

R55. Expert views on stimulating mobile apps in Africa as a creative industry

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Abstract

The potential and promise of mobile app development depends in large part on the creative capability of the app developer. In Africa, despite the explosion of mobile phones over the last few years, there is uncertainty regarding the state and need for more relevant apps. In this paper, we draw from a focus group discussion of African based experts and decision-makers from international agencies, academia, industry and the creative industries, to scope out a research and policy agenda for mobile app development in Africa. The guiding question for the group was how to stimulate an enabling creative environment that supports local African app development. The discussion was facilitated and analysed using Delphi-type techniques from collaboration engineering. We found that the expert groups viewed local relevance, demographics (of app developers, app users and app development training organisations), app demand, innovation, the app environment, stimulants and inhibitors as the main areas to be addressed. The highest importance was regarded as understanding the app ecosystem and creating locally relevant apps. The least important was on the app demand. The results underscored the need for flexible research and policy directions for a developmental role of ICT, particularly apps, in Africa. The paper further makes a contribution to transdisciplinary research to show the effectiveness with which ICT can mediate experts from different disciplines to create new realities, while at the same time meeting rigorous methodological requirements.

Keywords:

E-skills, mobile apps, creative industries, mobile app development, ICT skills development, Transdisciplinarity, Africa

1. Introduction

The degree to which government and academia in Africa are prepared for meeting the demand for relevant skills is an open question as empirical knowledge of the specific skills that are needed often only emerges at a slow pace or retrospectively. For a continent that is largely a consumer of ICT and global economics, there are significant uncertainties related to the skills required to locally manage the rapid ICT changes amid the global economic restlessness. In the interim, national strategies for ICT in Africa are necessarily emerging through reference to donor funded expertise, policy and legal advice. How well the ICT strategies is working for the benefit of African countries is, however, largely unknown. The uncertainty calls for novel and probably non-traditional approaches rather than to seek to fit within existing theoretical constructs.

The advent of mobile telephony has significantly changed most African societies over the last few years from the way they communicate to the way they conduct financial transactions (van der Berg, 2014). In most instances, mobile has opened up opportunities and challenges that were previously unforeseen. The most widely discussed African innovation is transacting

money using the mobile device, especially m-pesa (Morawczynski, 2011). Morawczynski (2011) unearthed how m-pesa was particularly successful with users because it resonated with the way the local society worked. The m-pesa local innovation succeeded against strongly held regulatory beliefs about crossing telecoms and finance on a mobile platform.

Such creativity and local innovation have increasingly been touted as the most important elements in gaining competitive advantage today (Florida, 2012). Some, despite the scepticism, have gone ahead to suggest that the upsurge of creativity and innovation signal the transition to a new type of economy beyond the knowledge economy, the creative economy (Comunian, 2012; Howkins, 2001). The notion of a creative economy is about economically advancing by including cognitive-cultural influences and "intellectual and affective human assets" (Leslie & Rantisi, 2012). The discourse on the creative economy seeks to show how creativity is making a contribution to societal, national and global economies. It is argued that the industries and nations that are making most progress today are those which are able to continually keep recreating themselves to adapt to societal demands (Teece, 2007), or are able to create new things even when the new is an incremental improvement of what existed (Wood, 2013).

It is our objective in this paper to understand how ICT policies and research in Africa can be considered so as to provide an environment where innovations that extend the capability of mobile phones could be created in the unique logic of African societies. We contribute to the debate through the opinions of African and international experts on app development and the creative industries, which opinions are critically addressed in the empirical sections of the paper. Studies of expert opinion in earlier and often more controversial domains include expert evaluations of ICT in socioeconomic development (NeSPA, 2010), urban and regional development (Linnamaa, 2002), information and knowledge management (Ayyub, 2010) and e-government (Cairns, Wright, Bradfield, van der Heijden, & Burt, 2004).

We investigate the expert opinion about the strategies that are required to stimulate app development in Africa, especially drawing from the rich African creative industries. The choice of creative industries was threefold. Firstly because the essential underlying spirit behind the creative industries is creativity and innovation; secondly is that creative industries are an area where Africa has an abundance of natural wealth; and thirdly because it is believed the same process of innovation and creativity when applied to app development could stimulate apps that are more relevant in the African context. In the literature review we expound on the notion of the creative industries.

