

OMNI TERRA

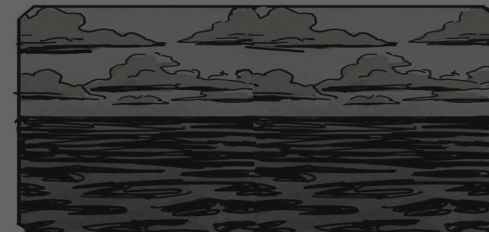
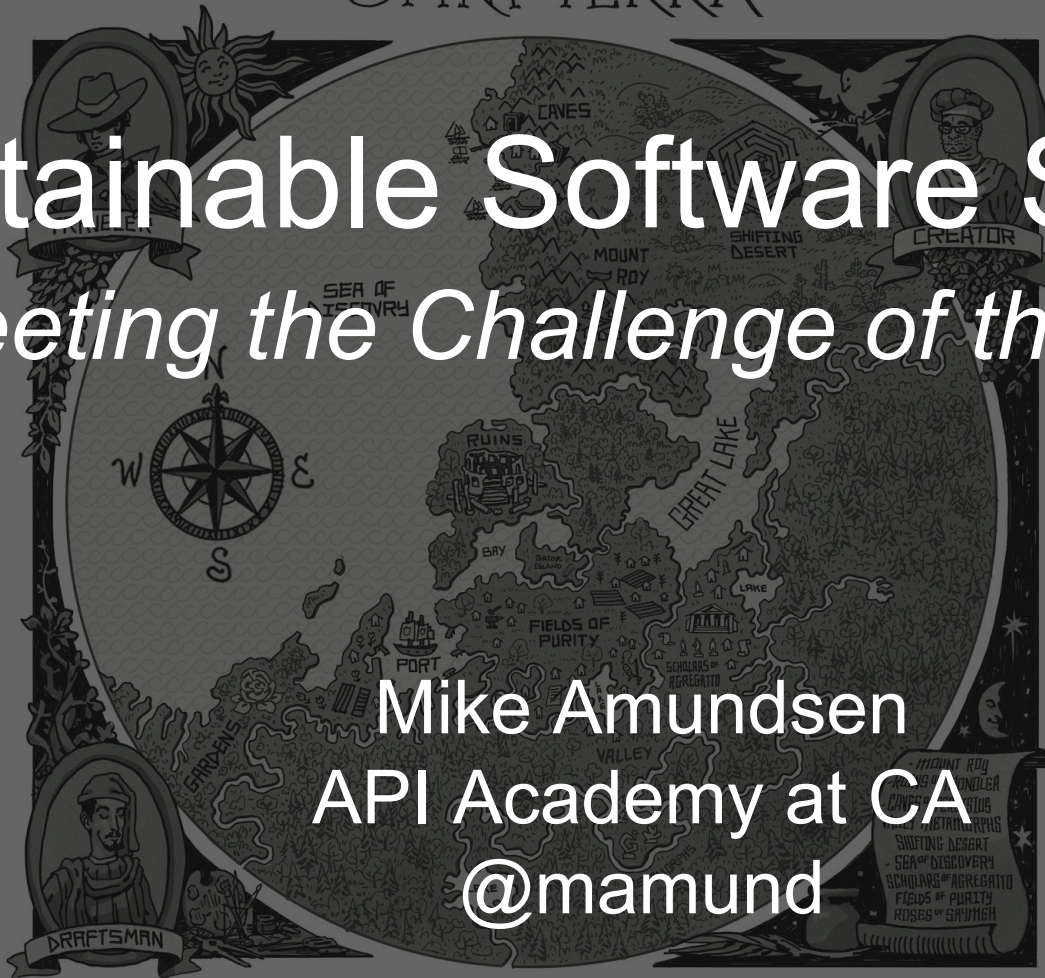
Sustainable Software Systems

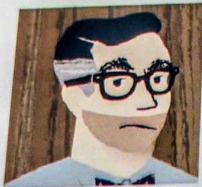
Meeting the Challenge of the Future

Mike Amundsen

API Academy at CA

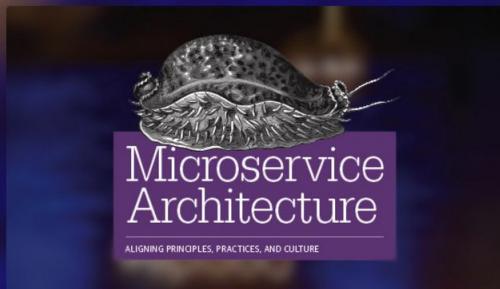
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EBOOK



MICROSERVICE ARCHITECTURE: ALIGNING PRINCIPLES, PRACTICES & CULTURE

DESIGN AND APPLY MICROSERVICES TO EMBRACE CONTINUAL
CHANGE IN THE DIGITAL ECONOMY

READ MORE



50+ Years of Digital Transformation

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Telephones, Mechanical Turks, and the Future of APIs

Mike Amundsen
Principal API Architect for CA / Layer 7
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Telephones Turks, and the



Revisiting Geddes' Outlook Tower

The Information Age, 100 years on.

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Telephones Turks, and the



Revisiting Geddes' Outlook Tower

The Information Age, 100 years on.



Coming to Terms with our Autonomic Future

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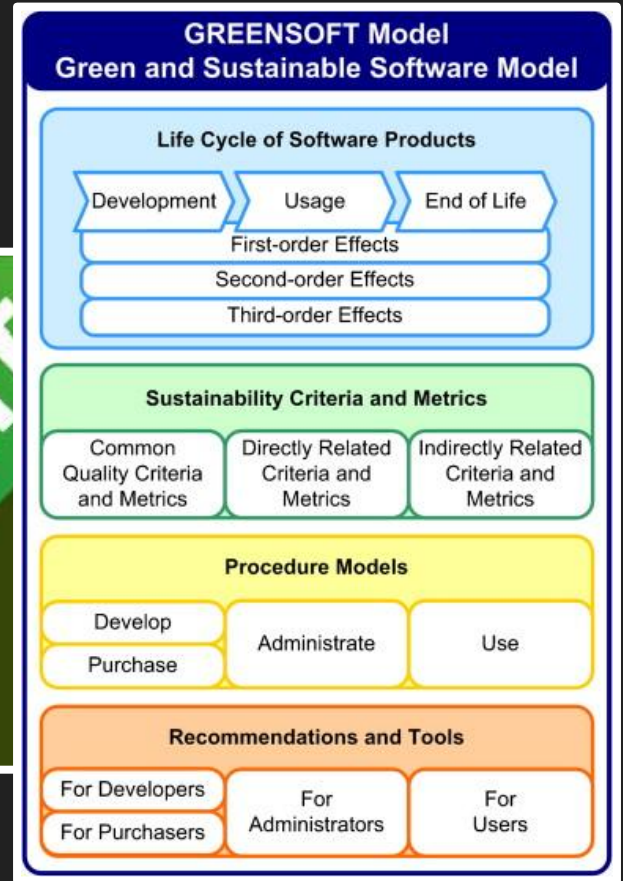
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Sustainable Software





