Wolters Kluwer Health & Technology Investor Teach-In

December 9, 2021

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Forward-looking statements

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Growth rates are cited in constant currencies unless otherwise noted.

Today's speakers

Nancy McKinstry
Chairman & CEO
Wolters Kluwer

Stacey Caywood
CEO
Wolters Kluwer Health

Peter Bonis, MD
SVP & Chief Medical
Officer
Wolters Kluwer Health

Vikram Savkar
SVP & GM,
Medicine Markets
Wolters Kluwer Health

Alex Tyrrell, PhD
SVP
Wolters Kluwer Digital
eXperience Group
(*/dxg)

Agenda

- Introduction - Nancy McKinstry

- Health - Stacey Caywood

- UpToDate - Peter Bonis

- Ovid - Vikram Savkar

- */dxg - Alex Tyrrell

- Summary - Stacey Caywood

- Q&A

Health transformation

Steady product investment and selected M&A has remade the Health division

Health Division

	2005	2020
Revenues, € million	656	1,193
Adj. operating margin %	15.9%	28.7%
% Print	~65%	12%
% Recurring	~55%	91%
Product development, € million	35-45	95-120
FTEs	2,168	2,824

*Note: Product development includes Capex and Opex*

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Health in context

A growing part of Wolters Kluwer

Wolters Kluwer Revenues
€ million
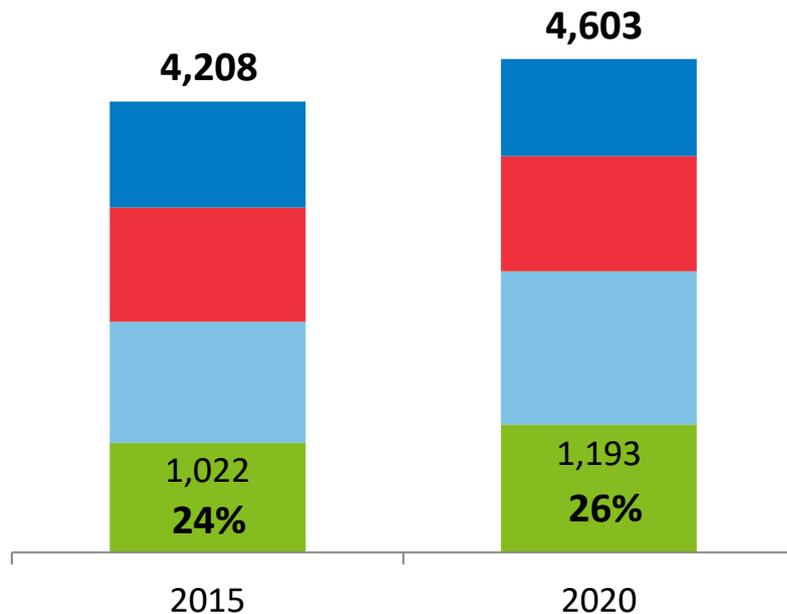
Wolters Kluwer Adjusted Operating Profit*
€ million
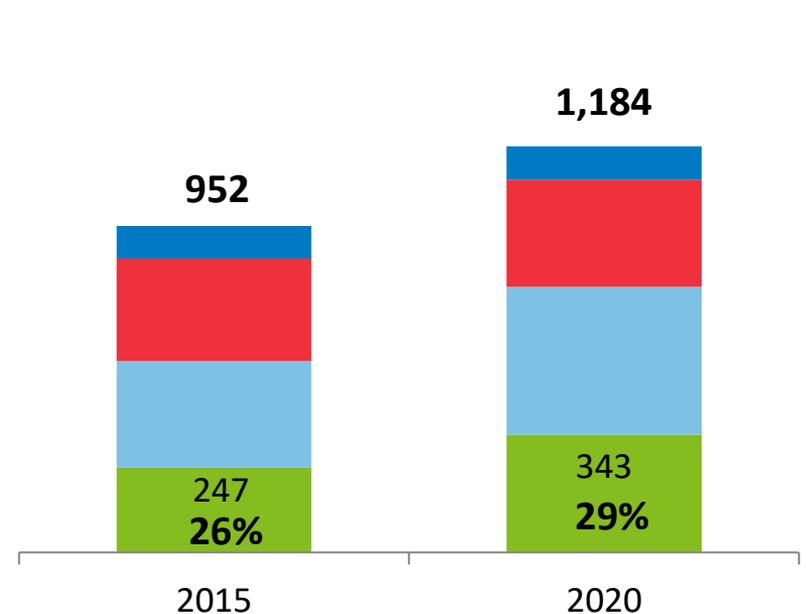
Legend: Legal & Regulatory · Governance, Risk & Compliance · Tax & Accounting · Health

*Note: *excludes Corporate costs*

Best care everywhere

*Our mission is to advance the **best care everywhere** by supporting clinicians throughout their life cycle to deliver better outcomes across the continuum of care*

Health Education	**Medical Research**	**Clinical Decision Support**
Lippincott	Ovid	Clinical Solutions
	Lippincott	

Better health outcomes

Circa 60% of Health revenues from expert solutions with renewal rates over 90%

Health division employee engagement of 88% (2020)

Annual product development spend 8-10% of Health revenues

Net promoter scores (NPS) over 30 for most major products

Health market trends

Covid has accelerated market trends creating new challenges and opportunities

- **Accelerated focus on virtual care/telemedicine**

- **Increased demand for technology and efficiency to alleviate the pressure on hospitals and their staff**

- **Consumerization of healthcare as competition for patients/members increases**

Global leader

A global leader developing and supporting millions of students and practitioners of clinical care

Learning, Research & Practice

- Global #2 in medical research and education
- Ovid: over 250 million searches per year
- Serving 2 million practicing health professionals
- Educating 1 million medical and nursing students worldwide

Key products

- Medical research platform: Ovid®
- Medical and nursing journals, books and learning tools: Lippincott®
- Continuing medical education: Audio Digest®

