Health & Wellness

Wireless Sensor Networks

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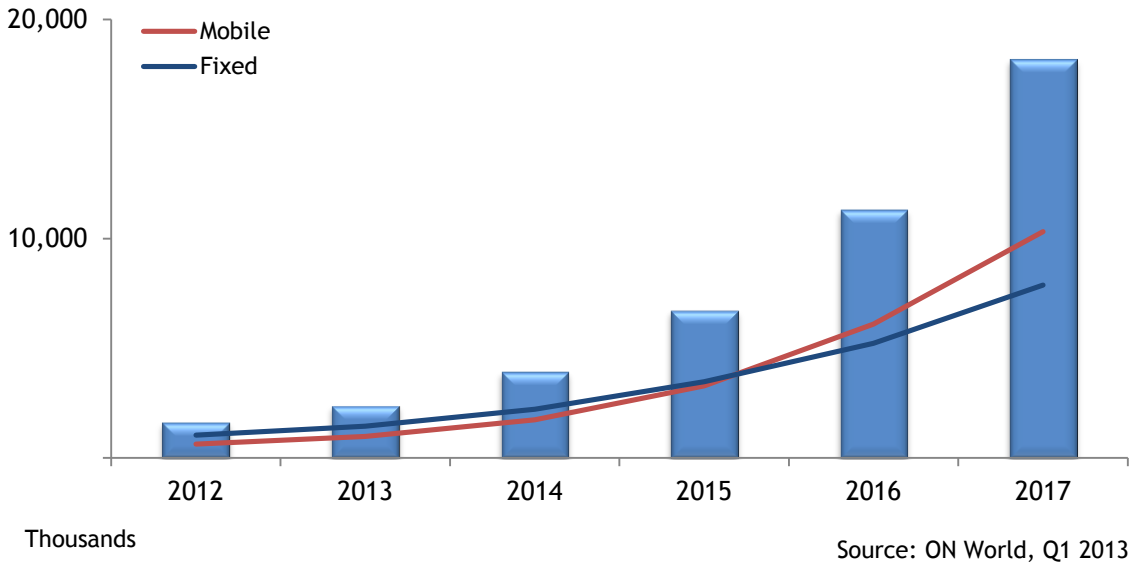
Executive Summary

Cloud connected wireless sensor networks (WSNs) are changing the way consumers and healthcare organizations think about health and wellness. Smart mobile devices connected to sensing and control networks have created new market opportunities where none existed just a few years ago. Investment in healthcare technologies as a way to keep long term health costs down is dramatically increasing, illustrated by the Veteran Health Administration's recently awarded $500 million dollar contract. The Affordable Care Act has intensified pressure on healthcare organizations to provide proof of success in terms of medical procedures which has made cost-cutting solutions such as remote patient monitoring essential. In addition to reducing costs, cloud based platforms enabled by wireless sensing solutions are improving quality of care by supporting the latest innovations for aging in place, self-management of chronic conditions as well as general wellness and prevention.

In 2017, 18.2 million health and wellness WSN systems—excluding sports/fitness devices-- will be shipped worldwide and annual revenues enabled by these systems will reach $16.3 billion. Between 2012 and 2017, mobile health and wellness systems will increase by a 75% compound annual growth rate (CAGR) and they will make up 57% of global shipments at this time.

Figure 1: Global Health/Wellness WSN System Shipments by Type (2012-2017)



Source: ON World, Q1 2013

WSN applications for health and wellness are expanding. These include large scale hospital operational management systems, wearable/implantable sensors and vital signs monitors as well as wellness monitoring, mobile personal emergency response systems (PERS) and growing solutions for weight management, sleep monitoring and general wellness. WiFi has become a driving force as its ubiquity influences almost all Internet of Things health related markets. Mobile sensing technologies such as Bluetooth Smart-- built into almost all iOS and future Android smartphones-- has given developers hundreds of millions of devices to integrate with health and wellness

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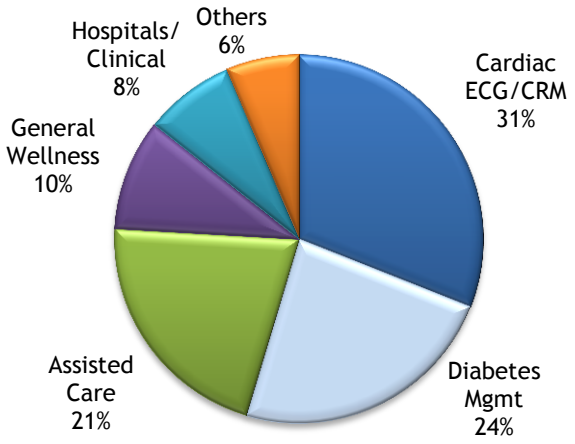
solutions. With over $500 million in venture funding, a new generation of health solutions is emerging. These include smartphone and cellular innovations for diabetes management from Cellnovo, Entra Health, Sanofi/AgaMatrix and Telcare as well as consumer electrocardiograph (ECG) monitoring systems from AliveCor and Cardiocomm Solutions.

