Finland's leadership of the mobile industry is being eroded by regulation designed for voice argues Jarkko Vesa

Regulatory framework and industry clockspeed: lessons from Finland

There is hardly another industry that has to live with such an aggressive and constant flow of fast and unpredictable changes in all levels of the market as the mobile services industry: new network standards emerge, handsets become more sophisticated, mobile applications offer increasing functionality, and new kind of content can be delivered through mobile networks as more bandwidth becomes available. In this paper the term "mobile services" refers to two main categories of services: The first category consists of so called conversational services (or Person-to-Person messaging services) excluding traditional mobile voice services. The second category contains various types of content services (or Person-to-Content services), such as ordering a new ringtone by sending a short-message to the service provider.

The mobile services industry represents an interesting intersection of three distinct industries and technologies, namely the mobile services industry, the media content industry, and the Internet world. This kind of business context leads often to disruptive technical innovation, where the speed and impact of change are high. A good way of describing the rate of change in a given industry is the notion of industry clockspeed introduced by professor Charles Fine of MIT (1996). There is, however, one limitation in the existing research in issues related to the industry clockspeed: the impact of regulatory framework on the clockspeed of an industry has received little or no attention.

Based on the characteristics of the mobile services industry discussed above, it would be natural to assume that the clockspeed of mobile services industry would be high. However, as the analysis presented in this paper demonstrates, the constraints imposed by regulatory framework in a given market have a major impact on the speed and magnitude of change. Based on the analysis of the Finnish mobile services market it is argued that national regulatory authorities (NRAs) need to be cautious in their regulative activities in order to ensure that the prevailing legislation does not slow down the natural evolution, or the clockspeed, of the industry. Unfortunately it appears that in Finland the regulatory framework which has been optimized for a voice-centric mobile business paradigm has been one of the main reasons for the current shortcoming of mobile data services offering in the Finnish market. As a result of this development, Finland has become an uninteresting market for the global players in the mobile services industry not least because of the regulatory framework that prohibits the kind of operator-driven business model which is increasingly gaining popularity in other parts of Europe. Furthermore, the contemporary regulatory framework does not allow Finnish mobile operators to develop their business in ways that have turned out to be successful in Asia and

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But let's take a closer look what the Finnish mobile services market looks like, and what kind of interplay between regulatory framework and industry clockspeed it reveals.

THE ROLE OF REGULATION IN THE MOBILE INDUSTRY

There is a widespread consensus that Europe was very successful in joining forces to develop a common GSM standard for digital mobile telephony in the late 1980's and early 1990's. Thanks to the successful launch and fast take-off of GSM services, European mobile phone users have enjoyed more and better services than their colleagues in the US (Blanco, 2003). However, this argument applies only to the traditional voice services. When it comes to non-voice mobile services, Europe can hardly be described as a leader especially if we look at the non-SMS part of the revenue.

From a marketing perspective there is a major difference between traditional mobile voice services and the future mobile services. Albeit digital mobile telephone networks are technically highly complex from service providers' point of view, the "product" (i.e., person A being able to call person B while on the move) is reasonably simple and highly standardized. However, the multimedia-driven mobile services of the future are much more complex products, because they consist of several different building blocks that all have to work seamlessly together in order to offer a positive user experience. Mobile services can be described as complex goods which Mitchell and Singh (1996) have defined as "an applied system with components that have multiple interactions and constitute a nondecomposable whole". As traditional economic theories such as transaction costs economics argue, the level of standardization of products and services has direct implications of the optimal way of producing them, i.e. whether to integrate vertically or to use the markets. Earlier analyses of key factors behind the success of mobile data services in Japan (Vesa 2004, 2005) have indicated that an integrated business model appears to be more successful as the industry moves from voice-centric to data-centric services.

Photo: Nokia

Finland's leading postion in mobile has turned Nokia into a global brand

The discussion presented above leads us to Proposition 1:

PROPOSITION 1

Regulatory environment that has been optimized for traditional mobile voice services is not necessarily optimal for the more complex mobile services of the future.

