

Keywords: Sustainable development; Enabling factors; Decision Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

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Innovative, Creative and Sustainable Decision Making in Changing Contexts

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Foundations and Trends[®] in Information Systems

Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravansera platform

Published, sold and distributed by:

now Publishers Inc.
PO Box 1024
Hanover, MA 02339
United States
Tel. +1-781-985-4510
www.nowpublishers.com
sales@nowpublishers.com

Outside North America:

now Publishers Inc.
PO Box 179
2600 AD Delft
The Netherlands
Tel. +31-6-51115274

The preferred citation for this publication is

P. Humphreys and A. Luk. *Innovative, Creative and Sustainable Decision-Making in Changing Contexts*. Foundations and Trends[®] in Information Systems, vol. 5, no. 4, pp. 353–473, 2022.

ISBN: 978-1-63828-011-8
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Foundations and Trends in Information Systems

Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravansera platform.

Volume 5, Issue 4, 2022

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Information for Librarians

Foundations and Trends® in Information Systems, 2022, Volume 5, 4 issues. ISSN paper version 2331-1231. ISSN online version 2331-124X. Also available as a combined paper and online subscription.

Keywords: Sustainable development; Enabling factors; Decision Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanseraï platform.

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Keywords: Sustainable development; Enabling factors; Decision Support Systems; Decision enactment; Live provenance; Safe direct trading; Socialising the Enactment of Sustainability-Enabling Decision Support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

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Innovative, Creative and Sustainable Decision-Making in Changing Contexts

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ABSTRACT

This monograph presents a unique and powerful bottom-up methodology for promoting and securing Sustainable Development Goals (SDGs) through innovative and creative decision-making and enactment in a wide variety of entrepreneurial innovation contexts. It identifies four sustainable development enabling factors, namely: 1) the presence of a trustworthy trading system for both private and public goods; 2) the need for communication facilities for provenance exploration, authentication and demonstration; 3) the ability to build and support entrepreneurial innovation clusters bottom-up; and 4) the ability to establish “Caravanseraï” and promote transaction-based sustainable tourism within the local community. We argue that these four factors, when implemented together, can enable a strong bottom-up contribution to sustainability in all its forms.

P. Humphreys and A. Luk (2022), “Innovative, Creative and Sustainable Decision-Making in Changing Contexts”, *Foundations and Trends® in Information Systems*: Vol. 5, No. 4, pp 353–473. DOI: 10.1561/29000000024.

Supplementary Material available from:

http://dx.doi.org/10.1561/29000000024_supp

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Keywords: Sustainable development; Enabling factors; Decision Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

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Introduction

Academics and practitioners have emphasized that the entrepreneurial innovation activities that are best able to promote specific Sustainable Development Goals (SDGs) bottom-up will vary as a function of the local realities and contexts where they are implemented (Stephens *et al.*, 2018).

Satterthwaite (2018) and Jimenez-Aceituno *et al.* (2019) advocate the incorporation of a “local lens” or “indicators for local action” for the implementation of SDGs, highlighting how interventions should be designed to specific development needs of particular contexts. As Dahl (2016, p. 4) stresses,

We should not wait for governments to act, as they always do too little, too late. The United Nations process is essentially top-down, building a global consensus among governments, which is very important, but not sufficient. The SDGs need to be appropriated by individuals, communities and civil society to start a bottom-up process, translating the goals into local realities.

This monograph presents a unique and powerful bottom-up methodology for promoting and securing SDGs in a wide variety of entrepreneurial

Keywords: Sustainable development, Enabling factors, Decision Support Systems, Decision-making, Variety of context, Safety throughout history, a Generation of world Sustainability, specific decision, support, Future goals for local activities, Custom building, Silk Road, Sustainable development bottom-up.

In Section 1, we investigate the changing contexts for decision support now emerging from the responses to pandemic-driven lockdowns. We draw lessons about opportunities arising for supporting innovative, creative and sustainable decision-making and enactment.

We note the change in the balance between top-down and bottom-up initiatives, with bottom-up facilitation platforms now in ascendance, enabling the rapid expansion of safe direct trading and provenance building ecosystems powered by Sustainability-Enabling Decision Support (SEDS) platforms.

In Section 2, we explore how in ancient history a set of four sustainable development enabling factors was responsible for the enduring success of safe local and trans-national trading relationships throughout the ancient Silk Road trading network. This enabled local entrepreneurial innovation clusters to flourish through the Caravanserais support facilities that were built.

