

Rhwydwaith Dyfodolion Cymru
Wales Futures Network



ARSYLLFA ARLOESDD
OBSERVATORY OF INNOVATION



Making Futures Matter Rhoi Dyfodolion ar Waith





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Towards a Learning Intensive Society: The Role of Futures Literacy
Tuag at Gymdeithas Ddysg Ddwys: Rôl Llythrennedd Dyfodolion

XperidoX: Futures Consulting



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**Wales Futures Network
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Motivating questions

How can we:

- **reconcile greater freedom with collective choices?**
- **embrace greater diversity without inviting fragmentation & chaos?**
- **foster greater creativity without increasing burn-out & stress?**
- **inspire responsibility?**
- **motivate change without resorting to fear?**
- **manage risk without hierarchy?**
- **combine respect for complexity while still gaining depth of understanding?**

The End of Certainty

Mankind is at a turning point, the beginning of a new rationality in which science is no longer identified with certitude and probability with ignorance. ... science is no longer limited to idealized and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of nature.

Ilya Prigogine, The End of Certainty: Time, Chaos and the New Laws of Nature

... we are now able to include probabilities in the formulation of the basic laws of physics. Once this is done, Newtonian determinism fails; the future is no longer determined by the present....

Why does the future matter?

Two basic reasons:

- **Because we want to make the right (ethical, profitable, safe, etc.) decision now**
- **Because anticipation, in its various conscious, unconscious, action and non-action inducing attributes, changes the present**

CITY OF THE FUTURE

What will the city of tomorrow be like? Here is the giant plastic, metal, and unbreakable glass city of the 21st century. A city of science, of atomic power, of space travel, and of high culture. See page 240 for complete story.



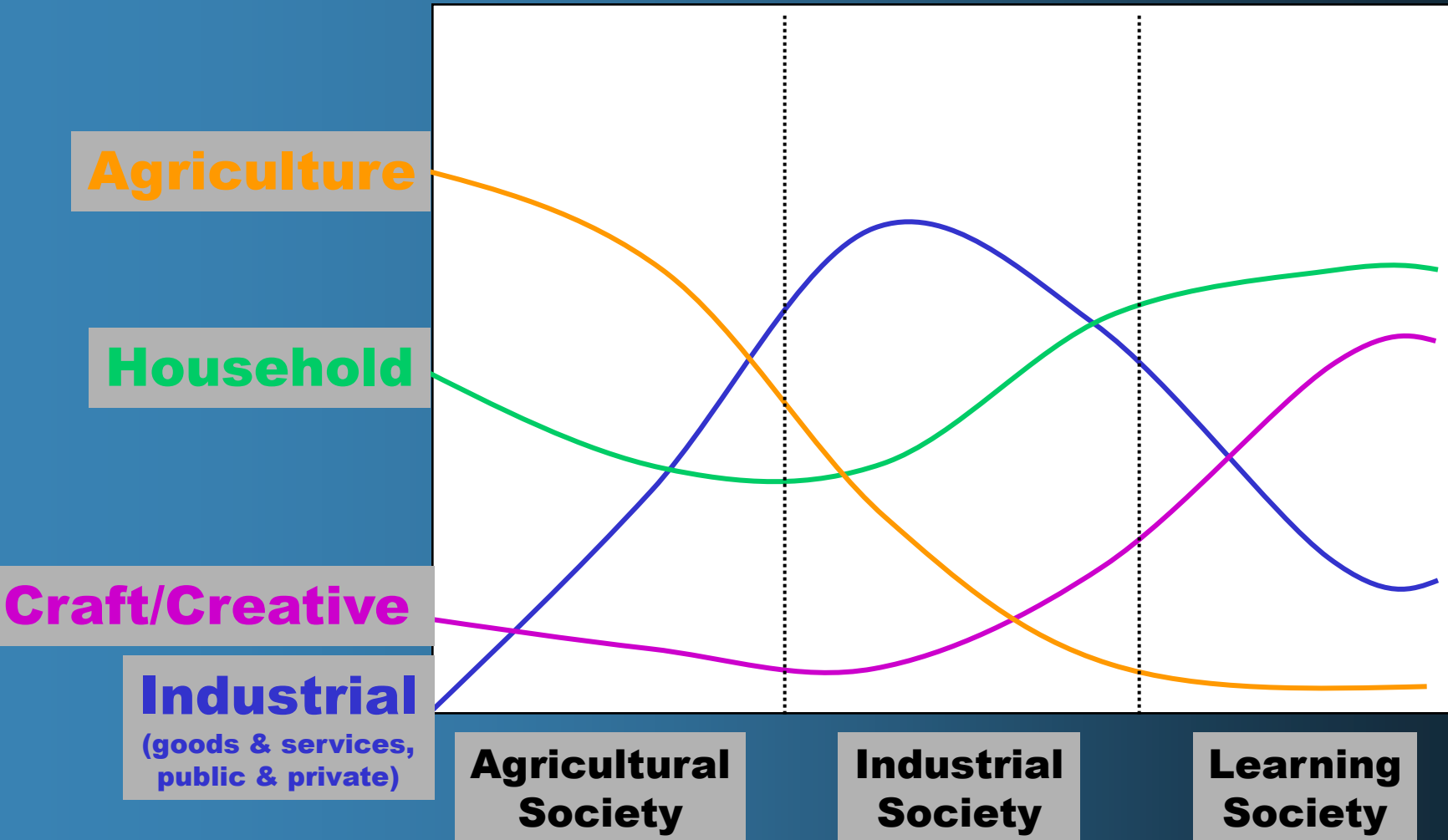
**Images of
the future
matter:
imagining a
learning
intensive
society.**

In the eighty years or so after 1780 the population of Britain nearly tripled, ... the average income of the population more than doubled, the share of farming fell from just under half to just under one-fifth of the nations output, and the making of textiles and iron moved into steam-driven factories. **So strange were these events that before they happened they were not anticipated, and while they were happening they were not comprehended.**

D. N. McCloskey, "The Industrial Revolution in Britain 1780-1860"

A – Industry is no longer primary source of value added. Compositional Transformation

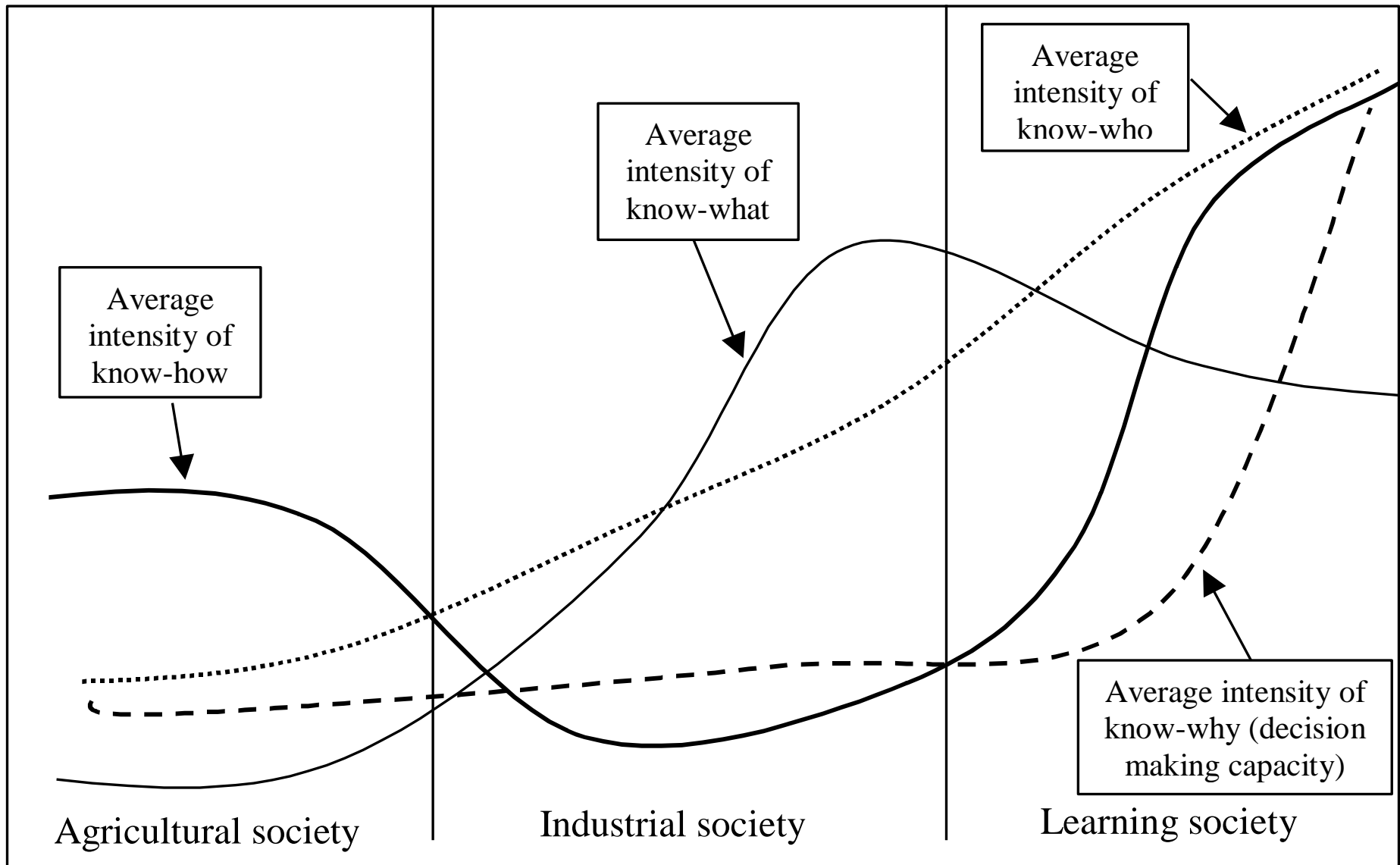
Share of total wealth creation by source



