



Innovations for Building Resilience in Food Systems

Workshop Summary Report

June 2017

Background

The World Food System Center at ETH Zurich coordinates the flagship research project “Enhancing Resilience in Food Systems.” This project takes a broad perspective of resilience in food systems, including the analysis of social, economic, and environmental aspects in various activities of food value chains. As part of this flagship project, a joint project entitled “Innovations for Building Resilience in Food Systems” is currently underway as a collaboration between the United Nations Food and Agricultural Organization (UNFAO) and the Swiss Federal Office for Agriculture (FOAG). This project aims to identify, discuss, and disseminate tools and innovations for building resilience in food systems.

The workshop “Innovations for Building Resilience in Food Systems” was held on 18 May 2017 at ETH Zurich. A group of over 50 food systems practitioners from government, academia, industry, and the non-for-profit sector attended the workshop (see Appendix A for participant list). The aims of the program included (1) sharing the latest knowledge, innovations, tools, and best practices; (2) identifying research gaps and discussing policy implications and current findings; (3) comparing experiences in different contexts (north vs south); and (4) applying the concepts of resilience building to case studies.

Concept of Resilience

The introductory presentations set the stage, framing the need for defining, assessing, and building resilience in food systems. Dominique Kohli, Head of the International Affairs, Research and Innovation Directorate at the Swiss Federal Office for Agriculture (BLW), presented a policy perspective of resilience. He mentioned a range of concerns in agriculture, including biodiversity loss, climate change pressures, and greenhouse gas emissions from different diets. He also highlighted the need for a food system perspective. Next, Johan Six, professor of Sustainable Agroecosystems at ETH Zurich, then delved into the concept of resilience, highlighting definitions, methods of assessment, and innovations for building resilience in food systems. He emphasized that transdisciplinary approaches enable innovation by building on interactions between science and practice. Lastly, Rémi Cluset, Agricultural Officer at the UN Food and Agriculture Organization (FAO), presented FAO’s approach for resilience to climate change. He further introduced the ideas of multi-stakeholder dialogue in agroecology and capacity building in this field. For further content, see the presenters’ slides, available upon request.



Figure 1. Concept presenters (l to r) J. Six (ETH Zurich), D. Kohli (BLW), and R. Cluset (FAO).

Case Studies: Farm Systems Approach + Value Chain Approach

The next block of presentations featured case studies of resilience assessments and training in the field, with the goal of looking at resilience through different lenses. The first presenters, John Choptiany, Palladium Group, and Benjamin Graüb, Swiss Agency for Development and Cooperation (both formerly FAO) introduced the FAO SHARP assessment tool and expounded on its field tests and implementation. Next, Marie-Béatrice Kiebre Toé, FAO Burkina Faso, spoke of the training of local pastoralists in Burkina Faso on climate resilience using the SHARP tool. Florence Diserens, ETH Zurich student, then presented her study that adapted the SHARP tool for use in Western farming systems and conducted a pilot test in Vaud, Switzerland.



Figure 2: Farm system approach case study presenters (l to r) John Choptiany, Benjamin Graeub, Marie-Bé Kiebre Toé and Florence Diserens.

The next presentations featured three case studies focusing on the resilience in different food value chains and regions. First, Elena Monastyrnaya, doctoral student at ETH Zurich, introduced plans for assessing the resilience of several Swiss food value chains. Evans Dawoe, Senior Research Fellow at the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana, presented results from a project looking at the resilience of the cocoa value chain in Ghana. Lastly, Olivia Pfister, ETH Zurich, presented her master thesis research on the resilience of the palm oil value chain in Sabah, Malaysia. For more information on each case study, the presentation slides are available upon request.



Figure 3: Value chain approach case study presenters (l to r) Elena Monastyrnaya, Evans Dawoe, and Olivia Pfister.

The discussion after the presentations highlighted the importance of bringing all relevant stakeholders together to discuss resilience along value chains. Such an approach allows the identification of trade-offs and the power relationship among stakeholders as well as the focus on the whole food system.

