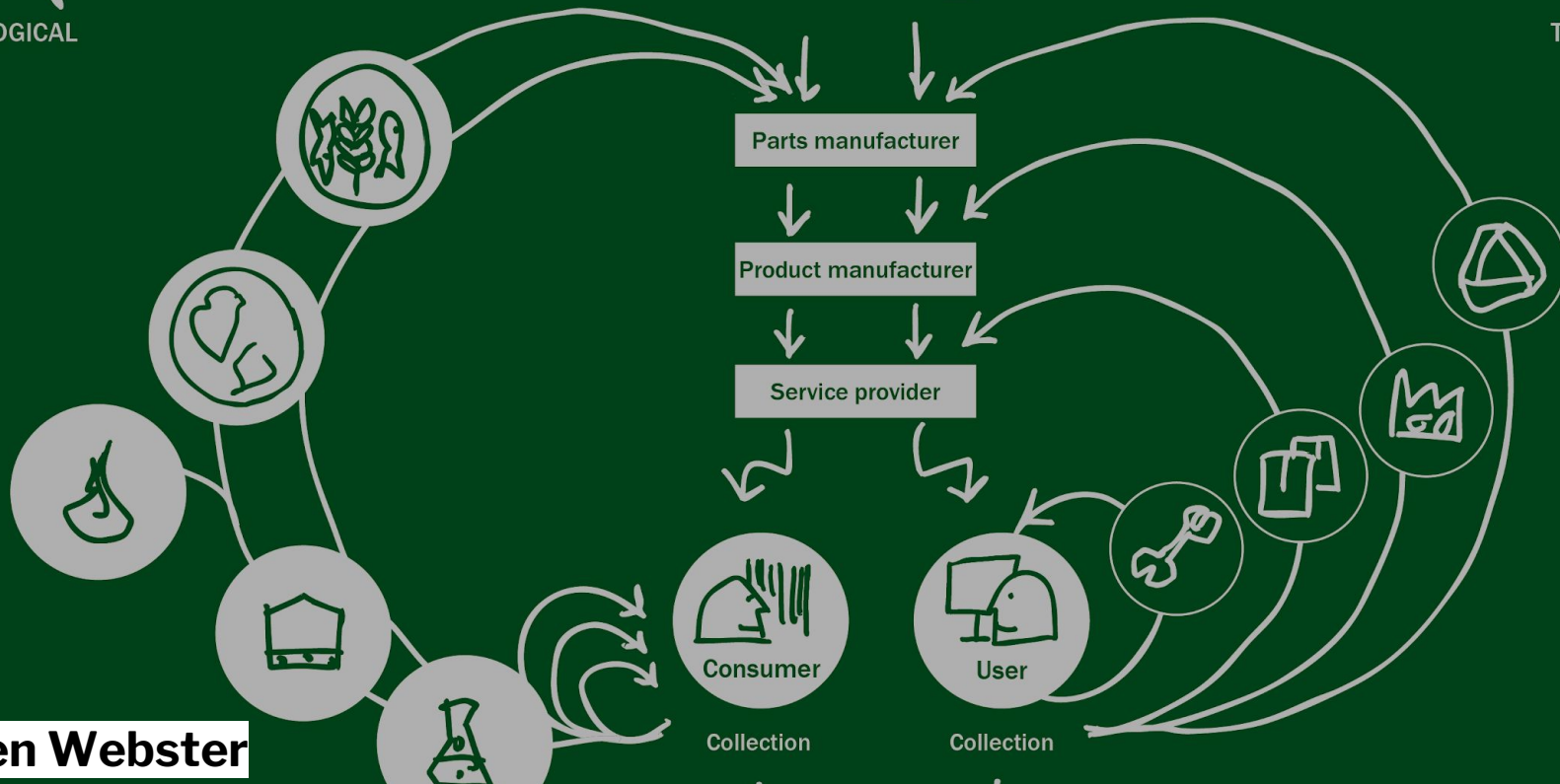




BIOLOGICAL



TECHNICAL



**Ken Webster**

Santiago de Chile - Noviembre, 2018

# **The circular economy helps answer the question 'How to produce?'**

A circular economy: where to find value (\$) by

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'slowing the flow'