Wolters Kluwer Health Revenues by Segment

- ▇ Learning, Research & Practice
- ▇ Clinical Solutions

2015: 53% Learning, Research & Practice / 47% Clinical Solutions

2020: 47% Learning, Research & Practice / 53% Clinical Solutions

2015   2020
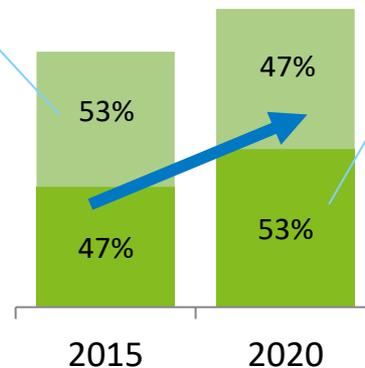
Clinical Solutions

- Global #1 in clinical solutions
- Supporting over 38,800 healthcare institutions and practices across 191 countries
- Supporting over 50,000 pharmacies
- UpToDate: over 650 million clinical topic views per year

Key products

- Clinical decision support: UpToDate®, UpToDate Advanced®
- Clinical drug information: Medi-Span®, Lexicomp®
- Patient engagement: Emmi®
- Clinical surveillance: SoleSource®[1], Sentri7, POC Advisor
- Clinical terminologies: Health Language®

*Note: 1. Pharmacy OneSource was rebranded SoleSource*

Health evolution

Over the past five years, Health revenues have become more digital and more recurring

Evolution of Health Revenues 2015 and 2020

Media Format

88%

78%

2015   2020

■ Digital ■ Services ■ Print
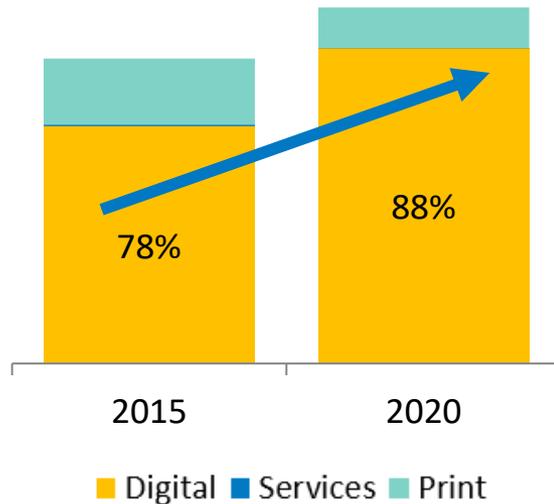
Recurring & non-recurring

91%

82%

2015   2020

■ Other non-recurring ■ Print books ■ Recurring
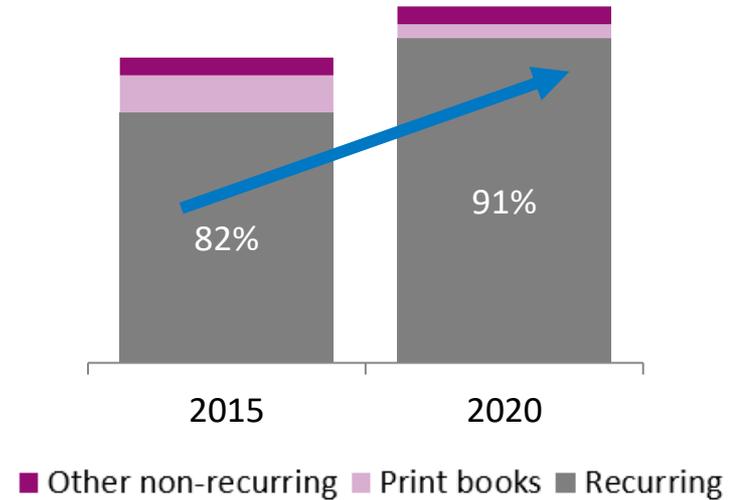
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Global and comprehensive

We support customers in over 190 countries

Tennessee-based multi-state system
- UpToDate
- Lexicomp
- Ovid
- CSC Compliance

Ohio-based health system
- UpToDate
- Lexicomp
- Emmi
- Ovid
- Nursing Solutions
- Health Language

Hosp. Sírio-Libanês
- UpToDate
- Lexicomp
- Medi-Span
- Ovid

Oxford Univ. & Cambridge Univ.
- UpToDate
- Ovid

Princess Máxima Ctr. Pediatric Oncology
- UpToDate
- Lexicomp

Univ. of Cape Town
- UpToDate
- Ovid

Min. of Health
- Lexicomp
- Medi-Span

Friedrich-Althoff
- Ovid

Asklepios
- UpToDate
- UpToDate Advanced
- Lexicomp
- Ovid

Mediclinic
- UpToDate
- Lexicomp
- Nursing Solutions

Ministry of Health
- UpToDate

Beijing Hospital
- Ovid
- UpToDate

C.A.U.L.
- Ovid

**ERMED Consortium**
- Ovid

Wolters Kluwer

Strategic priorities

Our goal is to deliver consistent and resilient organic revenue growth and margin appreciation over the longer term

