ANÁLISE DA NORMA ISO 37153:2017
SMART COMMUNITY INFRASTRUCTURES –
MATURITY MODEL FOR ASSESSMENT AND IMPROVEMENT

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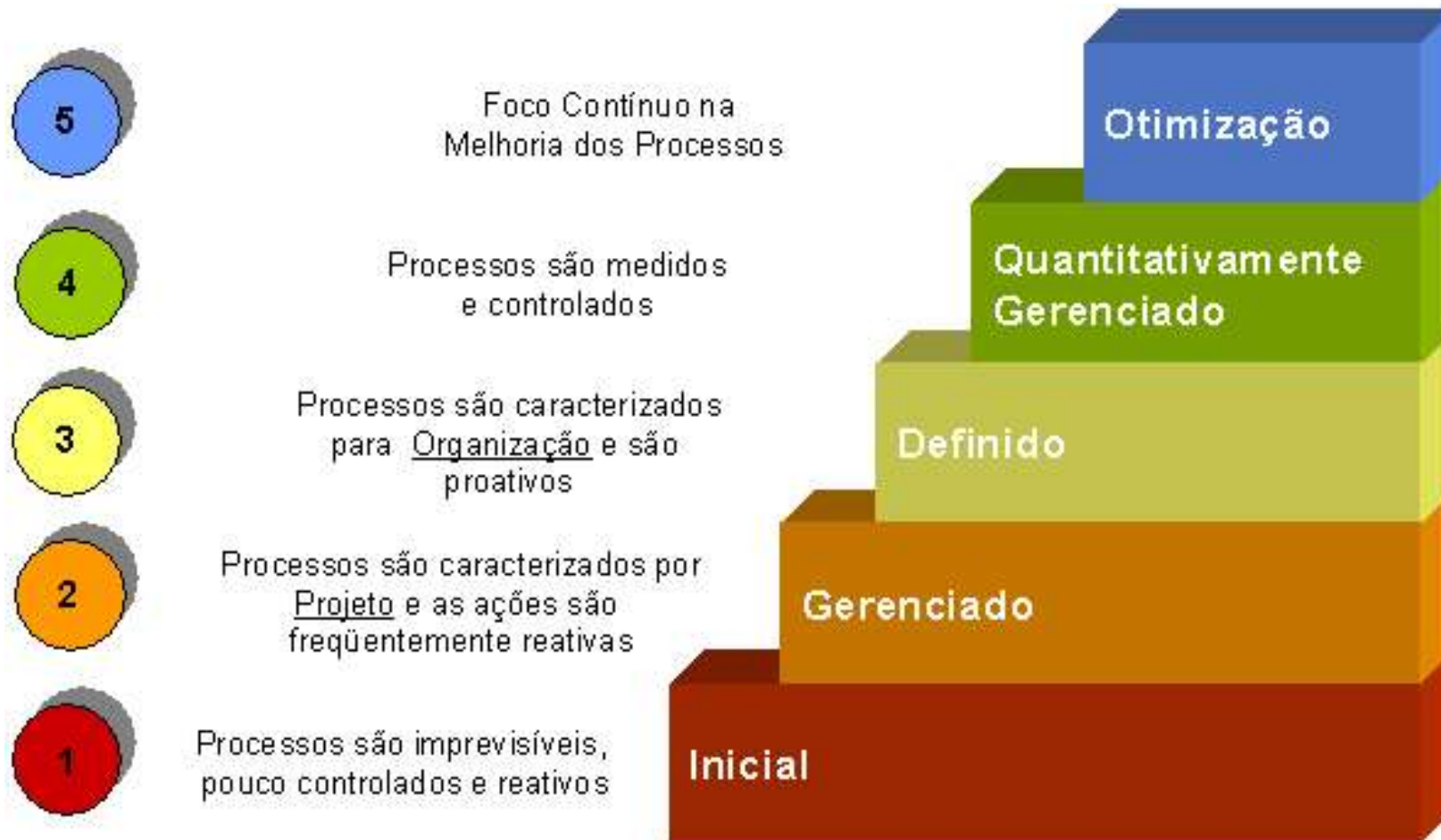
Community Infrastructure Maturity Model

ISO 37153

Modelo de maturidade para compreender estágio atual e desejos para uma cidade inteligente.

