



Mr. Craig A. Hughes
Director of Innovation (Acting)
4 December 2012



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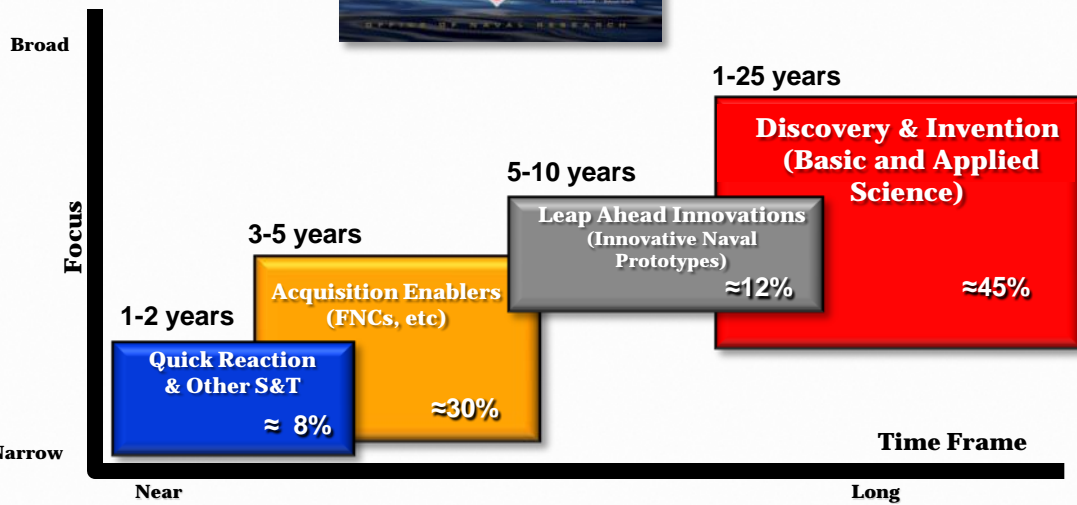


S&T Strategic Plan



S&T Plan Focus Areas:

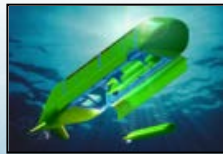
- Autonomy & Unmanned Systems
- Assure Access to Maritime Battlespace
- Information Dominance
- Platform Design & Survivability
- Power & Energy
- Power Projection & Integrated Defense
- Warfighter Performance
- Total Ownership Cost
- Expeditionary & Irregular Warfare



TechSolutions



FNCs



INPs

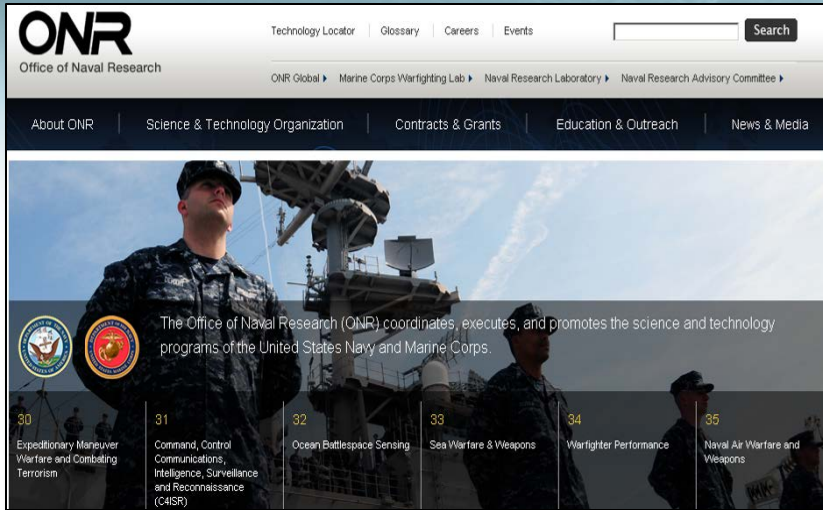


D&I

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Stay in Touch



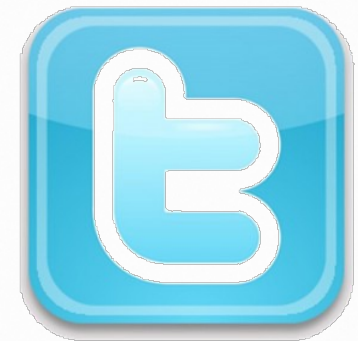
www.onr.navy.mil

Coming Soon:

- Focus Area Forums
- At ONR
- Watch for the announcement!