TM





Sustainable Software Development

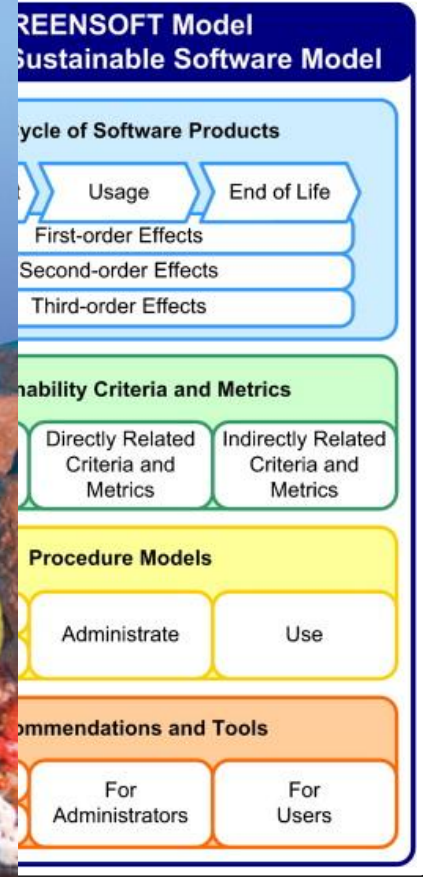
An Agile Perspective

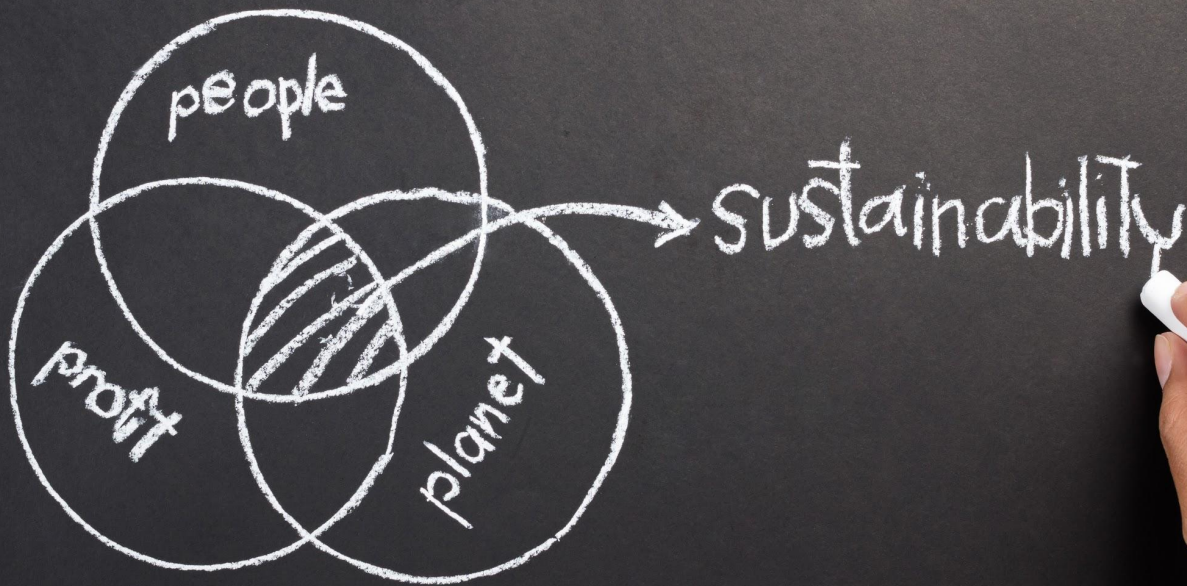
Kevin Tate

Foreword by Jim Highsmith

Agile Software Development Series

Alistair Cockburn and Jim Highsmith,
Series Editors





Alex Rivera

instagram.com/alex.riverah/

etsy.com/shop/AlexRiveraComics

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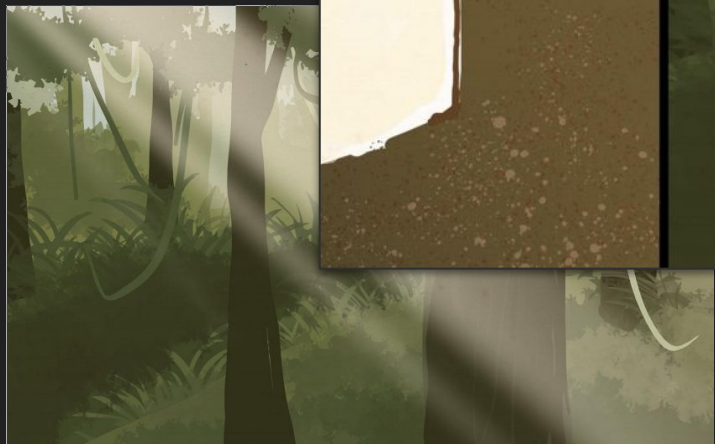
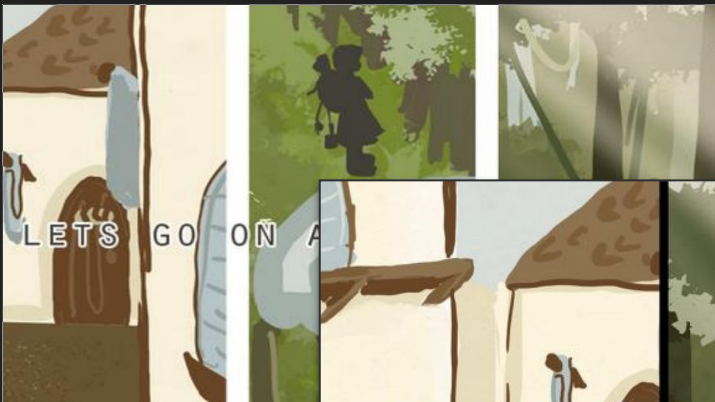


LETS GO ON AN ADVENTURE...



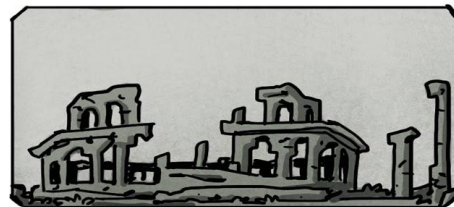
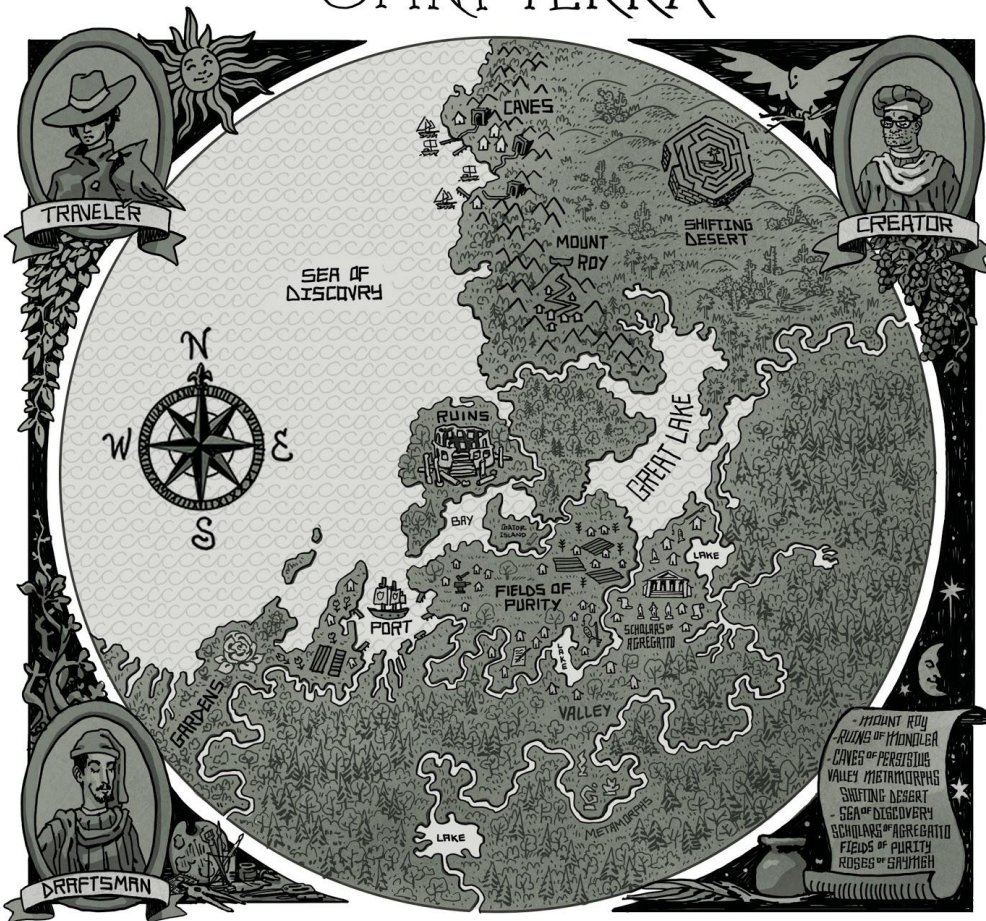