- Identificar problemas;
- Definir como melhorar;
- Interoperabilidade com outros sistemas.

- Um arcabouço (*framework*) para definir como avaliar o nível de maturidade da infraestrutura comunitária.
  - Comparação entre cidades
  - Planejamento para melhorias futuras
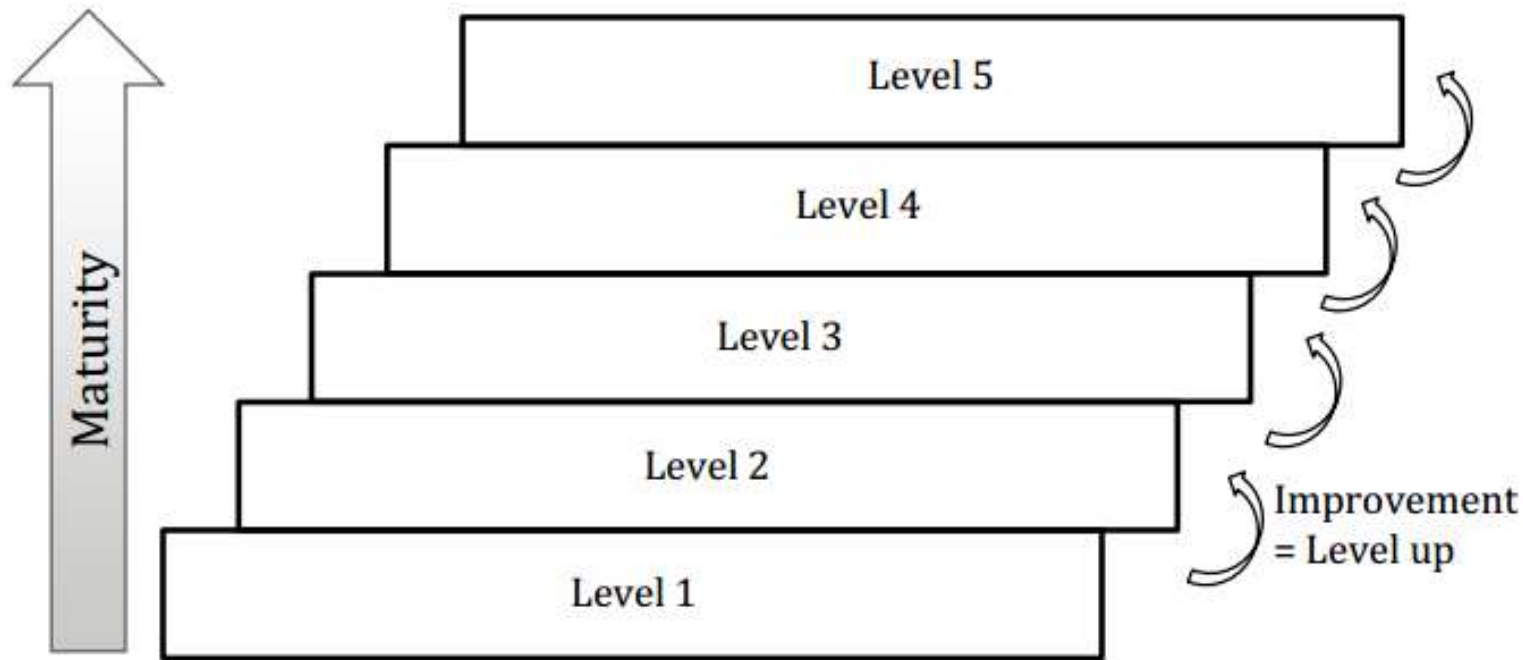
- Origem no **Capability Maturity Model** (CMM)

Fonte: http://www.isdbrasil.com.br/o-que-e-cmmi.php

- Semelhante ao CMM

Figure 0.1 — Conceptual expression of Community Infrastructure Maturity Model (CIMM)

Table 4.3 — Generic definition of the community infrastructure maturity

Level	Definition	Description
5	Sustainably optimizing	• Continually improving to satisfy future needs
4	Improving	• Partially started towards future needs
3	Fulfilled	• Satisfies current needs in a defined manner
2	Partially fulfilled	• Needs are identified but not satisfied
1	Initial	• Not started yet

NOTE Each level assumes that requirements of lower levels have been fulfilled.