Defining a more “learning intensive society”

- Learning in every day life:
 - Acquisition and use of **know-how**
 - Acquisition and use of **know-who**
 - Acquisition and use of **know-what**
 - Acquisition and use of **know-why**
- Cumulative over an entire population and over an entire lifetime

Average Learning Intensity of Daily Life



Scale of the transition: towards a learning intensive society

- **Wealth, rules, governance, values**
 - **Physical/financial vs human capital**
 - **Simple vs complex property rights**
 - **Ex-ante vs real-time allocation of power**
 - **Shared values as basis for transaction trust (Universal Declaration of Human Rights)**
- **Quality of life**
 - **Mass production vs production for self/community**
 - **Life organized for work vs work organized for life**
 - **Hierarchy vs autonomy**
 - **Imposed identity vs self-generated identity**
 - **Sen's definition of "freedom"**

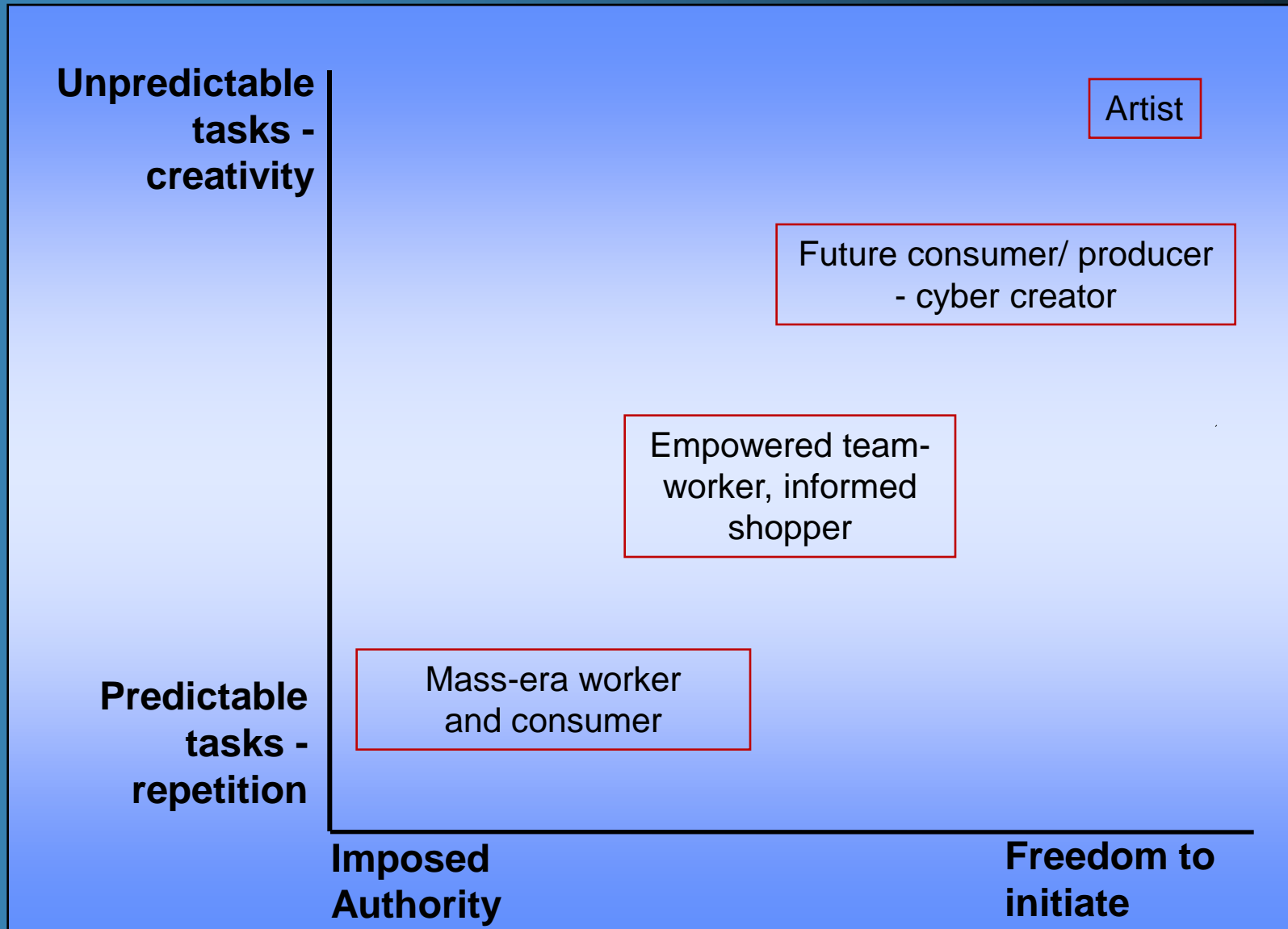
1 – More university graduates does not increase wealth nor lead to “greater competitive” advantage

Why? Three changes:

- A. The preponderant source of wealth is no longer industrial (tangible or intangible).**
- B. The primary source of productivity increases is learning by doing, i.e. experience that allows for refinement of taste (self-knowledge)**
- C. Unique creation is local, ideas are global and tangibles are cheap**