(extended product life/products to services)

'narrowing the resource flow'

(resource efficiency/simplified palette)

# La economía circular ayuda a responder la pregunta ‘¿Cómo producir?’

En dónde encontrar valor en una economía circular:

‘Cerrar bucles (*loops*)’

(reciclaje / recuperación)

‘Desaceleración del flujo’

(extender la vida útil del producto/ofrecer servicios en lugar de productos)

‘Reducción del flujo de recursos’

(eficiencia de los recursos/paleta simplificada)

**What is driving the change?**

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*“Digital innovation leads to new business models and then design changes.”*

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innovación digital → nuevos modelos de negocio →  
cambios de diseño

## Examples

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Digital can disintermediate connecting producer/owner to customer/user.

Digital can track, monitor the status and utilisation of objects.

Lo digital hace que la vida útil del producto sea más prolongada y el 'acceso sobre la propiedad' sea más fácil.

(Product life & access over ownership)

Lo digital puede 'desintermediar' conectando al productor/propietario con el cliente/usuario.

(Disintermediation & connection)

Lo digital puede rastrear, monitorear el estado y la utilización de objetos.

(Track, monitor, utilisation)

# Case Study Examples: [www.ellenmacarthurfoundation.org](http://www.ellenmacarthurfoundation.org)



Huadu Worldwide Transmission 广东花都  
Scaling up remanufacturing



Mobike 摩拜单车  
Bike sharing with Chinese characteristics



Ycloset 衣二三  
A wardrobe in the cloud



Winnow  
Data-backed stories that drive change



The City of Phoenix Clean Palm Program  
Valorising a costly waste stream



Gerrard Street  
A more circular music experience



Fat Lama  
Borrow stuff you need. Lend stuff you don't.



Replenish  
Customisable packaging platform for liquid concentrates



A circular economy can also mean cascading materials, using more renewables and circulating value locally and regionally.

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## Featured Materials



Agar bioplastic - simmered



Gelatin bioplastic



Coffee / agar - alginate



Mussel shell - sucrose composite

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**Making 'waste = food' so 'feeding the forest not just the trees'.**



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F Making 'waste = food' so 'feeding the forest not just the trees'.

Using what is available adding value – multiple cashflows and multiple benefits.

It takes insights from living systems not engineering 'pipework' where aim is to stop leaks/losses. Nature says 'be generous'.



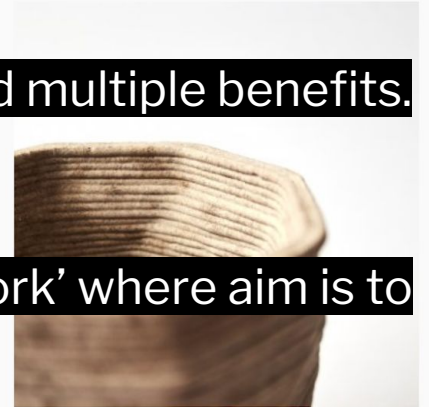
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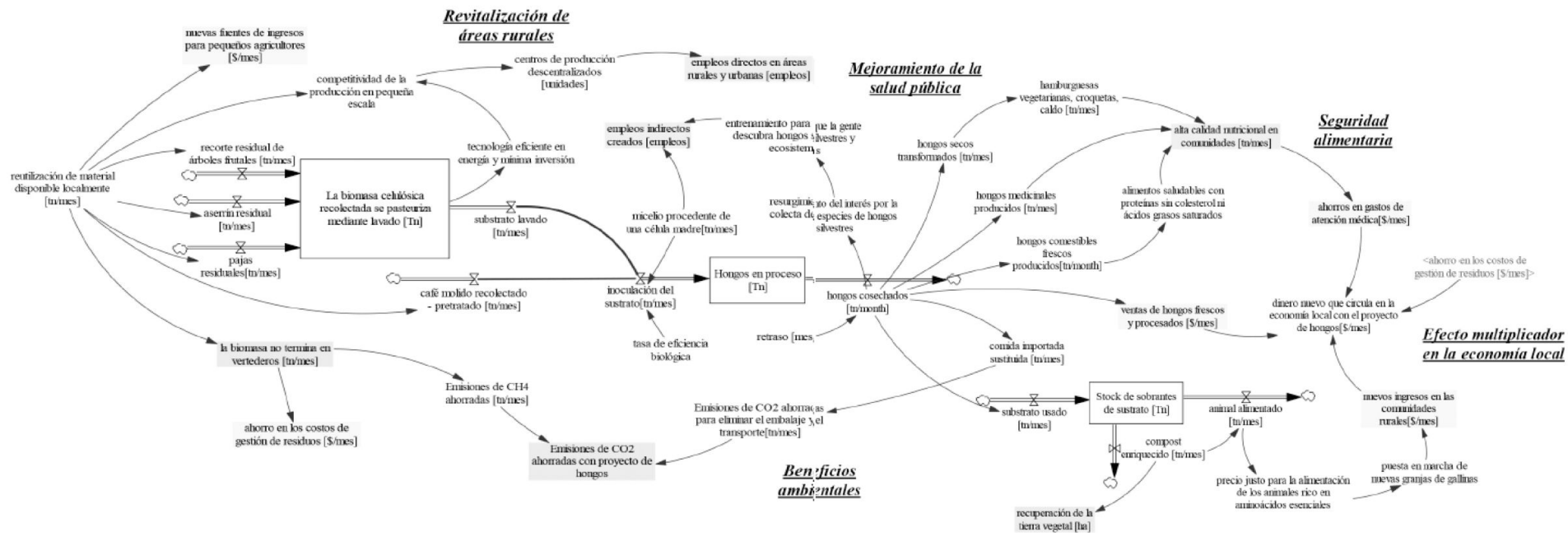


Coffee / agar - alginate

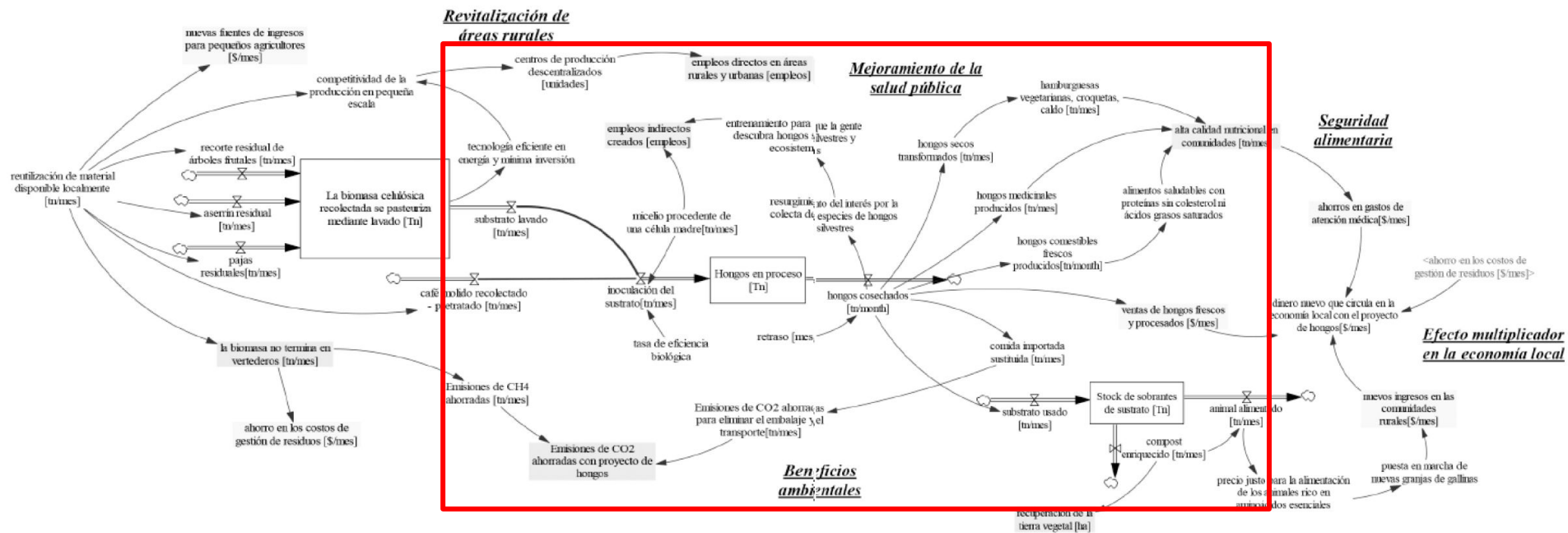


Mussel shell - sucrose composite

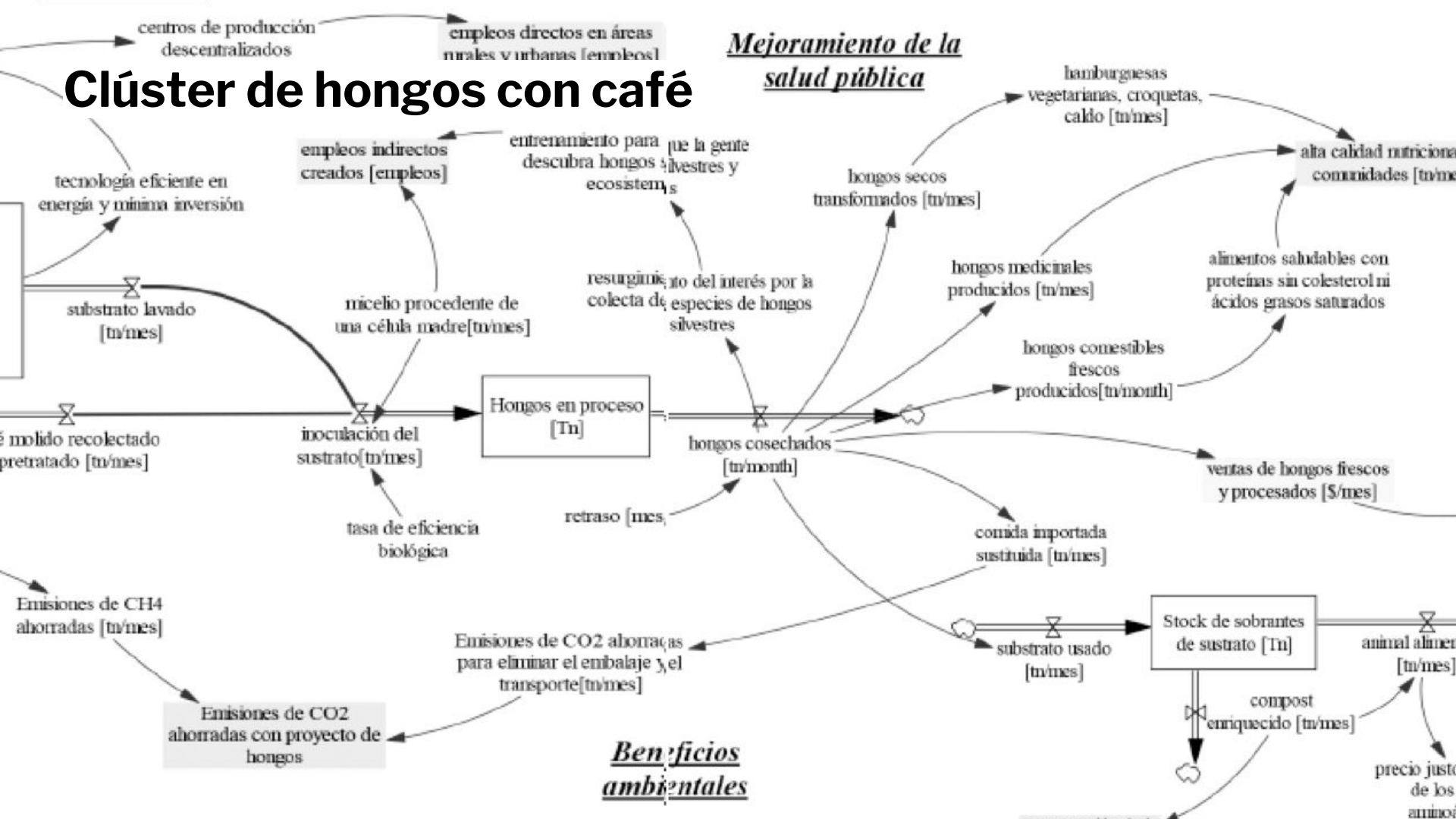
# Clúster de hongos con café