Wolters Kluwer Health Organic Growth

Total Organic Growth — Digital Organic Growth

Wolters Kluwer Health Adjusted Operating Margin
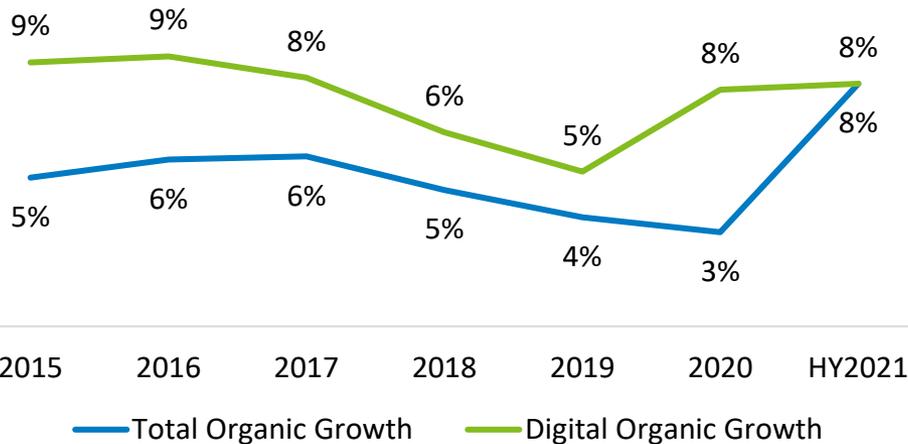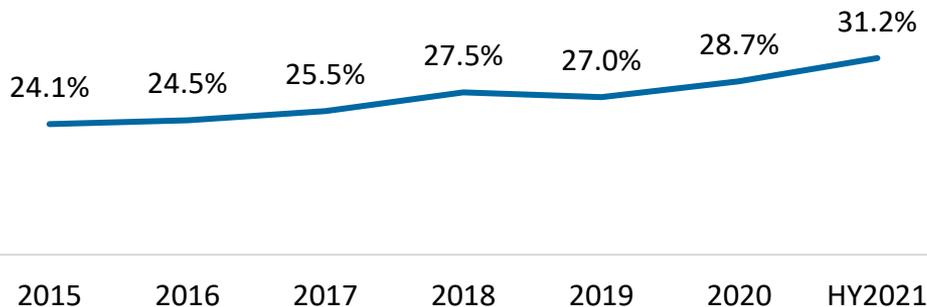
Health revenue drivers
- Promote cross- and up-selling
- Accelerate product innovation
- Deepen our global reach

HY 2021
- Organic growth +8%
- Clinical Solutions +6%, led by UpToDate and drug information
- Learning, Research & Practice +11%
  - Print books rebound (against weak comparable in 2020)
  - ASCO journal contract win
- Margin increase reflecting operational gearing and temporary cost savings

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- */dxg - Alex Tyrrell

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UpToDate

World's most widely-used and most comprehensive resource for evidence-based medicine

More than 38,800 institutions worldwide

2 million clinicians in 191 countries

650 million topics viewed per year

7,000 authors and peer reviewers

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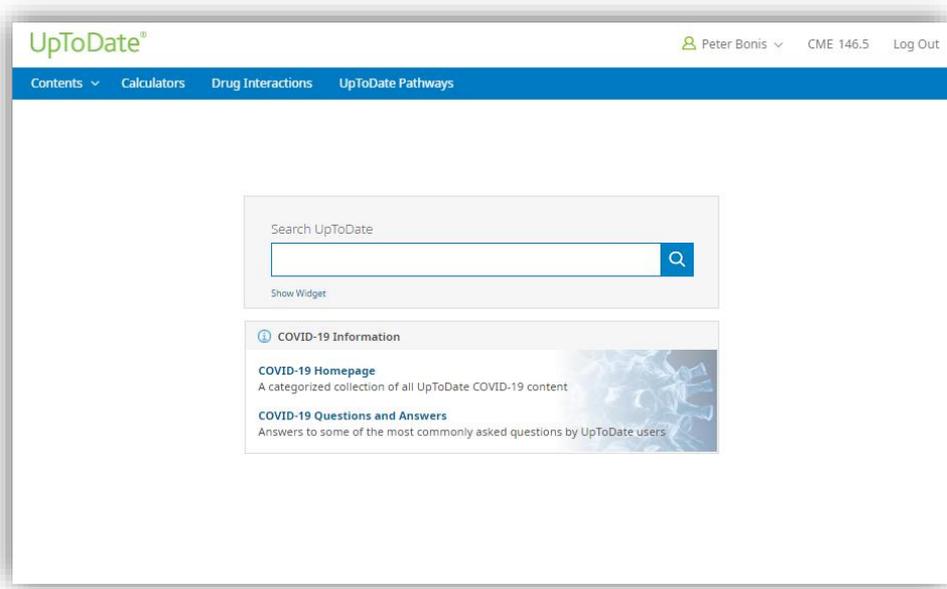
UpToDate

Answering the important clinical questions

Answering the important clinical questions

Physicians have approximately 15-20 clinical questions a day, but

60%

of these questions go unanswered.

Answering unanswered clinical questions at the point of care could change

5 - 8

patient management decisions each day.

Source: Covell, DG. Ann Intern Med 1985; 103:596; Green, ML. AM J Med 2002; 109:218; Osheroff, JA. Ann Intern Med 1991:575; Ely, JW. J Am Med Inform Assoc 2005; 12:217; Gorman, PN. Med Decis Making 1995; 15:113., Patient-Care Questions that Physicians Are Unable to Answer. July/August 2017, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2244897/

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UpToDate

UpToDate has been studied extensively and is associated with improved outcomes

Over 100
research studies

Studies associate use of UpToDate with:

Improved decision-making

Enhanced patient safety

Improved performance on quality measures

Fewer diagnostic errors
Diagnostic error rate **2%** in group using UpToDate versus **24%** in group not using UpToDate[2]

Reduced mortality

Improved hospital efficiency due to shortened length of stay

Substantial gains in medical education
20 minutes daily usage equivalent to 1 year of medical residency[3]

Sources: 1) Isaac, T. et al, Use of UpToDate and outcomes in U.S. hospitals. Journal of Hospital Medicine, 2012; 2) Shimizu, T. et al, Effectiveness of a clinical knowledge support system for reducing diagnostic errors in outpatient care in Japan: A retrospective study. International Journal of Medical Informatics, 2018. 3) McDonald, F. et al, Factors associated with medical knowledge acquisition during internal medicine residency. Journal of General Internal Medicine, 2007.