Afternoon Workshop Outcomes

In the afternoon, the workshop participants came together and brainstormed about innovations for building resilience in different contexts. Split into three groups, they were assigned to one of the following themes: (1) resilience in the Swiss food system, (2) resilience of food security crops in Sub-Saharan Africa, and (3) resilience of cash crop value chains in food systems (cocoa and palm oil). Each group then discussed and elaborated on innovations needed for building resilience in their context and determined the roles and responsibilities of different stakeholders to support or implement such innovations. After the group discussions, a poster marketplace was held with each group presenting their posters and key findings.

Group Findings

Each group presented the main insights from their discussion, a summary of which is listed by group below. These insights form a basis of ideas that can be further developed and discussed. Poster images from each group are in Appendix B.

Group 1: Resilience in the Swiss food system

Overall, the group focused on how to innovate in education and how to use tools that allow us to educate and to connect. Upon listing and discussing potential innovations in the context of the Swiss food system, the main points raised by the participants that could increase the resilience, were the following:

- Interactions among stakeholders are important: In regard to different roles in the innovation process, the group thought about how to get all stakeholders together: the idea of creating a “Swiss food council” came up. The participants shared the view that such a round table should be the driving force to connect people and work together to raise awareness.
- Education of the consumer to make good choices: All stakeholders need a common understanding and interconnection, using technology, like a blog where farmers can learn from each other.
- In strengthening the link between farmers and consumers, the value chains should often be shortened. Innovations need to include the idea of farmers’ income diversity.
- For increasing the resilience, the most active innovators in the food system are most often the farmers themselves and the consumers, with all their connections. Consumers have a big responsibility, but they have to know the system, and therein lies the challenge.

Some important questions were identified for further research:

- How can we improve interactions and linkages among farmers to develop solutions together for very concrete problems?
- How can we measure the success in improving the food system: are calories the correct way to measure or is nutrient content better?

Group 2: Resilience in food security crops in Sub-Saharan Africa

- The group focused on process activities rather than individual-specific innovations.
- People have a lot of local knowledge and expertise, but need some guidance and technical expertise; they need an enabling environment to take skills they have and scale them up.
- Current needs are access to IT, credit, especially financial translation, and information that has practical meaning.
- People would then be presented with a series of approaches or tools, allowing them to choose to what they do, allowing them to build it up for themselves. Thus, farmers can learn from external experts and local platforms.
- Opportunities exist for innovations in technology, markets, and specific tools, but it is important to give people a suite of options.
- Most important is the need to create this enabling environment. Governments might need to reduce or change legislation to enable regulatory environment to allow farmers to scale-up, and non-for-profit organizations might provide access to information, making the link between academic science and practice. Farmers then have the opportunity to work and scale-up on their own.

Group 3: Resilience in cash crop value chains in food systems (cacao and palm oil)

- The group considered how to trigger innovations for cash crops, such as palm oil and cocoa.
- With a focus on building resilience, the group performed an analysis of identifying the 'power and interest' relationship of key actors in the palm oil value chain in Malaysia and cocoa value chain in Ghana.
- The group mapped all the different stakeholders and thought about what would foster innovation and improve resilience. They tried to find synergies or conflicts among stakeholders.
 - When thinking about different players, the consumers do have quite a high power, but do they have a high interest in having more sustainable systems?
 - Traders have significant power in both value chains.
 - Cocoa is more name brand oriented; it is still possible to have niche products. Consumers have a more powerful role. For palm oil, consumers have less power as brands are less visible.
 - Governments have high interest and power in both value chains. In contrast, NGOs have high interest, but only moderate to little power to integrate aspects of resilience.
 - Various schemes exist that are supported by big corporations to foster sustainability in both value chains.
- To improve the resilience of cash crops, collaborations are needed among all actors of the value chain. For example, researchers and farmers can collaborate on developing new technologies to improve the production. NGOs can inform consumers about problems in the production to change consumer behaviour. A common understanding can change aspects in value chains and helps to build higher resilience.
- A last general point is that the entry point for each crop is different. For palm oil, the environment is the main issue, while for cacao, socio-economic issues are particularly important.

Final Comments

At the end of the workshop, Johan Six and Dominique Kohli summarized the key findings of the workshop and presented some policy implications on how to foster innovations for building resilience in food systems. From a research perspective, Johan Six stressed the importance of bringing stakeholders together and shift agricultural policy-making towards a food systems policy. Further, he emphasized that it is important not to discount sustainability as we talk about resilience, as they are directly related.

