inappropriate raw material processing and the lack of knowledge of employers. It causes the frozen economic development and some environmental problems. As I see it ecology has a great influence on reaching the economic heights. Nature has a low reproductive power, so in the result we have a poor quality food, we breathe polluted air and drink unclean water.

The fifth problem is the inefficiency of public administration. Moreover, I think that the country should be built on the principle of the words of Plato: the state is governed by a well-prepared, high-humble person. Plato considered justice as the main principle of the ideal state. Guided by justice, the state solves the most important tasks: protecting people, providing them with material goods, creating conditions for their activity and spiritual development. According to Plato, it is not the state exists for the sake of people, the people live for the sake of the state.

All of these problems are significant, but a way out should be from any situation. The solution of these problems is not a matter of one year because of their complexity. Solving economic problems is the most urgent issue today. I hope that scientists and politicians will be able to develop a good plan for restoring the state of the economy in Ukraine, it will help Ukrainian people to live better, happier and richer. One day Ukraine will be able to reach its heights in the international trading market.

Taking everything into account, I should say that the economy of our country is not in a good condition nowadays because of the presence of some economic problems. We need years, but I believe that Ukraine will have a bright future, but everything depends only on our choice – the choice of people.

Scientific supervisor: Anpilogova T.V., Senior Lecturer

UDC 629.735-025.12 (510+470) (043.2)

## Kostiuchenko R.R.

National Aviation University, Kyiv

## NEW GENERATION WIDE-BODY GIANT – A JOINT CHINA-RUSSIA PROJECT

CR929, a two hundred and eighty seat wide-body passenger jet with the range of near twelve thousand kilometers is designed by Russian and Chinese engineers. It will become the largest Chinese civilian aircraft and Russia's biggest jet liner to be produced since the cold war. Unveiled at the China air show last year, the jet will help boost production capabilities for both countries.

The manufacture of the new giant, powered by two jet engines, is a joint venture, established by two neighbour eastern countries Russia and China with the aim to challenge Boeing and Airbus, the two world largest aircraft manufacturers.

An agreement on establishing the joint venture was signed in Shanghai on June 25th, 2016 by the heads of the states. The venture has completed commercial and industrial registration procedure to receive a business license. This project is also referred to as China-Russia Commercial Aircraft International Co., Ltd (CRAIC).

The headquarters of the company is in Shanghai. There will also be a head office

responsible for the strategy and development of the program at the highest level. COMAC – Commercial Aircraft Corporation of China will develop and produce a metal-composite fuselage, while Russia is responsible for developing and producing a composite wing. The final assembly of the liner will be accomplished in Shanghai on the basis of COMAC. The engineering center will be located in Moscow.

It is planned to manufacture a new generation of wide-body aircraft up to 15% cheaper than its main Western competitors. The letters "C" and "R" stand for China and Russia. "9" in CR929 is the largest single figure representing a long-lasting tradition in China. "2" refers to the two parties' cooperation and co-development. The total investment in these project will range from \$13 to 20 billion.

Three versions of the aircraft are planned to be manufactured, namely: shortened, basic, and extended – CR929-500/600/700. The first flight is to take place no later than in 2022. Deliveries of serial aircraft to customers will begin in 10-12 years after the launch of the project, approximately in 2026-27. The whole program is designed to be implemented by 2045.

The aircraft will be assembled with the usage of composite materials, it will have advanced aerodynamic design of wing and fuselage. Improved new generation high bypass ratio engines will be installed with the purpose to reduce fuel consumption at the same efficient power and thrust and to improve the total aircraft performance. The assembly will take place in China to lower costs.

Having renounced the use of engines manufactured by Western competitors, China has designed independently the CJ-2000 engine for the new aircraft. It could also use AI-38 engines co-developed by China and Ukrainian Ivchenko-Progress Design Bureau as a modification of 225kN Progress D-18T engine powering the An-124/An-225. Russia itself is likely to develop engines for this new aircraft.

Experts say that more than a half of global demand for wide-body passenger jets comes from the Asian-Pacific market and if Russia and China succeed in keeping up the current pace of cooperation, the designers will soon be able to test the new aircraft in the air.

Scientific supervisor: Akmaldinova O.M., PhD (Philology), professor, Head of the Department

UDC 004.23:004.4 (043.2)

Kotenko D.V. National Aviation University, Kyiv

## CRITERIA OF GOOD SOFTWARE ARCHITECTURE

A good software structure is as important as its proper operation. Well organized architecture is needed not only for large projects. Complexity grows much faster than the size of the program. If you do not take care of it in advance, then the moment when you stop controlling it comes quickly. Proper architecture saves a lot of effort, time and money. There is no generally accepted attitude to the term "software architecture". Nevertheless, when it comes to practice, for most developers it's clear which code is good and which is bad.. That is, in fact, you can formulate a list of quite reasonable and universal criteria: