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Eleni Lialiamou

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May 14, 2019

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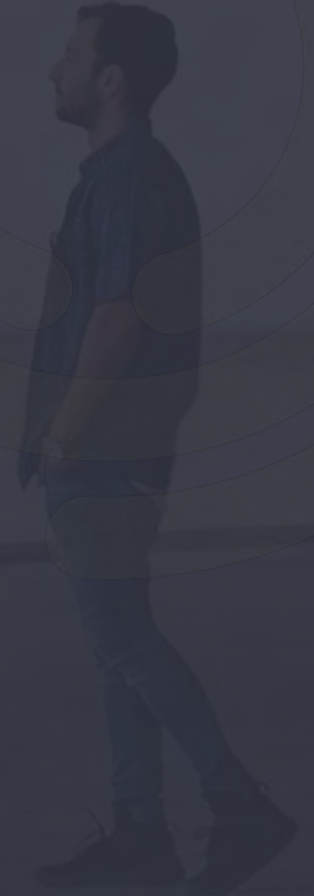


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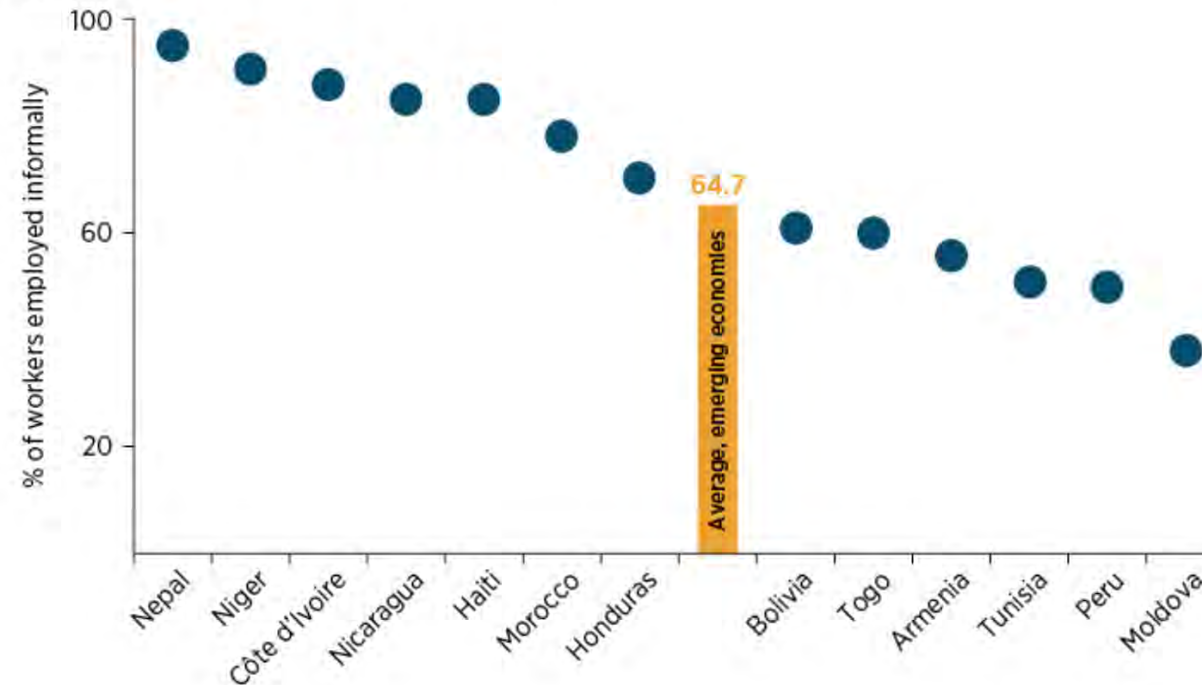
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less than 0.3 percent in developing countries.

Changes in the nature of work are in some ways more noticeable in advanced economies where technology is widespread and labor markets start from higher levels of formalization. However, emerging economies have been grappling with many of the same changes for decades. As noted earlier, informality persists on a vast scale in emerging economies—as high as 90 percent in some low- and middle-income countries—notwithstanding technological progress. With some notable exceptions in Eastern Europe, informality has been hard to tackle. In countries such as El Salvador, Morocco, and Tanzania only one out of five workers is in the formal sector. On average, two out of three workers in emerging economies are informal workers (figure 1.3).

FIGURE 1.3 Two out of three workers in emerging economies are in the informal economy (selected countries)



Source: WDR 2019 team, using household and labor force survey data from the World Bank’s International Income Distribution Data Set.