UpToDate

User feedback demonstrates UpToDate has impact in low-and middle-income countries

Somalia:

"It is my light in the dark"

Myanmar:

"It has saved many lives day in and day out"

Pakistan:

"UpToDate is excellent …

Cure rate of enteric fever significantly went up"

Bangladesh:

"I am very much grateful to UpToDate team. To me UpToDate is like Aladdin's magic lamp. Can't imagine passing a day without it. It is enriching my knowledge continuously"

India:

"…Really from my heart I thank you for the great gift which impact my practice and help me to help thousands of rural community in my poor country… Thank you Thank you Thank you Thank you"

HARVARD T.H. CHAN
SCHOOL OF PUBLIC HEALTH

BRIGHAM HEALTH
BWH BRIGHAM AND WOMEN'S HOSPITAL

ARIADNE LABS

Wolters Kluwer

UpToDate

Core growth drivers

Growth Drivers

- **Deepen penetration in international markets**

- **Optimize packaging/pricing**

- **Innovation: additional channels, virtual use cases, and partnerships**

- **Innovation: extend product capabilities**

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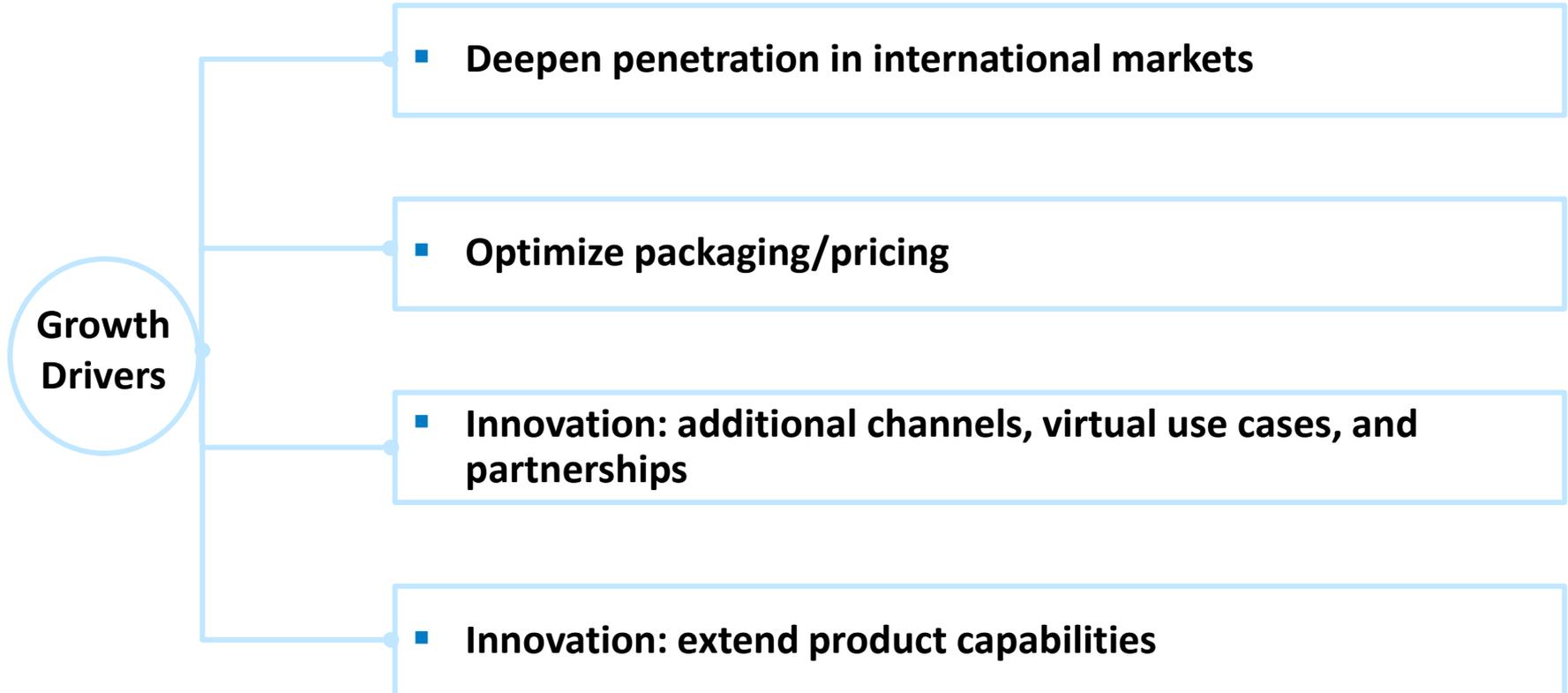
UpToDate innovation

Recent and ongoing product developments

- **UpToDate Advanced**
  - Curated suite of interactive pathways, calculators, lab interpretation monographs, and patient education material
  - Guides medical professionals through complex decision making at the point of care

- **Digital Health Architect**
  - Evidence-based information from UpToDate, Lexicomp, and Emmi to support care decisions
  - Integrates trusted and engaging content into existing clinical workflows that is shared with patients in a consumer-friendly design
  - Allows partners, for example digital health providers, to communicate more effectively with their patients

- **Integrated Solutions**
  - Exploring new ways to combine and extend our expert solutions for clinical effectiveness

UpToDate Advanced

UpToDate Advanced delivers confidence and time savings at point of care

Interactive clinical decision guidance **targets common drivers of care variability as treatment decisions are made for each unique patient**

Concise monographs provide **quick, actionable support for interpreting abnormal lab results**

*"Reducing variations in care is a critical part of our efforts to improve outcomes and increase patient safety. The interactive pathways in **UpToDate Advanced** have helped us streamline workflows and harmonize clinical decision-making across care teams and locations."*
Heidi Twedt, MD, former CMIO, Sanford Health

% of Clinician Users Who Say:
UpToDate Pathways …

Reinforces my clinical decisions	**90%**
Modifies my clinical decisions	**84%**
Decreases use of unnecessary testing, treatments, and procedures	**83%**
Saves me time	**78%**