Broadcast Yourself™



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Contracts and Grants

- **Broad Agency Announcements (BAAs)**

Enable ONR to acquire basic and applied research; two types of BAAs exist: Long Range (released annually) and Specific

- Location of BAAs

- www.onr.navy.mil
- www.grants.gov
- www.fbo.gov

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www.navysbir.com

Learn about:

- SBIR/STTR Phases (funding, timelines, requirements, etc.)
- Solicitation Schedules
- Links to SYSCOM Sites
- Program POCs
- Submitting Proposals
- Getting Started / Getting Paid

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SMALL BUSINESS INNOVATION RESEARCH

NAVY SMALL BUSINESS TECHNOLOGY TRANSFER

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DoD FY-2012.3 SBIR
Opened August 27, 2012 Closes September 26, 2012
6:00am

SYSCOM	Topics
MARCOR	5
NAVSEA	2
SPAWAR	5
Total	12

The DoD issued its 2012.3 SBIR pre-release on July 26, 2012, which opened to receive proposals on August 27, 2012, and closes September 26, 2012 at 6:00am EST.

The solicitation is inclusive of 12 topics from 3 of the Navy's SYSCOMS.

Between July 26 and August 26, 2012, you may talk directly with the Topic Authors (TPOC) to ask technical questions about the topics. Their contact information is listed within each solicitation topic.

For reasons of competitive fairness, direct communication between proposers and topic authors is not allowed starting August 27, when DoD begins accepting proposals for this solicitation. However, proposers can still submit written questions about solicitation topics through the [SBIR/STTR Interactive Topic Information System \(SITIS\)](#), in which the questioner and respondent remain anonymous and all questions and answers are posted electronically for general viewing until the solicitation closes.

All proposers are advised to monitor [SITIS](#) during the solicitation period for questions and answers, and other significant information, relevant to the SBIR/STTR topic under which they are proposing.

Complete solicitation instructions and forms are available on the DoD SBIR/STTR web site at www.acq.osd.mil/osbp/sbir/solicitations/sbir20123/index.shtml. A DoD wide topic search engine is available at www.dodsbir.net/Topics/

[View Solicitation] [Quick View NAVY Topics]

Success Story of the Month

Browse Phase I Selections

SBIR 2012.2

Go

Quick Search Recent Abstracts

FY-04 thru FY-11.3

Go

Advanced Search

Transitions Newsletter Winter 2012

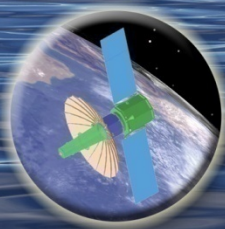
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NAVAL S&T STRATEGIC PLAN: FOCUS AREAS

**TOMORROW'S
TECHNOLOGIES**

**FOR OUR
WARFIGHTERS**

**ACROSS
ALL DOMAINS**



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Autonomy and Unmanned Systems



STRATEGIC DRIVERS: Increased proliferation of inexpensive lethal threats targeting individual Warfighters and high value assets, combined with continued rapid advances in computing, power and energy, robotics, sensors and position guidance technologies drives the requirement to augment expensive manned systems with less expensive, unmanned fully autonomous systems that can operate in all required domains.

VISION: Achieve an integrated hybrid force of manned and unmanned systems that operate across all required domains with the ability to sense, comprehend, predict, communicate, plan, make decisions, and take appropriate actions to achieve its goals. The employment of these systems will reduce risk for sailors and Marines, and increase capability.



