

Glossary of Variables Used in the Figures

Supplementary material to Submission #1494

A Systemic Analysis of the Effects of Public Investment on Innovation Ecosystems Using System Dynamics

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The figures in the paper reproduce the original STELLA® model and its simulation interface, in which variable names are written in Portuguese. The tables below give the English equivalent of every label appearing in Figures 1 to 5, so that the diagrams can be read alongside the text. The paper itself is unchanged; this document is provided only as a reading aid.

Table 1 – Figure 1: conceptual model (causal diagram)

Label in the figure (PT)	English equivalent
Investimento	Investment
Invest. em capacidade de pesquisa	Investment in research capacity
Investimento em projetos	Investment in projects
Investimento pessoas	Investment in people
Investimento infraestrutura	Investment in infrastructure
Cap. pessoas	Human capacity
Cap. infraestrutura	Infrastructure capacity
Gap cap. pesquisa	Research capacity gap
Gap pessoas	Human capacity gap
Gap infraestrutura	Infrastructure capacity gap
Nº de projetos	Number of projects
Demanda recursos humanos	Human resources demand
Demanda infraestrutura	Infrastructure demand
Necessidade de investimento pessoas	Required investment in people
Necessidade infraestrutura	Required infrastructure
Inovação	Innovation
Patentes	Patents
R / B	Reinforcing loop / Balancing loop

Table 2 – Figure 2: System Dynamics model implemented in STELLA®

Variable in the model (PT)	English equivalent
PoliticalInvestimento	Investment policy (dimensionless multiplier)
InvestimentoBase	Base investment (historical FNDCT series, 2010–2024)
Inv	Total investment
PercPes	Share of investment allocated to people

PercInfra	Share of investment allocated to infrastructure
InvPes	Investment in people (inflow)
InvInfra	Investment in infrastructure (inflow)
InvInfEfet	Effective infrastructure investment
InvProj	Investment in projects
AmpliacaoInfra	Infrastructure expansion (conveyor)
CapPessoas	Human capacity (stock)
CapInfra	Infrastructure capacity (stock)
ObsolescenciaPessoas	Human capacity obsolescence (outflow)
DepInfra	Infrastructure depreciation (outflow)
TxObsPessoas	Human capacity obsolescence rate
TxDep	Infrastructure depreciation rate
GapPessoas	Human capacity gap
GapInfra	Infrastructure capacity gap
ConsumoEspPessoas	Specific consumption of human capacity per project
ConsumoEspInfra	Specific consumption of infrastructure per project
InvUnitPessoas	Unit investment per unit of human capacity
InvUnitInfra	Unit investment per unit of infrastructure
NecInvPessoas	Required investment in people
NecInvInfra	Required investment in infrastructure
NecPessoasAA	Accumulated annual requirement of human capacity
NecInfraAA	Accumulated annual requirement of infrastructure
FechamentoAnualNecPess	Annual closing of the human capacity requirement
FechamentoAnualNecInfra	Annual closing of the infrastructure requirement
NumPotencialProj	Potential number of projects
ProjInov	Innovation projects started (inflow)
ProjetAndamento	Projects in progress (conveyor)
ProjExec	Executed projects (outflow)
TaxaConversao	Conversion rate (projects to patents)
PedidoPat	Patent applications filed
PatenteAnalise	Patents under analysis (conveyor)
PatenteConcluida	Completed patents
MaturacaoPatente	Patent maturation (conveyor)
InformacaoQuatidadePatente	Available technological information (patent count)*
TempoMedConcPat	Average patent granting time
TempoMaturacao	Maturation time

* The label appears in the model as “InformacaoQuatidadePatente”; the correct Portuguese spelling would be “InformacaoQuantidadePatente”.

Table 3 – Figures 3 to 5: simulation interface

Label in the interface (PT)	English equivalent
Simulador de investimento de inovação	Innovation investment simulator
Parâmetros de Política (controle)	Policy parameters (user-controlled)

Parâmetros Estruturais (fixos)	Structural parameters (fixed)
Política investimento	Investment policy
Perc Pes	Share allocated to people
Eficiência do Pipeline	Pipeline efficiency
Transparência	Transparency
Em anos	In years
1/ano	Per year
Table 1 (Dados ao longo do tempo)	Table 1 (Data over time)
Years / Anos	Years