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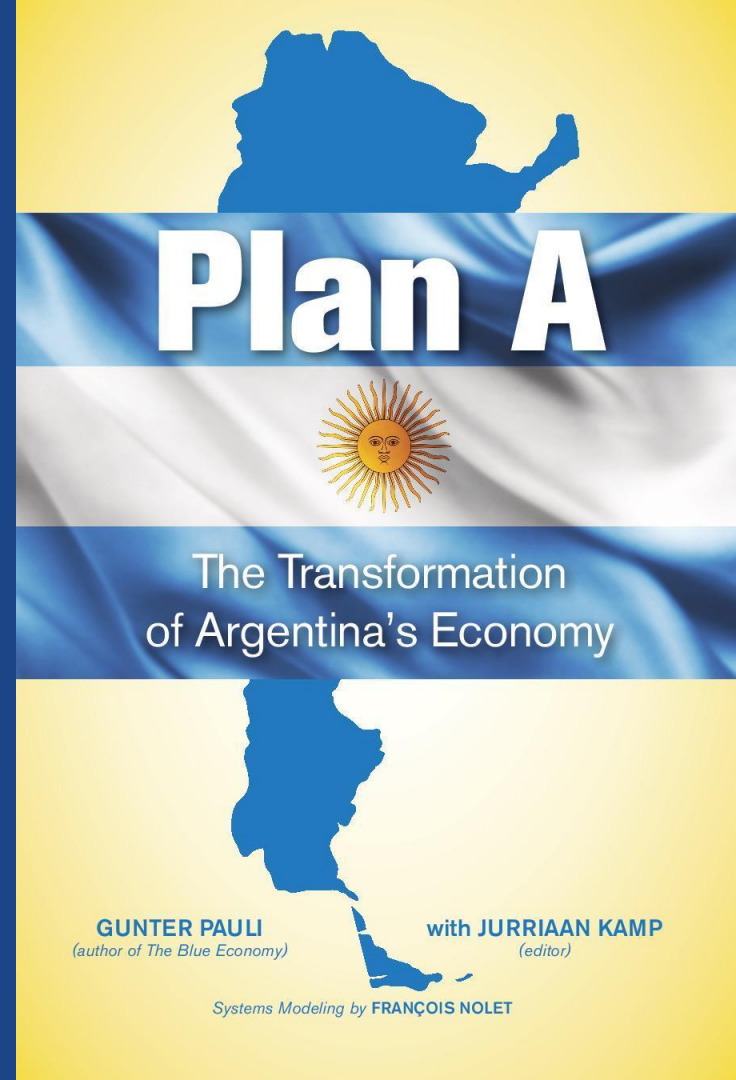


# Clúster de hongos con café



# Plan “A” para Argentina

(Gunter Pauli)