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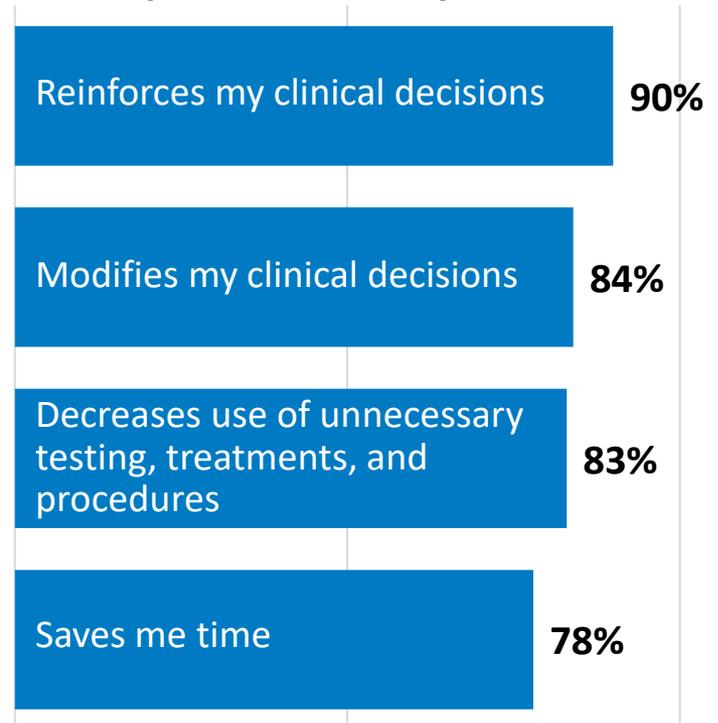
Digital Health Architect

Example: Doximity integration - clinician can easily search and share patient education content during a tele-medicine consultation

UpToDate Integration with Doximity Dialer

**Professional medical network for physicians**
Doximity is the largest community of healthcare professionals in the U.S with over 80% of U.S. doctors and 50% of all nurse practitioners (NPs) and physician assistants as verified members

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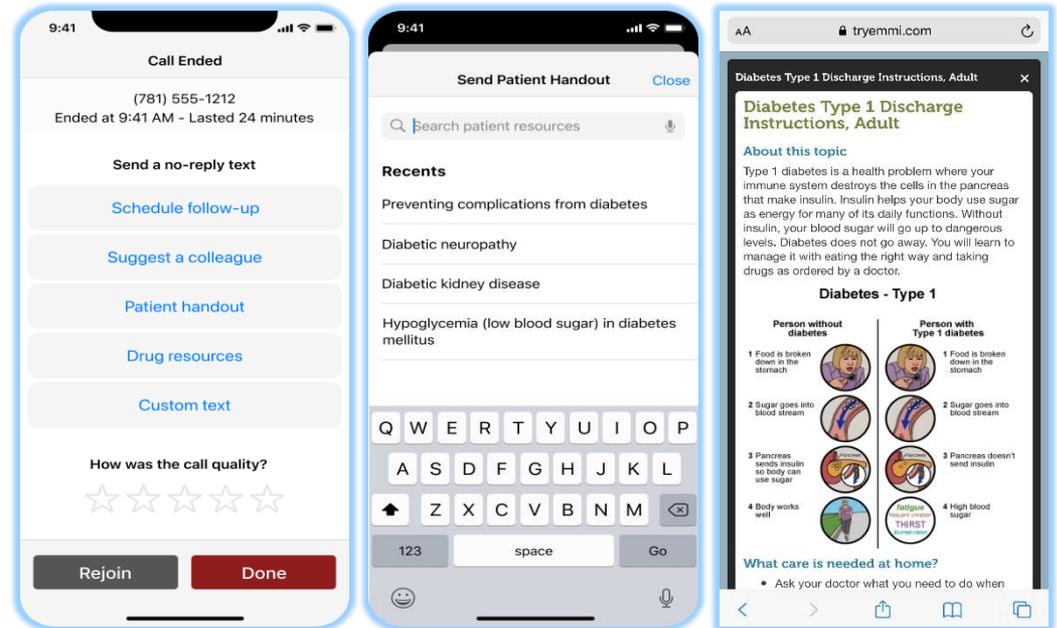
Integrated Solutions

Exploring ways to integrate our clinical effectiveness solutions

Clinical Effectiveness

UpToDate®
UpToDate Advanced®

Global leader for clinical decision support

Emmi®

Multimodal and multimedia solution to engage patients in their healthcare

Lexicomp®

Referential drug therapy information that improves decision-making

Medi-Span®

Drug data embedded into workflow to reduce drug prescribing errors

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UpToDate - Summary

A unique position from which to achieve even greater impact on healthcare delivery globally

- After 30 years, UpToDate is established as the leading evidence-based knowledge resource trusted by healthcare professionals throughout the world
- Its use is associated with improved care across diverse settings
- UpToDate's wide adoption and unique trust by providers offers several opportunities to achieve even greater impact on healthcare delivery and growth of the business

- More than 38,800 institutions worldwide

- 2 million clinicians in 191 countries

- 650 million topics viewed per year

- 7,000 authors and peer reviewers

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Serving global medical markets

Sold to institutions and used by a wide range of healthcare professionals

Premium Content	**Precision Search and Tools**	**Users/Customers**	**Approximate Revenue Split**

Premium Content
- **Lippincott journals and books** — Exclusive access
- **Third Party journals, books, and databases**

Precision Search and Tools

Ovid

Users/Customers
- Physicians
- Nurses
- Students, Educators
- Librarians
- Researchers
- Information Managers

- Hospital
- Medical/Academic School
- Government & Corporate

Approximate Revenue Split
- **49%** — Hospital
- **39%** — Medical/Academic School
- **12%** — Government & Corporate

Medical research powers innovation

Medical research is the "behind-the-scenes" driver of improved patient outcomes

Primary Research → **Results Dissemination** → **Research Translation** (Population Intervention Comparison Outcome) → **Practice Guidelines** → **Patient Care**

Publication of a clinical trial

Randomized phase III trial of treatment duration for oral uracil and tegafur plus leucovorin as adjuvant chemotherapy for patients with stage IIB/III colon cancer

Change in medical practice guidelines

Practice change in duration of Oxaliplatin-Containing Adjuvant Therapy for Stage III Colon Cancer

