs} = 65 \text{ \{US dollars per widget\}}$

$\text{time_to_adjust_capacity} = 2 \text{ \{years\}}$

Bass Diffusion Model 6 (Interface Layer)