THE TRANSFORMATION OF THE MOBILE INDUSTRY

All industries are constantly changing. These changes are related both to the boundaries of industries as well as the industry itself. The drivers and magnitude of these changes vary from one industry to another. Sometimes an industry may experience what Mitchell and Singh (1996) call an "environmental shock", which can be described as "sudden and substantial changes in technology or market segmentation". In the literature these kind of changes are sometimes also called paradigm shifts or disruptive changes. Or as Vinzenzo Novari, CEO of mobile operator "3" in Italy, pointed out in his presentation at the ITU Telecom World 2003 conference: "mobile phones are changing their DNA" (Novari, 2003). By this statement he emphasized the shift from the traditional voice services towards a data-centric business paradigm. The observations discussed suggest the Proposition 2

PROPOSITION 2

The mobile industry is going through a major transformation both within the industry, and also the boundaries of the industry itself are currently being re-drawn.

THE CONCEPT OF INDUSTRY CLOCKSPEED

As discussed above, an industry is constantly going through a process of change. One way of describing the rate of change in a given industry is the notion of industry clockspeed introduced by MIT professor Charles Fine (1996). According to Fine, there are different ways to measure industry clockspeed. He has suggested several sub-metrics, such as process technology clockspeed (i.e., capital equipment obsolescence rate), product technology clockspeed (i.e., rates of new product introduction or intervals between new product generations), and finally organizational clockspeed (i.e., rates of change in organizational structures). In addition to the internal metrics, the rate of change in the industry's external environment (i.e., developments in technology, consumer preferences, and market conditions) differs from industry to industry (Fine, 1998). It is argued here that several of the factors described by Fine are clearly visible in various parts of the mobile industry, particularly in the handset and services fields. This leads us to Proposition 3. (See below)

Next we will test if we can find support for the three propositions presented in this paper. We shall do this by using empirical evidence from the Finnish mobile services market.

MOBILE SERVICES INDUSTRY IN FINLAND

Let us take a closer look at the Finnish mobile services industry which has traditionally been regarded as highly developed. Currently the mobile phone subscription penetration rate is over 95 per cent of the population of little over five million people. Internationally Finland is still positioned high in the rankings, but not anymore described as the "mobile wonderland" as in the past. The Finnish regulatory authorities are very proud of the fact that the tariffs of mobile phone calls are among the lowest in the world.

NUMBER PORTABILITY

In addition to low call prices, there is also another special characteristic that makes the Finnish mobile market particularly challenging for operators. During the 18 months that the number portability for mobile subscriptions has been possible, Finnish mobile phone users have switched their subscriptions over two million times (Taloussanomat 2.4.2005). The eagerness of Finnish mobile phone subscribers to switch operators so frequently can be partly explained by the fact that the main criteria when selecting a mobile operator are the pricing of mobile phone calls and short messages, the amount of free airtime, and the giveaways offered by mobile operators. Unlike in most European countries, the Finnish operators are not allowed to bundle subscription and handset, which in many markets dampens consumers' enthusiasm – or ability – to switch between mobile operators on such a regular basis. Or as Matti Kotisaari, the director of business planning of a Finnish network operator Finnet has put it, "Finland has extremely churn-friendly regulatory environment" as customers can switch mobile operator simply by sending an SMS to the their new operator of choice.

HOW MUCH COMPETITION IS TOO MUCH?

The current situation in the Finnish mobile market has raised the question of how intense the competition can become before it starts to damage the whole industry. Recently Matti Vikkula, the CEO of Saunalahti, the fastest growing and the only true MVNO in Finland, pointed out that the current price war cannot continue very long because the lower end-user prices are offered at the cost of profitability (Taloussanomat 7.4.2005). Similarly, Elisa's CEO Veli-Matti Mattila has warned that if the current price erosion continues, operators are forced to adjust their cost structure even if it means new lay-offs (Taloussanomat 6.4.2005). In May 2004 Anni Vepsäläinen, the CEO of the market leader TeliaSonera Finland, raised the

PROPOSITION 3

The mobile services can be best described as a high-clockspeed industry where technology, organizational structure and market conditions are all constantly changing.

...the Prime Minister of Finland criticized mobile operators for focusing too much on price competition and not investing enough in innovative new services

question of regulatory framework and the attractiveness of the Finnish mobile market to foreign investors: Earlier last year investment bank Credit Suisse – First Boston gave a recommendation in their analyst report "Euro Telcos Regulation" (March 2004) to avoid investments in TeliaSonera due to over-zealous regulatory authorities in Swedish-Finnish telecom operator's home markets (Vepsäläinen, 2004).