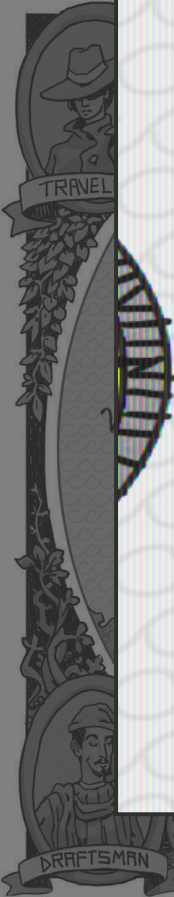




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FIELDS OF PURLIN
RUSSES BY SHUNTEH



Sustainability

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

-- Brundtland Commission, 1987

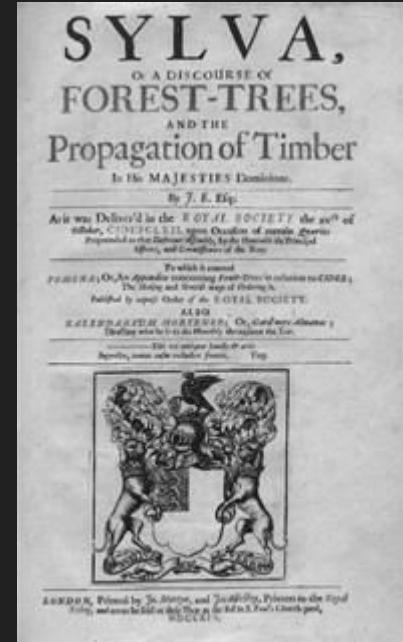
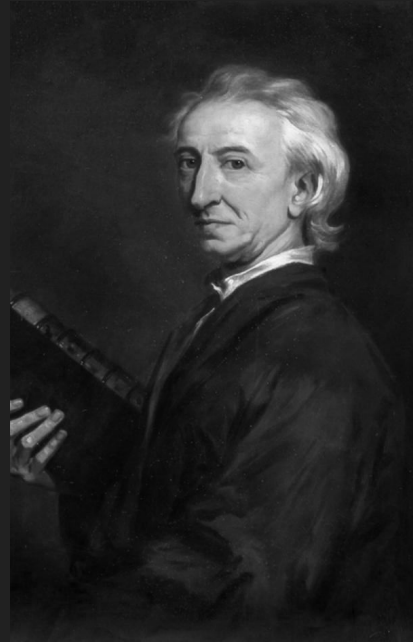


**OUR
COMMON
FUTURE**

THE WORLD COMMISSION
ON ENVIRONMENT
AND DEVELOPMENT

"A gardener's work is never at an end."

-- John Evelyn (1620-1706)



It can be difficult to foresee the challenges of the future ...



**It can be difficult to foresee the
challenges of the future ...**

**How do we plan for the
unknown?**



"Every time a delegation is made and somebody's scope of inquiry is narrowed, the class of design alternatives which can be effectively pursued is also narrowed."

-- Mel Conway, 1968



HOW DO COMMITTEES INVENT?

by MELVIN E. CONWAY

That kind of intellectual activity which creates a useful whole from its constituent parts is called the design of a system. Whether the intellectual activity is the creation of specifications for a major weapon system, the formation of a recommendation to meet a social challenge, or the preparation of a computer, the general activity is thought of as design.

Typically, the objectives of a design organization are the creation and assembly of a document containing a substantial amount of information. We may name this information the design design. It is typically produced by a designer who usually attempts to create and make something useful for a major design organization. A public official may wish to prepare legislation to meet a particular social objective, or he appoints a team to explore the technique. Or a manufacturer seeks a new product and design, or a product planning activity to specify what should be manufactured.

The design organization may or may not be involved in the construction of the system it designs. Frequently, in public affairs, there are persons which disseminate a group's activities for its own communication, science, or private industry, with the system itself as a product.

It is most reasonable to suppose that the knowledge that one will have to create and use the organization or that this task will fall to others, probably others, some design design which the individual designer is also open to make.

Most design activity requires extensive meeting facilities. Many of these facilities may be seen that design activities are not the personal decisions of the designer maker about his own future. As we shall see later, the resources which exist in a conventional management environment can maintain those which support the intent of the designer.

stages of design

The initial stage of a design effort is concerned more with the nature of the design activity than with the system itself. The full design activity cannot proceed until certain preliminary activities are passed. These include:

1. Understanding of the background, both on the design organization and on the design problem, provided by the customer and by the designer's office.
2. Establishment of a preliminary series of the system's organization so that design task groups can be intelligently assigned.

We shall see in detail later that the very act of organization is a complex activity. It is the result of a complex, interdisciplinary organization in fact. It is the result of the design organization's ability to create a useful whole from its constituent parts. It is the result of the design organization's ability to create a useful whole from its constituent parts. It is the result of the design organization's ability to create a useful whole from its constituent parts.

The design organization's ability to create a useful whole from its constituent parts is the result of the design organization's ability to create a useful whole from its constituent parts. It is the result of the design organization's ability to create a useful whole from its constituent parts.

design organization criteria

ing a design team means that certain design designers have been selected from within an organization. There are design team organizations, there is a class of design alternatives which cannot be effectively pursued by such an organization because the necessary communication paths do not exist. Therefore, there is no such thing as a design group which is both organized and self-organizing.

Once the organization of the design team is chosen, it is possible to delegate activities to the members of the organization. Every time a delegation is made, and someone's scope of inquiry is narrowed, the class of design alternatives which can be effectively pursued is also narrowed.

One source of activity are defined a coordination problem is created. Coordination among task groups, although it appears to lower the productivity of the individuals in the small group, provides the only possibility that the separate task groups will be able to coordinate their efforts into a useful system design.

Thus the life cycle of a system design effort proceeds through the following general stages:

1. Drawing of boundaries according to the general design.
2. Choice of a preliminary system overview.
3. Organization of the design activity and delegation of tasks according to that overview.
4. Coordination among delegated tasks.
5. Coordination of subdesigns into a single design.

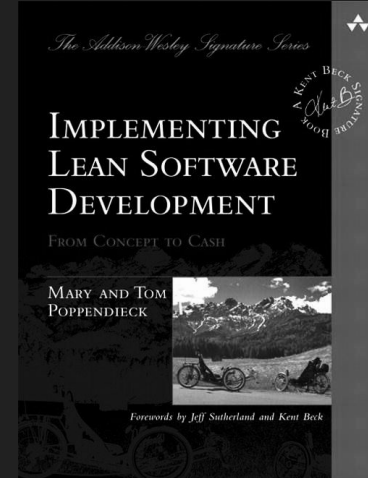
It is possible that a given design activity will not proceed through the life cycle in strictly sequential sequence. The design activity of a new and unusual system, design concept, but such an organization of uncertainty is undertaken and the very act of organization, therefore, a creation is painful and repetitive. Of course, from the



Dr. Conway is manager, personnel services division, at where he is working as research manager of the Systems Research Institute. He has previously been a research associate of the Systems Research Institute. He has an MS in systems from Stanford and a PhD in search from Case.