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Autonomy and Unmanned Systems



OBJECTIVES:

Human/Unmanned Systems Collaboration

- Natural Modes of Interaction
- Understanding Intent and Recognizing Deception
- Dynamically Changing Levels of Autonomy

Perception and Intelligent Decision Making

- Autonomous Adjudication Between Wide Area Exploration and Exploitation of Area
- Learning Context, Adaptive Recognition and Scene Understanding
- Automated Processing from Sensor Data to Information to Actionable Understanding

Scalable and Robust Distributed Collaboration

- Task Allocation/Assignment, Planning, Coordination and Control for Heterogeneous Systems
- Airspace/Waterspace Management
- Predicting Behaviors of Large Numbers of Unmanned Systems
- Validation and verification of Complex Autonomous Systems

Intelligence Enablers and Architectures

- Integrated Architectures and Intelligence for Decentralized Systems
- Reasoning and Learning
- Scalable Planning and Re-planning

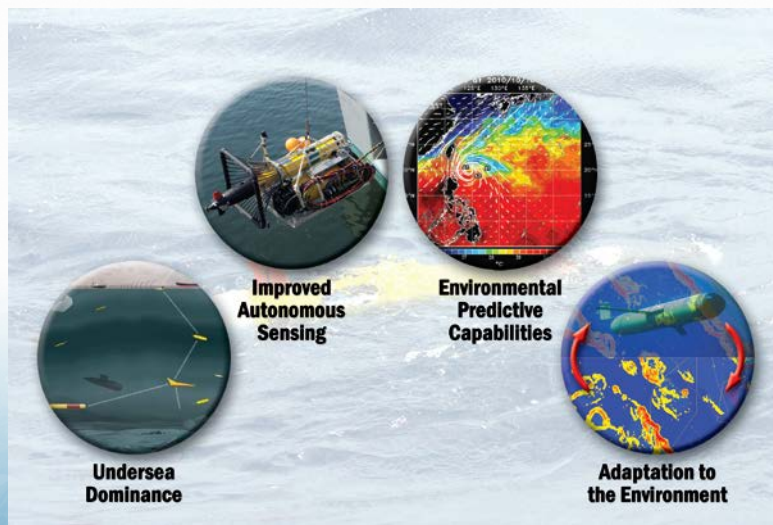
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Assure Access to Maritime Battlespace

STRATEGIC DRIVERS: Proliferation of anti-access, area-denial capacity and capabilities among potential adversaries drives the need for technologies that assure access for Naval Forces. The complexity of the littoral battlespace and changing environmental conditions, such as the increased open water in the Arctic Ocean, demands advanced high-resolution environmental observation and prediction capabilities.

VISION: Assure access to the global ocean and littoral reaches and hold strategic and tactical targets at risk. Sense and predict environmental properties in the global ocean and littorals to support tactical and strategic planning and operations. Improve operational performance by adapting systems to the current and evolving environment.



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Assure Access to Maritime Battlespace

OBJECTIVES:

Achieve and Maintain Undersea Dominance

- Rapid detection and clearing of mines through the Beach Exit Zone; neutralization from a distance
- Detect, classify, locate and track threat submarines in shallow and deep water, exploiting automation and adaptation to the environment
- Off-board sensing, cooperative vehicle autonomy, networking and autonomous classification in unmanned systems to expand reach and reduce threat exposure
- Next generation data and target fusion to expand regional ASW, MIW and amphibious warfare operating picture to the theater level

Improve Mobile Autonomous Environmental Sensing

- Autonomous sensing of global maritime and littoral environments to Beach Exit Zone
- Environmental sensing that adapts the sensing strategy to changing conditions

Match Environmental Predictive Capabilities to Tactical Planning Requirements

- Fully coupled (ocean-atmosphere-wave-ice) global, regional and local modeling and prediction for operational planning at tactical, strategic and climate scales
- Forecasts for refractivity, duct heights, fog, rain, clouds, visibility, trafficability and tropical cyclones at global, regional and tactical scales to increase mission go/success