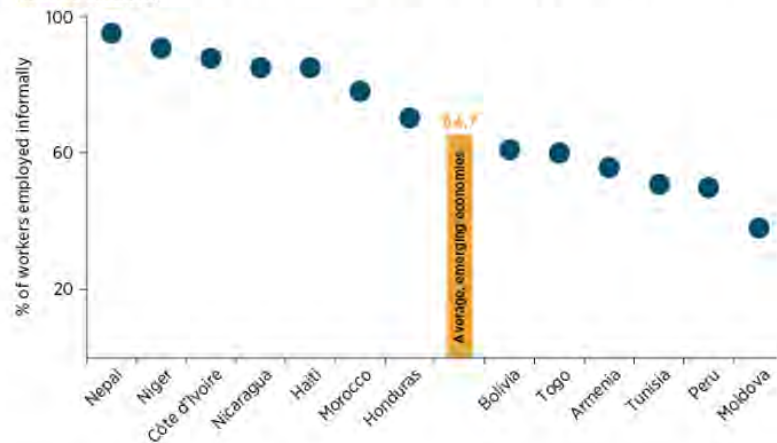
Note: The figure shows selected countries with the highest rates of informal employment. A person is identified as an informal worker if he or she does not have an employment contract, social security, and health insurance, and is not a member of a labor union. The estimates are for the latest available year for each country, ranging from 2010 to 2016.

The prevalence of informality predates the new millennium wave of technological change. Various

Data from Germany and the Netherlands indicate that only 0.4 percent of the labor force of those countries is active in the gig economy. Worldwide, the total freelancer population is estimated at around 84 million, or less than 3 percent of the global labor force of 3.5 billion.²⁴ A person counted as a freelancer may also engage in traditional employment. In the United States, for example, more than two-thirds of the 57.3 million freelancers also hold a traditional job, using freelancing to supplement their income.²⁵ The best estimate is that less than 0.5 percent of the active labor force participates in the gig economy globally, with less than 0.3 percent in developing countries.

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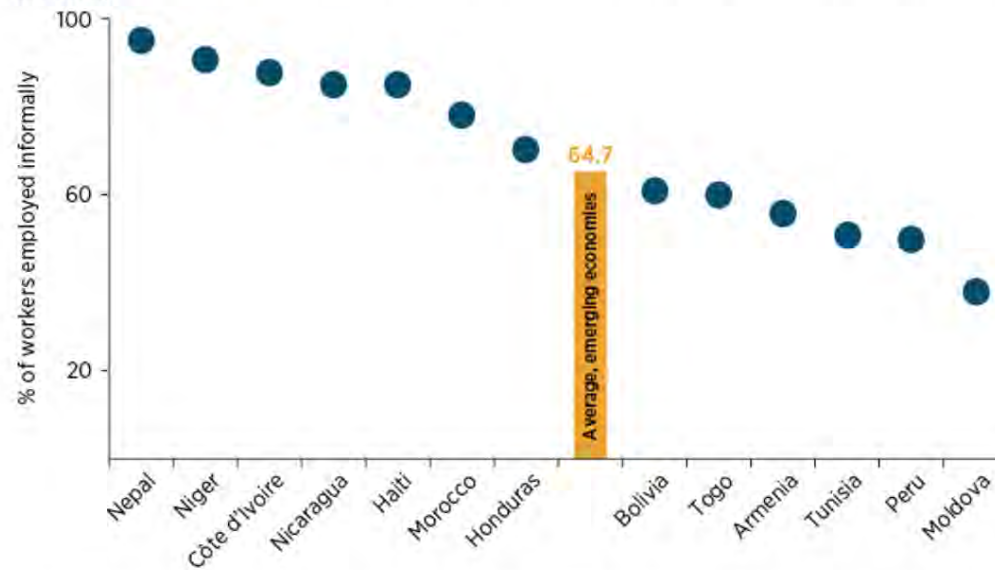
The prevalence of informality predates the new millennium wave of technological change. Various programs for reducing informality, inspired by Hernando de Soto's *The Other Path: The Economic Answer to Terrorism* (2002), have yielded limited progress. The reason is the onerous regulations, taxes, and social protection schemes that give businesses no incentive to grow.

Because recent technological developments are blurring the divide between formal and informal work, there is something of a convergence in the nature of work between advanced and emerging economies. Labor markets are becoming more fluid in advanced economies, while informality is

less than 0.3 percent in developing countries.