Avaliação CIMM

Desempenho

Processos

Interoperabilidade
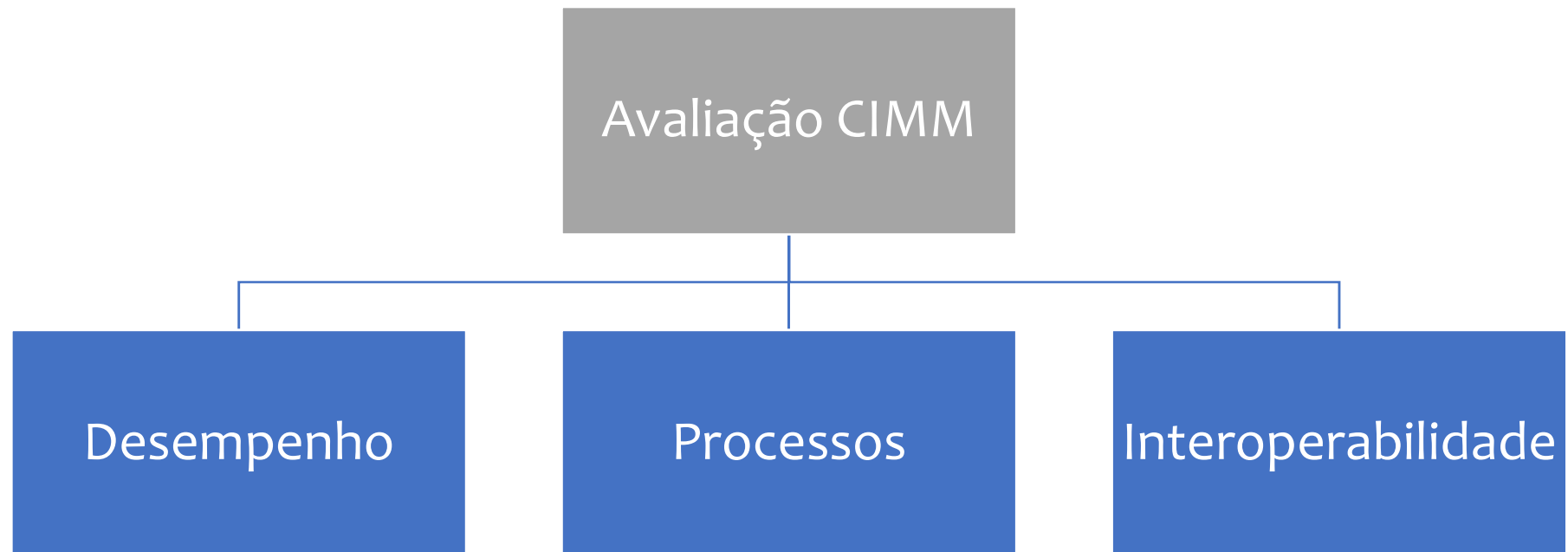
Metodologia

- Tabela de critérios de conquistas/sucesso

Table 4.1 — Basic structure of an achievement criteria table

Characteristics	Objectives	Levels				
		1	2	3	4	5
CH1	Objective of CH1	Def.	Def.	Def.	Def.	Def.

Avaliação é desmembrada em dois tipos:

- Technical assessment
- Contribution assessment

Table 4.2 — Relationship between the assessment boundaries

Technical assessment	Contribution assessment			
Characteristics (performance, process and interoperability of community infrastructures)	Contribution of community infrastructures to community-wide issues			
	Impact 1 (e.g. gross product of a community)	Impact 2 (e.g. unemployment rate of a community)	Impact 3 (e.g. poverty rate of a community)	[...]
Characteristics A (e.g. capacity of services)	***	*		
Characteristics B (e.g. investment efficiency of services)	**	**		
Characteristics C (e.g. greenhouse gas emissions	*	***		

a) Target community infrastructure

Determine the purpose, assessment boundary (technical or contribution) and target community infrastructure(s)