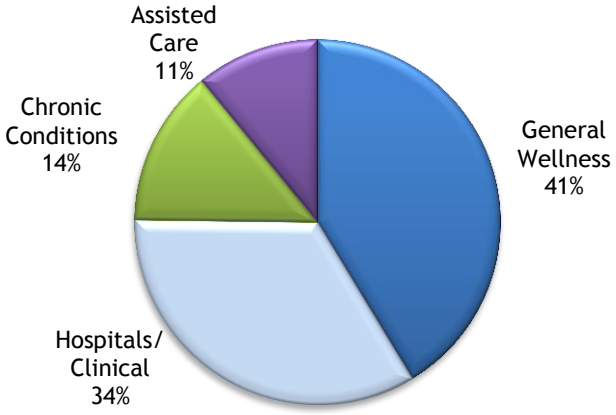
Figure 2: Health & Wellness WSN Revenues by Market in 2017



In 2017, chronic conditions such as diabetes and heart disease will make up 60% of the WSN revenues.

In this report, we analyze 16 cloud connected wireless sensing applications that are transforming health and wellness. Our evaluation of over 100 health and wellness WSN products found that 53% target self-management of chronic conditions such as diabetes and general wellness. Weight management is one of the fastest growing markets. This is illustrated by dozens of commercially available wireless weight scales up from a handful just a few years ago. ON World's survey with 300 early technology adopters found that about 3 out of 10 are interested in Web connected health and wellness devices.

Figure 3: Health & Wellness WSN Device Shipments by Market in 2017



Over the next five years, general wellness will increase by 1600% when it will make up 41% of the device shipments.

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Report Scope & Methodology

This report covers the global market for wireless sensor network (WSN) systems used for health and wellness including an in-depth analysis of 16 unique applications for hospitals/clinics, chronic disease management, assisted care technologies and general wellness. We provide unit and revenue forecasts by market, application, system, user/patient, device, chipset, product design and technology.

Our research methodology consists of the following:

- **Primary Research:** Interviews/surveys with 750 individuals including nearly 300 consumers and representatives with 100+ leading companies in the health/wellness value chain including healthcare organizations, service providers, software developers, device manufacturers and component suppliers.

- **Investigation:** Analysis of company products and services as well as technical, academic and financial reports.

- **Target Markets**: Hospitals/clinical, Assisted Care Technologies (including home monitoring and facility care), Chronic Disease Management (including breakdowns for diabetes management, cardiac monitoring/cardiac rhythm management and multiple chronic conditions/others) and General Wellness.

- **Applications**: Operational management/Real-time Location Systems (RTLS); Patient/vital sign monitoring; Wellness monitoring; Mobile Personal Emergency Security System (PERS); Weight management, sleep monitoring and others.

- **Technology Evaluation:** Analysis of relevant standards, user requirements and competing alternatives including Bluetooth, WiFi, ZigBee, Z-Wave, ANT, BodyLAN and others.

- **Competitive Landscape:** Analysis of >100 leading health/wellness companies including their products, services, business models, strategic alliances and contribution to the market size.

- **Market Size Projections:** Our market size forecasts are based on all of the above that is applied to our proprietary data modeling methodology (see page 30 in the full report for more details).