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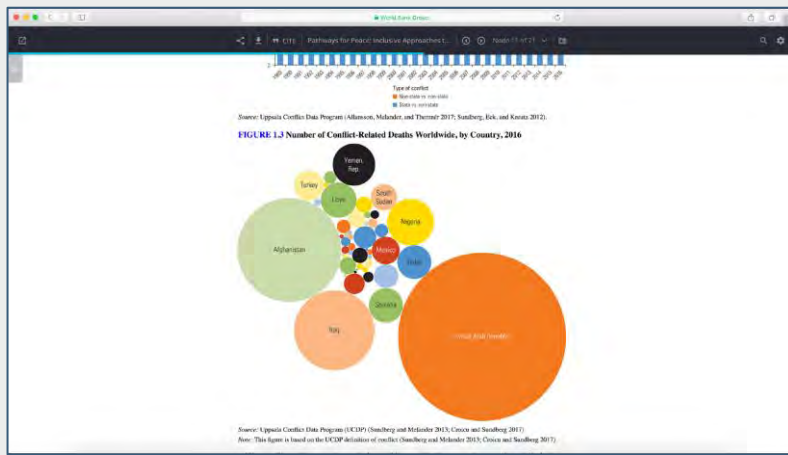
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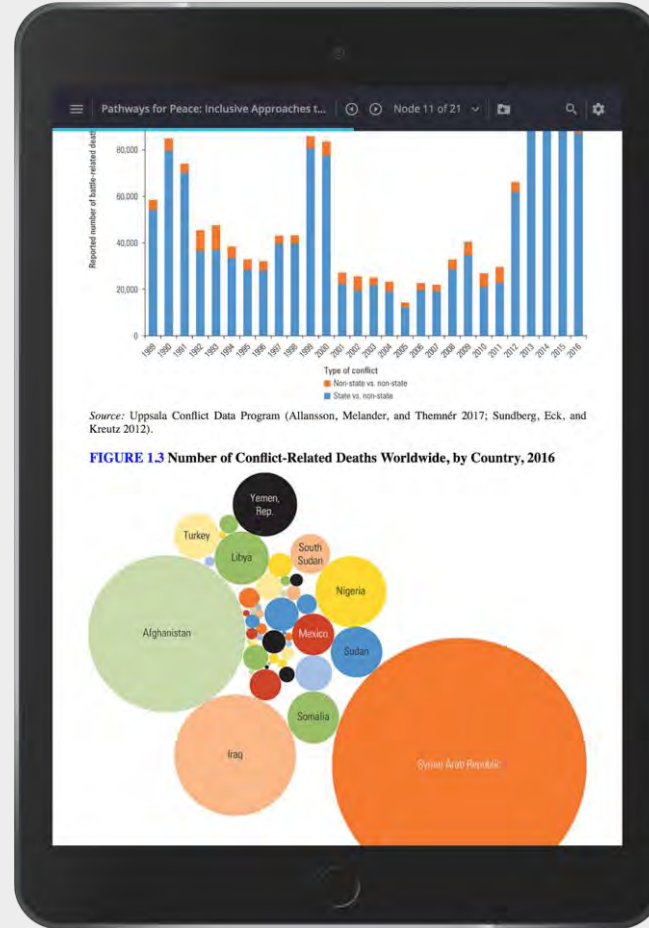
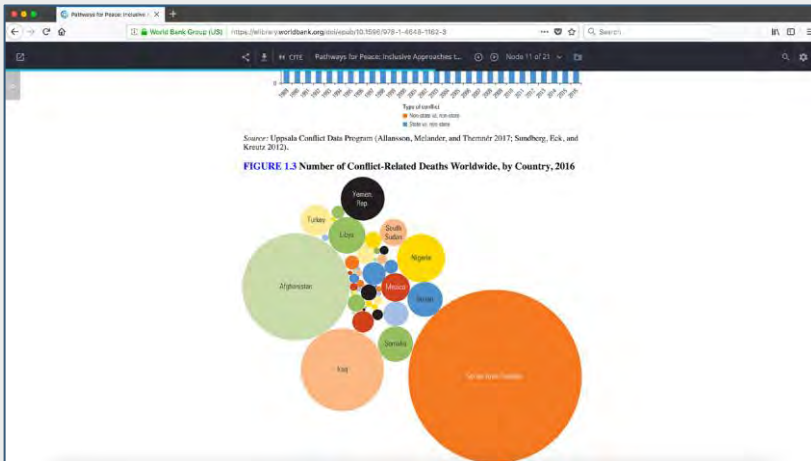
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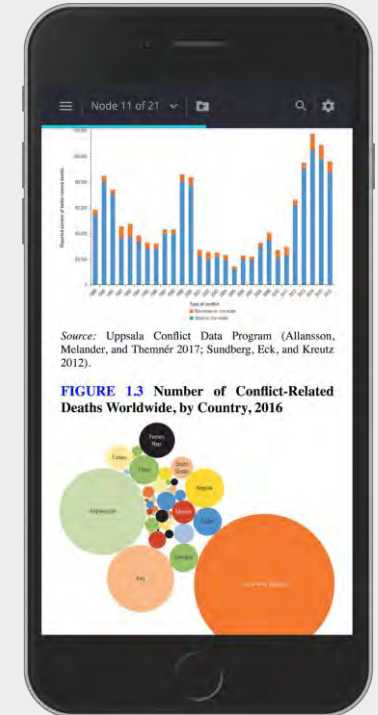


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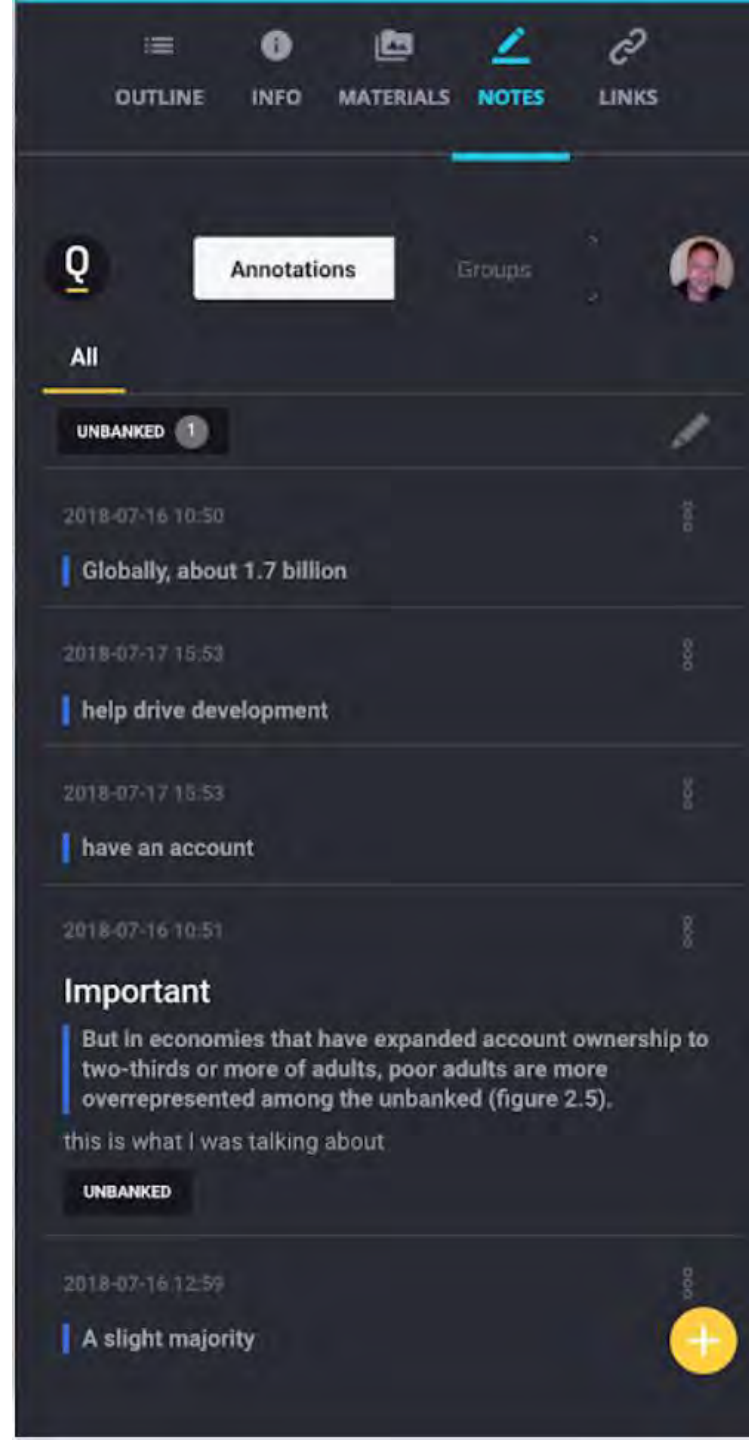
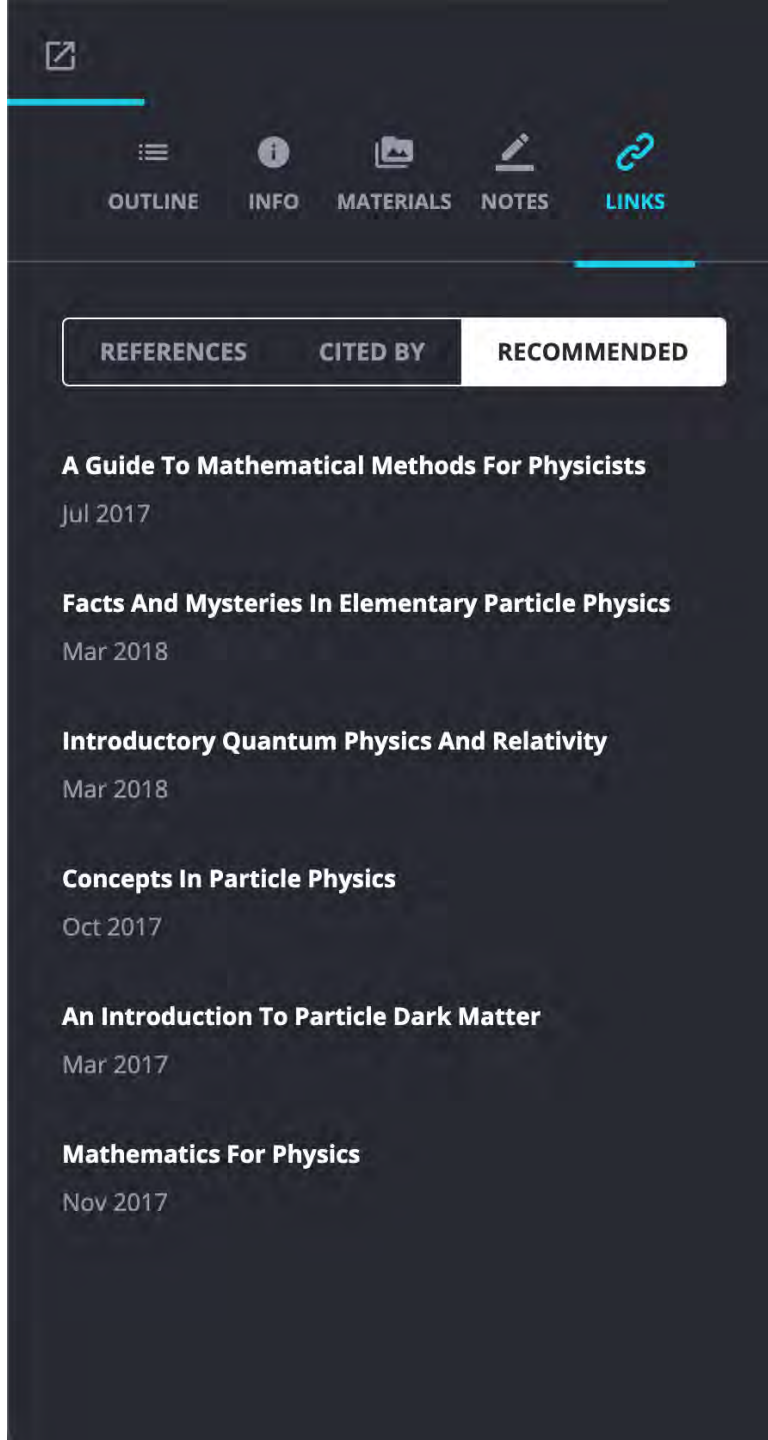
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CONTAGIOUS OFFSITE WORK AND THE LONELY OFFICE: THE UNINTENDED CONSEQUENCES OF DISTRIBUTED WORK