We show how this set of sustainable development enabling factors, when implemented together, constitute a set of enduring success factors that, in relation to SDG 8,¹ can enable a strong bottom-up contribution to sustainability in all its forms within an environmentally safe and socially just space in which inclusive and sustainable economic development takes place (Jimenez-Aceituno *et al.*, 2019).

In Section 3, we reveal the role of these factors in recent history in underpinning the success of entrepreneurial innovation clusters of Small and Medium Enterprises (SMEs) and cooperatives when created and developed bottom-up. We consider how they become dynamic, extended and platform-powered, paving the way for the future flourishing of platform-powered ecosystems, enabling participants to develop

¹For the components of Sustainable Development Goal 8 (SDG8), see <https://sdgs.un.org/goals/goal8>.

Keywords: Sustainable development; Sustainability-enabling factors; Decision local Support System; Decision enactment; Live provenance; Safe direct trading; Generation of a Sustainability-enabling Decision Support Platform. In the generation of a Sustainability-enabling Decision Support Platform, the full set of sustainability-enabling factors through their own bottom-up innovative and creative activities, and those which the cooperative facilitates in the local community.

In Section 5, we consider issues involved in socialising the decision-making and enactment process, updating some current decision-making and DSS perspectives that were originally identified in Herbert Simon’s account of the decision-making and action process and the consequent implementation of chosen courses of action.

Section 6 presents a case study of socialising the enactment of Red Fox Coffee Merchants’ direct trading price-setting decision in a way that enabled and promoted sustainable development where all sides benefited.

In Section 7, we discuss the opportunities arising for building a Sustainability-Enabling Decision Support (SEDS) platform and identify the features that can usefully be provided in four views linked to sustainability enabling factors. That is, the safe direct trading view, the provenance building view, the cluster catalyst view and the Caravanserai view. We identify “Live Provenance” as a key driver for a successful SEDS platform and specify the key elements of a Live Provenance certification system. We identify functions and capabilities that may be implemented at each layer within a SEDS platform’s multi-layered provenance structure.

We conclude, in Section 8, by examining how success stories, mediated by a SEDS at the micro level, can promote social innovation, adaptation and exaptation into new territories at the meso and macro level guided by these sustainable development enabling factors.

1.1 The Changing Contexts for Decision-Support

The COVID-19 pandemic has had a huge impact on the way people live, work, play, buy/sell and consume things. Some of these new ways will last only as long the pandemic does. Others, however, will likely

Keywords: Sustainable development; Enabling factors; Decision support systems; Decision-making; Positive psychology; Changing trading conditions; Decision support; Sustaining enabling decision support; Entrepreneurship; Covid-19; Silk road; Caravanserai platform. The scale and variety of disruptions affecting businesses are unprecedented and astounding. Disruptions and overlapping crises threaten the top-down working mechanisms of socio-cultural and economic-production ecosystems, and conventionally structured organisational systems are challenged to understand how they can be sustainable, keep moving forward and grow. The pandemic has revealed the brittleness of many of the critical systems that support our society. The question is how society can improve its resilience and identify what it wants to be like in the future. If it is to reconstruct using the same core models, the same mistakes may be made and it will be just as vulnerable to the next unexpected crisis to hit.

Many national and local governments across the world were and are being forced to respond extremely rapidly. They have shown flexibility and adapted long established procedures to fresh problems. This form of transformation in responding to the pandemic embraces the changing context of decision support to harness innovation to deliver improved experiences for decision-makers in a variety of layers of collaborations within society.

Current developments during the period of the COVID-19 pandemic point to a future in which a sustainable global society will be powered increasingly by bottom-up efforts that do not rely on a top-down framework in which they would be positioned (and suffocated), but can work in the “spaces in between” existing, and now withering, top-down structures.

1.2 Precursors Emerging from Responses to Pandemic Lockdowns

Throughout the whole pandemic period, all over the world the immediate effects of the “lockdown” responses to the COVID-19 pandemic threat were implemented. This meant that many people who used to travel to work in large centralized business buildings had to work at

1.2. Precursors Emerging from Responses to Pandemic Lockdowns 7

Keywords: Sustainable development; Enabling factors; Decision-making systems; Support systems; Decision-making; Telepresence; Safe home building. Generation of trust; Sustainability-enabling decision support; Enterprise-wide innovation; Global building; Synchronous communication platforms, where the meeting participants are present together on the participants' home computer screens. Through successful use of such emergent platforms from the social media field, people learned that traveling to a work situation in large buildings in commercial and industrial centralized locations was avoidable, and that alternative methods for working together at a distance can often be preferable.