D. Kohl summarized his reflections on the workshop in the following 10 points:

- (1) Open markets and open minds are necessary for more resilience; this is especially important in Switzerland.
- (2) Innovation is a driver and trigger. Digitalization will totally change the way we are functioning and producing, the way we are going to the markets; digitalization and technological solutions will provide benefits for all actors along the food value chain.
- (3) Innovation is connected to knowledge, and players from academia and also extension services have an important role to play. Knowledge produces and diffuses innovation.
- (4) Comments throughout the day show that resilience in the food system need to be along the entire food value chain.
- (5) We need a new agricultural policy approach, to move to more holistic food system policy.
- (6) With such a new policy, we must open the doors of the farms and go to all the actors of the value chain. The policy must be a participative and inclusive one; such an approach is something that has started but must continue and develop.
- (7) We need to create and strengthen new avenues and instruments to connect people and stakeholders, like a food council (suggested by Group 1), social media, collaboration and networking, and connecting via digital technology.
- (8) Partnership and working together are the core concepts of strengthening resilience.
- (9) The benefits and profit gained from effective and dynamic resilience, be it economic, social or ecological, needs to be visible and measurable over the whole food value chain, from production to consumers.
- (10) We must think of new role of state control, giving responsibility to all the stakeholders; we must reduce the influence of state control where it may be counterproductive. The state should design the framework, with then the stakeholders choosing, designing, and developing different instruments to meet the demands of the market.

D. Kohli also summarized these comments after the workshop (in German), and they can be found in Appendix C.

List of Appendices

Appendix A: Participant list

Appendix B: Posters from afternoon workshop groups

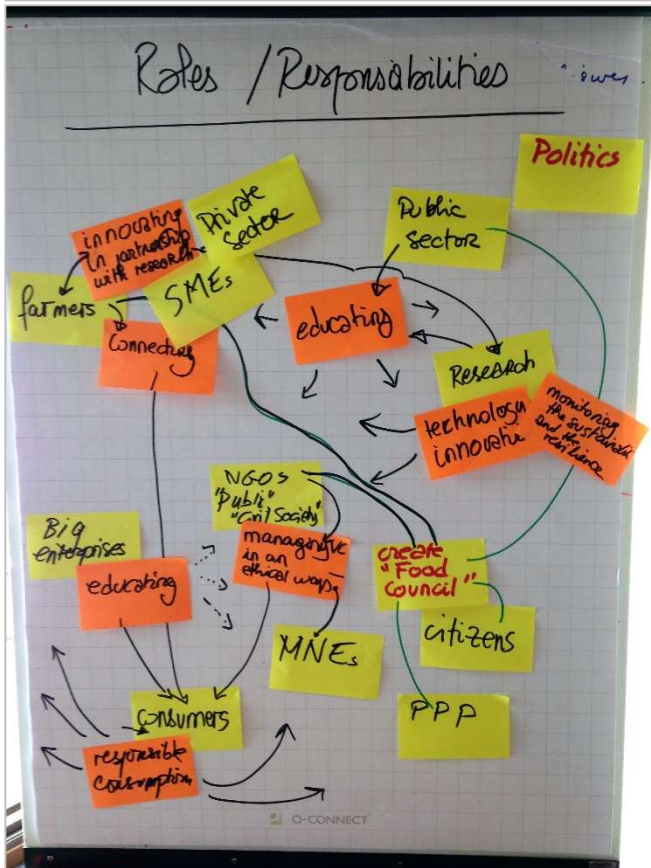
Appendix C: Dominique Kohli's summary remarks (in German)