b) Characteristics

Select characteristics fitting for the purpose

c) Procedure

Develop an achievement criteria table in accordance with the CIMMs

d) Achievement criteria table

Characteristics and their attributes		Objectives	L1	L2	L3	L4	L5
PF1		Objective of PF1	Def	Def	Def	Def	Def
PF2	Performance	Objective of PF2	Def	Def	Def	Def	Def
PF3		Objective of PF3	Def	Def	Def	Def	Def
...		[...]	[...]	[...]	[...]	[...]	[...]
PR1		Objective of PR1	Def	Def	Def	Def	Def
PR2	Process	Objective of PR2	Def	Def	Def	Def	Def
PR3		Objective of PR3	Def	Def	Def	Def	Def
...		[...]	[...]	[...]	[...]	[...]	[...]

e) Assessment and improvement

Current	Target	Measures
Level 2	Level 3	++++
Level 3	Level 3	-
Level 2	Level 3	++++
[...]	[...]	[...]
Level 2	Level 3	++++
Level 2	Level 3	++++
Level 3	Level 3	++++
[...]	[...]	[...]

a. Escolha da comunidade alvo

b. Identificar e priorizar problemas da comunidade alvo

c. Identificar e analisar elementos da infraestrutura na comunidade que sejam prioritários aos problemas discutidos

d. Definir o objetivo da avaliação e melhoria de (b) em (a)

Items	Descriptions
Target Infrastructure	Electric Power Supply Infrastructure (Generation and Grid)
Purpose of assessment	To satisfy requests from residents, industry, society, or environment in the point of view of the electric power supply infrastructure, which include quality of service, operation efficiency, service sustainability, resiliency and harmony among neighborhood areas.
Key Stakeholders	Citizens, operators/owners of community infrastructure, city planners or government decision makers

Características técnicas → ISO/TS 37151

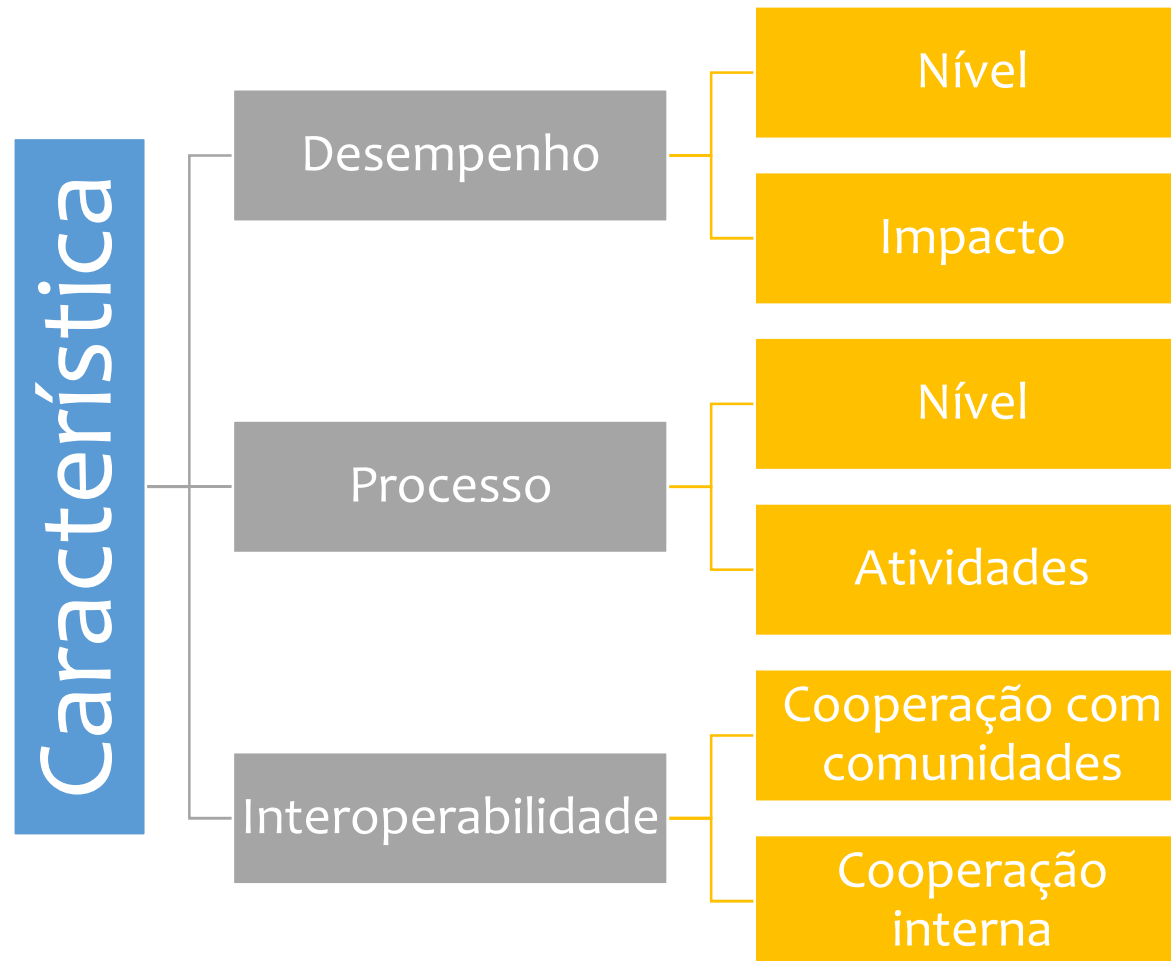Características de contribuição → mais amplo