# Plan “A” para Argentina

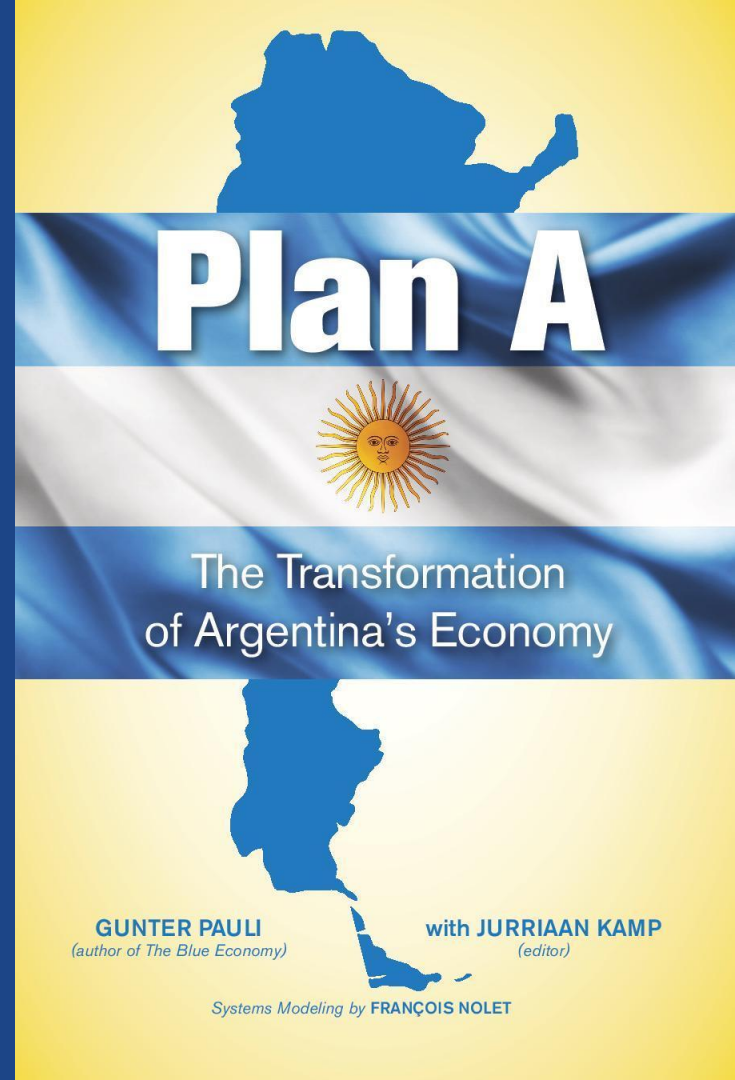
El modelo de crecimiento de dos dígitos:

(1) responder a las necesidades básicas.

(2) Con productos y servicios locales.

(3) hacer circular el efectivo en la economía local.

(Gunter Pauli)



**Conclusion: Which circular economy do we want?**

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Closed loops?

or

Open loops?

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Circulating value?

Lowering costs of  
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or

Adding value with what  
we have?

Economies of scale?

or

Economies of scope?

## Conclusión: ¿Qué economía circular queremos?

¿Bucles cerrados?

o

¿Bucles abiertos?

¿Capturar el valor?

o

¿Circular el valor?

¿Bajar los costos de  
acceso y propiedad?

o

¿Agregar valor con lo  
que tenemos?

¿Economías de escala?

o

¿Economías de gama?

Perhaps both if the *system as a whole* is to thrive?

Many real world systems have this fractal structure:

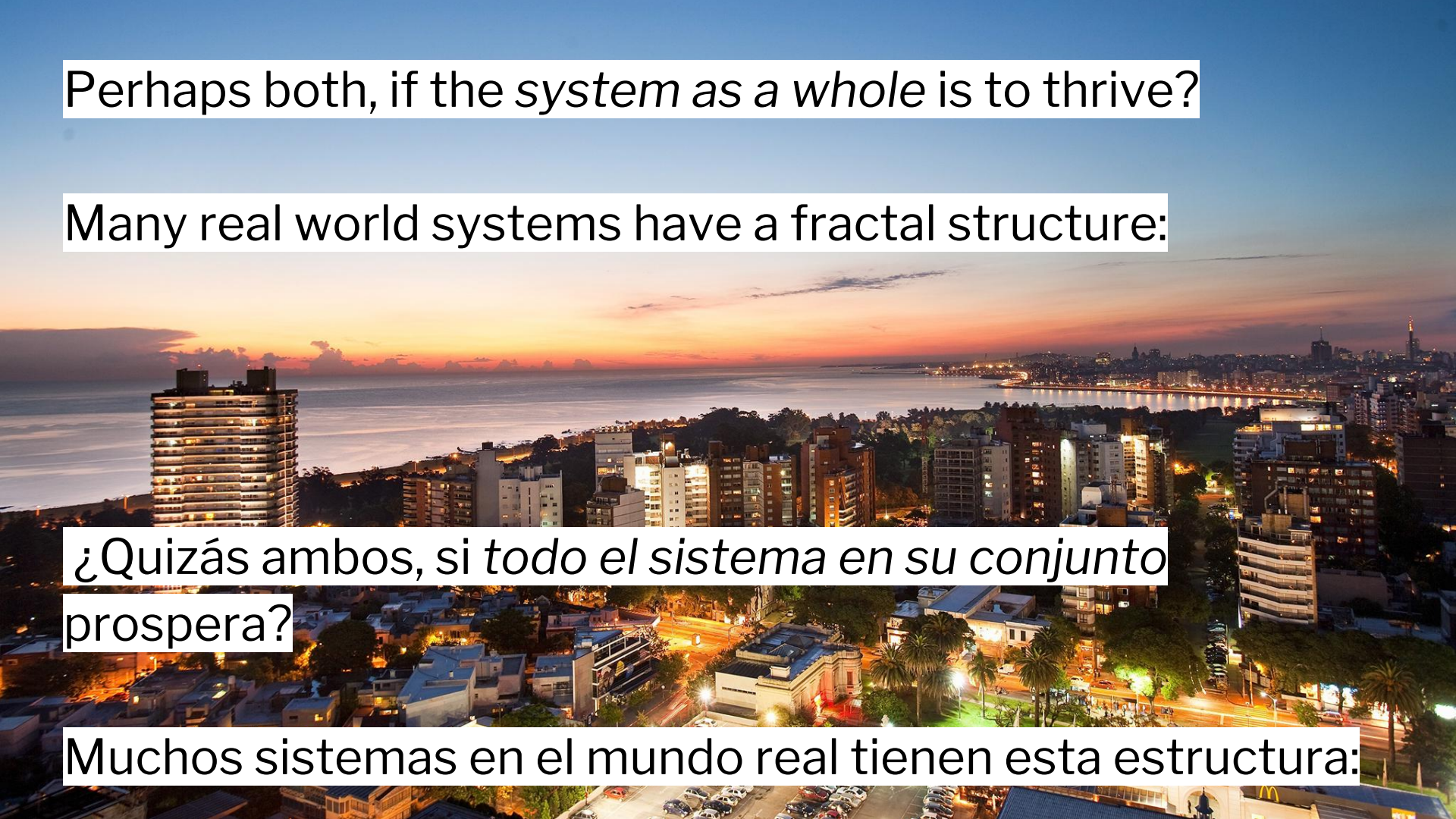


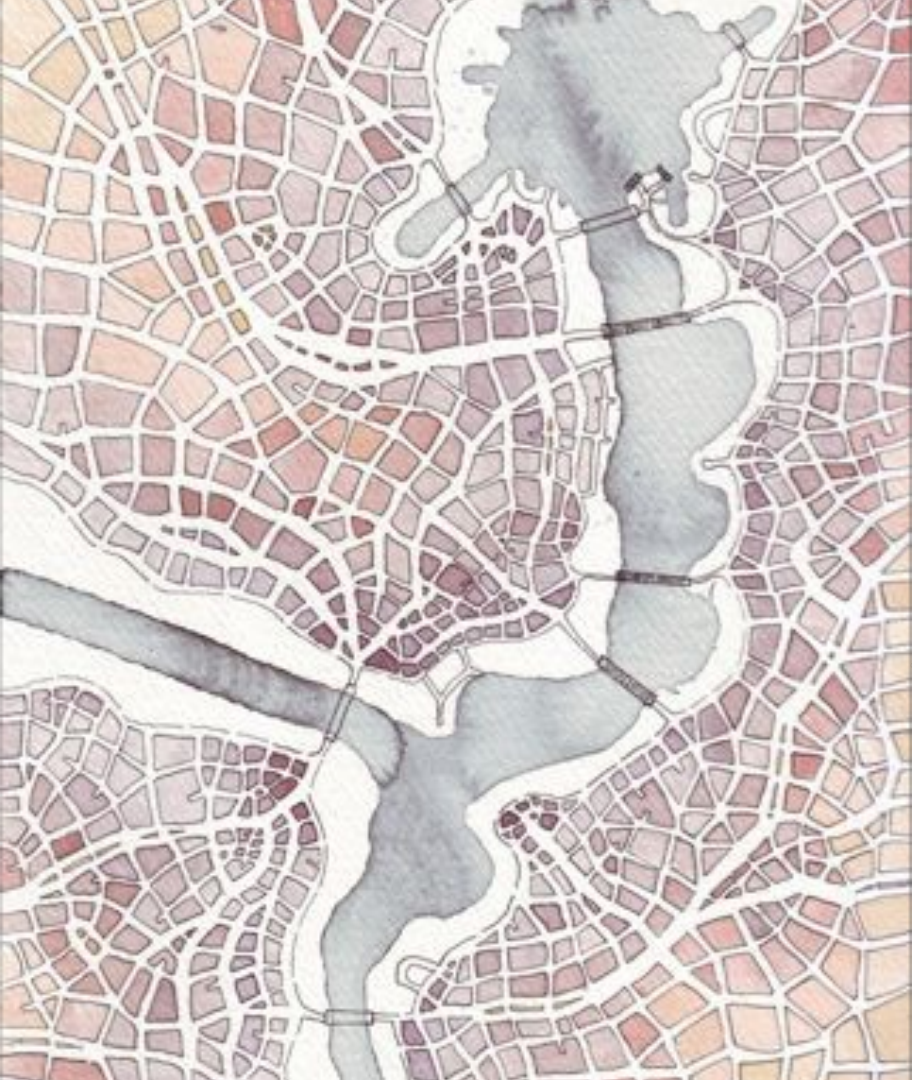
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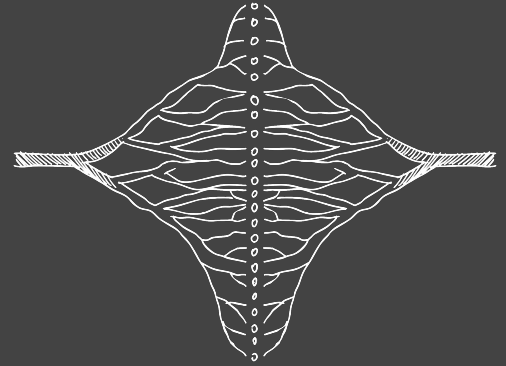
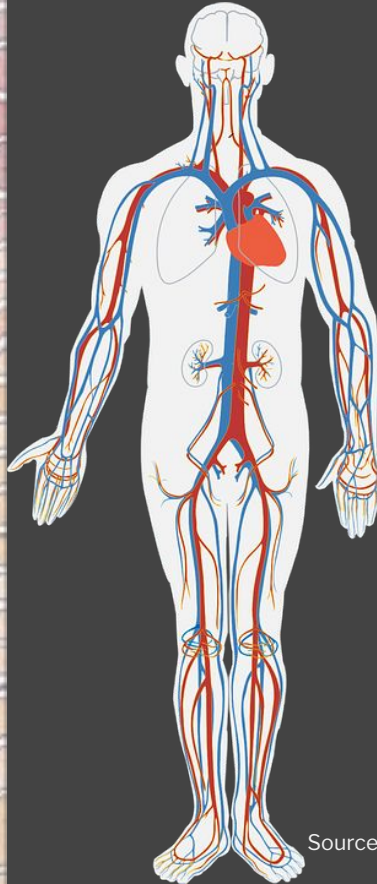
¿Quizás ambos, si *todo el sistema en su conjunto* prospera?

Muchos sistemas en el mundo real tienen esta estructura:





“Fractals are infinitely self-similar, *iterated*, and detailed mathematical constructs...”



Source: “Sunrise Fields” Emily Garfield + Christopher Alexander

## Summary of thinking

A circular economy is thinking about effective not just efficient systems

A circular economy is a 'stock maintenance' concept [Walter Stahel]

i.e. Stocks, flows and feedback all matter

A circular economy is 'regenerative and distributive by design' [Kate Raworth]

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Una economía circular piensa en sistemas eficaces (effective), no sólo eficientes (efficient).

Una economía circular es un concepto de 'mantenimiento de stock' [Walter Stahel]

Stocks, flujos (flows) y retroalimentación (feedback) todo importa.

Una economía circular es 'regenerativa y distributiva por diseño' [Kate Raworth]

# Acknowledgements

## Graphics by:

Analaura Antúñez Latorre

2018



**PANDA.UY**

Bambú en Acción

## Translated by:

Karen Insignares

## Look out for:

Ken Webster's - *The Circular Economy: A Wealth of Flows*

Gunter Pauli - *The Blue Economy*

Kate Raworth - *Doughnut Economics*

Education: 4:30 *Time For A Circular Economy*