

F R O M   T H E   E D I T O R7 **Crisis and opportunity** — *Olga Mostinskaya*

Editor-in-Chief comments on the difficult choice between urgent and important.

**Key words:** *international relations, Russia, future.*

I N T E R V I E W11 **We cannot discard the claims of colleagues who speak of signs of military engagement in cyberspace** — *Yuri Sentyurin*

Deputy Minister of Energy of the Russian Federation Yuri Sentyurin discusses questions of cybersecurity in the energy industry with the Editor-in-Chief of the Security Index and talks about plans for the development of regulatory frameworks.

**Key words:** *critical infrastructure, energy industry, cybersecurity.*

A N A L Y S I S17 **Obstacles to the prevention of the placement of weapons in outer space** — *Andrey Malov*

Extensive R&D efforts in the sphere of space warfare continue. At the same time, there are no prohibitive or restrictive norms on a number of military space activities in place today. Senior Advisor to the Permanent Mission of Russia to the Office of the United Nations and other international organisations in Geneva Andrey Malov comments on obstacles to the regulation of rapidly emerging military activities in outer space.

**Key words:** *PPWT, outer space, USA, Russia.*

31 **The Iran nuclear deal: tightrope walk without a safety net** — *Andrey Baklitskiy*

The deal on Iran's nuclear program provides Teheran with an opportunity to become a full-fledged member of the international community. This long-term process, however, is unlikely to go smoothly. Moreover, the agreement



provides for a complex control mechanism as well as the cancellation of all negotiated agreements at the initiative of any of the parties involved. Andrey Baklitskiy, director of the PIR Center Program *Russia and Nuclear Non-proliferation*, assesses the stability of the deal.

**Key words:** *Iran, JCPOA, USA, Russia.*

53 **A Red Button for the Internet** — *Andrey Kolesnikov*

Is there such a thing as the notorious *Red Button* to shut off the Internet and can access to the Web be feasibly restricted for a single country or group of users? Which challenges were evaluated in modelling studies of threats to the Internet infrastructure in 2014? Is it possible to counter these threats? Andrey Kolesnikov, director of the Coordination Centre of the Top-Level Domain for Russia (2009–2015), answers these questions.

**Key words:** *Internet, DNS, DDoS attack, routing, IRR.*

67 **The vulnerability of the Internet: Myth and Reality** — *Olga Makarova*

Few people today give serious thought to the threat of nuclear war. The modern nightmare lies in the security of the global Internet and the possibility of a full or partial shutdown. Olga Makarova, director of the Department for Internet and channel resources of the open joint-stock company MTS, provides insights for advanced users, explaining how the backbone infrastructure of the global Web is organized and how vulnerable it really is.

**Key words:** *Internet infrastructure, Tier 1, cable systems, internet ecosystem.*

87 **3D printing and export control: a race against time** — *Maria Roskoshnaya and Evgeny Charkovsky*

3D printing has successfully moved beyond a niche technology and is now being used in a wide range of industries, from medicine to rocket engine production. As with all revolutionary innovations, however, additive manufacturing is associated with both advantages and risks. Is it possible to print the components of an atomic bomb with a 3D printer and how can this be prevented? Maria Roskoshnaya and Evgeny Charkovsky of the Federal Service for Technological and Export Control give answers.

**Key words:** *3D printing, additive technology, export control.*

R O U N D T A B L E

99 **The application of international law in cyberspace** — *Maria Gavrilova, Oleg Demidov, Andrey Kozik and Anatoly Streltsov*

The damage inflicted as a result of incidents in cyberspace may be no less significant than the repercussions of conventional armed conflict. The identification of the source of a cyberattack is highly problematic, and a lack of both an internationally accepted definition of an act of aggression in cyberspace as well as a shared understanding of the threshold beyond which the use of force in cyberspace may constitute an armed attack leave much room for the interpretation of the intentions and actions of conflicting parties. Russian and international experts tried to find answers to these questions at the PIR Center round table.