The remainder of the paper is structured as follows. The next section reviews the literature on the creative economy and mobile apps. It is followed by the research approach. The analysis of the findings is discussed thereafter before the concluding section.

2. LITERATURE REVIEW

2.1 The creative economy and the creative industries

The first mentions of the term 'creative economy' were initially by (Coy, 2000) and Howkins (2001) in a news article and in a book respectively. They argued that new ideas were fast becoming the driver of economic advancement, and that creativity and innovation expanded beyond the little-understood term of the creative industries. Howkins (2001) noted how creativity happens in any other industry and contributes to the economy, not only from the creative industries.

Dubina et al (2012) later attempted to redefine the term from creative economy to ‘creativity economy’ by bringing together the notion of creative industries, the knowledge economy and innovation economies. They defined it as “*a creativity-based and creativity-based driven economy*”. We adopt the Dubina et al (2012) definition as it reflects the essence of the research to consider how to stimulate an environment of creativity in a non-traditional creative industries sector, app development. It was therefore important to delineate what the creative industries are, and how a sector such as app development could draw from it.

The concept of creative industries is about industries that have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property (DCMS, 2001). The popular definition by DCMS (2001) categorised the creative industries as falling into those that are capital intensive (e.g. film, radio and television), those that are labour intensive (e.g. arts and antiques, designer fashion, music, the visual and performing arts) and those that are consumer intensive (e.g. advertising and architecture). The UK organisation, NESTA (National Endowment for Science, Technology and the Arts) also derived a fairly similar definition to focus on the industrial sectors rather than on individual talent in four categories (Flew, 2011 pp. 24-25). These were:

- Creative service providers: industries who earn revenue for devoting time and applying IP to other businesses and organisations. For example, advertising agencies, design consultancies, architecture practices and new media agencies
- Creative content producers: These invest capital upfront to produce IP protected outputs that are distributed through consumers / audiences and earn revenue through a mixture of sales, advertising and subscriptions. For example, film, theatre and production companies, computer and video game development studios, music labels, book and magazine publishers and fashion designers.
- Creative experience providers: These sell the right for consumers to experience specific activities, performances or locations in a particular time and place, For example, theatre, opera and dance production companies, live music organisers and promoters, spectator sports, festivals, cultural institutions, tourist promotions
- Creative originals producers: These are involved in the creation, manufacture or sale of physical artefacts whose value is derived from their perceived cultural or creative value, exclusivity and authenticity - they are typically one offs or are produced in limited production runs. For example, visual arts, crafts and designer makers of specialist clothing.

Flew (2011) attributed the rise of a focus of the creative industries as an important contributor to the economy as having started with political backing in the UK. He notes how Tony Blair believed that the UK needed to primarily “*compete based on brains and not brawn*” (p. 10pg 10). He argued that the political will to promote a creative type economy was strong enough to justify reorganising UK’s Department of National Heritage to Department of Culture, Media and Sport so as to rebrand Britain as a modern nation and not an “*old country*”.

In terms of Africa, the concept of a creative economy has largely been externally driven by UNESCO and UNCTAD (2010) as a recommendation on how Africa could compete globally. They note that developing countries (DCs), of which Africa has the greatest number, run the risk of falling even further behind competitively if they do not participate in the creative economy. The UN agencies are anxious that with the digitisation of content, there could be a cultural backlash where Western cultures fast erode the local cultures of DCs. And

with the proliferation of digital content on mobile, a global homogenisation of culture becomes a greater risk as DCs become greater net consumers of the available digitised content. On the other hand, there exists an opportunity to commoditise the creative values from the creative industries in two ways: in the form of freelance, contract and project based work; and by imitating the process of creativity and innovation embedded in the creative industries into other disciplines e.g. when architects begin to work in Information Systems, Enterprise Architecture emerges (Florida, 2012; QUT, 2012).

The zeitgeist of creativity further argues that creativity offers a developmental avenue by “improving the lot of underpaid, underemployed, and disadvantaged people lies not in social welfare programs or low-end make-work jobs, nor in somehow bringing back the factory jobs of the past, but rather in tapping their innate creativity, paying them appropriately for it, and integrating them fully into the Creative Economy” (Florida, 2012).