Maximize Systems Performance via Adaptation to the Environment

- Optimize sensing and reduce false alarms by adapting to an evolving physical environment
- Avoidance behaviors and overarching situational awareness to adapt to the tactical environment
- Adapt to changing conditions in the near space environment

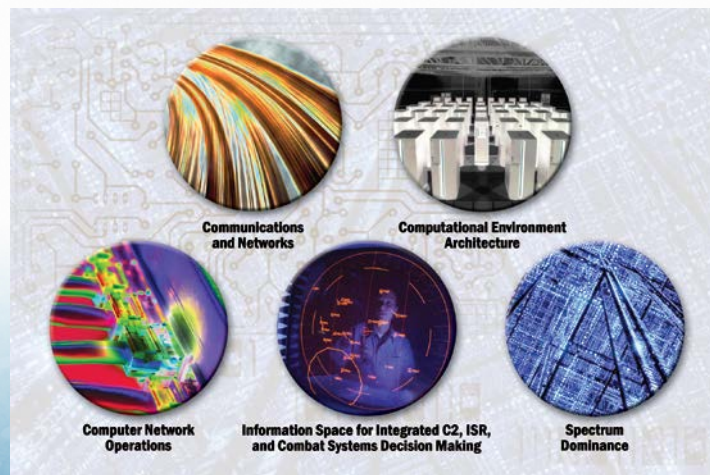
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Information Dominance

STRATEGIC DRIVERS: Potential adversaries are investing in advanced technologies that will challenge our advantages in the information domain. Nation states and non-state actors seek to degrade our command and control capabilities, networks and computer systems. Globalization and the exponential growth in computing and wireless communications capabilities have transformed the information environment from an enabling medium to a core warfighting capability for both Naval Forces and our adversaries.

VISION: Enable the warfighter to take immediate, appropriate action at any time against any desired enemy, target, or network by assuring that autonomous, continuous analyses of intelligence, persistent surveillance, and open information sources have, at all times, optimized the possible courses of action based on commander's intent.



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Information Dominance

OBJECTIVES:

Information Space for Integrated C2, ISR, and Combat Systems Decision Making

- Rapid Accurate Decision Making for C2/ISR/CS
- Machine Reasoning and Intelligence
- Distributed Mission-Focused Autonomy for Control of Large Information Networks
- Data Error Management

Spectrum Dominance

- Understanding the environment through sensing
- Control of the opponent's battlespace picture through control of the spectrum
- Electronic Protection via Networking and Robust Sensors

Information Operations

- Computer Network Attack
- Computer Network Defense
- Computer Network Exploitation

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Communications and Networks

- Dynamic Scalable Tactical Communication Networks
- High Performance, Low Cost Communication Solutions
- SATCOM Denial Mitigation
- Precision Time and Navigation

Computational Environment Architecture

- Open Source, Open Architecture, and Service Oriented Architecture
- C2 /CS Integration
- Autonomous Networked Sensors Control Architecture
- Machine Reasoning and Intelligence Architectures

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Power Projection and Integrated Defense



STRATEGIC DRIVERS: Adversaries will capitalize on conventional and asymmetric capabilities that incorporate mobility, range, speed and deception. Naval platforms must have integrated defensive capabilities to defeat these growing complex threats. At the same time, the Fleet/Force must be able to effectively strike targets with survivable and scalable weapons that have sufficient range, speed and accuracy to complete the mission while reducing risk to our warfighters and without endangering non-combatants or creating unnecessary collateral damage.

VISION: Enhance extended range power projection capabilities and integrated layered defense by improving manned and unmanned naval platforms, enabling forces to complete missions in hostile environments by avoiding, defeating and surviving attacks. Demonstrate improvements in stand-off indirect precision fires on time-critical targets, while limiting collateral effects through the use of electromagnetic kinetic projectiles, hypersonic missile propulsion, scalable weapons effects, directed energy and hypervelocity weapons.