KEVIN W. ROCKMANN
George Mason University

MICHAEL G. PRATT
Boston College



Research in the area of offsite work arrangements (telework, remote work, etc.) has generally been focused on understanding how the experience of being offsite changes work attitudes and performance. What has been largely neglected is an investigation of how offsite work changes the experience of being in the onsite office. In a qualitative study of a *Fortune 100* company on the forefront of allowing offsite work, we examine how the prevalence of offsite working arrangements influences perceptions of the onsite office as well as decisions regarding where one works. We find that individuals desire a co-located office environment as an opportunity for both social ties and work collaborations. In this distributed organization, however, that opportunity is largely not present. Individuals are working offsite not only for many traditionally known reasons but also because of how they imagine others are making their work location decisions. In this way, offsite work is seemingly spreading in a contagious way: individuals choose to work offsite as coworkers are choosing to work offsite, a finding we support in a follow-up quantitative study. We suggest that work in this area refocus to include contagion effects of offsite work and the potential for negative effects of working in a depopulated onsite office.

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"During the course of the twentieth century the workplace became increasingly associated with the office building, so that by the end of the century the two concepts had become almost synonymous" (Harrison, Wheeler, & Whitehead, 2004: 20).

"The office as we know it is dead. To be certain, there will always been some operations which will require the obligatory cubicle farms. But increasingly the more successful business folk are those who are able to be more responsive, keep their costs low while being able to work [with] their clients, balance the necessities of picking up their kids from school, [all] while maintaining a family household" (Lutz, 2013).

Although co-located onsite work has long been the dominant work form, recent evidence from a variety of literature sources suggests that this dominance is being challenged (Watson-Manheim, Chudoba, & Crowston, 2002). Technology, for managing both data and communication, has been widely adopted, which allows organizations and their members to collaborate from increasingly distant locations. These technological advances have coincided with employees' needs for better work-life balance (Harpaz, 2002) and more job autonomy (Kossek, Lautsch, & Eaton, 2006); employees believe that meeting these needs will also make them more productive (Bailey & Kurland, 2002). Organization leaders seem to agree. Over the past 10 years, the percentage of teleworkers, one type of distributed workers, has increased 80 percent, with some estimates putting the total number of teleworkers above three million in the United States alone (Global Workplace Analytics, 2013). This growth has occurred as managers have adopted the notion that organizations with happier workers function better (Taris & Schreurs, 2009). In doing so, organizations have realized that by utilizing distributed work they can save money on office space (Cascio, 2000), be more efficient with office relocations (Buono & Bowditch, 2003), and more easily employ talented individuals who may live in distant locations (Cramton & Hinds, 2005).

Author's voice: What motivated you?



Although these changes in employee desires and demands, organizational policies, and technologies have facilitated significant changes in how work is completed, the research on these distributed forms of work has focused primarily on two areas: the effects of telework on individual outcomes (e.g., job satisfaction, autonomy, and performance) (see Gajendran & Harrison, 2007), and the effects of being distributed on team process and outcomes (Hertel, Geister, & Konradt, 2005; Kirkman, Rosen, Tesluk, & Gibson, 2004; Malhotra & Majchrzak, 2004). There has been a notable absence of the study of the onsite office itself (see Golden, 2007, for an exception), and a related absence of rich investigations into why individuals actually choose to work where they do. With the proliferation of distributed teams, global teams, col-

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Subspace identification with constraints on the impulse response

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ABSTRACT

Subspace identification methods may produce unreliable model estimates when a small number of noisy measurements are available. In such cases, the accuracy of the estimated parameters can be improved by using prior knowledge about the system. The prior knowledge considered in this paper is constraints on the impulse response. It is motivated by the availability of information about the steady-state gain, overshoot and rise time of the system, which in turn can be expressed as constraints on the impulse response. The method proposed has two steps: (1) estimation of the impulse response with linear equality and inequality constraints, and (2) realisation of the estimated impulse response. The problem on Step 1 is shown to be a convex quadratic programming problem. In the case of prior knowledge expressed as equality constraints, the problem on Step 1 admits a closed-form solution. In the general case of equality and inequality constraints, the solution is computed by standard numerical optimisation methods. We illustrate the performance of the method on a mass-spring-damper system.

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System identification;
subspace methods; prior
knowledge; behavioral
approach

1. Introduction

The main goal of this paper is to improve the efficiency of standard subspace algorithms when the user has prior information about the process to be identified. This information may be obtained from the laws of physics governing the system, preliminary experiments such as a step response or a response to a sinusoidal input signal, or from an expert knowledge. For example, the user may know the steady-state gain, the settling time or the dominant time constant of the system. The developed identification method is a generic modelling tool and is not limited to a specific applications area. Indeed, any application can benefit from exploiting prior knowledge in the identification process, provided that (1) such prior knowledge is available and (2) there is a method that can use it.

on the system's behaviour often result in nonlinear constraints on the parameter vector (Rothenberg, 1973).