Various authors have however highlighted some dangers about the creative economy agenda. They express uneasiness about the discourse on the creative economy as being more hype and not having sufficient empirical evidence (Campbell, 2013). Other authors fear that the emphasis of the creative economy advantages an educated elite class and ignores the responsibility of government for social provision, inequity and the risks and insecurities that affect all employees (Leslie & Rantisi, 2012). The misplaced emphasis could lead to a widening of already large social and economic disparities between the less creative type careers who are mainly the marginal groups of society. Such groups are often paid to execute tasks for the elite. The group includes women, children, ethnic minorities, disadvantaged individuals and the youth. It is feared that the creative economy global agenda will only exacerbate even further the gap between the two groups.

Having noted the dangers, there is no reason to proverbially *throw the baby out with the bathwaters*. Despite the lack of empirical evidence, or rather the lack of appropriate means to measure the contribution of creativity to the economy, it is evident that the rapid growth of the ICT sector, especially mobile, has forced many industries to be more creative in order to survive and thrive (Bontje & Musterd, 2009). In Scotland, it has been shown that the creative industries and ICT have a dual influence on each other to improve the livelihood of rural communities (Roberts & Townsend, 2015).

Nonetheless, there has not been a great deal of research on the role and place of creativity in Information Systems (Couger, Higgins, & McIntyre, 1993). Seidel et al (2010) in identifying the gap, borrowed the 4P model of Rhodes (1961) to suggest research directions for creativity in IS. The 4P model posits four dimensions of creativity; the creative process, the creative person, the creative product, and the creative press (publication).

2.2 Mobile apps

The explosion of mobile telephony in Africa was estimated at 69.3% as at the end of 2013. Mobile-broadband had also risen to 20% of the African population, up from 2% four years previously in 2010 (ITU, 2015). The dropping price of mobile phones, the less expensive alternatives from the East and the poor fixed telephony infrastructure have been obvious catalysts in enabling the less financially capable to own a phone. And now with the prices of smartphones, phones with access to the internet and software application capabilities, more and more Africans are able to afford a cheap version at less than \$100. Smartphones allow Africans to consume the same content that people from across the world are consuming. It is not uncommon for someone in a deep rural village in Africa to know about the Kardashians.

It is the access to global content on smartphones that carries the prospect of a global homogenisation of culture.

The majority of the content on smartphones is driven by mobile apps (apps), software which runs on the smartphone. Apps are typically written based on the platform of the mobile device. The five most common mobile platforms in Africa are Android of Google, Blackberry, Windows phone, iOS of Apple and Symbian of Nokia. It was found that in Africa most app developers teach themselves how to develop mobile apps (Twinomurinzi & Dajee, 2014). It is not only the demand for apps that stirs developers into locking into a specific mobile platform, but also the characteristics and requirements of each platform (Gavalas & Economou, 2011). There are three technical aspects that influence developers when choosing a platform; the software development kit (SDK), the app store and the degree of integration. The SDK includes an emulator for the mobile device, a library for the development language as well as debuggers to remove coding errors. Some SDK's such as the iPhone SDK have a number of restrictions.

An app store is the publication portal. Some portals allow developers to publish their apps on their stores without review such as Google's Play while others such as Apple's App Store review every app before it is published (Butler, 2011). The degree of integration refers to the extent to which an app is bundled with the device at manufacturing or is placed on the portal for later download by the device.

3. RESEARCH APPROACH

The research approach refers to the means of inquiry that connects a researcher in the empirical world with the material to be investigated. The means of inquiry addresses how the researcher will answer the two critical questions of representation and legitimacy in such a way that all the parts work together to address the central research question (Denzin & Lincoln, 2005). The parts of research range from the specific strategies of enquiry through the methods of data collection to how the data is analysed.

In this paper, we adopted a qualitative inductive epistemology in placing paramount value on the importance of context and the lived experience of human beings to answer the primary research question (LeCompte & Preissle, 1993). The qualitative inductive approach enabled us to generate new understandings about the possibility of drawing on the process of creativity and innovation from the creative industries to arrive at general recommendations about the type of environment which can stimulate more relevant African apps.