At the same time as Finnish mobile phone users have enjoyed inexpensive mobile phone calls, more advanced non-voice mobile services have not taken off as expected. The biggest disappointment has been the third generation mobile networks and services: Finland was the first country in Europe to grant 3G licences for free based on a "beauty-contest".

PRICE COMPETITION

Despite this, Finnish mobile operators were the last ones to open 3G networks for commercial use in the end of 2004. Earlier this year the Prime Minister of Finland criticized mobile operators for focusing too much on price competition in the existing 2G/2.5G services, and not investing enough in innovative new services (ITviikko 3.2.2005). Representatives of the Finnish mobile operators were surprised by this attack and pointed out that the regulatory policy in Finland has had a strong focus on lowering the prices of mobile phone calls (Taloussanomat 4.2.2005). The general manager of the national regulatory authority FICORA reacted to this view of operators by stating that operators make their own pricing decisions – and not the regulator (ITviikko 10.2.2005). This debate, i.e. who is to blame for the problems of the Finnish mobile markets – the operators or the regulator, has continued in the local press for months now. Let's see if the following analysis can help us to understand the reasons for the current situation in the market, and the relationship between operators' competitive strategies and regulatory framework.

So why is the competition in the Finnish mobile market focusing so heavily on the prices, instead of the other dimensions of traditional marketing mix? In order to answer this question we will analyze the characteristics of the Finnish mobile market along two dimensions, which are industry structure and product

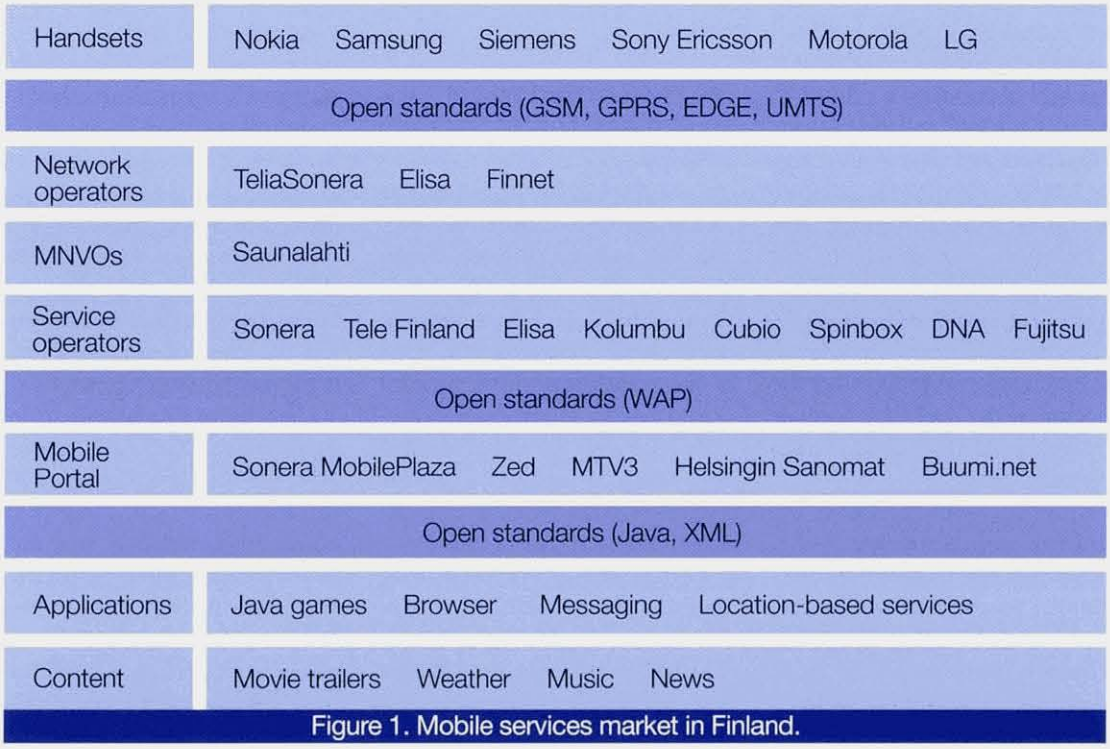

Figure 1. Mobile services market in Finland.

architecture, as suggested by Fine (1996, 1998).