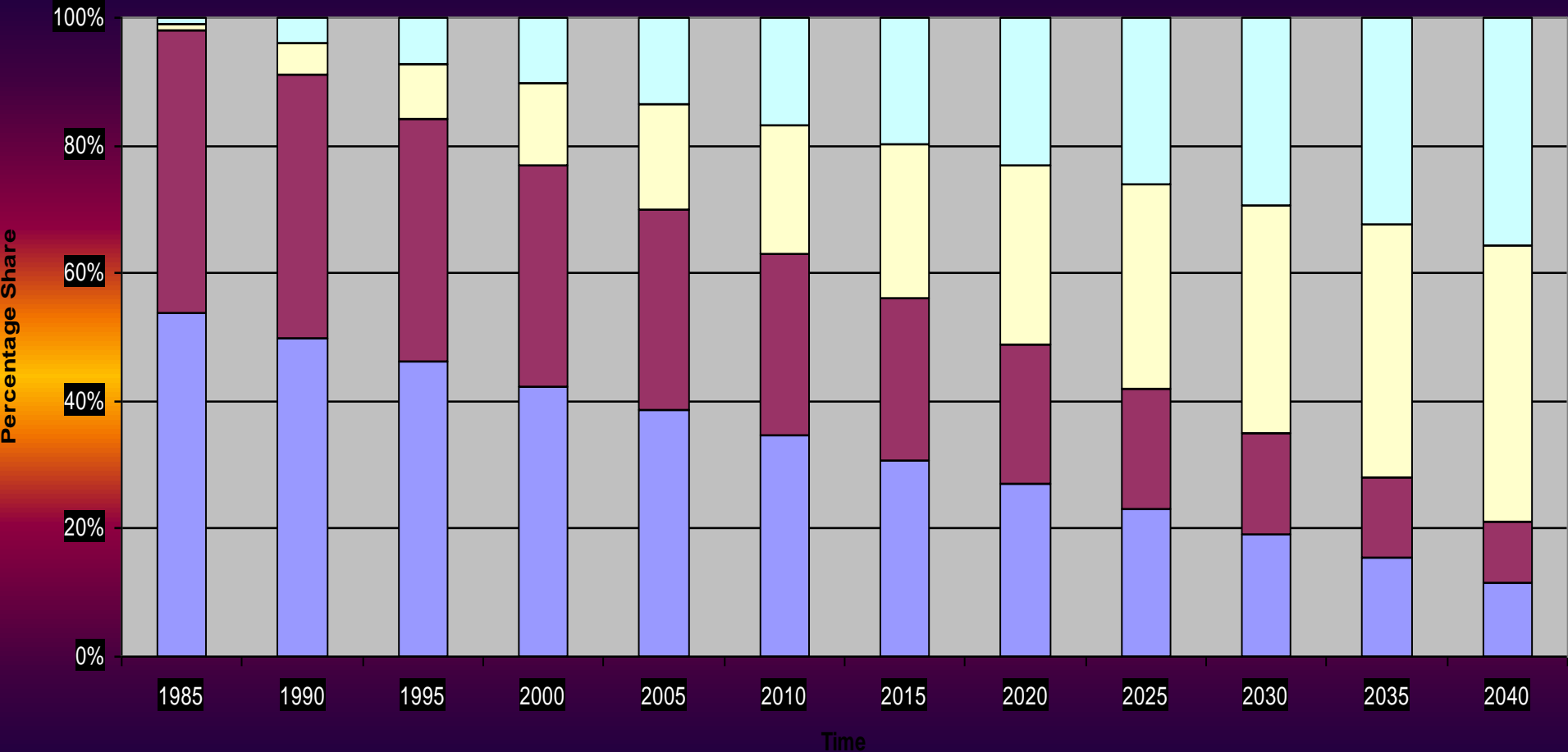
If the world continues to be successful in being more innovative and more productive in how and what we produce. And if the supply side constraints – oil, fish, fertile parts of the earth, water – drive new efficiencies and diversification (mobility of resources and jobs). And quality of life concerns inspire changes in lifestyle. Then it means less of our income and time will be spent on acquiring the basics as well as the luxuries of life. But where will our wealth come from if not from industrial productivity?

Unique creation as source of value added



Fusing of supply & demand

Changing Composition of Output



Industrial products

Innovation (S&T/R&D)

Personal products

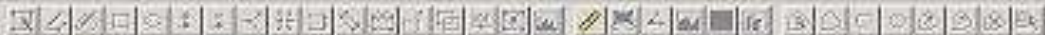
Creativity (Refinement of taste)

The cornerstone of the Physiocratic doctrine was François Quesnay's (1759, 1766) axiom that only agriculture yielded a surplus -- what he called a *produit net* (net product). Manufacturing, the Physiocrats argued, took up as much value as inputs into production as it created in output, and consequently created no net product.

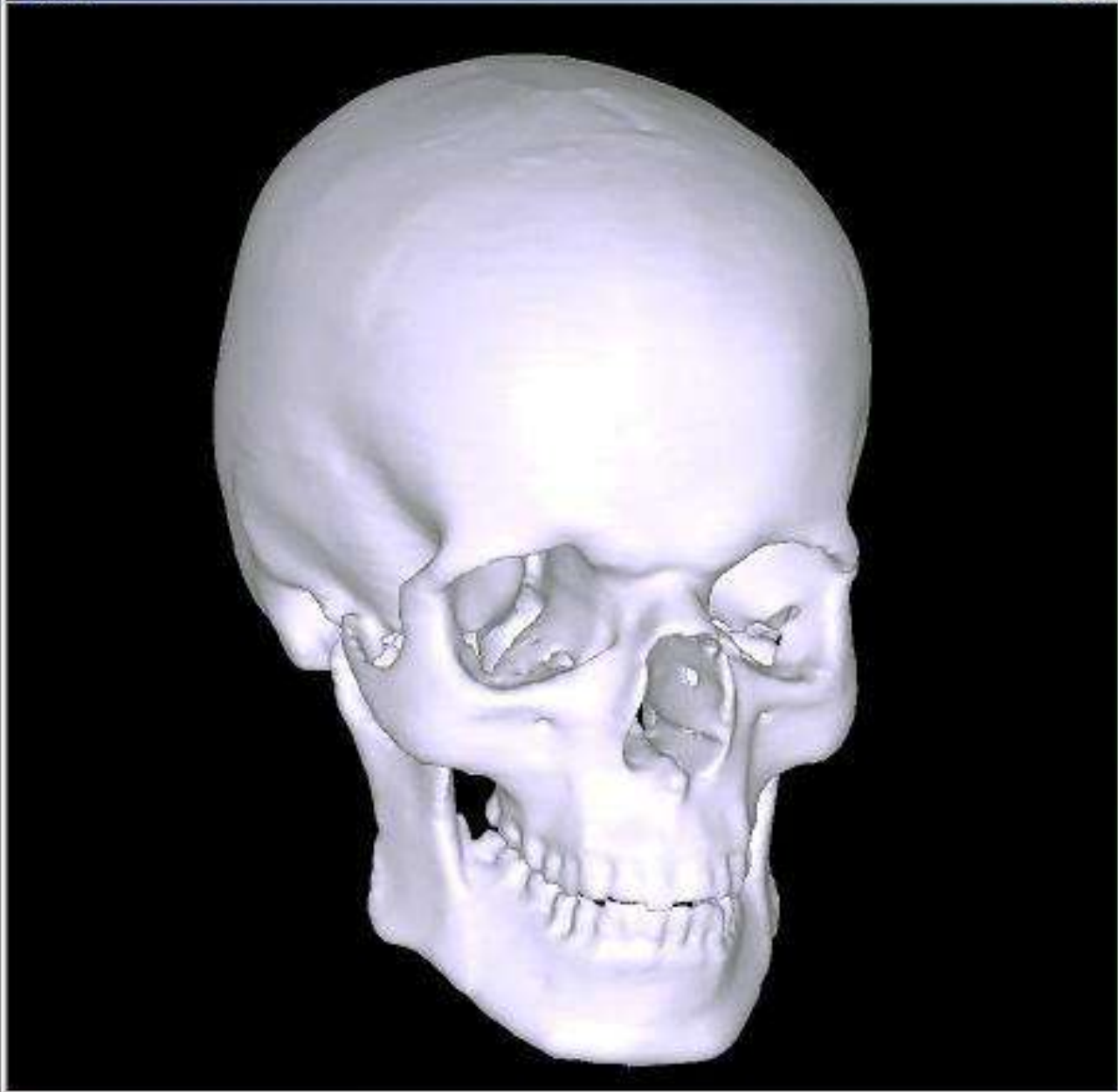
<http://cepa.newschool.edu/het/schools/physioc.htm>

2 – Product market competition is minimal - most products are unique

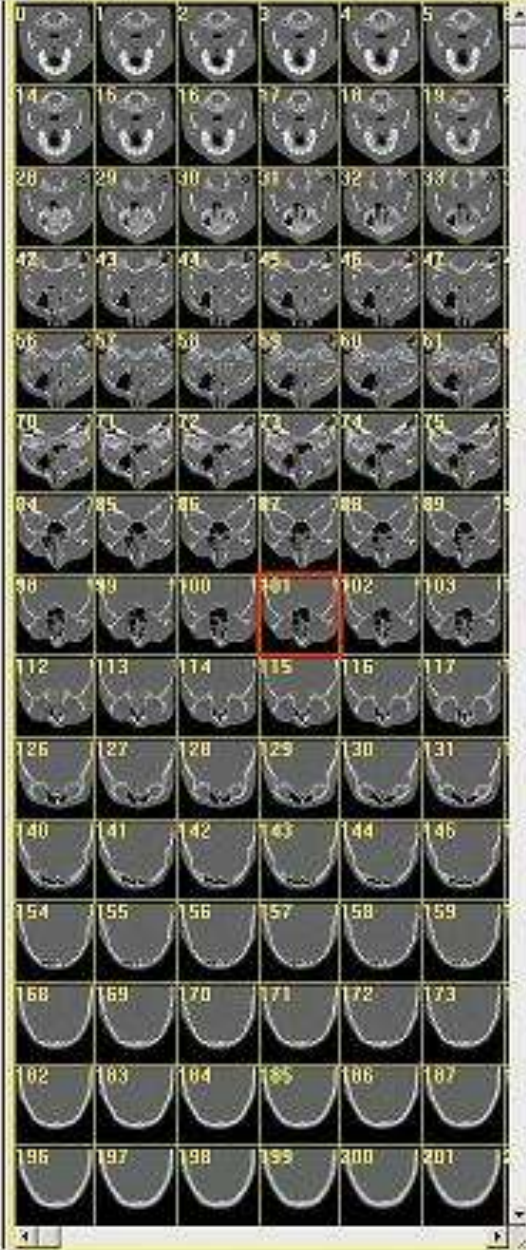


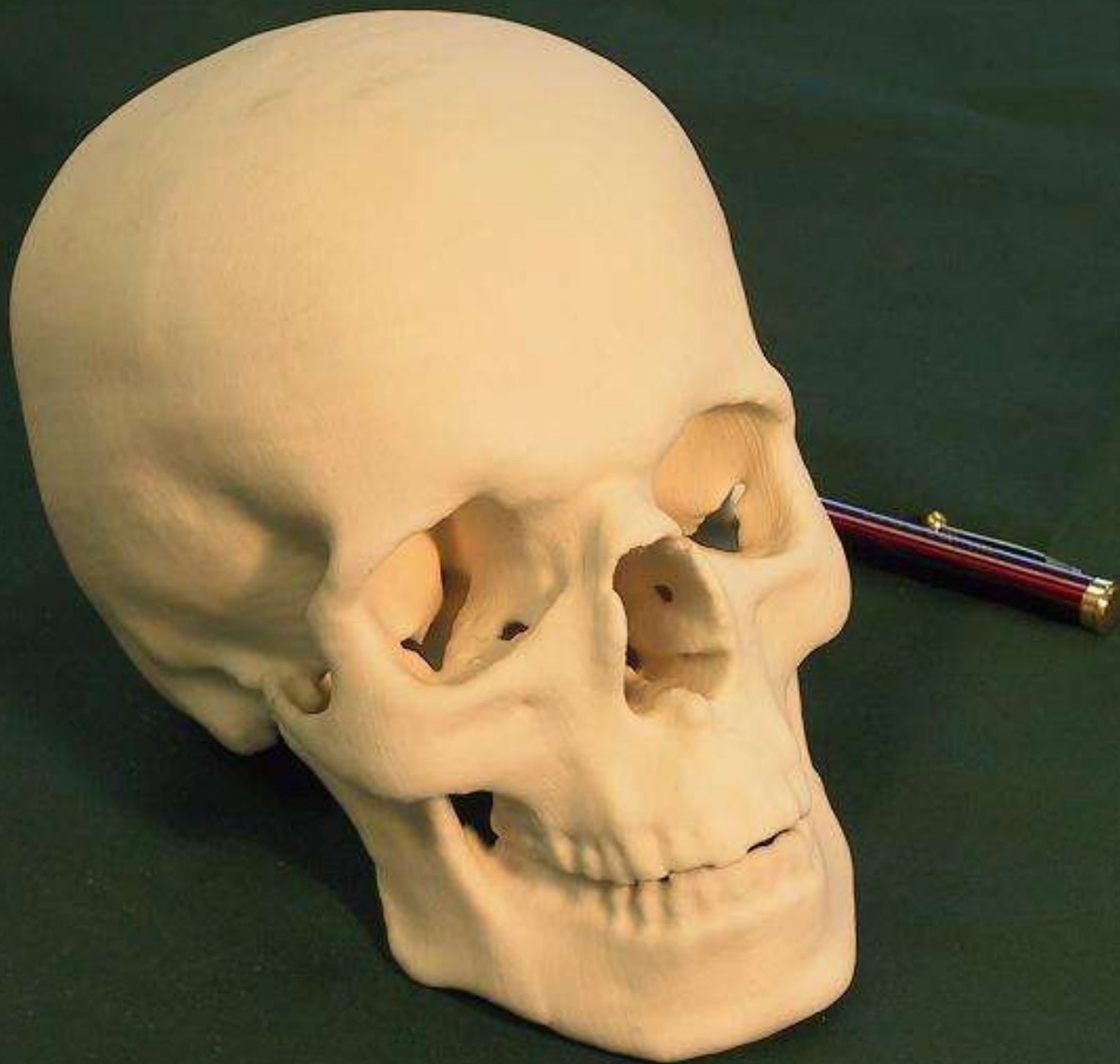


Skull.SUF



Skull.SUF







US Army mobile rapid parts replacement pilot project



3 – Nations are not firms and do not “compete” but reallocate to increase wealth (learning)

The end of propinquity

...users are capable of developing complex products in a coordinated way without geographic proximity. ... only in the case of physical products where the interaction between the product and production methods are not clear will geography continue to matter deeply in the age of the internet.

Eric von Hippel, Democratizing Innovation, MIT 2005

4 – The corporate form of organization is marginal

Why organise into production units?

Theory of the firm: Lower costs than constantly negotiating the transaction.

Practice: ownership of capital and division of labour.

Why firms are unnecessary in an economy dominated by networked unique creation: transaction costs are low, capital is your capacity to create (i.e. what you have learned), and the division of labour is intricate and spontaneous.

5 – Reducing classroom schooling helps to avoid fundamentalism

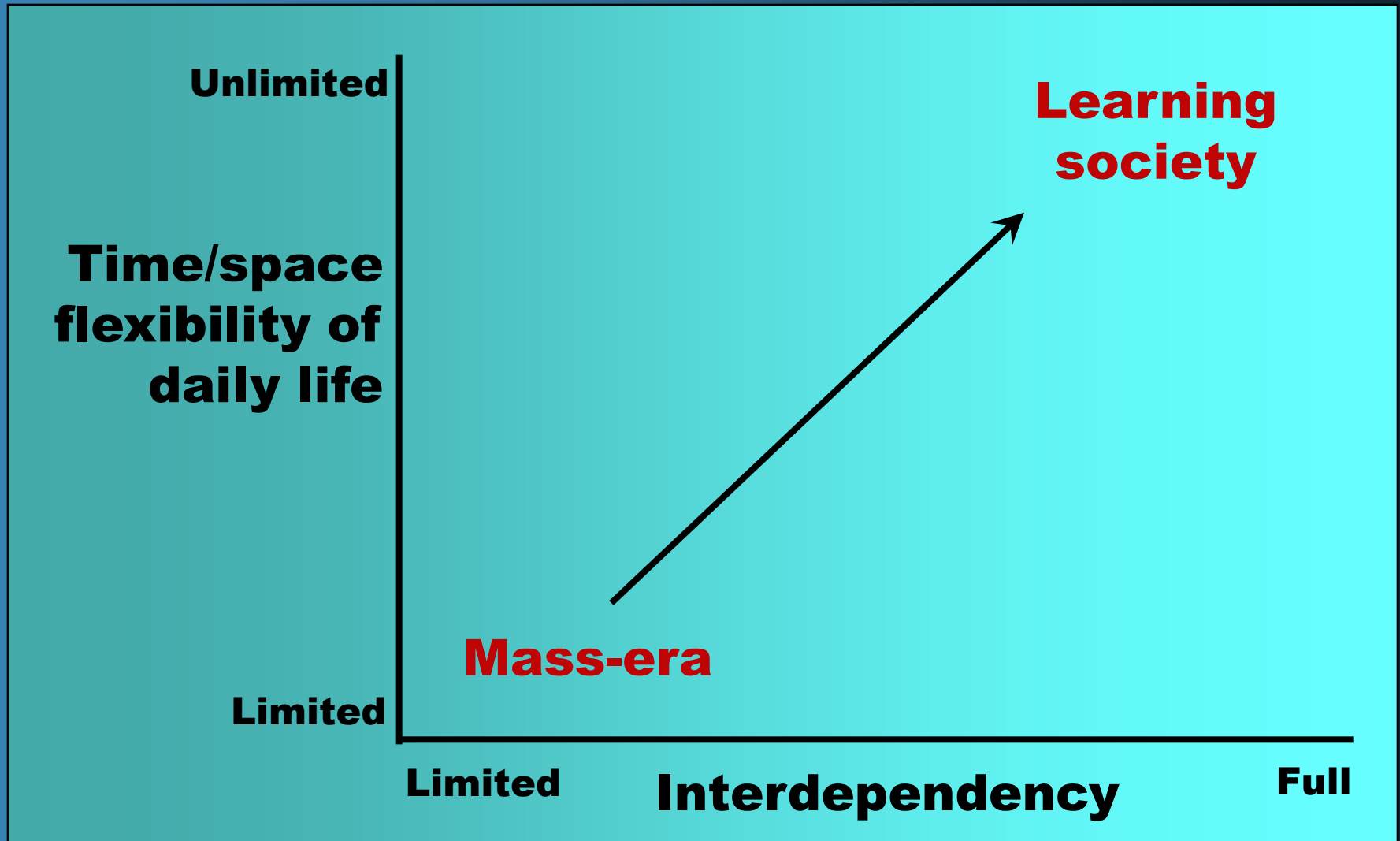
Functions of Industrial School

- **Custody:**
keeping pupils safe and secure (99%)
- **Behavioural rules:**
instilling punctuality, obedience, respect for hierarchy (95%)
- **Cognitive development:**
literacy, numeracy, test scores (?)
- **Socialisation:**
internalisation of specific values towards civic life (?)
- **Screening and sorting:**
reproduces (legitimately) socio-economic differences (95%)