In terms of method, Delphi-type facilitation (Linstone & Turoff, 2002) as a transdisciplinary method was adopted from the Collaboration Engineering (CE) literature (Twinomurinzi, Phahlamohlaka, & Byrne, 2012). The CE facilitation method is discussed further in the next section juxtaposed against a Grounded Theory method and the Delphi method. Transdisciplinarity is underpinned on the premise of building bridges between disciplines which have different notions of reality, which bridges become in themselves a reality of their own with a new set of language to make sense of the bridges (Thompson-Klein, 2004). Transdisciplinarity is enjoying renewed interest because the current global opportunities and challenges are increasingly complex and interdependent, not isolated to particular sectors and are often not predictable (Thompson-Klein, 2004). It is not enough to have an understanding of more than one discipline, it is equally necessary to interconnect and coordinate efforts from different disciplines into each other and create meaningful value from the new

synthesized creation (Max-Neef, 2005). Transdisciplinarity appears to offer some solutions to some of the main problems facing African countries such as poverty, environment, war, inequity etc. The challenges of local neighbourhoods are not formulated in scientific terms - they are formulated using everyday terms and language (Thompson-Klein, 2004).

We facilitated a focus group discussion with 14 experts from Kenya, South Africa, Australia and the UN. Kenya contributed two specialists from the creative industries and app development. South Africa contributed eight academics with specialisations in Computer Science and Information Systems. Cisco® contributed one advisor. Australia contributed one academic and a practitioner on the creative industries. The UNDP contributed two advisors. With the exception of the Australian who called in using Skype to the expert group, the experts all sat in a room and deliberated in a focus-group type of discussion facilitated using a specialised type of collaboration ICT, ThinkTank® (Briggs, De Vreede, & Nunamaker Jr., 2003).

The discussion followed the agenda below:

1. What should we be looking for?
2. Rate of importance
3. Who should we involve?
4. How can the collaborators assist
5. How can you assist?
6. What next?

The first question was the most important for the paper as this is where the material for understanding the policy directions of the research question. The remainder of the questions were considered project management type questions to implement the ideas that would emerge. It can however be noted, that research value was also drawn out of the second question.

3.1 Role of the researcher

The researcher was involved as part of a South African government E-skills initiative to investigate how the creative industries can play a role in stimulating app development (NeSPA, 2010). South Africa developed the e-skills agenda in the National e-Skills Plan of Action 2010 (NeSPA) to stimulate the creative and innovative use of ICT among citizens, communities, and organizations so they can favourably participate in the knowledge-based economy.

4. ANALYSIS AND DISCUSSION OF FINDINGS

The results of the discussion were inductively analysed as part of the facilitated discussion using Glaser's (1992) 'emergent' Grounded Theory method. The authors of Grounded Theory, Barney G. Glaser and Anselm L. Strauss (1999) disagreed on method. According to Strauss and Corbin (1990; Strauss, 1987) the method of Grounded Theory begins with open coding followed by a coding paradigm to generate theory from data, guided by a theoretical perspective. However, Glaser (1992) considered it absurd and untrue to the fundamental spirit of Grounded Theory to begin with a theoretical perspective before conducting research. For Glaser (1992), a theoretical perspective results in the substantive theory being biased. Glaser believed that a researcher should have no bias before entering into the field. Kelle (2005, p1) refers to these divergent approaches as a conflict between whether categories emerge (Glaser, 1992) or are forced out from empirical data (Strauss, 1987).

On the other hand, Collaboration Engineering using thinkLets (Briggs, De Vreede, and Nunamaker Jr. 2003) identifies five general patterns of facilitated collaboration which patterns can be used in any order: *diverge* - the group moves from fewer to more concepts; *converge* - from many concepts to focusing on a few worthy of further attention; *organise* - from less understanding to more understanding of the relationships among the concepts; *evaluate* - from less to more understanding of the possible consequences of each concept; and *build consensus* - from having less to having more agreement on courses of action. The order of CE patterns we used *diverge-converge-organise-evaluate-consensus* (Table 1) is closely related to the Delphi facilitation method and Glaser's (1992) approach to Grounded Theory.