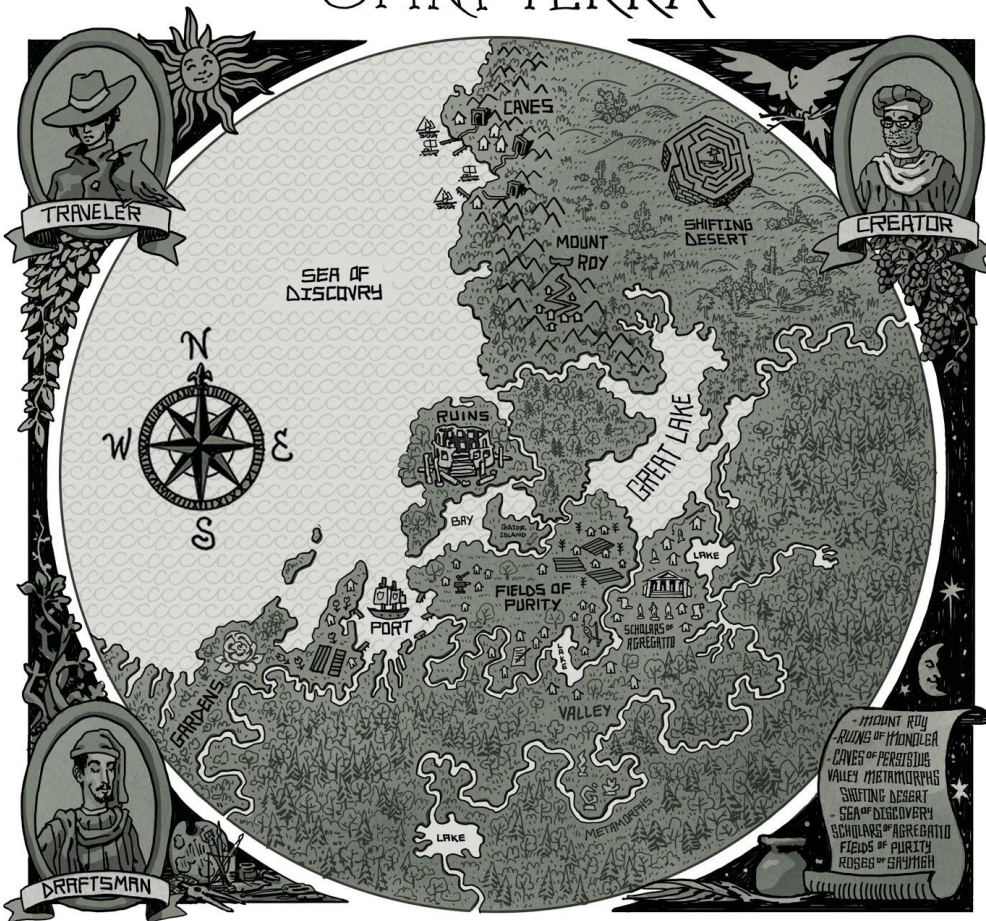
"Delay commitment until the last responsible moment, that is, the moment at which failing to make a decision eliminates an important alternative."

-- Tom and Mary Poppendieck, 2003

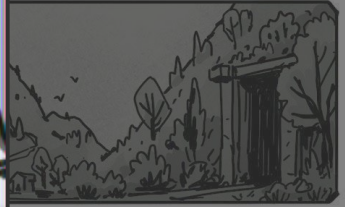




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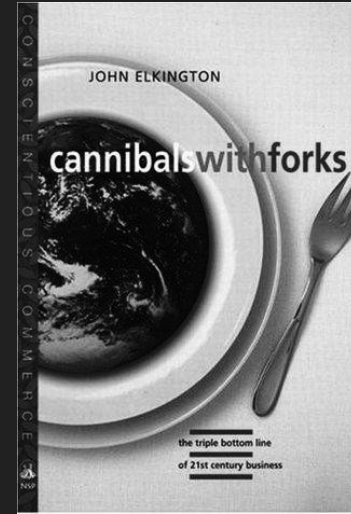
SEA OF DISCOVERY
SCHOLARS OF AGRICULTURE
FIELDS OF PURITY
RUBENS OF SHYMER

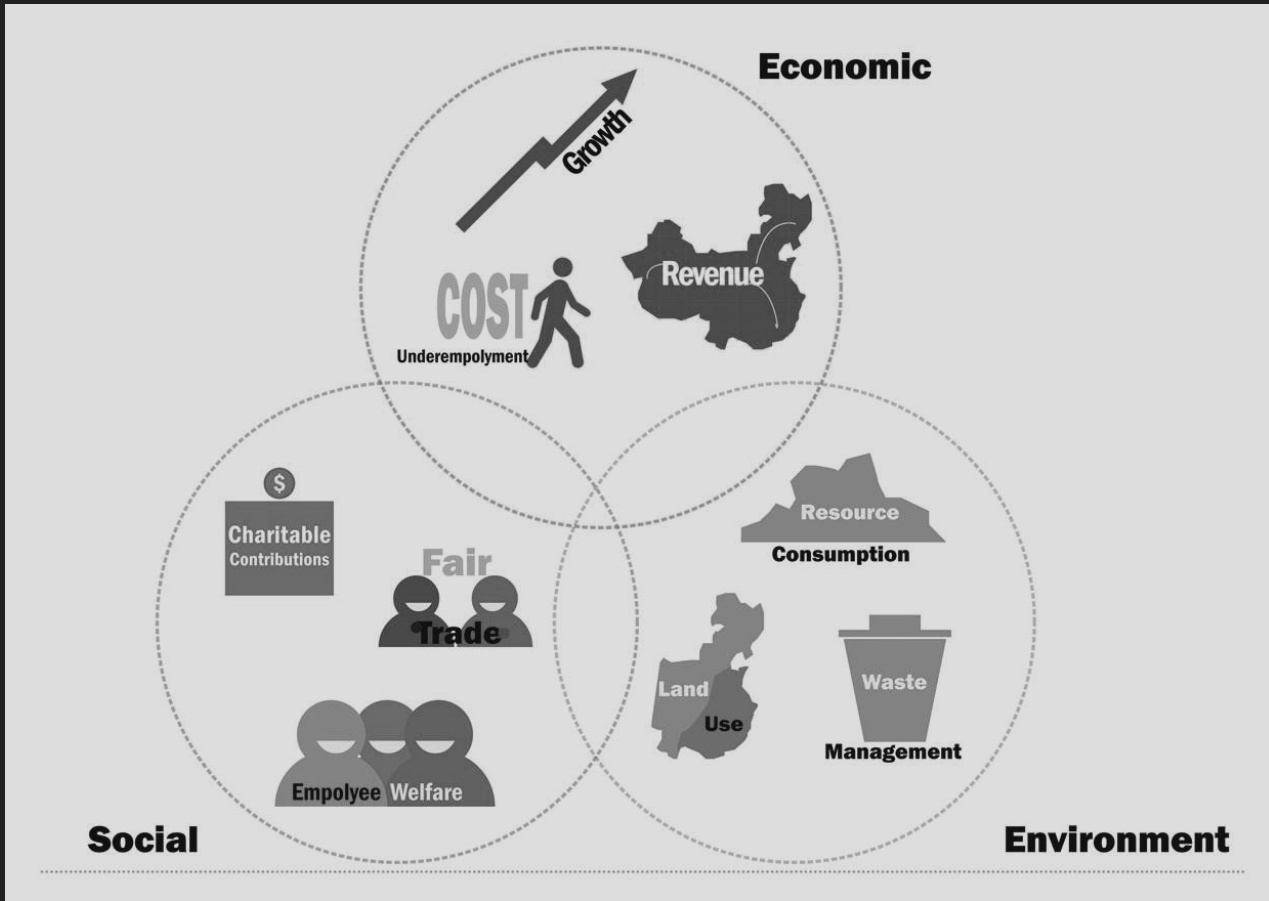


Profit

"The TBL agenda focuses corporations not just on the economic value that they add, but also on the environmental and social value that they add – or destroy."

-- John Elkington, 2004





Effective and efficient are not the same things ...