**Key words:** *IHL, cyberwarfare, international law.*

- 117 **The cybersecurity of nuclear facilities** — *Alexey Lukatsky*  
 The security of nuclear facilities constitutes a priority for all countries. The perimeters are protected by armed security, and new nuclear power plant facilities must be able to withstand a plane crash. But progress does not stand still, and new challenges from cyberspace are emerging alongside traditional threats. Cisco business consultant for information security Alexey Lukatsky comments on threats to the cybersecurity of nuclear facilities and whether the international community is taking sufficient protective measures.  
**Key words:** *cybersecurity, nuclear security, IAEA, Russia, USA.*
- 131 **Flaws of the PPWT: real and imaginary. Possible solutions to the problem of arms control in outer space** — *Wang Guoyu*  
 The Treaty on Prevention of the Placement of Weapons in Outer Space proposed by Russia and China remains a key initiative to avoid an arms race in outer space. At the same time, opposition from the USA and the EU renders the prospects for adoption of the document unclear. Wang Guoyu, deputy director of the Institute of Space Law at the Beijing Institute of Technology discusses if the scepticism of Western powers is justified and how to resolve emerging conflicts.  
**Key words:** *PPWT, outer space, Russia, USA, China.*
- 143 **The financing of the terrorist organisation *Islamic State*** — *Mikhail Mostovyuk*  
 The *Islamic State* is not only the richest terrorist organisation in the world. It also claims to quasi-statehood, actively governing its seized territories, adopting an annual budget and conducting full economic activity. Mikhail Mostovyuk, expert on new challenges and threats, analyses the main sources of financing of a new type of terrorism.  
**Key words:** *Islamic State, terrorism, financing.*

## I N T E R N A T I O N A L R E V I E W

- 154 **The *iSi* International Security Index in October-December 2015: steadily bad, or the new normal of international life** — *Evgeny Buzhinsky, Sergio Duarte, Pal Dunay, Konstantin von Eggert, Mustafa Fetouri, Galiya Ibragimova, Dayan Jayatilleka, Halil Karaveli, Andrey Kortunov, Abdulaziz Sager, Evgeny Satanovsky, Farkhod Tolipov, Nikolay Zlobin*  
 The continuous escalation of the situation in Syria, the terrorist attack on a Russian passenger plane over the Sinai Peninsula, rising tensions in northern Afghanistan, the terrorist attacks in Paris, Mali, Lebanon, Nigeria and Iraq, and the severe escalation of relations between Moscow and Ankara because of the downing of a Russian military aircraft by the Turkish air force — the international state of affairs gives little cause for optimism. Members of the International Expert Group of the PIR Center analyse the situation.  
**Key words:** *Islamic State, Syria, international security.*



- 162 **From the liberal perspective: a time of turbulence** — *Yuri Fedorov*  
Yuri Fedorov elaborates on the complex interconnectivity of the various processes that govern global politics, from the civil war in Syria and future prospects of the ongoing Cold War between Russia and the West to developments in the situation in Ukraine and Europe's migration crisis.  
**Key words:** *Islamic State, Syria, Ukraine, international security.*

- 178 **From the conservative perspective: The Syrian process as a mirror of the future** — *Dmitry Evstafiev*  
Dmitry Evstafiev discusses North Korea as an island of stability in a sea of chaos, the globalization of terrorism, a new paradigm of military-political relations and a better future *in potentia*.  
**Key words:** *Russia, Crimea, NATO, terrorism.*

#### L I B R A R Y

- 193 **Summit diplomacy: Reykjavik and Geneva through the eyes of a translator** — *Pavel Palazhchenko*  
An eyewitness account of the human factor in international relations and the course of the exceptionally difficult negotiations that laid the foundation for the most important disarmament agreements of the 20th century.  
**Key words:** *USSR, USA, disarmament, START, INF.*

#### N E W B O O K S

- 203 *Dmitry Polikanov and Umut Aslan* — PIR Center staff members and interns offer their reviews of the latest additions to the PIR Center Library.

#### L E T T E R S T O T H E E D I T O R

- 207 **The Islamic State and nuclear weapons** — Gennady Pshakin, former inspector for UNSCOM/UNMOVIC in Iraq, examines the likelihood that the terrorist organisation *Islamic State* might create or use nuclear weapons.

#### S U M M A R Y

#### A B O U T T H E A U T H O R S

#### P I R C E N T E R

#### P I R C E N T E R A D V I S O R Y B O A R D A N D I T S W O R K I N G G R O U P

#### I N T E R N A T I O N A L E X P E R T G R O U P

#### E N D . Q U O T E

- Cov.III **On ways to walk through life**