	CE method	Delphi method	Grounded Theory method
Step 1: Ideate	Diverge: from fewer to more concepts	Explore the subject under discussion	Code using unique identifiers (coding)
Step 2 : Understand	Converge: from many concepts to focusing on a few worthy of further attention	Reach understanding of how the group views the issue	The codes are brought together into categories based on similarity of the concepts
Step 3.0: Bridge	Organise: from less understanding to more understanding of the relationships among the concepts	Disagreement is explored to bring out the underlying reasons for the differences and possibly to evaluate them	Relationships between the categories are inferred to create a substantive theory
Step 3.5: Evaluate	Evaluate: from less to more understanding of the possible consequences of each concept		
Step 4: Explain	Consensus: from having less to having more agreement on courses of action	A new understanding of the subject has been reached and can be explained	The substantive theory is employed to explain the phenomenon

Table 1: Grounded Theory compared with Collaboration Engineering and the Delphi method
The remainder of the section is presented in order of the categories that emerged from the facilitated discussion.

4.1 What should we be looking for?

The starting question was specifically framed to elicit ideas from the experts. Each expert anonymously typed out their idea on the computers. Within 10 minutes, 58 ideas had been generated. The second step was to facilitate a bottom-up discussion whereby similar ideas are categorised and placed together. In the facilitated discussion, all the experts openly participate to reach consensus on the name of the category, what the category means and why the idea ought to fall in the specific category. The facilitated process enables the creation of a common frame of reference for the group. The following eight unique categories emerged from the 58 ideas:

1. Local relevance (12 ideas)
2. Demographics – Developers (8 ideas)
3. Demographics – Users (2 ideas)
4. Demographics – Training (7 ideas)
5. Mobile app demand (6 ideas)
6. Fostering innovation (2 ideas)
7. Understanding the ecosystem – the environment, the supply, the relationships... look for gaps (14 ideas)
8. Inhibitors (5 ideas)
9. Stimulants (2 ideas)

The importance of the categories was rated as shown in Table 2 below. The rating evaluations were produced by asking the experts to rate using a 10 point Likert scale the degree of importance of the category to Africa. 10 meant extremely important and 1 meant completely unimportant. Standard deviation was used as a measure of the degree of dissonance between the experts as is required in the evaluation stage.

Original order	Category	No of ideas	Average Score	Min vote	Max vote	Std Dev
7	Understanding the ecosystem - the environment, supply, the relationships... look for gaps	14	9.42	6	10	1.19
1	Local relevance	12	7.83	5	10	1.62
4	Demographics - Training	7	7.67	6	10	1.37
3	Demographics - Users	2	7.58	5	10	1.55
2	Demographics - Developers	8	7.00	3	10	2.04
9	Stimulants	2	6.08	2	10	2.33
6	Fostering innovation	2	6.00	2	9	1.87
8	Inhibitors	5	6.00	4	10	2.00
5	Mobile app demand	6	5.92	3	8	1.26

Table 2: Rate of importance of expert opinion categories

4.2 Understanding the eco-system

The category emerged primarily as a result of an appreciation that none of the experts were able to firmly identify the current status of app development in Africa. There were more questions in this category than ideas. The typical questions included;

“What type of device (3G/2G/4G) has the majority and what are the trends?”

“Which apps have been incubated and marketed?”

“What hubs exist?”

While all the experts were able to identify Kenya as a significant player in the African app market, none was able to say with certainty the status of app development in Kenya, or even in Africa. The Australian academic was able to allude to the status of app development in Australia, as well as the efforts that their government was making to promote the sector under the creative industries. As much as the group agreed there were thousands of apps on the global market that are accessible to Africa, it was not possible to identify the place for Africa except as consumers. For example;

“What type of current application are people using at his point to identify the needs?”

With a standard deviation of 1.19 from 12 total ideas, this category had the greatest degree of agreement showing the extent to which effort needs to be placed in more research on apps in Africa than in prescribing how the app market ought to work.

4.3 Local relevance

Local relevance was the first emergent category and came second in order of importance, with 8 ideas and a standard deviation of 1.62. There was average agreement about its importance. Local relevance was especially emphatic on making sure that apps are designed which suit African ways of being. The idea that resonated in the category greatest was:

“African apps from Africa by Africans”

There was however also an appreciation that Africa does not have to reinvent the wheel. It was recognised how some efforts may be better done in partnership with international players.

"Maybe we also need to look internationally what is available so that we can take from them what we can use or adapt for Africa?"