When we deal with subspace identification, it is difficult to introduce such prior knowledge directly into the model structure. Subspace identification does not resort to an explicit cost function and uses a state-space representation of the system that is known up to a similarity transformation. Thus, introducing physically meaningful prior information into a state-space model, to-be-estimated by a subspace identification algorithm, seems to be a challenging problem.

In this paper, we bypass the difficulties related to inclusion of prior knowledge in parameter estimation by the following two-step method:

- (1) estimation of the impulse response, and
- (2) realisation of the estimated impulse response.

The prior knowledge is imposed on the estimated impulse response in Step 1. The method is based on a result from Markovsky and Rapisarda (2008), where it is shown that, for exact data, the impulse response of a linear time-invariant system can be computed directly from data by solving an overdetermined system of linear equations. In case of noisy data, generically, the system has no solution. Then, a heuristic subspace approach is used to estimate the impulse response by solving the system

Subspace identification with constraints on the impulse response

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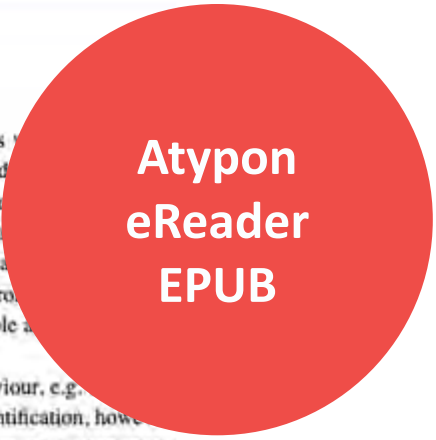
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1. Introduction

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Prior knowledge about a system can be expressed naturally as constraints on its behaviour, e.g., the steady-state gain and rise time are defined in terms of the step response (Mercère, 2016). In parametric identification, however, the model is represented by a parameter vector – coefficients of a transfer function or a state-space representation. The identification problem then becomes a parameter estimation problem and the inclusion of the prior knowledge requires its reformulation as constraints on the parameter vector. This may be non-trivial



044103-12 Robert B. Laughlin J. Renewable Sustainable Energy 9, 044103 (2017)

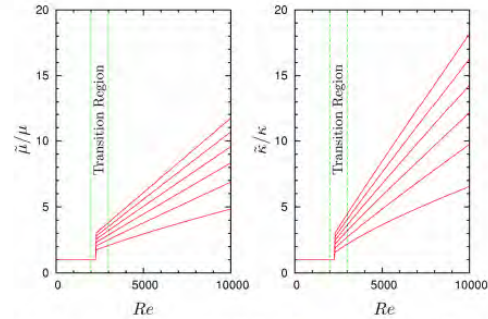


FIG. 10. Plot of turbulent enhancements of $\tilde{\mu}$ and $\tilde{\kappa}$ defined by Eqs. (13) and (15) for $Pr = 2/3$ and surface roughness values $\epsilon/(2a) = 0.00, 0.01, 0.02, 0.03, 0.04,$ and 0.05 .

with a no-slip boundary condition, one obtains Hagen-Poiseuille flow

$$v_z = \frac{1}{4\mu} \left(\frac{\partial p}{\partial z} \right) (r^2 - a^2) \quad (17)$$

and an entropy generation due to viscous drag inside the tubes of

$$\dot{S}_{visc}^{(in)} = -\frac{2\pi N}{T} \int_0^a \left(\frac{\partial p}{\partial z} \right) v_z r dr = \left(\frac{8\mu}{\pi a^4} \right) \frac{TL}{N} \left(\frac{R\dot{V}}{p} \right)^2 \quad (18)$$

Assuming a temperature gradient $\partial T/\partial z$ along the tube and similarly solving the heat flow equation

$$\kappa \left(\frac{\partial^2}{\partial r^2} + \frac{1}{r} \frac{\partial}{\partial r} \right) \delta T = c_p \left(\frac{p}{RT} \right) \left(\frac{\partial T}{\partial z} \right) v_z \quad (19)$$

one obtains the Graetz solution

$$\delta T = \frac{1}{\kappa} \left(\frac{\partial T}{\partial z} \right) \left(\frac{c_p \nu}{N} \right) \frac{r^2 (r^2 - 4a^2 + 3a^4)}{8\pi a^4} \quad (20)$$

which the entropy generation due to the thermal resistance inside the tubes is computed to be

$$\dot{S}_{therm}^{(in)} = -\frac{2\pi\kappa NL}{T^2} \int_0^a \left[\frac{\partial(\delta T)}{\partial r} \right]^2 r dr = \frac{11}{48\pi\kappa} \left(\frac{L}{N} \right) \left[\left(\frac{\partial T}{\partial z} \right) \frac{c_p \nu}{T} \right]^2 \quad (21)$$