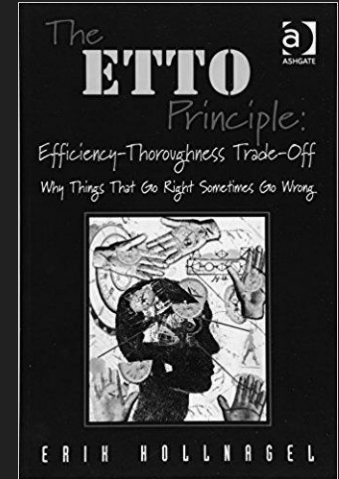
**Effective and efficient are not the
same things ...**

**And sometimes they exist in
conflict with each other.**



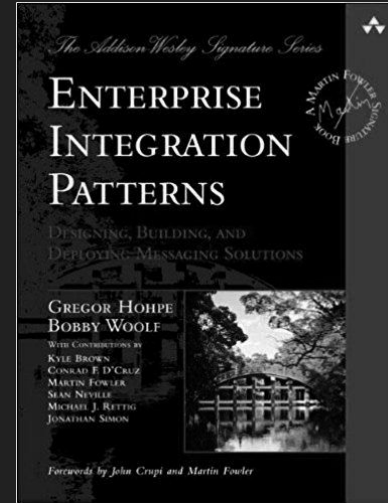
"It follows from the ETTO principle that it is never possible to maximise efficiency and thoroughness at the same time."

-- Eric Hollnagel



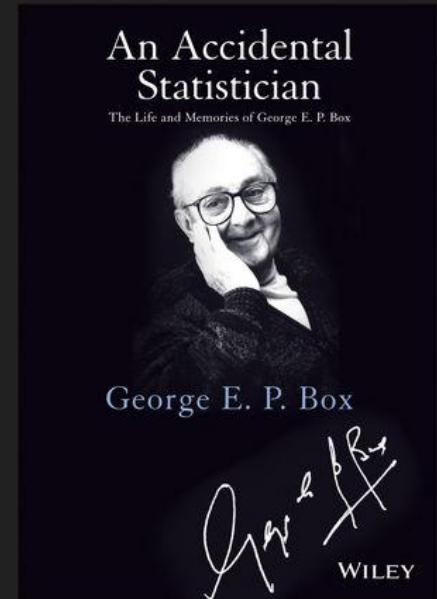
"People at Google don't say 'IT' (information technology) because the business & tech work closely together - IT is an integral part of the business."

-- Gregor Hohpe, 2017



"All models are wrong, but some are useful."

-- George Box (1919 - 2013)

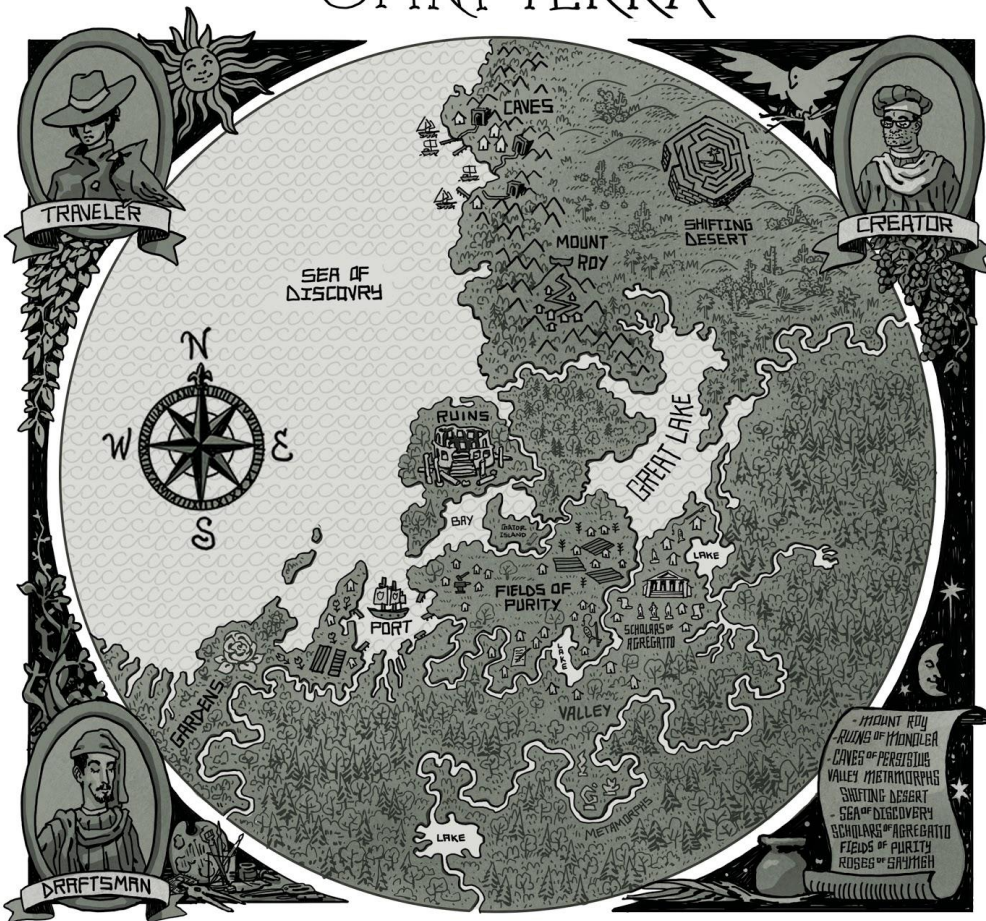


*"Your Data Model is not your Object Model is
not your Resource Model is not your
Message Model."*

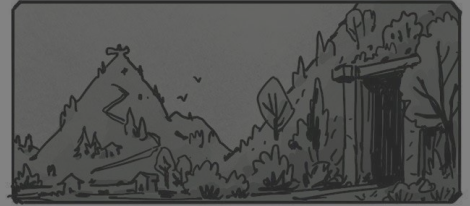
-- Mike Amundsen



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FIELDS OF PURITY
RUSSES OF SHYTHA



People

"Social variables refer to measurements of education, equity and access to social resources, health and well-being, quality of life, and social capital."

Indiana Business Review (2011)



The screenshot shows the header of the Indiana Business Review, featuring the logo 'IBR | INDIANA BUSINESS REVIEW' and the tagline '52 years of economic insights for Indiana'. Below the header, it states 'The IBR is a publication of the Indiana Business Research Center at IU's Kelley School of Business' and includes the IU Psi logo. A dark bar contains a PDF icon and the text 'Get PDF of this article'. The article title is 'The Triple Bottom Line: What Is It and How Does It Work?' by Timothy F. Slaper, Ph.D., and Tanya J. Hall. The authors' titles are 'Director of Economic Analysis, Indiana Business Research Center, Indiana University Kelley School of Business' and 'Economic Research Analyst, Indiana Business Research Center, Indiana University Kelley School of Business' respectively. The main text discusses sustainability as a goal for businesses and governments, and mentions John Elkington's work on the triple bottom line (TBL) framework.

IBR | INDIANA BUSINESS REVIEW
52 years of economic insights for Indiana

The IBR is a publication of the Indiana Business Research Center at IU's Kelley School of Business

Ψ

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The Triple Bottom Line: What Is It and How Does It Work?

TIMOTHY F. SLAPER, PH.D.
Director of Economic Analysis, Indiana Business Research Center, Indiana University Kelley School of Business

TANYA J. HALL
Economic Research Analyst, Indiana Business Research Center, Indiana University Kelley School of Business

Sustainability has been an often mentioned goal of businesses, nonprofits and governments in the past decade, yet measuring the degree to which an organization is being sustainable or pursuing sustainable growth can be difficult.

John Elkington strove to measure sustainability during the mid-1990s by encompassing a new framework to measure performance in corporate America.' This accounting framework, called the triple bottom line (TBL), went beyond the traditional measures of profits, return on investment, and shareholder value to include environmental and social dimensions. By

"Government will never run the way Silicon Valley runs because democracy is messy.

And part of government's job is dealing with problems nobody else wants to deal with."

Barack Obama, 2016



This "Dance of the Knowing" is more than just a celebration...



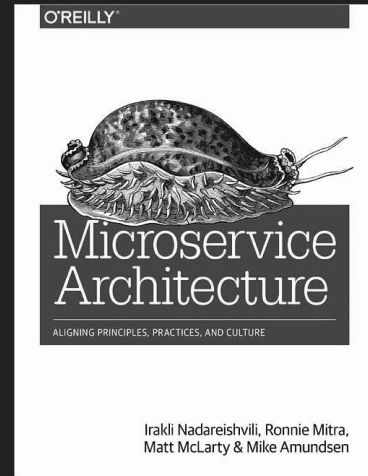
**This "Dance of the Knowing" is
more than just a celebration...**

**It is also a reminder that we are all
connected in fundamental ways.**



*"How we structure our company --
the way we communicate -- has an
impact on the things that we build."*

— Ronnie Mitra



<https://www.youtube.com/watch?v=4nvanSt3bQY>

**The group — as a whole — is
more important than any one
individual...**



The group — as a whole — is more important than any one individual...

And the group gets its characteristics from the individuals that make up that group.



The Theseus Paradox



<https://03varvara.wordpress.com/2010/06/22/konstantinos-volanakis-the-argo-2nd-half-of-the-19th-century/>

Change is inevitable...



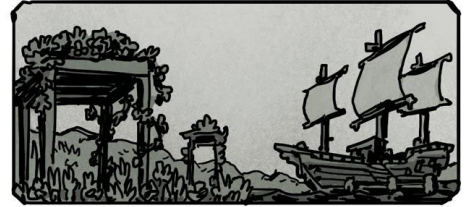
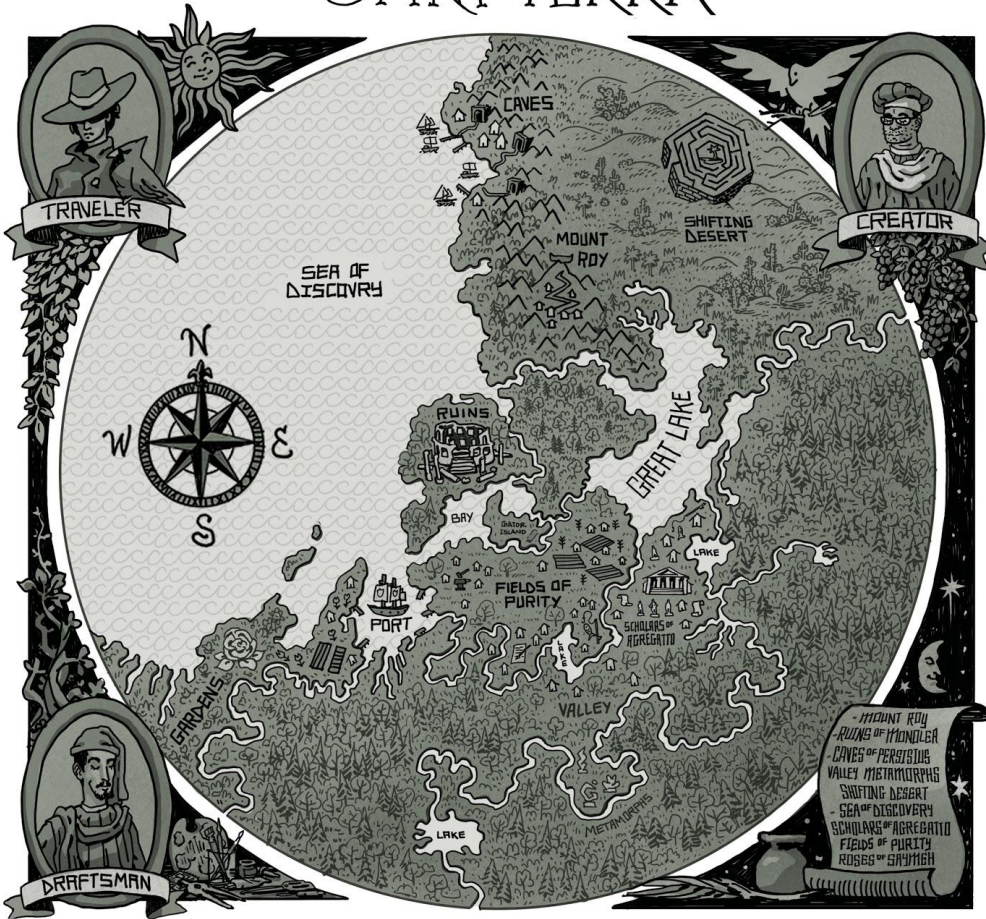
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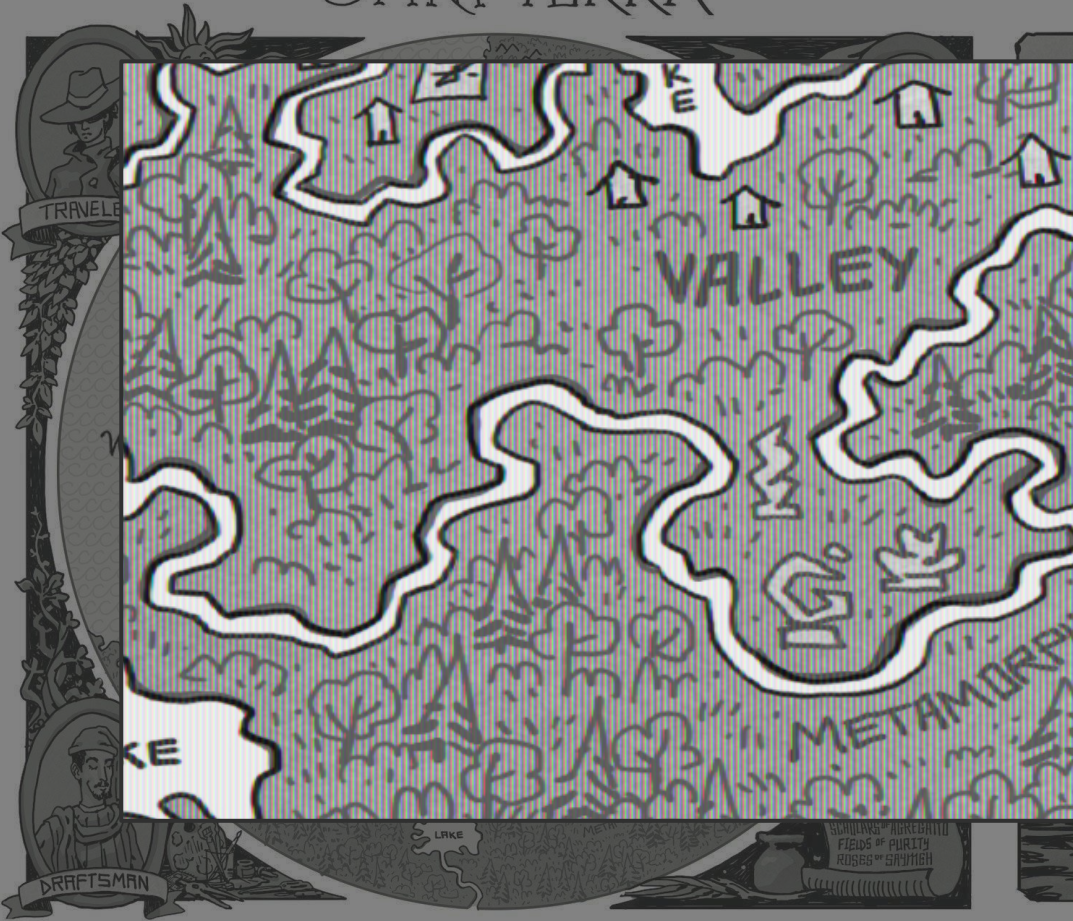
**We don't build static
systems; they're dynamic.**



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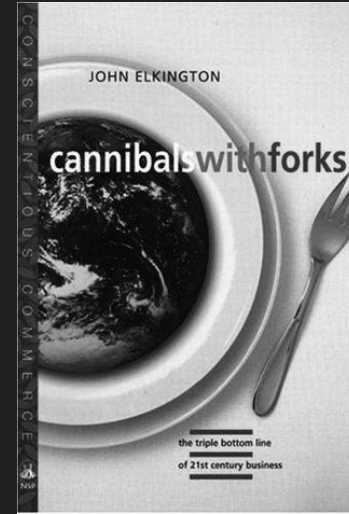
SCALING: ARBITRARY
FIELDS OF PURITY
RUSSES BY SHUMER



Planet

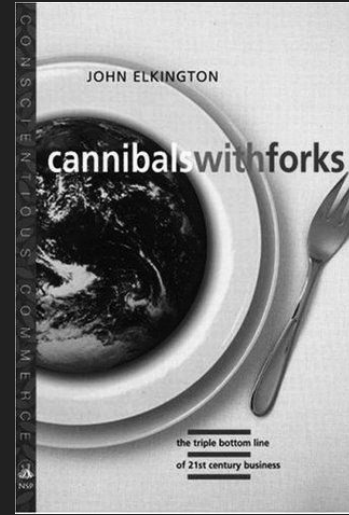
"A TBL company endeavors to benefit the natural order as much as possible or at the least do no harm and minimise environmental impact."