6 – Adherence to basic common values becomes more stringent

The diversity, density and fluidity (birth, death, entry, exit) of networks depends on common languages – strict codes (TCP/IP), trust and transparency – hence key shared values become even more central

Community networks & network communities

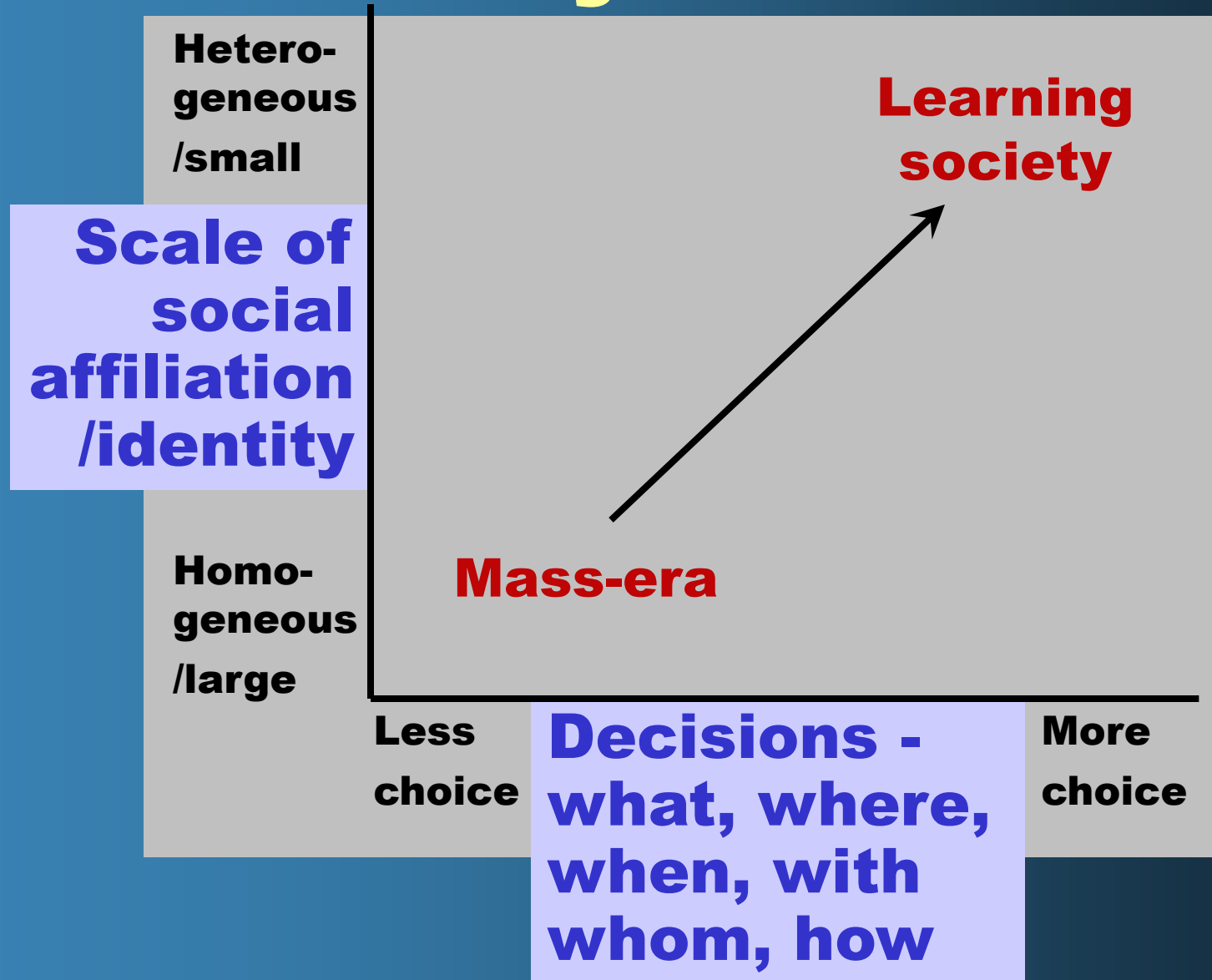


Building transparency & trust

7 – Internalization not socialization

- In hierarchical society identity is defined by the “other” – individual versus the collective**
- In heterarchical society identity is immediately social – it is the subjective in context**
- Confronted by the inadequacy of old identity formation do we have the capacities needed to invent the multiplicity of new stories?**

Identity & choice



Beyond the dualism of individual vs collective

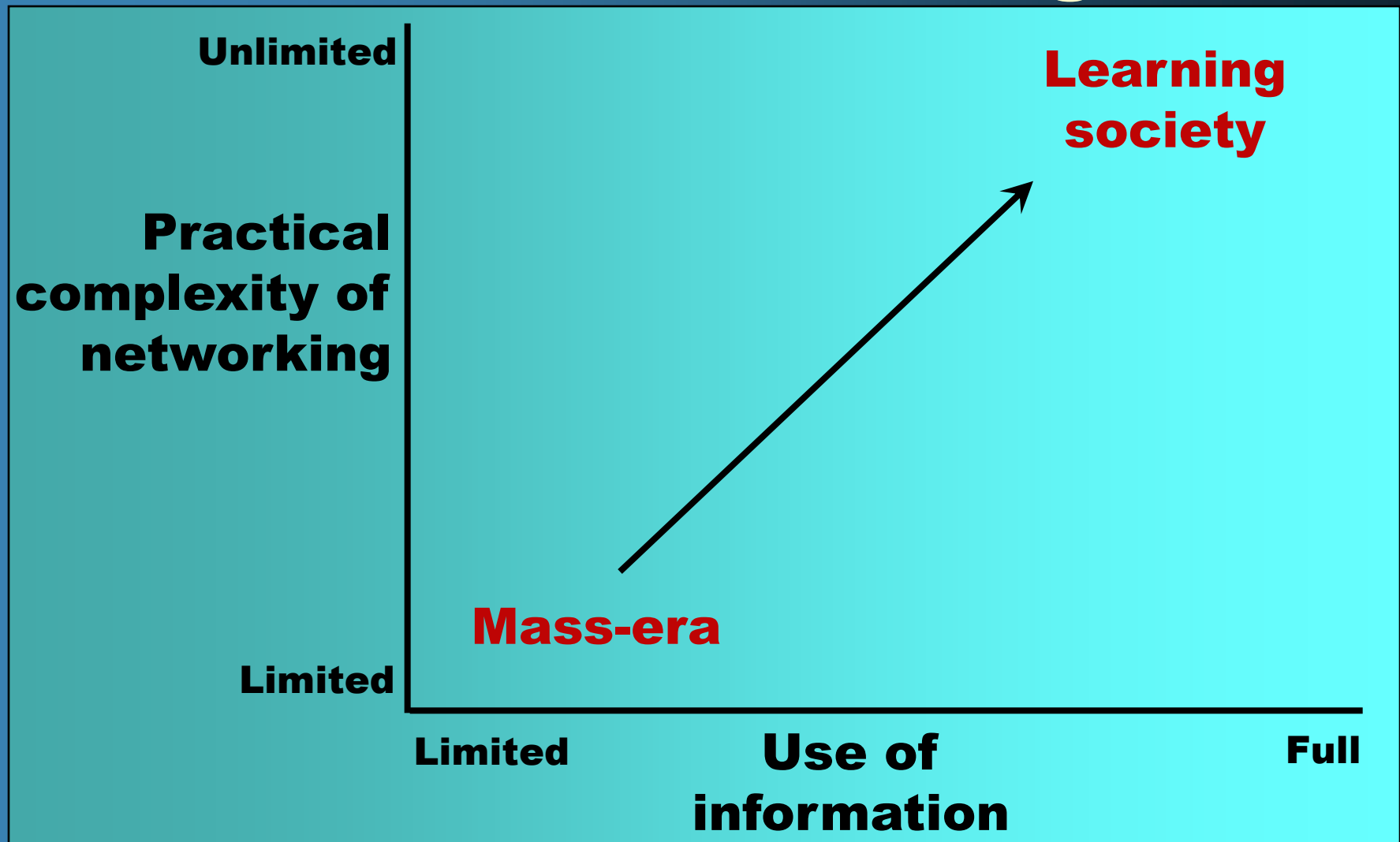
8 – Planning causes failure & fails to reduce risk