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Power Projection and Integrated Defense

OBJECTIVES:

Future Naval Fires

- High volume precision direct and indirect fires to extended ranges
- Deep/unlimited magazine

Integrated layered defense across the entire detect-to-engage continuum

- Detection and determination of threat intent
- Hard/soft kill, lethal/non-lethal countermeasure options
- Autonomy aided, reliable 360O threat targeting and tracking
- Autonomy aided decision making and battle management aids

Extended threat neutralization capabilities

- Speed of light engagement thorough Electronic Warfare, directed energy and hypervelocity weapons
- Extend standoff beyond the threat damage range
- Counter-LO, counter small-boats and unmanned threats
- Anti-Swimmer and improvised unmanned technology

Time-Critical Precision Strike

- Insensitive Munitions-compliant high performance scalable-effects weapons
- High-Speed, extended range effects on remote time-critical targets
- Against hardened/moving target (air, surface, or underwater) strike
- Weapon GPS denial compensation, counter counter-measures, and maneuverability for precision engagement

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Expeditionary and Irregular Warfare



STRATEGIC DRIVERS: Emerging geo-political and socio-economic conditions have resulted in the rise of non-traditional threats, failed states and a decrease in assured host nation support. Naval forces will face potential adversaries armed with advanced and increasingly lethal warfighting capabilities. They will confront complex hybrid and irregular challenges across diverse, austere and distributed battlespaces.

VISION: Naval Warfighters of the future will possess the full spectrum of expeditionary kinetic and non-kinetic capabilities required to defeat traditional threats decisively and confront irregular challenges effectively.



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Expeditionary and Irregular Warfare

OBJECTIVES:

Irregular Warfare Battlespace Awareness:

- Adaptive planning and direction of collection assets
- Sensors and sensor systems for observation and collection
- Data fusion and analysis for actionable intelligence generation
- Shared situational awareness and understanding

Influence Operations Enablers:

- Social, cultural, behavioral domain understanding, modeling and analysis
- Adaptive thinking, planning, and wargaming
- Operational culture learning and language

Expeditionary and Distributed Operations:

- Seabased and tailored tactical logistics
- Mobility and combat load reduction
- Lethality and survivability
- Tactical warfighter preparation (cognitive, physical performance, and fatigue mitigation)
- Tactical command and control down to the small unit level

Irregular Threat Countermeasures:

- Counter asymmetric weapons and CIED
- Biometric identification and surveillance
- Tactical site exploitation and forensics
- Human and irregular platform tagging, tracking and locating

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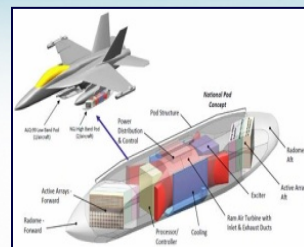
Some of the Technologies.....



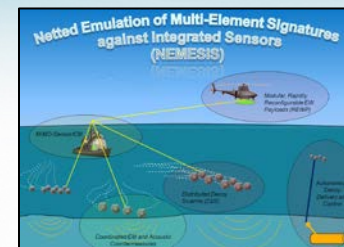
Tactical Satellite



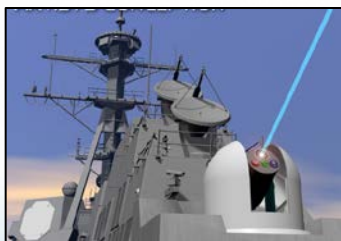
EM Railgun



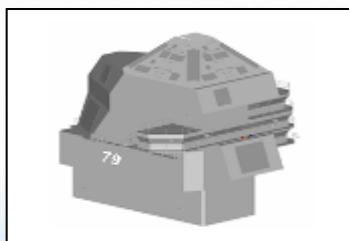
Next Generation Airborne Electronic Attack