Complementary benefits that enhance the quality of life for individuals and communities also emerged. Less time consumed in traveling to and from work means that more time is freed up for leisure, social and cultural activities and creative hobbies. Fewer people commuting to work by road has resulted in declining traffic, giving rise to a reduction in environmental pollution and a resurgence of wildlife.

However, the lockdown regulations abrogating physical transactions during 2020 for all “non-essential” businesses, now implemented in many countries, hit commerce hard, particularly for those firms that rely on a physical trading presence on city streets and shopping centres. According to the UK Office for National Statistics (ONS, 2021), store sales in April 2020 were down by 93%, compared with the previous year average. In the United States, sales in travel agencies were down by 98%. Photography studios business was down by 88% and childcare centres work was down by 75%. The enforced closures of accommodation and leisure facilities (hotels, restaurants, parks, beaches) internationally and restrictions on air transport hit the airline business badly. They lost both their tourism and business clienteles as the latter moved to virtual platforms to conduct business meetings that, previously, they would have travelled to by air to attend in person.

In the first half of 2020, many countries closed their borders. Airlines, including British Airways, Aer Lingus, Iberia, Air France, Easy-Jet, Finn Air, Air New Zealand and Aeroflot, among others, adopted drastic measures to cut costs permanently, including redundancy for a large proportion of their workforce. They anticipated that the damage done

Key for sustainable development; enabling factors be Decision partly
 Support the System, Decision enactment, give after the year, Safe direct
 trading; Global business of sector, Sustainability, enabling a decision, support
 Europe becomes a simulation, Cluster long-term, Silk Road, Caravan stream.
 Production of goods and services became difficult or impossible as staff
 were instructed by national governments to take “furloughs”, and a
 firm’s traditional source of supplies became no longer accessible.

Annie Lowrey, writing in *The Atlantic* (2020), commented:

Facing mounting bills and absent revenue, many businesses are closing permanently, rather than drifting further and further into insolvency, short-term effects of this disaster are clear: when businesses liquidate, they lay off workers, who spend less in their local economies, making other businesses weaker, necessitating further layoffs. Business failures thus act as an accelerant in a downturn, making temporary damage permanent. This is a central reason why many economists do not expect a sharp, V-shaped rebound to the current recession, but a long, slow, U-shaped recovery.

This has clearly induced the current COVID-19 pandemic to bring to the fore a new level of uncertainty and poses difficult and unprecedented challenges for sustaining the ability of organisations and communities to survive. During these uncertain times, the conventional organisational business models and traditional working mechanisms are at stake. Organisations must develop new strategies and implement management initiatives that need to be built bottom-up innovatively and creatively to respond to the waves of disruptions impacting traditional top-down management practices.

1.3 Need for Innovative, Creative and Flexible Responses in Emerging Situations

The COVID-19 pandemic created a new “reality” in which an organisation, even a small medium enterprise or cooperative association, needed to react promptly to the sudden and prolonged lockdown as well as to enable itself to survive the crisis. Each organisation needed to be

Keywords: Sustainable development; Enabling factors; Decision rules of Support Systems; Decision enactment; Live provenance; Safe direct trading; 2020 generation of entrepreneurs; Sustainable business models; Successful small businesses; Information; Cluster buildings; Silatondy Karatayev had had to completely rethink their business model in order to find success in the new world order. Steyaert and Katz (2004) define entrepreneurship as a “model for innovative thinking, for reorganizing, and for crafting the new”. However, due to the pandemic, entrepreneurs were now faced with having to develop an understanding of “liminal entrepreneurship” (Garcia-Lorenzo *et al.*, 2018).

A successful entrepreneur is an individual who creates a new business bearing most of the risks and enjoying most of the rewards, and he/she is using the skills and initiative necessary to anticipate consumer/client needs and bring good new ideas to market. An innovative entrepreneur creates new strategies and new forms of leadership to emerge reinventing business and local development in several ways. Not limited to that, the entrepreneur should be a quick learner from others in the market in order to take immediate and strategic, timely and informed decisions.