- Decisions made at the last possible moment will always have more information available than decisions made earlier than necessary**
- Planning can, and often does, reduce the capacity to imagine options outside the planning parameters**
- The premise of planning is to reduce rather than use complexity**
- Diversification is central to risk reduction, the simplification required for planning often reduces diversification**
- Heterogeneity depends on experimentation and learning depends on experimentation – hence failure is necessary – planning opposes failure**

9 – Experimentalism not administration

Decision making in the face of complexity, learning by doing, self-organising systems, evolutionary emergence are all processes that entail “error”, administration in both public and private sectors punishes error

Towards spontaneous & fluid networking

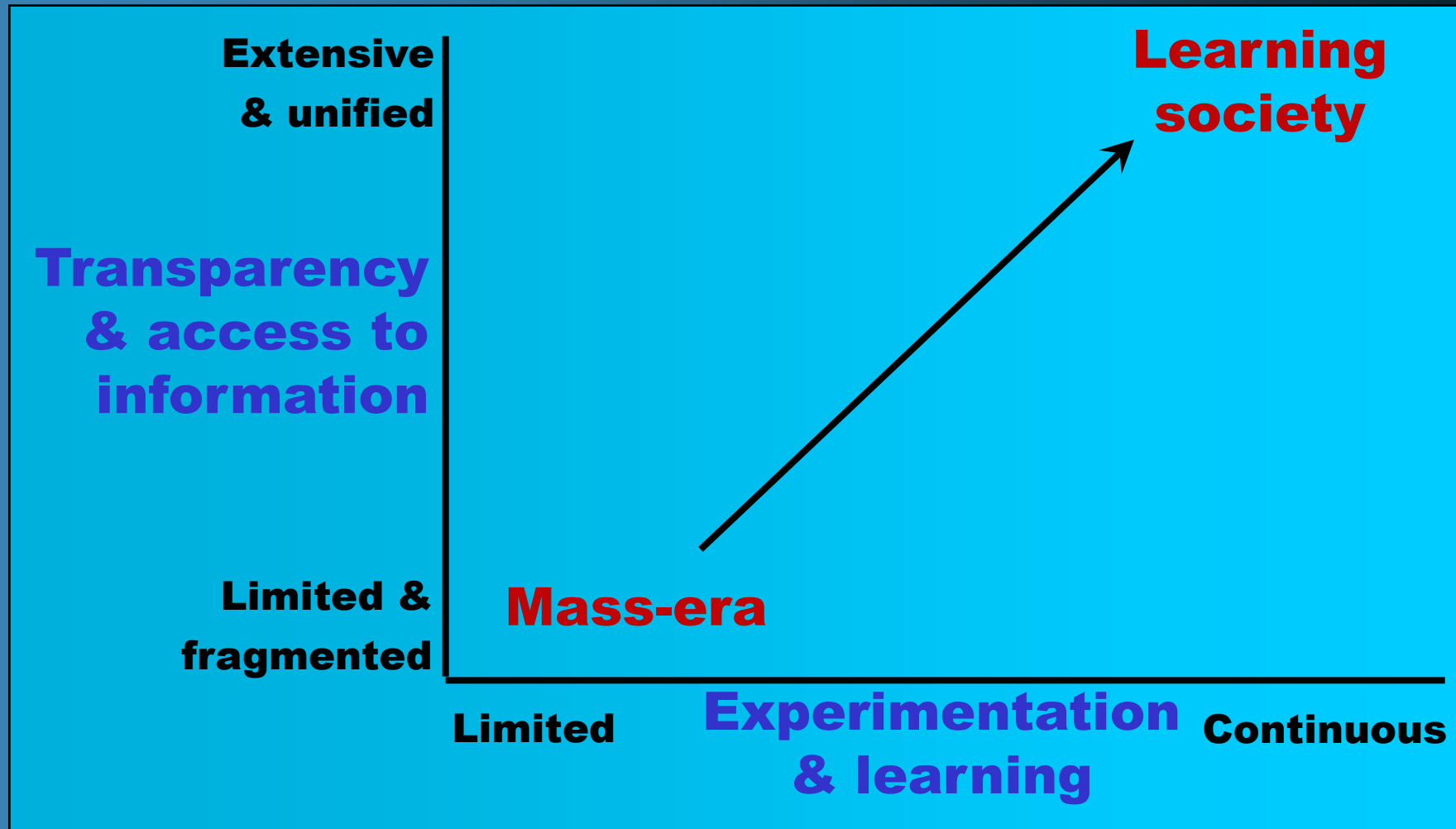


Collective choices to lay the foundations to use diversity & density

10 – The wealthiest societies have the highest average age

The productivity of unique creation and the quality of decision making capacity both increase, all other things being equal, with experience and better information

Capacity to make & implement decisions



Futures literacy matters



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A Perilous Transition?



Certainly, if we do it this way
Changing societal capacity – developing
futures literacy

Thinking about the future?

Distinguish three types of future:

- **Contingency – catastrophe, wildcard, win the lottery, simple systems**
 - Response: simulation and practice, learning by doing, early warning, transparency
- **Optimisation – chess, simple systems**
 - Response: Better calculation, clarity and familiarity of rules
- **Exploitation – open ended, “hyper complex”**
 - Response: ??

A large billboard with the text "ILLITERATE? WRITE FOR FREE HELP" is the central focus. Below the billboard, a man in a blue shirt is standing with his back to the camera, looking towards the billboard. The background shows a parking lot with several cars and a building. The overall scene is outdoors during the day.

ILLITERATE?

WRITE FOR FREE HELP

What is futures literacy?