-- John Elkington, 2004



*"A TBL company endeavors to benefit the **natural order** as much as possible or at the least do no harm and minimise environmental impact."*

-- John Elkington, 2004



"The 'environment' is where we live; and 'development' is what we all do in attempting to improve our lot within that abode. The two are inseparable."

-- Brundtland Commission, 1987



OUR COMMON FUTURE

THE WORLD COMMISSION
ON ENVIRONMENT
AND DEVELOPMENT

*"The 'environment' is where we live; and 'development' is what we all do in attempting to improve our lot within that abode. **The two are inseparable.**"*

-- Brundtland Commission, 1987



**OUR
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AND DEVELOPMENT

"Seven generation stewardship is a concept that urges the current generation of humans to live and work for the benefit of the seventh generation into the future."

-- Great Law of the Iroquois



"Seven generation stewardship is a concept that urges the current generation of humans to live and work for the benefit of the seventh generation into the future."

-- Great Law of the Iroquois



**Change is rarely a discrete
jump...**



**Change is rarely a discrete
jump...**

**And how is it that things which
seem solid can change?**



"Microservices encourage architects and developers to develop systems that can be changed faster."

-- Sam Gibson, 2015



"Microservices encourage architects and developers to develop systems that can be changed faster."

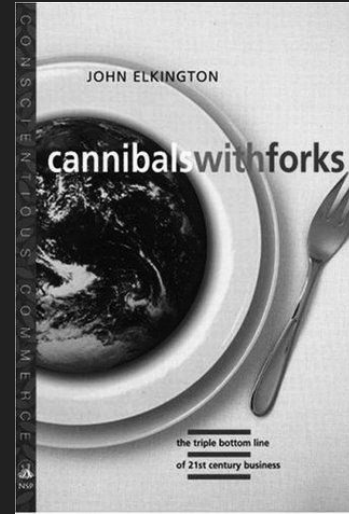
-- Sam Gibson, 2015



<https://www.thoughtworks.com/insights/blog/monoliths-are-bad-design-and-you-know-it>

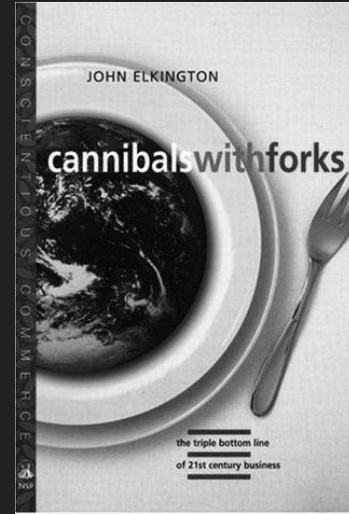
"The challenge will be to work out new ways of cooperating with suppliers, customers, and other stakeholders."

-- John Elkington, 2004

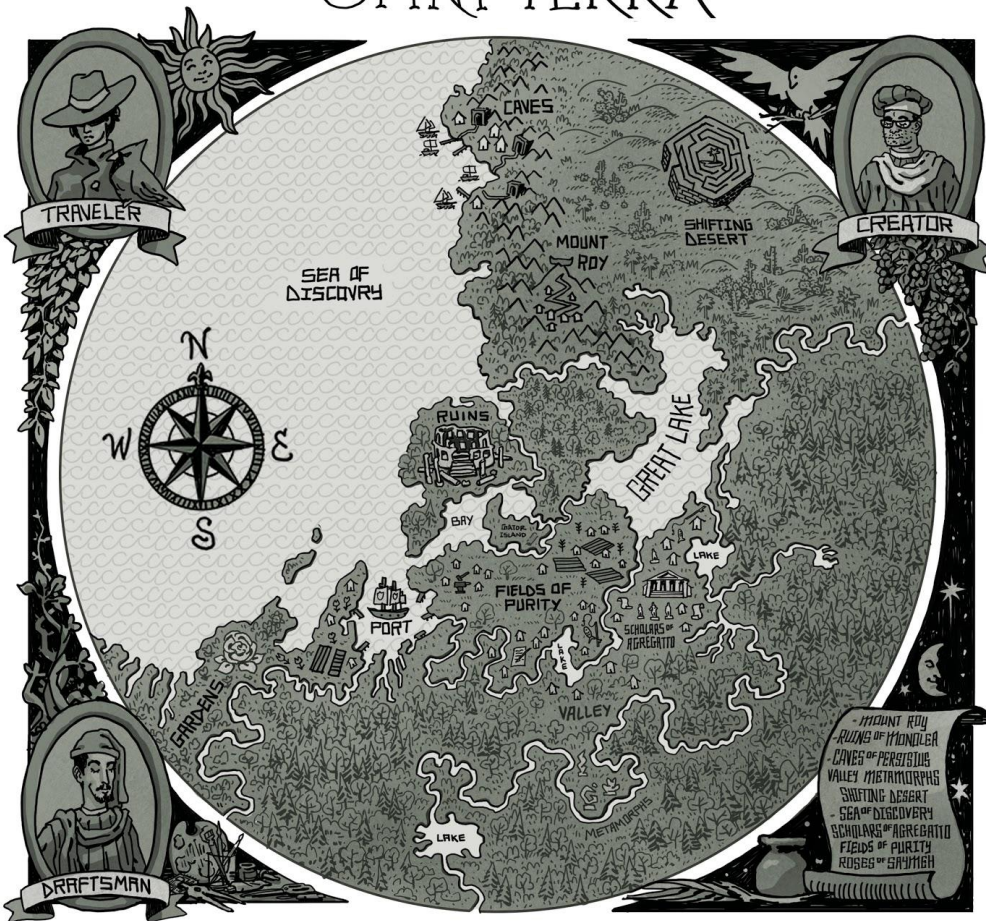


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new ways of cooperating with
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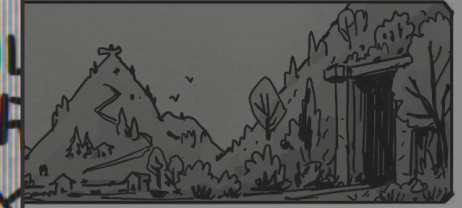
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TRAVELER



DRAFTSMAN



SEA DISCOVERY
SAILING AGRICULTURE
FIELDS OF PURITY
RUSSES OF SHIPMENT





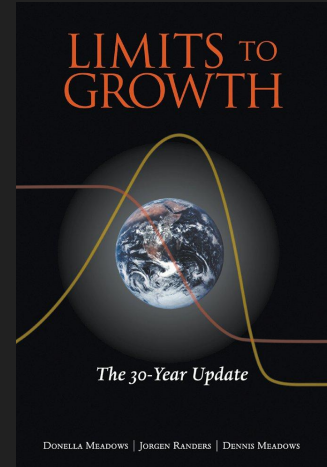
SUSTAINABILITY



SUSTAINABILITY

"Running the same system harder or faster will not change the pattern as long as the structure is not revised."

-- Donella H. Meadows, 1972



Profit

Focus on *value*, not just profit.

Align IT with company values.

Question the value of what you
give away.



People

Empower your people.

Make sure IT serves, not demands.

Be aware of how 'labor saving tech' really works.