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Table of Contents

Executive Summary 1
Report Scope & Methodology 3
The Health & Wellness WSN Ecosystem 4
Market Forces & Drivers 5
Market Segmentation 6
Wireless Sensor Network Systems & Applications 7
Products & Services 8
Consumer Viewpoints 10
Growing Interest in Home Health Solutions 10
Health & Wellness Services 11
Smartphone Applications & Current Products 12
Developer Viewpoints 14
Technologies & Standards 21
Technology Dynamics 21
Key Standards & Developments 23
IEEE 802.15.4 23
IEEE 802.15.6 (Wireless Body Area Networks) 23
ZigBee 24
Bluetooth Classic 24
Bluetooth Low Energy 25
Low Power WiFi 25
Z-Wave 26
ANT 26
BodyLAN 26
Near Field Communications (NFC) 27
Medical Body Area Networks (MBANs) 27
Medical Implant Communication Service (MICS) 28
IETF Sensor Networking Standards 28
6LoWPAN 28
ROLL 28
CoRE 28
Industry Alliances 29
IPSO Alliance 29
Continua Health Alliance 29
Global Total Market Size Forecasts 30
Methodology 30
Health/Wellness WSN Users by Type 31
Total Units by Market 32

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Total Revenues by Market 33
Total Units by Application 34
Total Revenues by Application 35
Total Systems by Type 36
Revenues for Equipment & Services 37
Revenues by Geography 38
Chipset Shipment by Technology 39
Chipset Shipment by Product Design Type 40
Target Markets 41
Hospitals/Clinical 41
Trends & Developments 42
Real-Time Location Systems 42
Operational Management 42
Wireless Vital Signs Monitoring 42
Market Size Forecasts 43
Units by Application 43
Revenues by Application 44
Revenues by Product Segment 45
Revenues by Geography 46
Chipset Shipments by Technology 47
Chronic Disease Management 48
Trends & Developments 49
Cardiac Rhythm Management 49
Ambulatory Cardiac Monitoring 49
Diabetes Management 49
General Platforms & Others 49
Consumer Perspectives 50
Market Size Forecasts 51
Remotely Monitored Patients 51
Units by Application 52
Revenues by Application 53
Revenues by Product Segment 54
Revenues by Geography 55
Chipset Shipments by Technology 56
Assisted Care Technologies 57
Trends & Developments 58
Mobile PERS 58
Ambient Assistive Wellness Monitoring 58
Consumer Viewpoints 59
Market Size Forecasts 60

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Units by Application 61
Revenues by Market Segment 62
Revenues by Equipment & Services 63
Revenues by Geography 64
Chipset Shipments by Technology 65
General Wellness 66
Trends & Developments 67
Weight Management 67
Sleep Monitoring 67
Preventative Health & Others 67
Consumer Viewpoints 68
Market Size Forecasts 69
Units by Application 69
Revenues by Application 70
Revenues by Product Segment 71
Revenues by Geography 72
Chipset Shipments by Technology 73
Competitive Landscape 74
Startups & Innovators 75
Diabetes Management 76
Cardiac Monitoring & Cardiac Rhythm Management 77
Vital Sign Monitors 78
Platforms & Integrated Systems 79
RTLS & Operational Management 80
Weight Management & General Wellness 81

List of Figures

Figure 1: Global Health/Wellness WSN System Shipments by Type (2012-2017) 1
Figure 2: Health & Wellness WSN Revenues by Market in 2017 2
Figure 3: Health & Wellness WSN Device Shipments by Market in 2017 2
Figure 4: Converging Health & Wellness Market Landscapes 4
Figure 5: Healthcare WSN Market Drivers 5
Figure 6: Current Health & Wellness WSN Products/Services by Target Market 8
Figure 7: Current Health & Wellness WSN Products by Application 8
Figure 8: Current Health & Wellness WSN Products by Technology 9
Figure 9: Early Adopters - Interest in Home Services by Application 10
Figure 10: Early Adopters - Interest in Home Health/Medical Monitoring 10
Figure 11: Early Adopters - Interest in Health/Wellness in 2012 & 2013 11
Figure 12: Early Adopters - Likely Health/Wellness Web Services in 2012 & 2013 11