Appendix A: Participant list

Last Name	First Name	Email Address	Organization
Ammann	Regina	regina.ammann@syngenta.com	Syngenta
Barjolle	Dominique	barjolle@ethz.ch	ETH D-USYS Group "Sustainable Agroecosystems"
Benabderrazik	Kenza	kenza.benabderrazik@usys.ethz.ch	ETH SAE
Berger	Sibylle	sibylle.berger@cde.unibe.ch	Universität Bern, Centre for Development and Environment
Bovy	Victor	victor.bovy@vd.ch	SAVI
Choptiany	John	jchoptiany@gmail.com	Palladium group
Cluset	Rémi	remi.cluset@fao.org	FAO
Dawoe	Evans	elkdawoe.canr@knust.edu.gh	KNUST Ghana
Degonda	Katja	kdegonda@student.ethz.ch	ETH Zurich
Diserens	Florence	diserenf@student.ethz.ch	student
Dos Santos	Alice	alice@origin-for-sustainability.org	Origin for Sustainability/FiBL
Evequoz	Michel	michel.evequoz@eda.admin.ch	EDA
Graeub	Benjamin	benjamin.graeub@eda.admin.ch	DEZA/SDC
Grant	Michelle	mgrant@ethz.ch	ETH Zurich WFSC
Grünewald	Christina	christina.gruenewald@swisscontact.org	swisscontact
Guyer	Luzia	luzia.guyer@syngenta.com	Syngenta Foundation
Heinis	Aurelie	aurelie.heinis@vd.ch	Service de l'agriculture et de la viticulture - Canton de Vaud
Hendriksz	Michiel	Michiel.hendriksz@farmstrong-foundation.org	Farmstrong Foundation
Hernandez Lagana	Maria	mariahlagana@gmail.com	FAO
Hunziker	Monique	m.hunziker@biovision.ch	Biovision
Ifejika Speranza	Chinwe	chinwe.ifejika.speranza@giub.unibe.ch	University of Bern, Institute of Geography
Jenny	Katharina	katharina.jenny@eda.admin.ch	SDC/EDA
Joerin	Jonas	jonas.joerin@usys.ethz.ch	ETH Zurich
Kiebre Toe	Marie-Bé	mb.kiebre@gmail.com	FAO Burkina Faso
Kohli	Dominique	dominique.kohli@blw.admin.ch	BLW
Kühne	Isabel	isabelkuehne@hotmail.com	NADEL ETH
Lehmann	Bernard	bernard.lehmann@ethz.ch	BLW
Macchi	Judith	judith.macchi@heks.ch	HEKS/EPER
Mader	Sarah	s.mader@swissaid.ch	SWISSAID
Martinet	Marianne	m.martinet@tft-earth.org	The Forest Trust
Mittelholzer	Martina	martina.mittelholzer@bwl.admin.ch	Bundesamt für wirtschaftliche Landesversorgung
Monastyrnaya	Elena	elena.monastyrnaya@usys.ethz.ch	SAE group, ETH Zurich
Ochieng Pernet	Awilo	awilo.ochieng@blv.admin.ch	BLV
Otto	Caroline	caroline.otto@syngenta.com	Syngenta Foundation
Pfister	Olivia	opfister@student.ethz.ch	ETH SAE
Sander	Adelaide	asander@student.ethz.ch	ETH
Schaerer	Judith	judith_schaerer@hotmail.com	ETH
Scharfy	Deborah	deborah.scharfy@zhaw.ch	ZHAW
Schenker	Urs	urswalter.schenker@rdls.nestle.com	Nestle Research Center
Schmitt	Emilia	emilia.schmitt@zhaw.ch	ZHAW
Sicks	Andreas	a.sicks@biovision.ch	Biovision
Six	Johan	jsix@ethz.ch	ETH SAE
Sonnevelt	Martijn	martijn.sonnevelt@blw.admin.ch	BLW
Sorg	Loredana	l.sorg@biovision.ch	Biovision
Tomaszewski	Jeanne	jtomaszewski@ethz.ch	World Food System Center
Tribaldos	Theresa	theresa.tribaldos@cde.unibe.ch	Centre for Development and Environment
Vega	Roberto	roberto.vega@syngenta.com	Syngenta
Weilenmann	Jenny	jenny.weilenmann@mgb.ch	Migros
Zbinden	Simon	simon.zbinden@eda.admin.ch	EDA / DEZA / Globalprogramm Ernährungssicherheit

Appendix B: Posters from afternoon workshop groups

Group 1: Resilience in the Swiss food system



Group 2: Resilience in food security crops in Sub Saharan Africa

② Innovations

related to market-access
 - knowledge
 - money
 - local networks

chosen by people who really use it
 - combine different offers

Market

Challenge funds
 Last mile supply chain

Tools
 Incentivize private sector
 - banking
 - finance

Process
 direct partnership with local administration
 incentive for participants (e.g. legal)

Empowerment Cap. Building FARMER

Stimulating environment
 Analyse 2 understand situation / environment

Space for reflection / discussion
 Develop adaptive capacity of farmers

Participatory Research
 → offers a range of options
 → further develop

Genebank can be improved as a community
 → initiatives by gov.

