

COUNTRY OVERVIEW

Russian Federation

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UAS Development in the Russian Federation

Several countries started working on unmanned aircraft systems (UAS) as far back as the sixties of the past century. By the time of the USSR collapse both super powers (USA and USSR) had been in possession of a commensurable number of UAS under construction and in operation. In the USA, likewise in the USSR, those vehicles were first of all intended for accomplishment of military tasks, such as conducting of reconnaissance and special operations behind enemy lines.

In the late nineties more and more popularity was won by the developers of other-than-military UAS, based to a great extent on the technology used previously for military purposes.

At present the world market of UAS is in the process of rapid upsurge. The relatively low production costs of UAS, their simple use and highly effective application have stimulated a keen interest in this kind of products on the part of military bodies in different countries and – of private business structures as well. As of today it is the United States that exerts the maximum of influence on the world-wide dynamics and general direction of UAS development. According to the Teal Group Corporation research data, the USA will provide some 75% of world investments in unmanned technologies and 60% of their purchases in the forthcoming decade, while Israel will be the runner-up.

As seen from other states' experience, the first-and-foremost interest in the production of new types of unmanned systems is shown by defense and law-enforcement agencies. It is just these structures in Western states that place the major portion of orders for unmanned systems. Thus, in accordance with the recently published forecast of development of unmanned systems market in the USA the growth of expenses on all types of UAS will amount in 2006-2015 to some 16% a year. By 2007 the volume of this market will be of the order of 2.8 billion dollars. The larger part of finances will be spent on manufacture and up-dating of military-purpose unmanned vehicles. As compared with the considerable sums of military projects expenses in the United States, those to be spent on civilian projects associated with unmanned systems are quite insignificant. Last year the US expenses on civilian projects involving unmanned systems amounted only to some 3% of the total expenses sum.

Unfortunately, Russia at present is inferior in the field of military unmanned systems to such world leaders - Israel and USA.

In the opinion of a number of leading Russian specialists, one of the most important causes of such a situation is the absence of a single document laying down the principles of development of unmanned systems for the Armed Forces of Russia.

Thus, according to OAK Alexey Fedorov «Generally, it is the Defense Ministry that is supposed to be the Key Customer. However, it has so far neither formed the conceptual approach to these systems nor worked out technical requirements for

them, which, in the long run, hampers our activity in this direction.»

At present, here in our country the interest in unmanned systems is first of all shown by civic organizations and private companies.

In our country the use of unmanned systems for civilian purposes may be as follows:

- air traffic control;
- search for disaster survivors;
- signals re-transmission;
- pipelines and power networks surveillance;
- delivery of small-weight cargoes into difficult-to-reach areas, etc.

The above-listed applications of unmanned systems in our country are associated with the availability of vast territories, whereon surveillance is carried out most effectively with the help of UAS.

However, the interest of civic organizations in the acquisition of unmanned systems cannot support in full the required technological potential of development of the existent unmanned systems. In the states that are leaders in the production of unmanned systems the mentioned potential is supported today at the expense of government allocations for national defense.

As a rule, UAS are dual-purpose products. It is difficult to overestimate the interaction of civilian and military developments in this field. As under the circumstances here in Russia, it stands to reason that, use should be made of the experience accumulated in creation of civilian unmanned systems to the advantage of defense programs associated with development of UAS. Thus, American researchers point out that the influence of civilian programs of UAS development on the military ones consists of the following:

- reduction of the cost of unmanned systems technology. In case of large purchases the companies would be able to better allocate their resources for performance of research and experimental-design work aimed at creation of advanced technology. This would result in the reduction of cost of the unmanned systems, wherein use is made of the given technology;
- possibility of open access to new technology. The civilian market of UAS would stimulate development of new processes that would ensure the wanted performance characteristics at a lower cost. These new processes would also be accessible for use with military unmanned systems;
- creation of low-cost, dual-purpose unmanned systems. In some cases civic organizations and military departments would be able to purchase the same type of aircraft vehicles. In such a case the military authorities in USA would have a chance of avoiding the payment of the overall cost of «unmanned» vehicles development. This, in turn, would lead to the reduction of unmanned systems cost on both markets.

The schematic model of unmanned systems development

and manufacture currently used by foreign states above all puts emphasis on the military necessity of unmanned systems application and only afterwards on the necessity of production of their civilian counterparts. This makes it possible to guarantee the required financial and engineering levels of the operations performed. The creation of conditions under which there exists the information exchange between developments civilian and military components facilitates the attainment of the most effective operations performance level.

At the same time it is worth mentioning that many firms (unmanned systems developers) overestimate the UAS potential in the civilian market. The demand in this market will depend to a considerable extent on the progress of technology and its economic effectiveness.

In all probability, the creation of civilian unmanned systems market in Russia will be confronted with difficulties that are currently faced by foreign developers of such systems. Among these difficulties American analysts point out the low purchase requirement.

As seen from the majority of expert evaluations, the problem lies in the instructions on restrictions regarding the use of UAS. However the change of those instructions alone will hardly stimulate the civilian UAS market as much as may be wanted. There are also other reasons for the civilian market to be practically non-existent in this field for the time being. In particular, these are as follows:

- Low Reliability

From the technical point of view the characteristics of unmanned vehicles have become better for the past two decades. Despite this, their reliability level has not become any nearer to that of unmanned aircraft. Thus, for instance, the Predator, one of the most reliable US UAS, has the accident rate 25 times as high as that of US Air Force planes on an average and over 100 times as high as that of commercial airliners.

From the civilian users' point of view the mentioned accident rate is economically unjustified. A good deal of concern is caused in connection with UAS flight safety issues as regards other piloted and unmanned aircraft in the air, likewise, as regards the people, buildings and structures on the ground. Partly this problem may be solved at the expense of UAS insurance, however its cost, with all possible risks taken into account, may be rather high. Thus, for any more or less appreciable market to come about here, it is required that unmanned systems reliability should be increased substantially.

- Poor Knowledge of the Existent Market Conditions

UAS manufacturers are experienced in development of aircraft vehicles that are characterized by relatively low profitability. Besides, those companies that are currently in control of the niches to be presumably used by the UAS do not intend to cede them to unmanned systems and propose in the meantime more attractive terms to their customers. Up to this day the manufacturers of those systems have not been fully ready for sales activity in the civilian market sector. They are accustomed to meet the precise requirements defined by their military Customers. To sell unmanned systems to civilian Users the Developer Companies must have a clear idea of all the advantages that the Users of their products will enjoy in the future. For the majority of civilian users the main advantage consists in minimizing the financial expenses associated with the fulfillment of the respective tasks.

- Failure of Market Risk Appraisal

In civilian life much importance is generally attached to marketing research, including its particular part relevant to determination of potential buyers' needs. Under the existent conditions more often-than-not there arise problems connected with the failure to assess the time and conditions needed to guarantee the initial satisfaction of Users' requirements, as well as the preservation of the wanted qualities for the duration of the whole period of product service life.

- Tolerant Attitude of State Customers to UAS Developers' Errors

It is commonly known that civic organizations and military departments are inclined to put up with situations when Developer Companies delay systems delivery or deliver systems of lower than wanted characteristics. In the majority of cases, State customers pay for such developments. This kind of tolerance on their part tells negatively on the developers. Many unmanned systems-specialized companies have established themselves in the atmosphere of such «customer-supplier» relations, therefore they are not ready to enter the civilian market, where the Buyers are more particular about what they buy and are not as tolerant to suppliers as the State customers are.

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