4.4 Demographics – training

The demographics of institutes that provide training for app development was the third most important sought with a standard deviation of 1.37. As much as there are a number of private training colleges as well as some public training ones, information about where these institutes are, and what they offer was unknown.

"Look beyond universities, look at tech colleges and institutions what do they have to offer?"

"Role of incubators. Which ones exist?"

"We need to find out who is training the youth and entrepreneurs for future innovation initiatives."

In both South Africa and Kenya, it was recognised that there was a growing number of unemployed youth who could be trained. Such knowledge is an important starting place to identify skills gaps that needed to be filled.

Demographics – users

The category had only 2 ideas yet emerged as the fourth most important.

"Demographic of mobile users."

"Who are we targeting - who is the market for the mobile apps?"

With a standard deviation of 1.55, it was clear that the group wanted to know the specific profiles of app users. The demographics of app users would appear to resemble the category of mobile app demand yet the two scored significantly differently. The category of mobile app demand was voted the least important probably because it is already obvious that there is a strong demand for mobile apps in Africa.

Demographics – developers

This and the five remaining categories were the only ones which had minimum scores of less than 5, indicating that some experts perceived them as unimportant. The category also had the second highest standard deviation of 2.04 showing the high degree with which there was disagreement on the importance of the category. The essence of the category was on understanding the locations in which app developers are in Africa.

"We need to determine how experienced our current developers."

"Where are the developers situated?"

Previous research had indicated that most app developers in South Africa were in urban areas (Twinomurinzi & Dajee, 2014) and could probably point to an opportunity to develop the same skills in non-urban areas.

Stimulants and fostering innovation

Stimulants had the highest standard deviation of 2.33 showing the extent of disagreement of its importance. There were 2 ideas under the category;

"We need to find innovative thinkers who are constantly thinking of new ways to do things using ICTs."

"Within a very short space of time smartphones will be ubiquitous so development should probably focus on smartphones for the future."

Both ideas pointed to a future state and the creation of a creative environment that could enable relevant apps to be created.

Similar to the "Stimulants" category, fostering innovation considered the creative environment in which apps are developed. Fostering innovation had two ideas.

"Mobile App competitions."

"Is it really necessary to have a CS background?"

The challenge to assume that only Computer Scientists had the ability to develop apps could be the reason for the extent of disagreement. Can anyone develop an app?

Inhibitors

Inhibitors collated the essence on the social and technological limitations to developing apps. The challenge as to the exclusivity of apps being developed by Computer Scientists resurfaced. The challenge also appeared in questioning the language used to exclude non-science people from developing apps as well.

"Not use the term developers, as this may allude to having science background and really ignore the true innovators."

The technological inhibitors related to the type and diversity of mobile technology that people in Africa have.

"Focus on basic phones as smartphones as not as widely spread as simple ones."

"Look at affordable devices."

"Cross-platform will be important."

Mobile app demand

Mobile app demand was seen as the least important category. It had six ideas and had the second highest degree of agreement. It shows clearly that app demand is commonly seen as not being an issue worth discussing, it is evidently very high. The idea that resonates the essence of the category is;

"Is there a need?"

The answer to the question appeared to be an overwhelming yes.

CONCLUSIONS

The paper sought to understand how ICT policies and research in Africa can be considered so as to provide an environment where innovations that extend the capability of mobile phones

could be created in the unique logic of African societies. We elicited the ideas of 14 experts from academia, Africa and Australia, the creative industries, app developers, the UNDP and Cisco. The transdisciplinary approach enabled the group to collaboratively identify areas that are worth investigating further to stimulate app development in Africa. The results revealed the lack of collective efforts in steering app development and how little research is being done on app development in Africa. The lack is despite the evident demand there is in Africa for relevant mobile apps.

The research revealed how policies and national strategies regarding ICT in Africa need to be flexible enough to allow research to be continually undertaken that enables ICT to resonate closer with African logic.

The paper makes a contribution to transdisciplinary research to show the effectiveness with which ICT can mediate experts from different disciplines to create new realities, while at the same time meeting the rigorous methodological requirements. Such new realities are more relevant in today's highly dynamic and complex world.

The paper was limited in not being able to bounce the expert ideas off other experts beyond the group for further feedback. Areas for further research are in actually pursuing the areas for research and policy recommendations that the expert group identified.

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