Information 2 tools translated to local languages
Learning Alliances

MSB-builder
 → incentives

depending on countries
 - IF-bank
 - which apply information package

Competing Village agro-ecologique

Charta
 → local gov. 2010

avoid food loss nutrition diversity claim!

local-national low-cost technologies (biotechnology)

tec

Ursus
 100% RECYCLING premiumweiß

Needs / Roles + Responsibility

Access to IT + to credit

Translation
 Money isn't always needed
 Stimulate innovation?
 → access to finance
 → not over-invest

local govt + NGOs Local Govts:
 advocacy for digital inclusion access to + set-up activities / and

Natl. govt encourage / create new initiatives

natl. govt: natl. agricultural strategies

When capacity is lacking at local govt → need to work with NGOs

You need lead users / farmers for taking up innovation

Research: must be open to participatory approach

Co-create local knowledge for innovation
 → Academia + Farmers

Private Sector Co-Creation Innovation

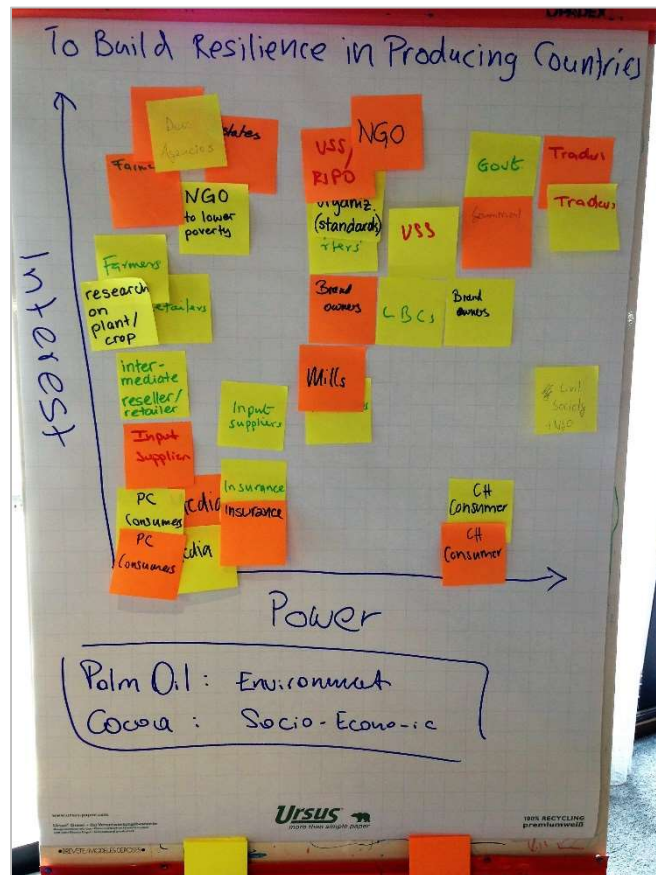
Need to learn to analyse the innovation
 Multiform + Social Orgs
 → help farmers to innovate

Persistence
 → long-term planning

No prescription
 → offer a menu of options

Ursus
 100% RECYCLING premiumweiß

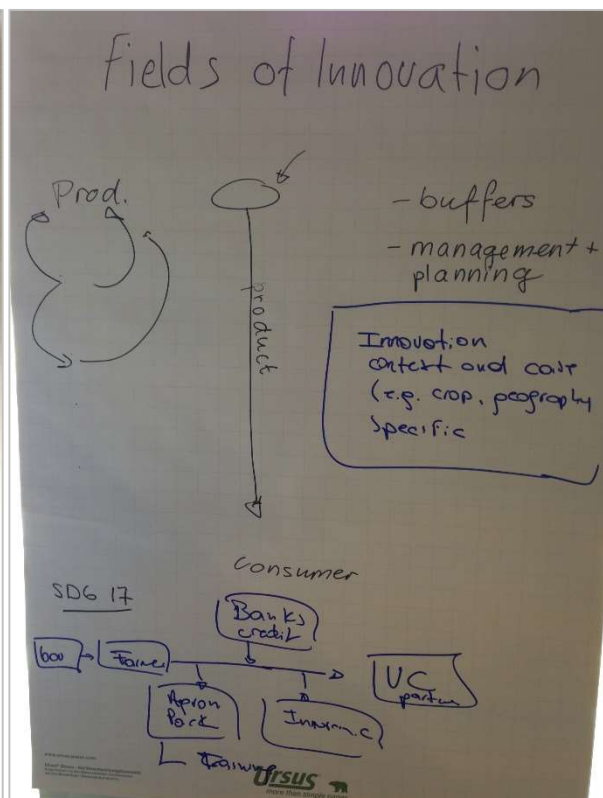
Group 3: Resilience in cash crop value chains in food systems (cacao and palm oil)