Ovid is central to global medical research

Ovid is the world's leading platform for searching and analyzing medical research literature

Ovid's Key Capabilities

| Expert Content	Precision Search	Advanced Tools
1,200+ Journals 100+ Databases 10,000+ e-books	250+ million searches per year 50+ million article downloads per year	Auto alerts for pharmacovigilance Search collaboration Text and data mining

Ovid growth drivers

Ovid aims to drive organic growth through continual innovation
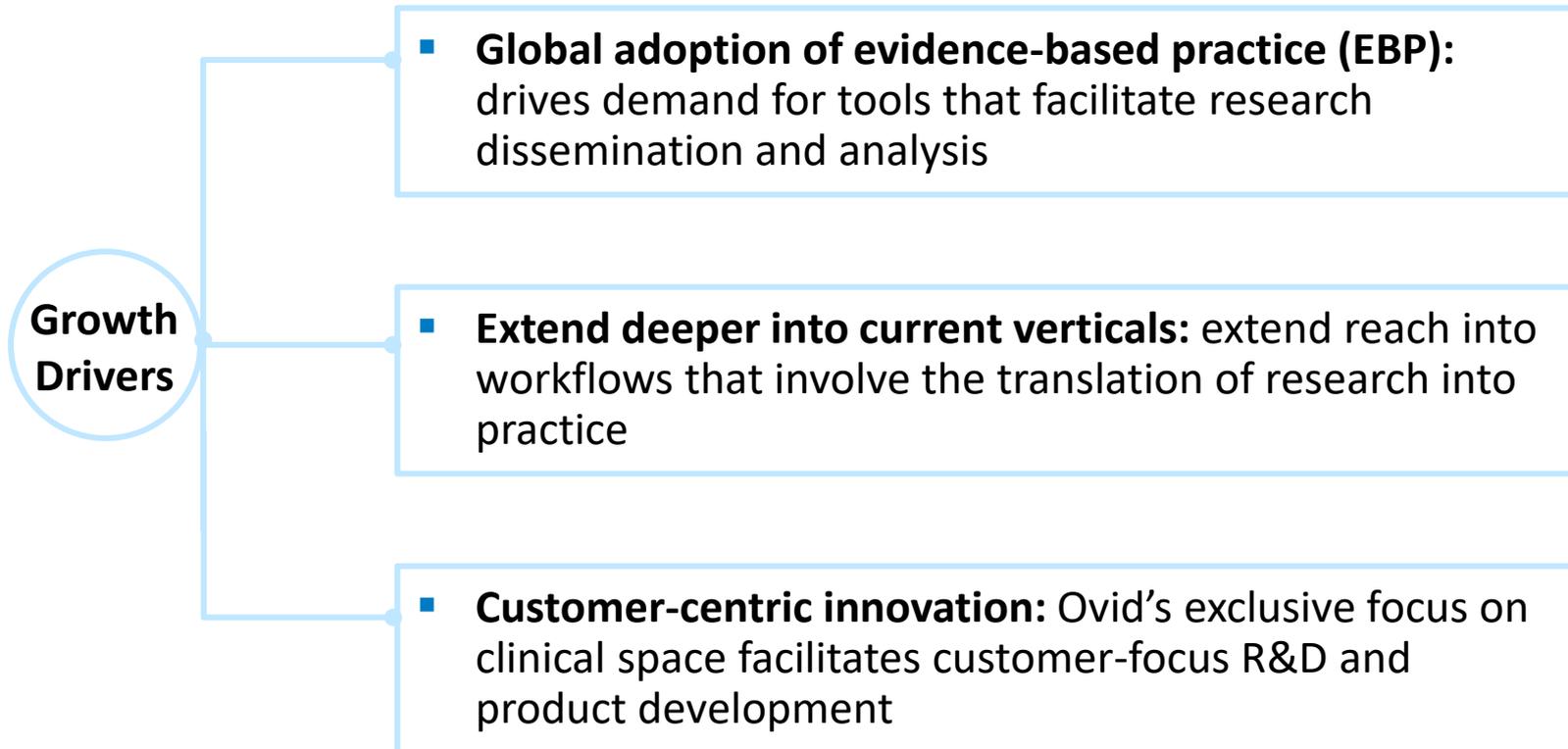
Growth Drivers

- **Global adoption of evidence-based practice (EBP):** drives demand for tools that facilitate research dissemination and analysis

- **Extend deeper into current verticals:** extend reach into workflows that involve the translation of research into practice

- **Customer-centric innovation:** Ovid's exclusive focus on clinical space facilitates customer-focus R&D and product development

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Digital eXperience Group

Global product development organization drives faster and more efficient innovation for all four Wolters Kluwer divisions

Health	Tax & Accounting	Governance, Risk & Compliance	Legal & Regulatory

Global Growth Markets

Digital eXperience Group (*/dxg)

Mission: to accelerate innovation for Wolters Kluwer customers

Global organization with around 2,000 FTEs including flexible resources

Three Centers of Excellence (CoEs):

| CoE: User/Customer Experience	CoE: Artificial Intelligence	CoE: Advanced Platform Services