Sugestões do draft:

- Métrica
- Classificação
- Resultados precisos

Table 5.1 — Example of how to identify characteristics

Purpose	Key stakeholders	Key stakeholders' needs	Characteristics	Objectives of characteristics
Assessment and improvement of maturity of the target community infrastructures (e.g. energy, water, transportation, waste, ICT)	Citizens (e.g. residents), owners, sponsors, planners, operators, suppliers, etc.	e.g. availability, affordability, ... e.g. economic, societal, environmental sustainability	Characteristic 1	Objective 1
			Characteristic 2	Objective 2
			...	...

- Classificar em: desempenho, processo ou interoperabilidade

- Desenvolver cinco critérios com base no modelo de referência

Table 5.2 — CIMM for performance characteristics

Level	Definition	Description
5	Sustainably optimizing	• Satisfies quality and capacity for future needs
4	Improving	• Development started that will satisfy future needs
3	Fulfilled	• Satisfies quality and capacity for current needs
2	Partially fulfilled	• Physically functioning but does not satisfy current needs
1	Initial	• No functioning infrastructure

- Desenvolver cinco critérios com base no modelo de referência

Table 5.4 — CIMM for interoperability characteristics

Level	Definition	Description
5	Sustainably optimizing	• Continual improvement of interoperability is in place.
4	Improving	• Common platform to achieve interoperability is established.
3	Fulfilled	• Connection and cooperation across community infrastructures are defined and established.
2	Assessed	• Needs for connection and cooperation across community infrastructures are assessed but not defined.
1	Initial	• Infrastructures are independently operated.

- Avaliação:
  - Documentos e métricas necessárias
  - Seleciona a tabela de critérios de conquista/sucesso
  - Avalia a infraestrutura da comunidade de acordo com cada característica
  - Registro do resultado

- Melhoria:
  - Defina o nível desejado para cada característica
  - Identifica e analisar a diferença entre o estado atual e desejado
  - Desenvolve um plano ou medidas para alcançar o objetivo desejado

- Implementação da melhoria (linha 506 a 513)

There are various means for implementing the improvement plans worth considering, such as,
- *improving the performance characteristics, exchanging/repairing the hardware or physical equipment could be a candidate.*
- *improving the process characteristics, implementing an advanced maintenance activity based on data monitoring could be a candidate.*
- *improving the interoperability characteristics, enhancing data sharing and practical usage among different types of infrastructures could be a candidate*

DISCUSSÕES: COMPARAÇÃO ENTRE CIDADES

Linhas 150 e 151

An assessment using the CIMM could be used to compare different communities but can also be used to make a comparison between the current and future states of infrastructure in a single community by the object and scope of the assessment

Linhas 383 e 384

*NOTE Community issues are challenges that the community faces. **Obviously, the issues and their priorities are usually different for different communities.***

Obrigado!

Marcos Paulino Roriz Junior