3 Innovation

① Triggers:

- Collaboration
 - ↳ Brand + Farmers
 - ↳ Developing Ag. + VSS
 - ↳ R&D along the VC
- Better connected (direct) VC
- R&D
- Higher access to Financial Services
 - ↳ capacity building on biz skills



Appendix C: Dominique Kohli's summary remarks (in German)

Schlussynthese am Resilienz-Workshop, D. Kohli Vizedirektor Bundesamt für Landwirtschaft
Zuerst möchte ich den Organisatorinnen und Organisatoren der Veranstaltung danken. Es war eine wichtige und sehr nützliche Veranstaltung.

Nach einem Tag wo wir verschiedenen Beiträge zu Projekten hörten und uns zum Thema austauschen konnten, folgen nun einige Gedanken aus agrarpolitischer Sicht als Abschluss.

1. Wir haben über Ernährungssysteme im Kontext der Weltwirtschaft gesprochen. Daher ist es wichtig sich in Erinnerung zu rufen, dass eine offene Welt, offene Systeme und offene Ansichten resilienter sind als geschlossene.
2. Innovationsfähigkeit ist die Grundvoraussetzung Resilienz aufzubauen. In dieser Hinsicht hat die Digitalisierung ohne Zweifel grosses Potential. Durch Digitalisierung und technologische Lösungen entstehen Vorteile für alle Akteure entlang der Wertschöpfungskette.
3. Das gesamte landwirtschaftliche Wissenssystem, im Speziellen Forschung, Fachhochschulen und Universitäten aber auch die Beratung spielen eine essentielle Rolle um die notwendigen Innovationen zu initiieren, umzusetzen und in Umlauf zu bringen.
4. Die Inputs und Diskussionen am heutigen Tag haben deutlich gezeigt, dass Resilienz im Ernährungssystem, entlang der gesamten Wertschöpfungskette aufgebaut werden muss.
5. Es ist daher ein neuer agrarpolitischer Ansatz, der das gesamte Ernährungssystem im Blick hat, notwendig.
6. Ein solcher Ansatz sollte prinzipiell partizipativ und inklusiv sein und so alle Akteure über alle Stufen der Wertschöpfungsketten einschliessen.
7. Zu diesem Zweck muss nach neuen Wegen und Instrumenten gesucht werden die verschiedenen Akteure stärker miteinander zu vernetzen: Dialog, Plattformen, interaktive Netzwerke müssen bilden und gestärkt werden.
8. Die Kernbegriffe, wenn es um Stärkung der Resilienz geht, sollten Partnerschaft und Zusammenarbeit sein.
9. Die Vorteile und der Profit müssen von der Produktion, über alle Ketten der Wertschöpfung hinweg bis zum Konsumenten ersichtlich und messbar sein. Diese ökonomische Dimension, zusammen mit einer ethischen ist die Grundvoraussetzung für eine effektive und dynamische Resilienz.
10. Diese Überlegungen machen deutlich, dass über die Rolle des Staates und aller anderer Akteure nachgedacht werden muss. Eine verstärkte Resilienz des Ernährungssystems führt über eine Reduktion des Einflussbereichs des Staates. Der Staat sollte zweckmässige Rahmenbedingungen definieren, die Akteure sollten ihre Verantwortung im Markt und dessen Entwicklung übernehmen.

Contact

ETH Zurich
World Food System Center
Stampfenbachstrasse 52
8092 Zurich

www.worldfoodsystem.ethz.ch

For questions or inquiries, please contact Jonas Jörin (jonas.joerin@usys.ethz.ch) or Johan Six (jsix@ethz.ch)

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