Global Business Services

Innovation process

User-focused, iterative and design-based software development process

Customer-centric, contextual design →

Lean product development →

Discover   Design   Deliver   Deploy
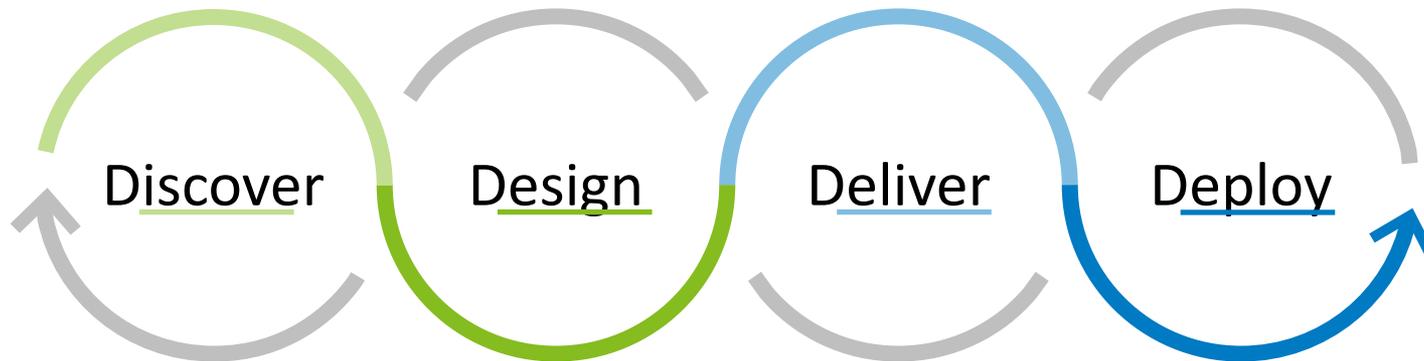
Discover	Design	Deliver	Deploy
- Customer-focused innovation process - Advanced user experience (UX) and customer experience (CX) Center of Excellence	- Advanced technology and artificial intelligence (AI) Center of Excellence - Accelerate adoption of artificial intelligence into Wolters Kluwer products	- Deliver Advanced Platform Services - Drive SaaS maturity across Wolters Kluwer - Enable next-gen software development models, partnerships, platforms, and eco-systems	- Testing and validating with customers through lean product practices - Support delivery of innovation to the market

Technology assets

Leveraging global technology assets to maximize innovation and customer value

Technology Assets & Deployment Models

*/dxg Focused Asset Deployment

Health	Tax & Accounting	GRC	Legal & Regulatory
Product Technology	Product Technology	Product Technology	Product Technology

*/dxg Global Asset Development

Open Service-Oriented Capabilities: One-ID | E-Sign | Virtual Assistant | and over 20 other tools

***/dxg Research Platform Capabilities: Global Atlas | Ovid**

***/dxg Software Platform Capabilities: Apollo | TaskFlow | Design System | OneWeb**

Driving advanced technology adoption

/dxg deployed machine learning to empower Sentri7 to more quickly identify patients at risk of Clostridioides difficile (C. diff) infection

Artificial Intelligence in Sentri7 AI+

Electronic Health Record System (EHR)

Vitals
Procedure documentation
Patient demographics
Medication orders & administration
Lab results

AI-powered Algorithms
+ evidence-based
content

Sentri7 AI+

Patient-specific guidance

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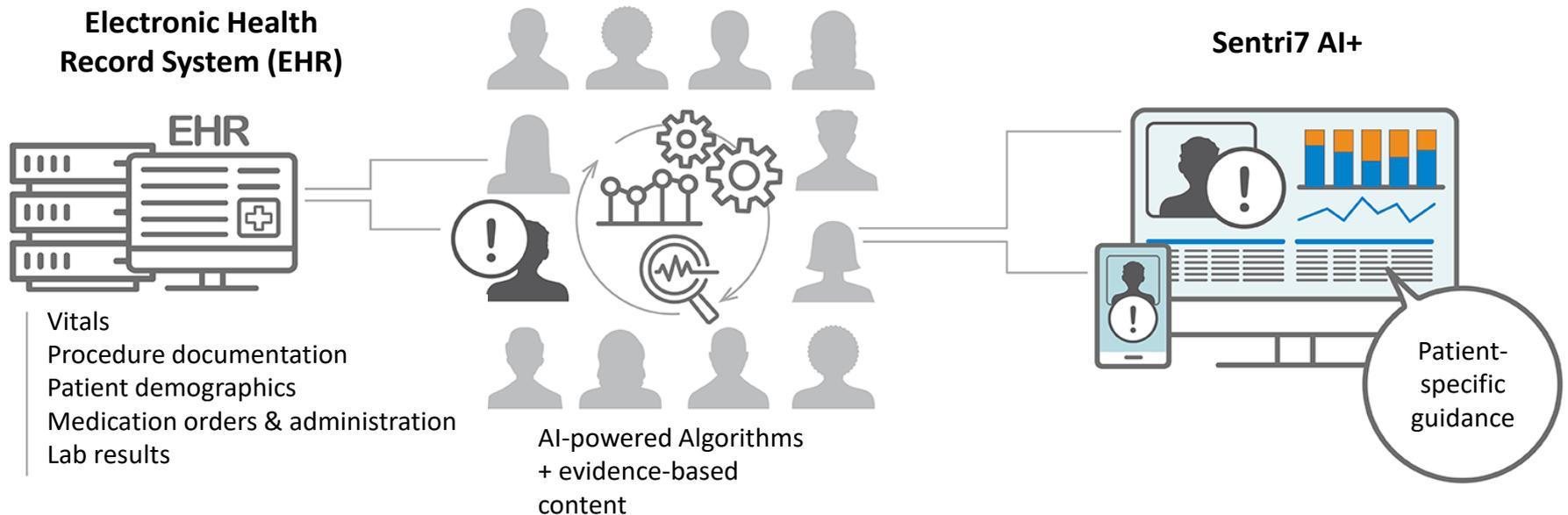
Accelerating cloud

Progressing the journey to the cloud: over 40% of Health digital revenues are from cloud-based solutions

Benefits of cloud solutions:
- Scale and efficiency improvements
- Containers, serverless, no/low-code
- Enhanced resilience and disaster recovery
- Advanced technology: machine learning, interactive voice, text analysis

Selected Health products:

☁ = public cloud; = ⌂ WK hosted; 🛠 */dxg cloud services

Clinical Solutions

	public cloud	WK hosted	*/dxg cloud services
UpToDate Clinical Decision Support	–	⌂	🛠
UpToDate Advanced	–	⌂	🛠
Emmi Patient Engagement	–	⌂	🛠