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Figure 13: Early Adopters - Health/Wellness Wireless Devices Used w/in the Past Year 12
Figure 14: Early Adopters - Smartphone Preference for Health/Wellness Applications 12
Figure 15: Early Adopters - Health/Wellness Device(s) Communications Used 13
Figure 16: Early Adopters - Most Likely Web Connected Health/Wellness Devices..... 13
Figure 17: WSN Developers – Currently Targeting Health/Fitness 14
Figure 18: WSN Developers – Most Likely Future WSN Applications 14
Figure 19: WSN Developers – Health & Fitness WSN Development Stage..... 15
Figure 20: WSN Developers – Health & Fitness WSN Technologies Adopted 15
Figure 21: WSN Developers – Targeted Health/Fitness Markets..... 16
Figure 22: WSN Developers – Current Health/Fitness Applications..... 16
Figure 23: WSN Developers – Network System Type..... 17
Figure 24: WSN Developers – Medical Device Classes 17
Figure 25: WSN Developers – Controllers/Managers by Type 18
Figure 26: WSN Developers – Sensors/End Devices by Type 18
Figure 27: WSN Developers – Most Likely Health/Fitness Interface Devices 19
Figure 28: WSN Developers – Health/Fitness Interface Devices Ranked..... 19
Figure 29: WSN Developers – Most Important Health/Fitness Market Drivers..... 20
Figure 30: WSN Developers – Health/Fitness Market Drivers Ranked 20
Figure 31: Health & Wellness WSN Technology Dynamics..... 21
Figure 32: Early Adopters – Familiarity with Networking Technologies..... 22
Figure 33: Early Adopters – Current Home Network by Type 22
Figure 34: Frequency Bands of IEEE 802.15.6 23
Figure 35: WSN Developers – Impact from the FCC Spectrum Mandate..... 27
Figure 36: Global Total Health/Wellness WSN Users by Market (2012-2017) 31
Figure 37: Global Total Health/Wellness WSN Annual Units by Market (2012-2017) 32
Figure 38: Global Total Health/Wellness WSN Revenues by Market (2012-2017) 33
Figure 39: Global Health/Wellness WSN Annual Units by Application (2012-2017)..... 34
Figure 40: Global Health/Wellness WSN Revenues by Application (2012-2017)..... 35
Figure 41: Global Health/Wellness WSN Annual Systems, Fixed & Mobile (2012-2017)..... 36
Figure 42: Global Health/Wellness WSN Revenues, Equipment & Services (2012-2017)..... 37
Figure 43: Global Health/Wellness WSN Revenues by Geography (2012-2017)..... 38
Figure 44: Global Health/Wellness WSN Chipset Shipments by Technology (2012-2017)..... 39
Figure 45: Global Health/Wellness WSN Chipset Shipments by Design Type (2012-2017)..... 40
Figure 46: Global Revenues for Hospital WSN/RTLS by Application in 2017 41
Figure 47: Global Hospitals/Clinical WSN/RTLS Annual Units by Application (2012-2017)..... 43
Figure 48: Global Hospitals/Clinical WSN/RTLS Revenues by Application (2012-2017)..... 44
Figure 49: Global Hospitals/Clinical WSN/RTLS Revenues, Equipment & Services (2012-2017)..... 45
Figure 50: Global Hospitals/Clinical WSN/RTLS Revenues by Geography (2012-2017)..... 46
Figure 51: Global Hospitals/Clinical WSN/RTLS Chipset Shipments by Technology (2012-2017)..... 47
Figure 52: Global Revenues for Chronic Disease Management WSN by Application in 2017 48

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Figure 53: Early Adopters - Likelihood of Using Chronic Disease Mgmt Service 50
Figure 54: Early Adopters - Likelihood of Connecting Blood Glucose Meter to Web Service..... 50
Figure 55: Global Chronic Condition WSN Users, Monitored & Self-Managed (2012-2017) 51
Figure 56: Global Chronic Condition Annual WSN Units by Application (2012-2017) 52
Figure 57: Global Chronic Condition WSN Revenues by Application (2012-2017) 53
Figure 58: Global Chronic Condition WSN Revenues, Equipment & Services (2012-2017)..... 54
Figure 59: Global Chronic Condition WSN Revenues by Geography (2012-2017)..... 55
Figure 60: Global Chronic Condition WSN Chipset Shipments by Technology (2012-2017)..... 56
Figure 61: Global Revenues for Assisted Care WSN by Market in 2017..... 57
Figure 62: Early Adopters - Level of Interest in Home Monitoring Web Service..... 59
Figure 63: Early Adopters - Preferred Monthly Service Fee for Aging in Place 59
Figure 64: Global Assisted Care WSN Users (2012-2017) 60
Figure 65: Global Assisted Care Annual WSN Units by Application (2012-2017)..... 61
Figure 66: Global Assisted Care WSN Revenues by Market (2012-2017) 62
Figure 67: Global Assisted Care WSN Revenues, Equipment & Services (2012-2017) 63
Figure 68: Global Assisted Care WSN Revenues by Geography (2012-2017)..... 64
Figure 69: Global Assisted Care WSN Chipset Shipments by Technology (2012-2017)..... 65
Figure 70: Global Revenues for General Wellness WSN by Market in 2017..... 66
Figure 71: Early Adopters – Likelihood to Use Weight Scale with Web Service..... 68
Figure 72: Early Adopters – Likelihood to Use Sleep Monitor with Web Service..... 68
Figure 73: Global Wellness Annual WSN Units by Application (2012-2017) 69
Figure 74: Global Wellness WSN Revenues by Application (2012-2017) 70
Figure 75: Global Wellness WSN Revenues, Equipment & Services (2012-2017) 71
Figure 76: Global Wellness WSN Revenues by Geography (2012-2017) 72
Figure 77: Global Wellness WSN Chipset Shipments by Technology (2012-2017) 73
Figure 78: Health & Wellness WSN Value System..... 74

