

3. IoT vulnerability management. An efficient way of patching IoT device vulnerabilities is considered to be another serious challenge for businesses in an IoT field. This requires enterprises to create a compliance team for testing and scanning configuration settings to identify any types of vulnerabilities they have, control the elimination of operational vulnerabilities found and certify that the device can be produced.

4. Detecting and implementing security controls. The factors of identifying the need of security controls for emerging IoT devices and further implementing high-profile controls are supposed as significant ones in the IT world taking into account the abilities of enterprises to manage IoT risk. In any case, organizations dealing with IoT have to detect their information security controls ensuring proper and obligatory protection of the IoT trends and involving experienced experts.

5. Fulfilling the need for security analytics capabilities. It is critical for authorized and malicious traffic patterns on IoT devices to be identified by various enterprises. Moreover, the perfect analytical tools will both detect and improve the services offered to the consumers. To get ready for these problems, enterprises must be able to develop the corresponding set of tools and processes to provide corresponding security analytics capabilities.

6. Rapid demand in bandwidth requirement. However, business continuity risks will potentially proliferate due to increased demand for the Internet. In order to provide high service availability, organizations must analyze enhancing traffic management adding bandwidth.

In particular, we can conclude that enterprise security experts must deal with updating existing security policies to ensure communication between machines, enormous data collection and multiple other uses. It will be necessary to support threat modeling for providing and maintaining primary security principal of availability, integrity and confidentiality in an increasingly developing digital world.

*Scientific supervisor: Hurska O.O.,
Senior Lecture*

UDC 336.764.2 (477) (043.2)

Yackubovich S.R.

National Aviation University, Kyiv

COMPOUND HELICOPTER AS A PERSPECTIVE BRANCH IN THE GLOBAL DEVELOPMENT OF AVIATION

An idea of compound helicopter is not new. Increasing the speed of ordinary helicopter became one of main problems in 60s of XIX century. In America and Soviet Russia machines that can fly faster than helicopter were autogiros. But they didn't have an engine-driven main airscrew and could not take-off vertically. So combination of maneuverability of helicopter and speed and range of airplane was only a question of time.

Many design bureaus tried to construct a compound helicopter. First more or less successful machine was Kamov KA-22. It may carry over 15 tons at the altitude of 2000m. It's not so bad, especially taking into account Mi-10 with similar characteristics but two times slower. This aircraft was not put into serial production and remained an experimental model. Control system of this aircraft type differed from any of existing ones. According to pilots' reports controllability of this type was very poor.

More successful aircraft, American Bell V-22 Osprey, has smaller dimensions, and higher speed. Interesting feature of it was rotating nacelle. This was the only compound helicopter produced serially for USA marine corps. This fact definitely shows rather high performance features and usability of this model.

As any aircraft, compound helicopter has some advantages and disadvantages.

Its advantages include:

- Higher speed as compared with helicopter
- Ability to take-off and land like helicopter
- Higher efficiency
- Wide range

As to disadvantages, they are the following:

- Lower speed as compared with airplane
- High cost
- Complexity of construction and control.

Nowadays compound helicopter has gained a new important role. The concept of modern type of this machine was developed by Igor Sikorsky in 80s. Sikorsky X1 Prototype became the first new-concept compound aircraft, though it was not reliable because of high vibration. Next model, Sikorsky X2, performed its first flight on 27 August 2008. This model was the basis for further development of such designs. Now it is kept in museum. S-96 is under development now. It is an attack compound helicopter, developed from X2 model. The program cost of S-96 is about US\$ 200 million, so this project is considered to be highly perspective.

In civil aviation the Eurocopter X3 compound helicopter has found its niche. Many countries are interested in purchasing this machine. Main feature of this helicopter is its high speed. During testing on 7 June 2013 it reached the speed over 263 knots or 487 km/h.

So, compound helicopters are a perspective branch in the global development of aviation.

*Scientific supervisor: Akmal'dinova O.M.,
Professor*