Health Learning, Research & Practice

	public cloud	WK hosted	*/dxg cloud services
Ovid	☁	–	🛠
CoursePoint+ Nursing LMS	☁	–	🛠
vSim Patient Simulation	☁	–	–
PrepU Adaptive Learning App	☁	–	–
Audio Digest	☁	–	–
Lippincott Nursing Solutions	☁	–	🛠
Lippincott Connect	☁	–	–

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Innovation with TaskFlow

/dxg co-created the medical decision-tree workflow in UpToDate Advanced using its unique TaskFlow tool

*/dxg TaskFlow Tool

- Cloud-based tool developed by Wolters Kluwer */dxg team; serverless, cloud-native design, and architecture

- Allows domain experts to develop "no-code" applications (without writing code), significantly decreasing time to market for innovations
  - UpToDate medical editors use TaskFlow to design decision-tree diagnosis applications
  - TaskFlow can also speed the creation of applications for data collection and virtual collaboration

- Customers benefit from improved user experience (UX), workflow and navigation

- TaskFlow is used by all Wolters Kluwer divisions. In Health, TaskFlow is used for UpToDate Advanced and Emmi Interactive Voice Integration for patient engagement

Translate the knowledge into an interactive, clinical decision-making workflow tool, personalized for the patient, with documentation support - updated when the evidence changes

UpToDate Editors

Wolters Kluwer

Ovid innovation

Currently co-designing and developing enhancements to the Ovid Research Platform in the cloud
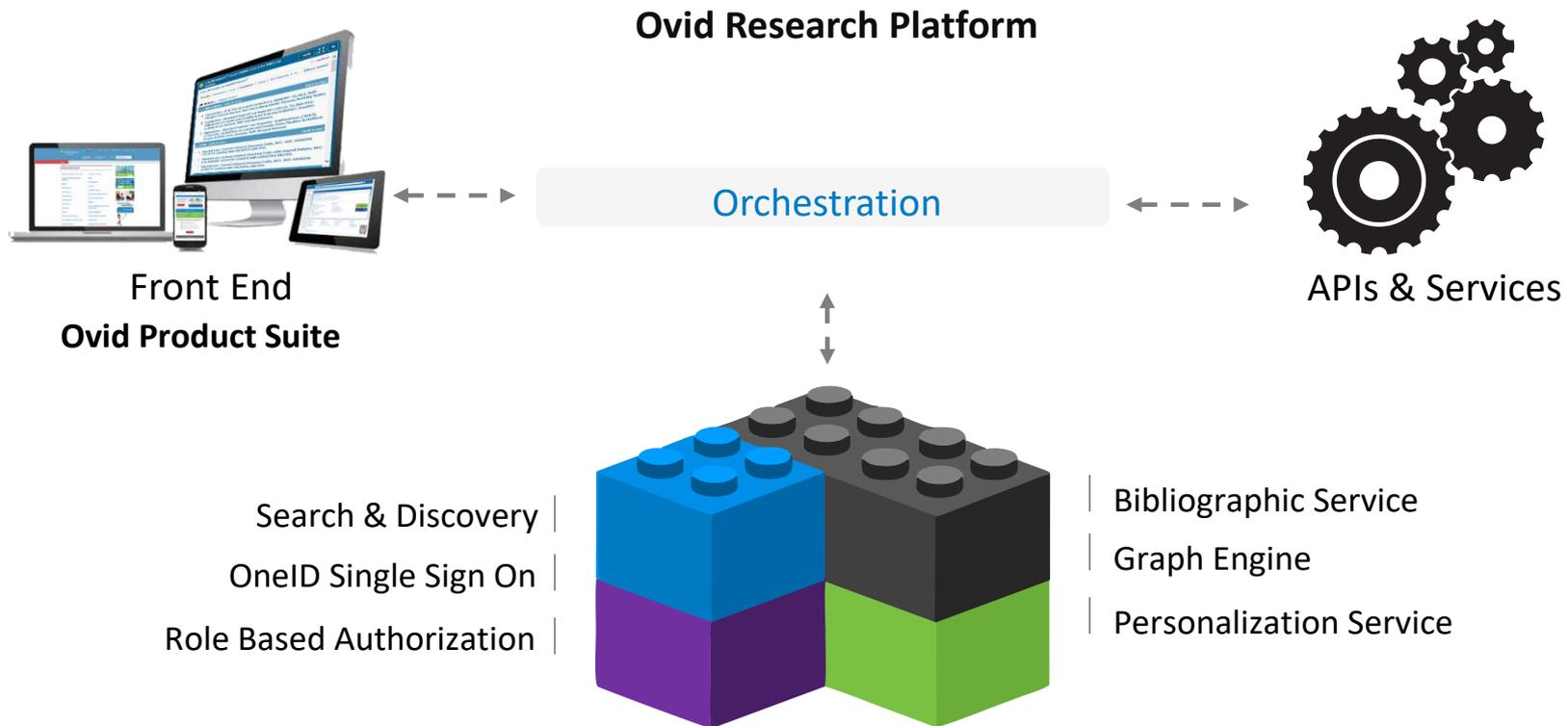
Ovid Research Platform

Orchestration

Front End
Ovid Product Suite

APIs & Services

Search & Discovery

OneID Single Sign On

Role Based Authorization

Bibliographic Service

Graph Engine

Personalization Service

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Wolters Kluwer Health

Uniquely positioned to achieve even greater impact on healthcare outcomes globally

2 million clinicians in **191 countries**

Circa 60% of Health revenues from expert solutions with renewal rates over **90%**

Over 7,000 expert authors and peer reviewers

35 million patient interactions facilitated by Emmi solutions

More than **38,800 institutions** worldwide

Customer satisfaction: net promoter scores (NPS) over 30 for most major products

Wolters Kluwer Health **employee engagement** score of **88%** (2020)

Product development spend **8-10%** of Health revenues per year

Award-winning: Frost & Sullivan 2021 New Product Innovation Award for Sentri7 use of AI

Intensely used: 650 million topics viewed in UpToDate and 250 million searches in Ovid each year

Q&A