www.StrategicConsulting.com

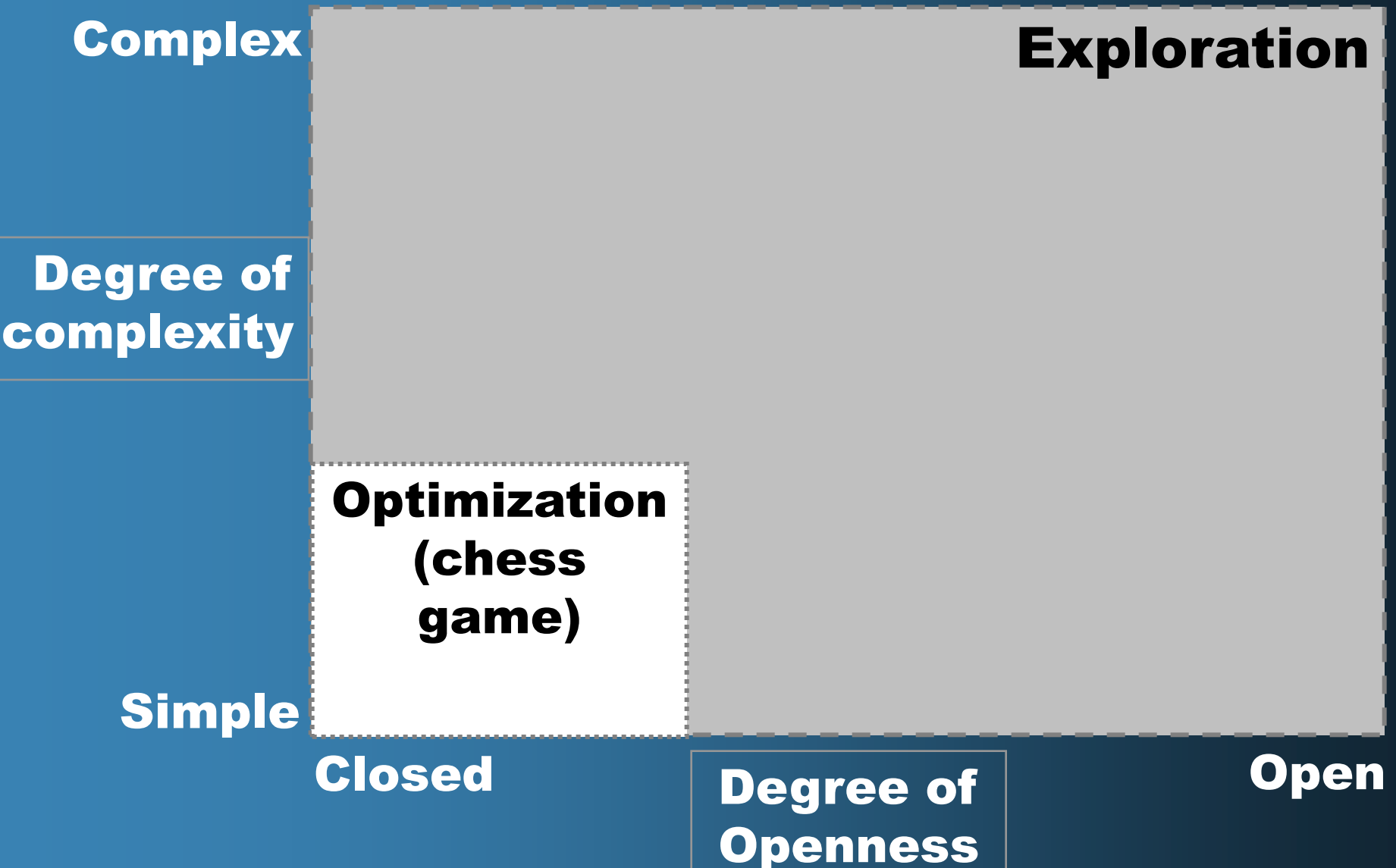
What is “futures literacy”?

- **Futures literacy is the capacity to question the assumptions used to make decisions today.**
- **FL is a “rigorous imagining” technique.**
- **FL is about inventing and telling new stories about what is possible now.**
- **FL is about discovering the potential of the present.**

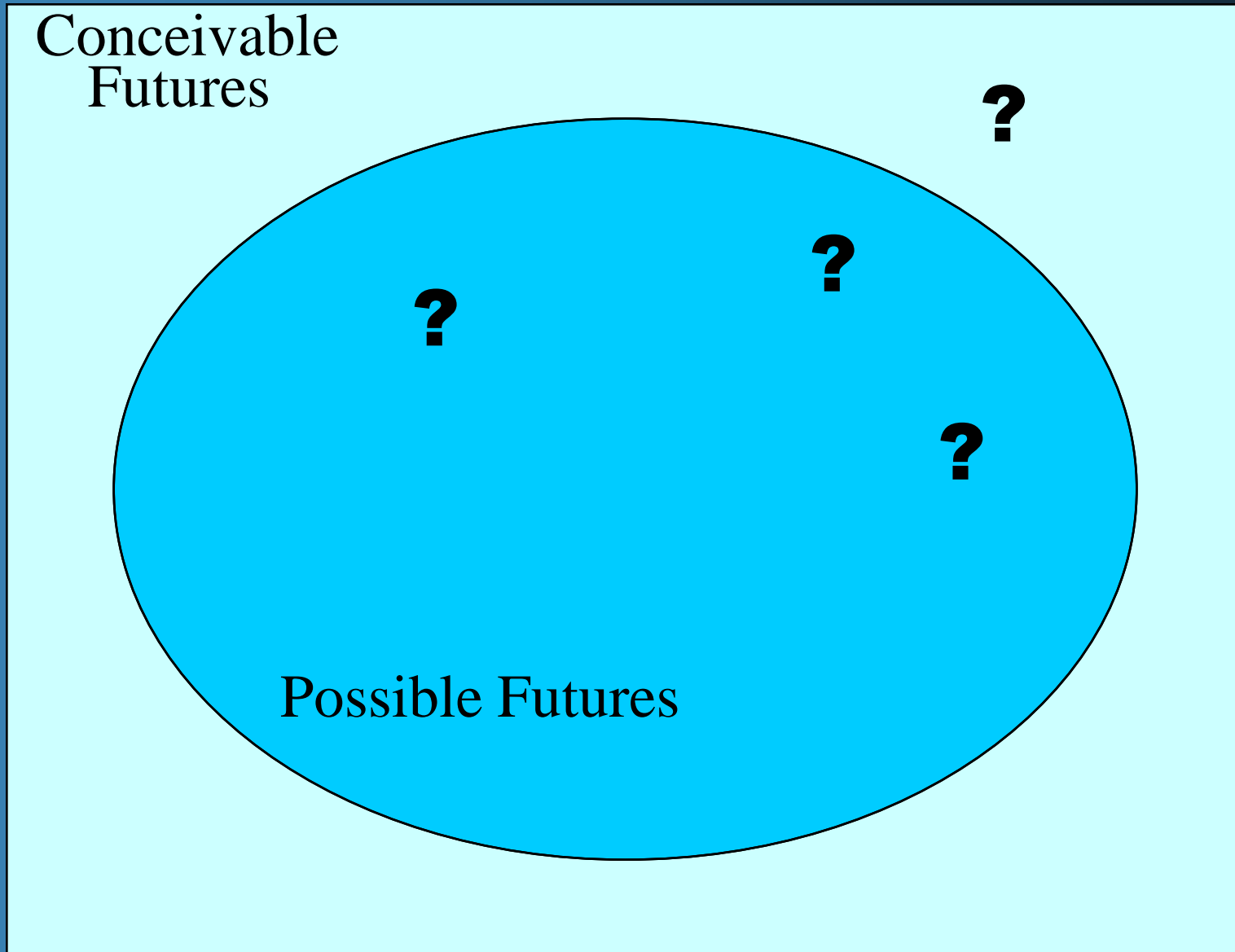
Futures Literacy

- **Level 1 futures literacy**
 - **Temporal awareness, values, expectations**
- **Level 2 futures literacy**
 - **Rigorous imagining**
- **Level 3 futures literacy**
 - **Strategic scenarios**