The industry structure in Finland is horizontal; the competition is taking place on the horizontal level, that is, operators are competing against each other, handset manufacturers are competing against each other etc. (see Figure 1, previous page). The product architecture is modular, which allows subscribers to mix-and-match practically any subscription, handset, and service or content. The Finnish model is very different from the "dominant design" in Japan or in the Central Europe where mobile operators are orchestrating the whole business – including the handset sales. Due to Nokia's dominant role in the Finnish market with close to 60 percent share of the handset market, the Finnish market is sometimes described as "vendor-driven" as opposed to the more common "operator-driven" approach.

The Finnish market has some special characteristics when compared with other national markets in Europe or globally. The first peculiarity is related to the marketing of mobile phone subscriptions: The prevailing legislation prohibits mobile operators from bundling subscriptions and handsets. Or more accurately, a consumer's decision to subscribe to a specific operator's mobile telephony service must not affect the pricing of the mobile phone he or she is possibly purchasing at the same time.

Another characteristic of the Finnish mobile market is that Finland is one of the few countries in Europe not allowing the use of so called SIM-lock, which prevents users from using the handset subsidized by one operator with a subscription of another operator, for instance to get better call tariffs. However, in April 2005 the Ministry of Transport and Telecommunications (MINTC) surprised the industry by expressing their willingness to allow bundling of 3G handsets and subscription. MINTC believes – or at least hopes - that by allowing 3G bundling for a period of three years they can speed up the takeoff of 3G networks and services in Finland. Operators were not very pleased with this initiative: VP of consumer services of TeliaSonera Janne Vainio calculated that if operators would sell 1.5 million handsets each with 200 euro subsidy, it would mean a 300 million euro additional investment for Finnish mobile operators (Tietoviikko 7.4.). The 12 month fixed contract period proposed by MINTC is probably not long enough to justify this kind of investment, albeit customer acquisition costs are currently extremely high due to the close to 40% churn rates of the Finnish mobile operators.

INTERPLAY BETWEEN REGULATION AND CLOCK-SPEED

As we have seen, the structure of the Finnish mobile services market is very different from the rest of the world. This paper argues that one of the main reasons for the current situation is the regulatory environment – and not an intentional strategic choice by the operators. But let's take a closer look how the Finnish market ended up looking the way it does today.

During the era of the analog mobile telephony, the Finnish national telecom operator TELE was the sole provider of the NMT telephone network services. TELE controlled the whole value chain, i.e. the network, handset business and services – which at the time meant of course only voice calls. However, in the beginning of 1990's the market structure changed totally as the competition opened up along with the digital GSM networks and deregulation.

The regulatory framework created in the 1990s turned out to be very successful for all the players. Consumers enjoyed lower call tariffs; the handset prices went down as a result of standardization; handset and network vendors prospered; and the Finnish economy boomed as Nokia's business was growing at an amazing rate. However, the success of the mobile voice market has started to turn against itself. In a short period of time, the mobile services industry transformed from a vertically integrated and closed market to a more horizontal and open market (see Figure 2, left hand diagram).

What has happened in Finland during the past few years is that the competition in mobile services market has been intensifying at an increasing rate. Albeit the number of 2G/2.5G mobile network operators has remained the same over the last few years (at least if the merger of Sonera and Telia is not taken into account), the number of service operators has increased dramatically. Today there are about fifteen service operators in Finland – which is a lot in a market of five million people. As a result, the competition between operators is focusing mainly on price. From economic perspective, one could argue that there is already too much competition in the traditional mobile voice services market. The product