List of Tables

Table 1: Healthcare WSN Market Segmentation 6
Table 2: WSN Applications by System Type..... 7
Table 3: Global Total Health/Wellness WSN Users by Market (2012-2017) 31
Table 4: Global Total Health/Wellness WSN Annual Units by Market (2012-2017) 32
Table 5: Global Total Health/Wellness WSN Revenues by Market (2012-2017) 33
Table 6: Global Health/Wellness WSN Annual Units by Application (2012-2017) 34
Table 7: Global Health/Wellness WSN Revenues by Application (2012-2017) 35
Table 8: Global Health/Wellness WSN Annual Systems, Fixed & Mobile (2012-2017)..... 36
Table 9: Global Health/Wellness WSN Revenues, Equipment & Services (2012-2017)..... 37
Table 10: Global Health/Wellness WSN Revenues by Geography (2012-2017) 38

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Table 11: Global Health/Wellness WSN Chipset Shipments by Technology (2012-2017) 39
Table 12: Global Health/Wellness WSN Chipset Shipments by Design Type (2012-2017)..... 40
Table 13: Global Hospitals/Clinical WSN/RTLS Annual Units by Application (2012-2017)..... 43
Table 14: Global Hospitals/Clinical WSN/RTLS Revenues by Application (2012-2017)..... 44
Table 15: Global Hospitals/Clinical WSN/RTLS Revenues, Equipment & Services (2012-2017) 45
Table 16: Global Hospitals/Clinical WSN/RTLS Revenues by Geography (2012-2017) 46
Table 17: Global Hospitals/Clinical WSN/RTLS Chipset Shipments by Technology (2012-2017) 47
Table 18: Global Chronic Condition WSN Users, Monitored & Self-Managed (2012-2017) 51
Table 19: Global Chronic Condition Annual WSN Units by Application (2012-2017)..... 52
Table 20: Global Chronic Condition WSN Revenues by Application (2012-2017)..... 53
Table 21: Global Chronic Condition WSN Revenues, Equipment & Services (2012-2017)..... 54
Table 22: Global Chronic Condition WSN Revenues by Geography (2012-2017)..... 55
Table 23: Global Chronic Condition WSN Chipset Shipments by Technology (2012-2017)..... 56
Table 24: Global Assisted Care WSN Users (2012-2017) 60
Table 25: Global Assisted Care Annual WSN Units by Application (2012-2017)..... 61
Table 26: Global Assisted Care WSN Revenues by Market (2012-2017) 62
Table 27: Global Assisted Care WSN Revenues, Equipment & Services (2012-2017) 63
Table 28: Global Assisted Care WSN Revenues by Geography (2012-2017) 64
Table 29: Global Assisted Care WSN Chipset Shipments by Technology (2012-2017) 65
Table 30: Global Wellness Annual WSN Units by Application (2012-2017) 69
Table 31: Global Wellness WSN Revenues by Application (2012-2017) 70
Table 32: Global Wellness WSN Revenues, Equipment & Services (2012-2017)..... 71
Table 33: Global Wellness WSN Revenues by Geography (2012-2017)..... 72
Table 34: Global Wellness WSN Chipset Shipments by Technology (2012-2017)..... 73
Table 35: Health & Wellness WSN Innovators 75
Table 36: Health & Wellness WSN Companies – Diabetes Management..... 76
Table 37: Health & Wellness WSN Companies – Cardiac Monitoring & CRM..... 77
Table 38: Health & Wellness WSN Companies – Vital Sign Monitors..... 78
Table 39: Health & Wellness WSN Companies – Platforms & Integrated Systems..... 79
Table 40: Health & Wellness WSN Companies – General Wellness..... 81

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