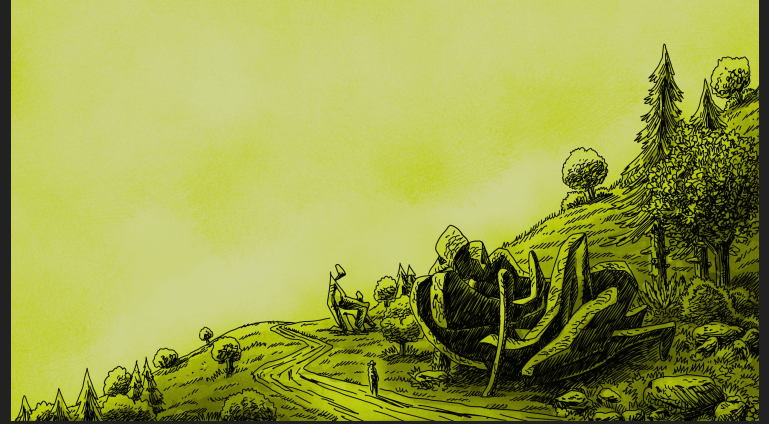


Planet

Leverage change, don't fight it.

Take responsibility for your environment.

Take note of how your tech affects those around you.



Meet the needs of the present...



**OUR
COMMON
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ON ENVIRONMENT
AND DEVELOPMENT

**Meet the needs of the present...
Without compromising the future.**



**OUR
COMMON
FUTURE**

**THE WORLD COMMISSION
ON ENVIRONMENT
AND DEVELOPMENT**

Social media "has eroded the core foundations of how people behave by and between each other."

-- Chamath Palihapitiya, 2017



"Society is demanding that companies, both public and private, serve a social purpose."

-- Larry Fink, 2018



BLACKROCK®



HALTE À L'OBSOLESCENCE
PROGRAMMÉE

HÖP

HALTE À L'OBSOLESCENCE
PROGRAMMÉE



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PROGRAMMÉE



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CONNECT



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ZEROWASTE
FRANCE



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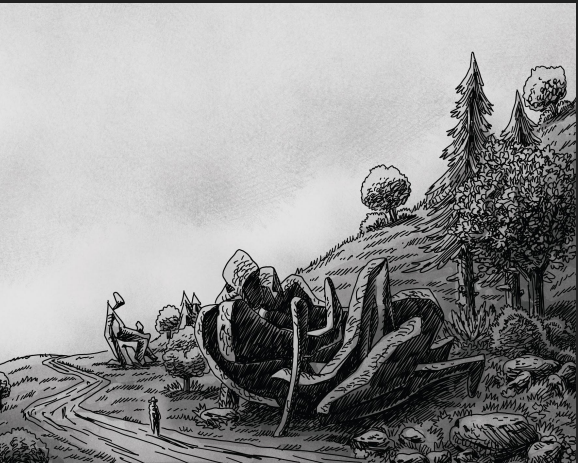
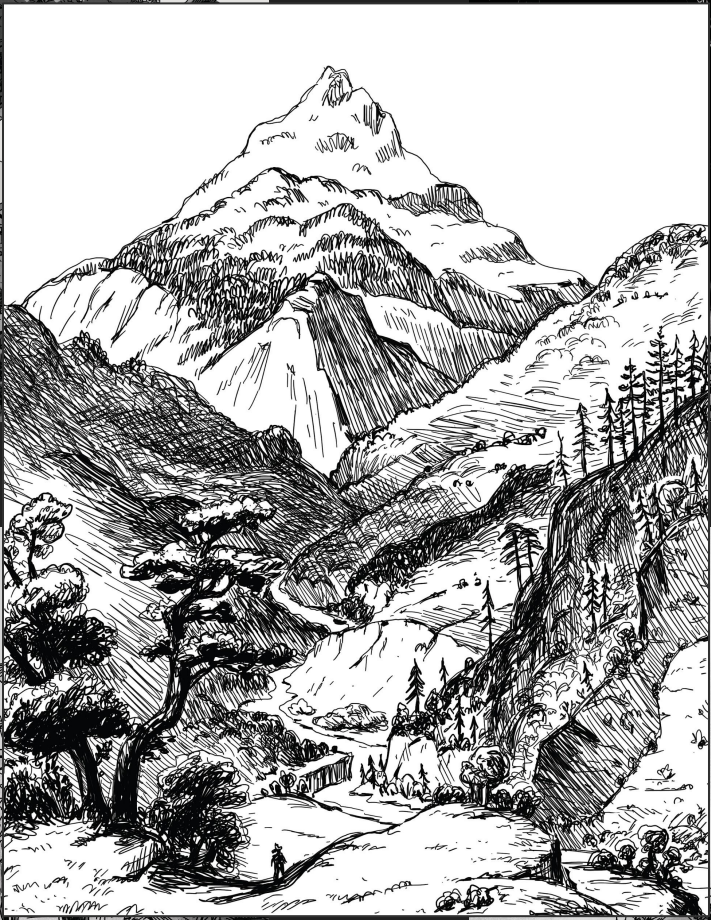
OUI SHARE



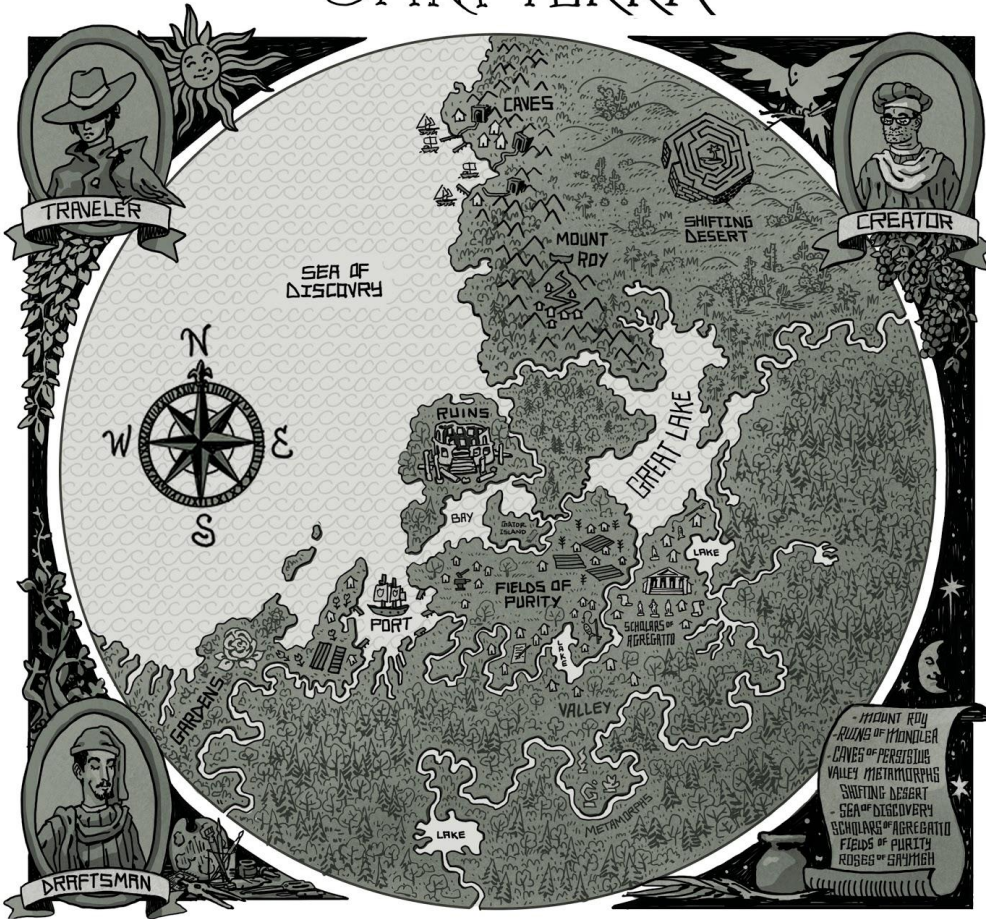
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Sustainable Software Systems

Meeting the Challenge of the Future

Mike Amundsen

API Academy at CA

@mamund