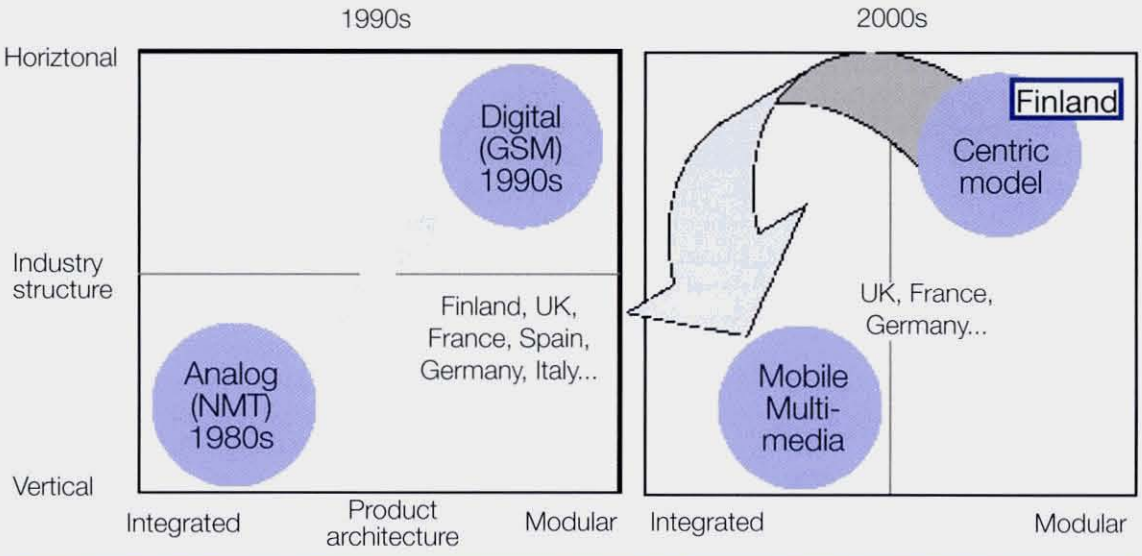

Figure 2. Evolution of mobile services market in Europe during the past decade.

called "mobile phone call" has turned out to be a highly standardized commodity, which has very few differentiating factors – especially as the quality of the Finnish GSM network is good enough in all networks commercially available.

PLANNING FOR THE FUTURE

One could, however, raise the question whether the current model is optimal also for the future mobile services. It is argued here that a regulatory framework, which was originally optimized for traditional voice services, is not necessarily optimal for the new and more complex mobile services of the future. The goal of this paper is to provide support for this argument, so let us take a moment to review this issue in a greater detail.

The most obvious evidence around is of course the usage of mobile data services in Finland. According to Finnish mobile operators key performance indicators (KPIs), the percentage of mobile data services of their total average revenue per user (ARPU) is approximately 12% - as opposed to over 20% for many UK-based operators and over 30% for NTT DoCoMo's 3G subscribers!. However, if the highly popular use of SMS (which is mainly used for messaging) is excluded, the percentage of non-SMS mobile data services is estimated to be around 1% of total revenue. On the basis of these figures it looks like the current market structure has not attracted users in any larger volumes to the usage of non-SMS mobile data services.

Next we will take a closer look on the different ways the regulation of the Finnish mobile market has influenced the success of mobile data services. Based on earlier research on the success factors of mobile services in Japan and lately also in the UK, it is argued that mobile data services are more successful in markets where mobile operators take a leading role as the "orchestrator" of mobile services development and delivery. This does not mean that operators should do everything by themselves, but they do need to have the capability of building extensive networks of companies in order to offer a true end-to-end mobile data service. These kinds of business networks are often called business clusters or ecosystems. This finding is in line with existing research on industry evolution, which argues that as market situations change, new technologies emerge, or uncertainty in the market increases, companies need to review their vertical integration strategies in order to be well positioned in the new era (for an in-depth discussion of the vertical integration and collaboration strategies during the transformation of key technologies or market conditions, see "Mobile Services in the Networked Economy" by J.Vesa, IRM Press, 2005).

MARKET INTEGRATION

This is where the regulatory framework of mobile industry comes into the picture: unlike in the Central Europe, the Finnish mobile industry does not have the opportunity to redesign their business model towards a more integrated model (see Figure 2, right hand diagram).

As this diagram demon-

strates, while most European mobile markets have transformed towards a vertical / integrated configuration, the Finnish mobile market has remained halted.

It is argued here that the reason for this can be found in the regulatory environment. Due to existing legislation, the Finnish mobile operators are not allowed to bundle subscription and handsets, which appears to be the key element in creating more user-friendly mobile services.