Netted Emulation of Multi-Element Signatures against Integrated Sensors



Solid State Laser



Integrated Topside



Large Displacement UUV



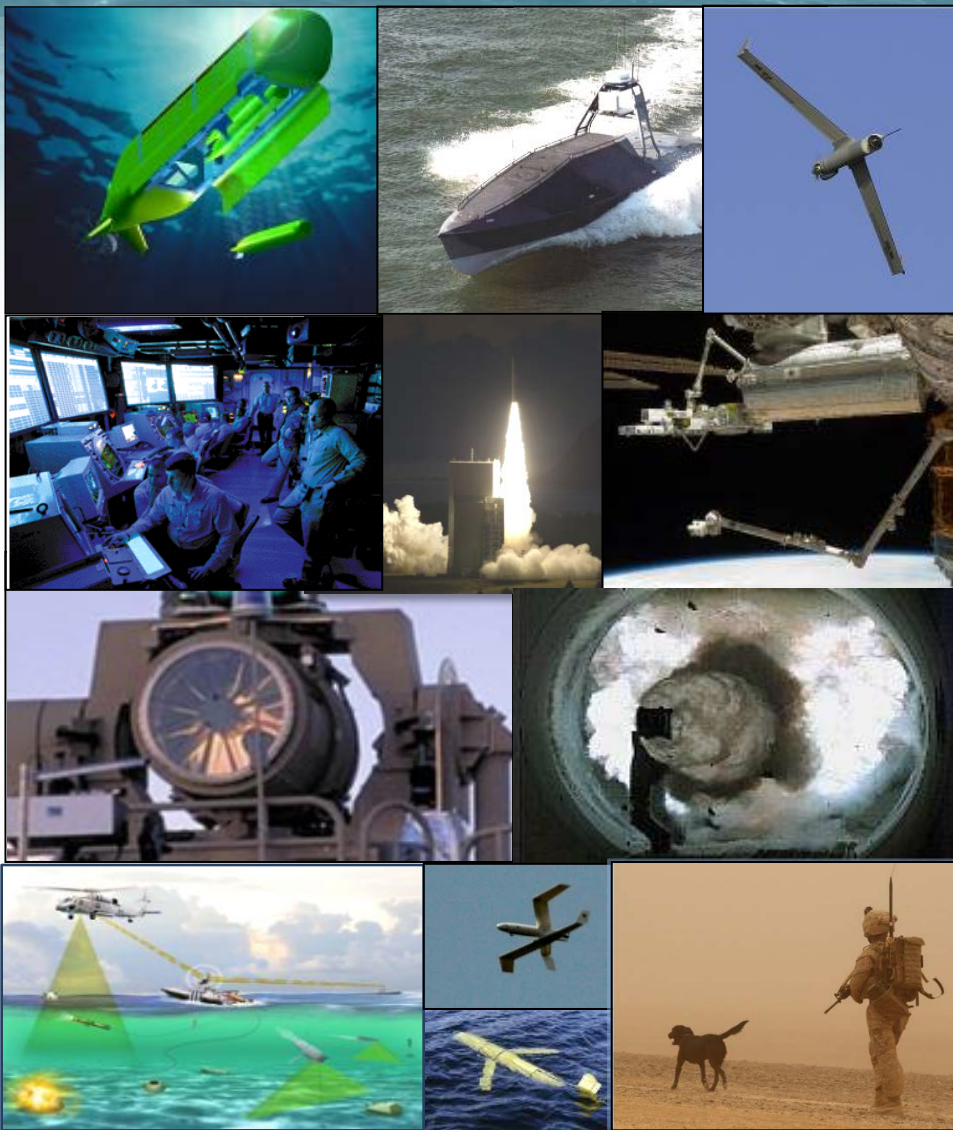
AACUS

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Key Challenges

- Threats in the undersea domain
- Fully integrating manned/unmanned systems
- Cyberspace and ensuring the electromagnetic spectrum
- Improved ship, aircraft and weapon effectiveness
- Enabling affordability and reliability
- Warfighter Performance (Training and Medical)



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