These practices and narratives are now shared with a growing cohort of what Garcia-Lorenzo *et al.* (2018) call “nascent necessity entrepreneurs”. These are people who previously had a career or were employees in business sectors that contracted rapidly due to coronavirus-induced lockdown measures in 2020, and who no longer envisage a return to “business as usual” in the foreseeable future. Rather than engage in a fruitless “job search”, they had to opt for their own entrepreneurial activity out of necessity. Here their motivation is to explore new ideas and strengthen their social networks, while co-creating and reshaping their immediate social context to accommodate their new entrepreneurial identities and practices. Garcia-Lorenzo *et al.* (2018) comment:

In the process of ‘reaching out’ to others to survive, they inevitably become aware and sometimes involved in addressing others’ needs and a sense of ‘Communitas’ develops (Turner, 1977, 1995) that brings people of different backgrounds closer together. These networks and innovation

Keywords: Sustainable development; Enabling factors; Decision Support Systems; Skills; and on the internet; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

Thus, there is a strong potential for the growth of entrepreneurial innovation clusters in the new world order emerging after the COVID-19 pandemic. This builds on the increasing connectivity and related activities that the responses to lockdown engendered, and that entrepreneurship requires (Anderson *et al.*, 2012). It enables the promotion of an entrepreneurship model for “innovative thinking and crafting the new” (Steyaert and Katz, 2004).

However, for entrepreneurial innovation clusters to succeed and be sustainable, they also need access to transaction platforms that can help them to establish the provenance of goods and ideas to exchange, discover resources they can use, address sustainable development goals, find new markets for their creations and increase their own provenance and visibility.

Small businesses that were able in 2020 to turn to transaction platforms like eBay and Amazon to advertise their wares and find clients for them on the Internet (and to find for themselves the resources and supplies that they needed), continued to thrive. In the month of April 2020, more than 50,000 new businesses signed up to transact their goods on eBay UK, which by then had 300,000 small businesses and 27 million buyers using its platform. In the same month, Amazon took on 150,000 more staff to meet the increased demand from clients to support their transaction activities. This leap toward eBay and Amazon reflected the acceleration of the shift to online shopping across the market prompted by the pandemic.

This form of decentralised remote ordering of goods was booming, together with the associated direct delivery systems. New food-shop networks were being powered up by virtual platforms connecting small local producers of food products with their clients. Supermarket chains that traditionally relied on physical marketing from centrally located stores turned, with some success, to combining their centralised physical sales outlets with virtual ordering platforms.

Keywords: Sub (CEO) of eBay, Entrepreneur, Enabling factors, Decision Guardian (Support) Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Getting to grips with trading over the internet will help Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform. independent retailers in the long term – having physical and online running together is their most compelling thing for Customers. These things don't have to work in competition.

The rising tide of “furloughs” (layoffs), redundancies and small business shutdowns that started in 2020 resulted in more stay-at-home time for most of the population. This led to a strong creative response in communities as a consequence of their need to share information and know-how for “do-it-yourself” or “make-it-yourself”, due to increased difficulty in accessing commercially available services and products, or inability to pay for these when they are needed.

This led to an increase in the bottom-up making and sharing of creative media products that are not marketed for commercial gain, but are instead distributed free of charge among and between friends and communities. These new public goods are designed and produced in order to provide useful information: sharing and telling “how to”, “where to”, “what to” and “when to” in promoting sustainable development goals in order to help their viewers and readers succeed in a wide range of activities (from making bread to laying a wood floor, to growing vegetables, to composing movies that communicate well, to finding volunteers to run a local delivery service, etc.). These “showing and telling” initiatives have led to an increased use of creative and social media platforms for making and distributing these kinds of products, made freely available by their creators. Maria Magliacani (2020) explains how:

These online platforms could open a space for ‘decentralized dialogues’ (Yu and Humphreys, 2013) extending the co-creation of value by engaging visitors, communities, citizens, entrepreneurs and other generic stakeholders.

These developments, facilitated also by advances in technology, create opportunities for further endeavours following a bottom-up approach.