Another disadvantage of the current situation in Finland is that the existing legislation makes the Finnish market less attractive for the major players in the mobile services industry. Companies like Vodafone, Orange, T-Mobile, or O2 (none of which currently operates in Finland) would have major difficulties entering the Finnish market, because the regulatory environment in Finland would not allow the kind of business model these companies are using in other European markets. This is of course beneficial for the existing mobile network operators in Finland, because the current legislation keeps international competition away from their home market. From consumers' or the Finnish government's point of view this may, however, turn out to be a serious drawback, as there is a risk that Finland will fall behind the rest of Europe in the evolution of mobile data services markets – a concern that is widely shared both by the government and the operator field. What is less clear, however, is how to fix the problem reasons of which a not very understood.

The third aspect of the interplay between the regulatory framework and the mobile services market in Finland is the question of clockspeed. Earlier in this paper it was argued that the mobile services industry can be best described as a high-clockspeed industry, where technology, organizational structure and market conditions are constantly changing. The point this paper is trying to make is that, in a high-clockspeed industry, falling behind other markets is even more dangerous than in industries where the pace of change is slower. It is argued here that the Finnish regulatory environment that was originally optimized for voice services has slowed down the clockspeed of the natural evolution of the Finnish mobile services industry. This development is described in Figure 2 above.

local operators' "mental models" may be so stuck with "the old way of doing things" that they do not even want to rock the boat themselves

CONCLUSION

The objective of this paper was to demonstrate how the regulatory framework of a given market defines the feasible business models for mobile operators. By using the Finnish mobile services market as an example, the paper demonstrated how the current regulatory environment in Finland has prevented the local mobile operators from adopting such an operator-driven business model that is gaining ground in other parts of Europe. However, as the negative attitudes of most Finnish operators towards allowing handset subsidies in a survey by MINTC in summer 2004 indicated, local operators' "mental models" may be so stuck with "the old way of doing things" that they do not even want to rock the boat themselves. This in fact is even more alarming because legislation is easier to change than old attitudes and ways of doing things. Furthermore, the brief analysis presented in this paper demonstrated also the way in which the clockspeed of the mobile services industry in Finland has slowed down, and the previously advanced mobile market in Finland is starting to fall behind in the international comparisons.

In April 2005 the Ministry of Transport and Telecommunication (MINTC) announced their initiative to change the Communications Market Law in such a way that bundling would be allowed for 3G handsets and subscriptions – but remain prohibited for GSM handsets and subscriptions. Albeit the reasons for applying different kind of regulation for GSM and 3G technologies offered by MINTC may make sense from consumer protection point of view, operators have already stated that two different sets of regulation in a single market is problematic. Or as a representative of Telia-Sonera noted, it is impossible to be half pregnant –bundling should be either allowed for all technologies or it should be totally banned as in the past. The analysis presented in this paper supports this view, as the Finnish market will end up hanging somewhere between the two extremes of the continuum between market-driven and operator-driven market

configurations. The Finnish national regulatory authorities hope to achieve "best of both worlds", i.e. to minimize the prices in the mature GSM world, and to support the take-off of new 3G services by allowing operators to subsidize 3G handset prices. However, for operators and the whole industry value chain this would mean two overlapping – and perhaps conflicting – business models, which easily leads to double costs and coordination problems. Therefore it is argued here that 3G bundling will not solve the problems of the Finnish mobile markets: it is simply too little too late.

Our analysis of the interplay between regulatory framework and industry clockspeed shows that sometimes there is a trade-off between conflicting goals, when it comes to regulating a market. While the Finnish authorities were highly successful in creating an optimal regulatory environment for traditional mobile voice services, their regulatory framework fails to address the requirements of the current shift towards more complex, data-centric world of the future mobile services. As the technical evolution transforms the very basics of the mobile industry, authorities would need to have the right kind of mindset to question the basic assumptions behind the regulatory framework they impose. Inexpensive phone calls should not be the only criteria when making decision about what the operators are allowed to do. During the past few months the Finnish regulatory authorities have expressed their concern that operators are not investing enough in the development of new and innovative mobile data services. However, the government should have realized the potential damage the prevailing regulatory framework was causing already some time ago – now it may be already too late from the Finnish mobile industry's point of view while the damage has already been done as the warnings for Finland's over-zealous regulatory authorities in investment bank Credit Suisse – First Boston's analyst report indicates. Needless to say this can hardly be the objective of any national regulatory authority, albeit the consumers certainly enjoy this situation – at least as long as the quality of networks remains on an acceptable level.

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