Future Contexts: From Simple and Closed to Complex and Open



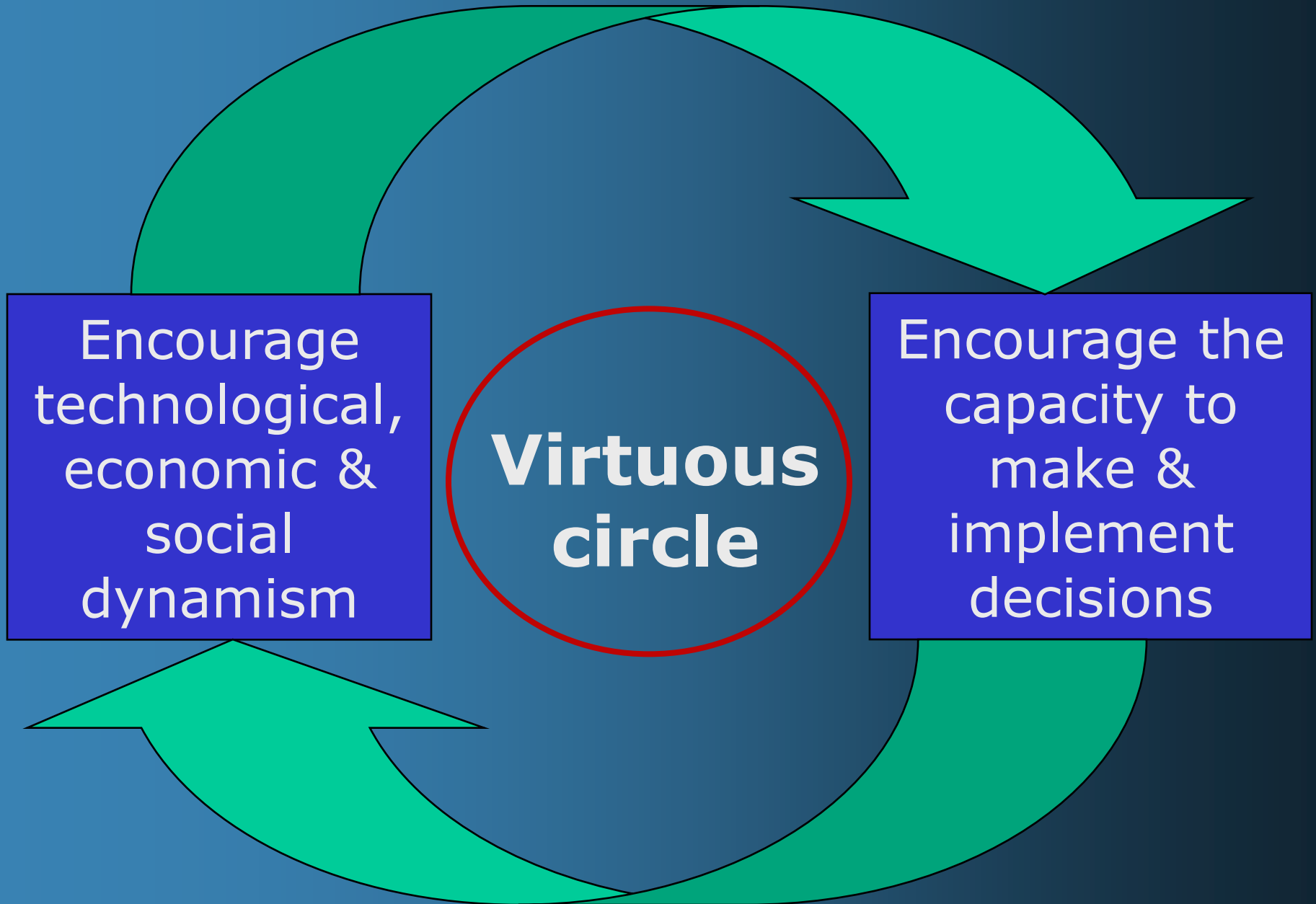
Thinking about the future: How to select which stories to tell



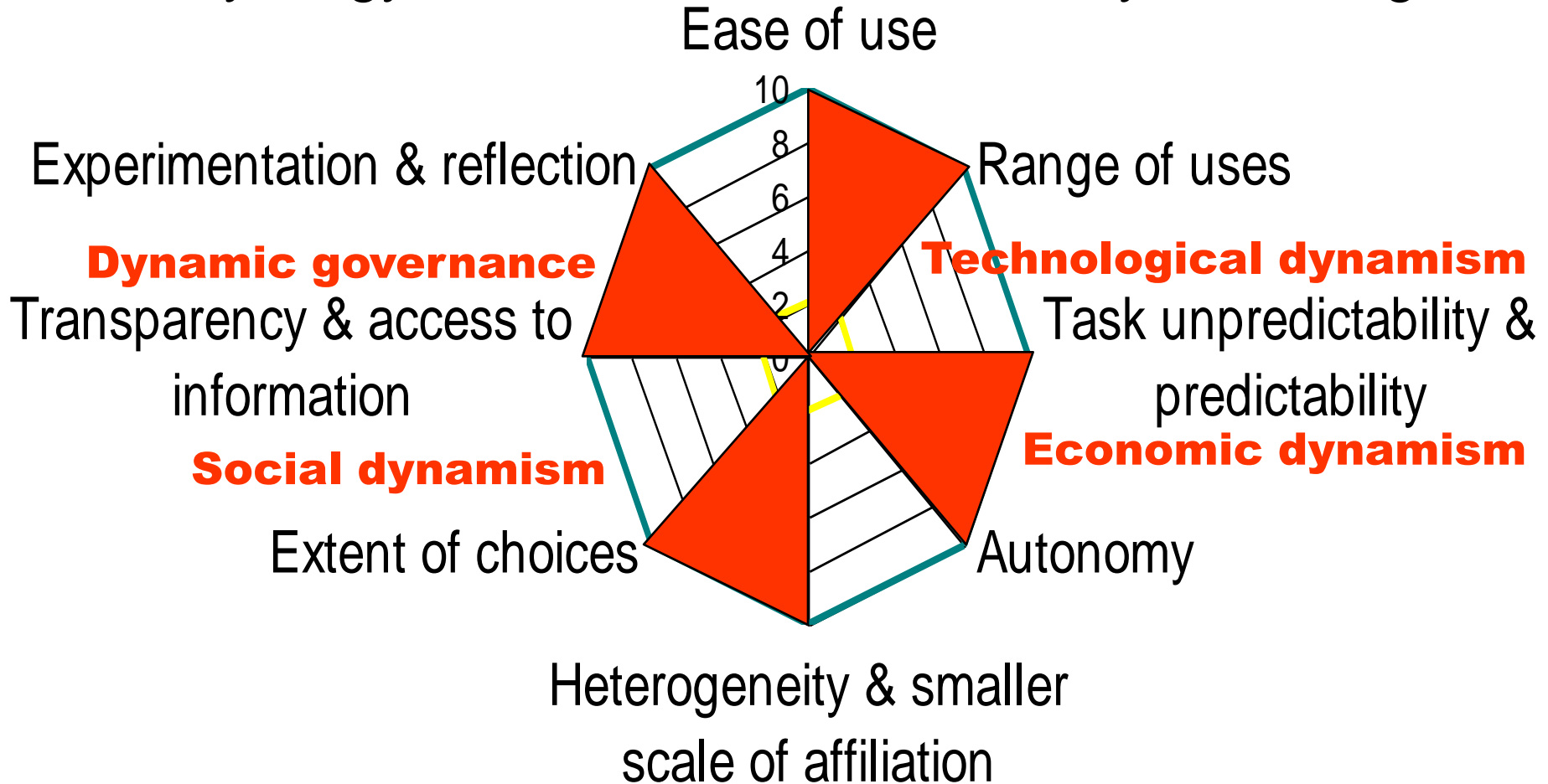
The Challenge for Policy

- **Dual disruption:**
 - **Socio-economic transformation**
 - **Changes to the nature of decision making (risk management)**
- **Provokes contradictory responses:**
 - **Caution, return to the past**
 - **Search for new solutions**
- **Critical role for tools that assist with discovery of both:**
 - **“new solutions” (institutions, rules, etc) outside existing systems**
 - **“new decision making” that uses rigorous imagining, learning intensity and the richness of spontaneity to manage risk and empower experimentalism**

Facilitating transition scale change



21st Century Transitions: Synergy Conditions and the Policy Challenge



— Mass-era — Learning society

Old Public Policy and Transition

- **Goals - beyond the transition**
 - Creativity & greater capacity to govern
 - Common values & heterogeneity of expression
- **Roles - re-composition**
 - Proliferation of sources
 - Diffusion of the peripheral
- **Methods - linking form & function**
 - Experimentalism
 - Learning by doing (means as ends, process as product)

Making it happen

- **Cyber-citizenship**
 - Identity rights, owning privacy
- **Competency banks**
 - Validating what people know (keyword search - not credentials nor pre-defined categories), mapping community assets
- **New property rights & contracts**
 - Transaction infrastructure for copy-left banal creativity and freelance

Making it happen

- **Cashless society**
 - Virtual legal tender, new business models
- **Governance of the net**
 - Preserve & extend the virtual commons: end-to-end, interoperability standards, community-ware, indexing all human knowledge
- **Network dynamism**
 - Governing standards to ensure fluidity and spontaneity of entry, exit, birth, death - accountability, transparency

Why futures literacy matters

- **Hope matters for motivation – what makes change worth the candle**
- **Capacity to understand and manage risk – making freedom and heterogeneity liveable**
- **Grasping the potential of a non-ergodic conjuncture: change in the conditions of change**

A time for method and methods for our time

Why futures literacy now? Because a futures literate society can use:

– diversification, imagination and inter-dependency

to

- *embrace spontaneity, experimentation & complexity*
- *without being overwhelmed by*
 - fear of the risks (perception)*
 - failure (reality of risk)*
- *in order to inspire aspirations consistent with a world where means are ends (values in practice)*

“The human condition can almost be summed up in the observation that, whereas all experiences are of the past, all decisions are about the future. The image of the future, therefore, is the key to all choice-oriented behavior. The character and quality of the images of the future which prevail in a society are therefore the most important clue to its overall dynamics.”

Kenneth Boulding

Thank you
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