Key words: Sustainable development, Enabling factors, Decision innovation, Support Systems, Decision and choice, Live (and creative), Safe disruption trading, Generation of options in Sustainable traditional business, support, Entrepreneurial innovation, Customer building, Globalised, Situations, platforms can be enabled to be agile and creative in order to keep their momentum on prompting and reacting to the tough and dramatic drops in the volume of conventional business, such as those prevailing during the COVID-19 outbreak.

1.4 A New Kind of Sustainable Transaction-Based Tourism

The successful emergence of platform-powered tourism businesses over the past decade was a major stimulation for growth in this sector until the COVID-19 pandemic. It challenged the hegemony of traditional travel agencies of market leaders such as TUI/Thomson and Thomas Cook. On the Beach, a 100% online operator which started trading in 2011 and is now a market leader, gives the following account of the nature of its business (On the Beach, 2020):

We are an online travel agency, which means that we don't have high street stores or any in-resort reps – which is one of the reasons we're able to keep our costs so low.

But online operators like On the Beach are not fully platform-based businesses aiming to “create value by attracting, matching and enabling people to transact” (Reillier and Reillier, 2017). They succeeded in attracting many individual clients online and connecting them with accommodation and leisure facilities. They retained the traditional “centralised travel agency” business model whereby the agency acts as an intermediary, packaging their connections with transport operators and accommodation providers which are often large, non-local centralised businesses (specifically, cruise liners or all-inclusive resorts) with their own supply chains organised top down, hence isolated from, and distorting, the local community.

This tourism model proved to be non-sustainable in 2020 when, due to the lockdown responses to the COVID-19 pandemic worldwide, many tourism businesses that were following this model were unable to

Keywords: Sustainable development, enabling factors, Decision-making, mid-2020, air systems, Decision-making, tourist destination, safety and social distancing considerations, Sustainability enabling decision supports, Entrepreneurial facilitation in Cluster building, Silk Road Caravanserai platform. According to the World Tourism Organization (UNWTO, 2017):²

Sustainable tourism is “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities.”

In its manifesto “PostCovid19: *The only possible Horizon for the Tourism Industry is still Sustainability*”, published in May 2020, the Institute for Responsible Tourism stated (Responsible Tourism Institute, 2020):

If we talk about a tourism standard based on increasing the number of tourists at all costs and on increasing the income generated, regardless of whether it is transformed into local social welfare and without considering the number of resources consumed to do so, then surely we can say no. This kind of tourism is not contributing nor is it serving as an incentive for the processes of change that will allow countries to move towards real sustainability.

In the same month, Destinet³ announced that the preferred strategy for restarting tourism should be to (Destinet, 2020):

Involve the local population: More than any other industry, tourism uses public space and natural resources. Therefore, new strategies are needed, developed in close cooperation with hitherto insufficiently considered local stakeholders. It is important to clarify which tourism serves whom.

²Based on the UN General assembly resolution 70/193, 2017 was declared by the World Tourism Organization as the “International Year of Sustainable Tourism for Development”.

³*Destinet* is a portal for Sustainable and Responsible Tourism, registered in 2015 as a United Nations Partnership for Sustainable development, re-launched in 2017 as *Tourism2030: UN partnership for Sustainable Development Goals*.

Key words: Sustainable development, Enabling factors, Decision support systems, Decision transaction, Have provenance, Safe systems as a design goal, Generation of top-quality sustainable local infrastructure, Based on a platform, Caravan trade, Silk Road, Caravan trade platform members (entrepreneurs, creative makers and local organisers, traders and innovators) and visitors meeting, discussing and transacting together.

It also supports the sustainable development of locally provided facilities (accommodation, restaurants, etc.), benefiting both visitors and the local community. Visitors engage with creative makers and entrepreneurial innovation clusters in the community, learning about their activities and purchasing local products, crafting, etc. Here, all sides benefit by gaining both local and remote (international) links for marketing, sharing, and resourcing, transacting goods, and know-how with good provenance.

This model has a long and august history, spanning more than a millennium as the “transaction tourism” trading and local development model powering the success of entrepreneurial innovation clusters, linked through “Caravanserai” hubs within the Silk Road trading network, in ways we will examine in Section 2. The cities hosting these hubs flourished so long as the transaction tourism that kept them alive was not permanently disrupted by political actions (such as having borders closed) that wiped out the Silk Road linkage.

1.5 Rise of Platform-Based Trading and Transaction Decision Support Systems

Evidence is emerging that the COVID-19 pandemic has challenged the established tools that leaders use to gather information and make critical decisions about their area of concern. This has speedily enhanced the technological development of certain tools (such as collaboration tools, remote teamworking, etc.) to provide solutions for social distancing. Prolonged social distancing will speed up the adoption of new tools and may catalyse the reimagining of place-based decision-making for a data-driven, digitally enabled society. This has also increased the acceptance of using platforms to facilitate transactions rather than

Keywords: Sustainable development; Enabling factors; Decision support systems; Decision making; Leveling the game; Sales platform strategies; Gender inequality; Sustainability; Making decisions; Supplier (2017) prescrib

platform.
For us, a platform is an organisation that creates value by attracting, matching and enabling people to transact. And it is different from the traditional organisations, where you have got a value chain, and where you must buy raw materials and then transform them into a product. Platforms are more like an ecosystem; they are more open and that's a new way of creating value.

Many traditional high street businesses, reliant on customers visiting their stores to transact, were disrupted by having to link to platform-powered ecosystems to continue trading. This occurred when, due to lockdown responses to the pandemic threat in 2020 and 2021, they had to close their physical shops/goods and services outlets located in city and town streets, risking permanently losing clients for their businesses.

Their in-store clients turned to platforms like eBay and Amazon to browse what goods were on offer online, and who was offering them, according to their stated needs. As buyers, they would have liked to check the provenance of the seller (agent) and of the goods they offer (entities) before making the transaction with their chosen supplier for the goods they were looking for. But such provenance was more difficult to investigate online than it was when intending buyers could physically visit potential seller's stores on the local high street and examine real (physical) examples of the goods that they were offering.

Also, the increased distance between transactors (i.e., buyers and sellers) when their transaction is online requires that the transportation of goods be factored into the transaction. During 2020 and 2021, this transportation was increasingly outsourced to third-party organisations that were platform-powered networks of local agents and couriers.

Key words: Changing the Balance Between Top-Down and Bottom-Up in the New Millennium; Decision Support Systems; Decision enabling; Decision provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

The previous sections identified the need for innovative, creative and flexible responses in situations emerging world-wide after the COVID-19 lockdown situations, the entrepreneurial support that could enhance recovery and economic growth, and the rapidly changing economic environment which opens opportunities for multisided trading and provenance building economic development platforms. Potentially, there are three key needs that should be addressed in such a multisided platform for it to succeed in practical applications. These are:

- (1) The need for a safe, secure multisided distance-trading platform, with provenance search, and confirmation abilities for the private and public goods being traded;
- (2) The need to help entrepreneurial innovation clusters, focussed both locally-physically and further afield-virtually, to develop bottom-up whereby their participants can gain visibility, advertise their own good provenance and products, find new resources and markets;
- (3) The need for local communities to be able to engage with visitors through sustainable transaction-based tourism.

Bottom-up initiatives in organisations and in sustainability-enabling decision support (SEDS) platforms are now in ascendance, enabling the rapid expansion of online direct trading ecosystems that may be facilitated by SEDS platforms, as described in Section 7. This offers important opportunities to keep the sustainability-enabling momentum going in whatever severe situation (e.g., a new virus) appears in the world.

Also, new generations are getting more used to living in an environment with more sustainability-enabling individual and group decision-making and support in leveraging the existing know-how, and taking collective actions based on the facts shared via a SEDS platform facilitating a multisided sustainability-enabling decision support environment.

Keywords: Sustainable Development Enabling Factors; Decision Support Systems; Trust; Entrepreneurial Innovation; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanserai platform.

In the following two sections, we examine examples throughout history that highlight sustainable development enabling factors and also provide a good understanding of how they can best be met through current developments in decision support systems, which have the ability to offer safe multisided trading and provenance building facilities.

An outstanding example from ancient history is the Silk Road, where sustainable development was enabled and maintained by the Caravanserai support platforms built along its route and ensured prosperity over more than 1000 years (see Section 2.4.4 for details.) In more recent history, entrepreneurial innovation clusters flourished and became dynamic, extended, and platform-powered in ways that we describe in Section 3.

Keywords: Sustainable development; Enabling factors; Decision Support Systems; Decision enactment; Live provenance; Safe direct trading; Generation of trust; Sustainability-enabling decision support; Entrepreneurial innovation; Cluster building; Silk road; Caravanseraï platform.

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