These two contributions to $\dot{S}^{(in)}$ become equal when the heat exchanger length is L_0 , defined by

$$\sqrt{\frac{384}{11}} \frac{\ell L_0}{a^2} = \left(\frac{\gamma}{\gamma - 1} \right) \frac{\Delta T}{T} \quad (22)$$

$$Re = \frac{2}{N\pi a} \left(\frac{m \nu}{\mu} \right) \quad (12)$$

where a is the tube's inner radius, N is the number of tubes, and ν is the number of moles of working fluid passing through the circuit per unit time. The flow is laminar if $Re < 2000$, turbulent if $Re > 3000$, and intermittent otherwise. For this particular application, the effects of turbulence are adequately accounted for by replacing μ and κ in the laminar expressions by the Darcy-Weisbach formula^{55,56}

$$\tilde{\mu} = \mu \left[\left(\frac{Re}{64} \right) f \right] \quad (13)$$

with the Swamee-Jain approximation for the Darcy friction factor

$$f = 0.25 \left[\log_{10} \left(\frac{\epsilon}{7.4a} + \frac{5.74}{Re^{0.9}} \right) \right]^{-2} \quad (14)$$

and the Gnielinski correlation

$$\tilde{\kappa} = \kappa \left[\frac{11}{48} \right] \left[\frac{(f/8)(Re - 1000)Pr}{1.0 + 12.7(f/8)^{1/2}(Pr^{2/3} - 1)} \right] \quad (15)$$

where $Pr = \mu c_p / (m \kappa)$ is the Prandtl number. Figure 10 shows these modifications to μ and κ for various values of the tube surface roughness parameter ϵ .

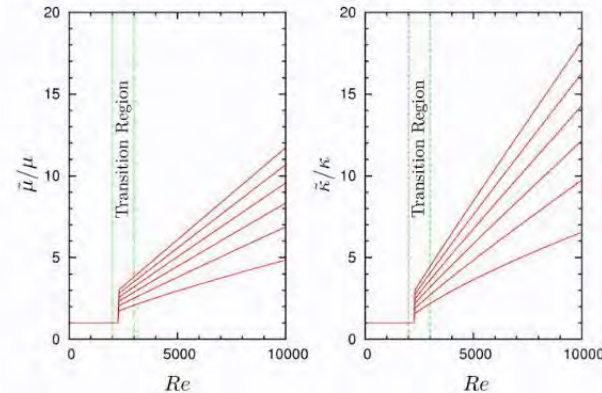


FIG. 10. Plot of turbulent enhancements of $\tilde{\mu}$ and $\tilde{\kappa}$ defined by Eqs. (13) and (15) for $Pr = 2/3$ and surface roughness values $\epsilon/(2a) = 0.00, 0.01, 0.02, 0.03, 0.04,$ and 0.05 .

The laminar case follows from elementary considerations. Assuming a pressure gradient $\partial p/\partial z$ along the tube and solving the Navier-Stokes equation

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$$\sqrt{\frac{384}{11}} \frac{\ell L_0}{a^2} = \left(\frac{\gamma}{\gamma - 1} \right) \frac{\Delta T}{T}$$

where ΔT is the temperature difference between the inlet and outlet of the heat exchanger and

$$\ell = \sqrt{\frac{\kappa \mu T}{p}}$$

is the working fluid scattering mean free path. The length L_0 outside the tube is a multiple of ℓ . The value of L_0 can be determined numerically for a given value of d . The effective temperature is then

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$E\hat{H} = F$ by the Frobenius norm of the residual errors

$$\epsilon_B = \frac{1}{N} \sum_{k=1}^N \left\| E\hat{H}_B^{(k)} - F \right\|_F \quad \text{and}$$

$$\epsilon_h = \frac{1}{N} \sum_{k=1}^N \left\| E\hat{H}^{(k)} - F \right\|_F,$$

where $\hat{H}_B^{(k)}$ is the impulse response of the identified model $\hat{B}^{(k)}$. As pointed out in Note 3, with noisy data, in general, $\hat{H}^{(k)} \neq \hat{H}_B^{(k)}$ due to approximation in the computation of the state space realisation of the model.

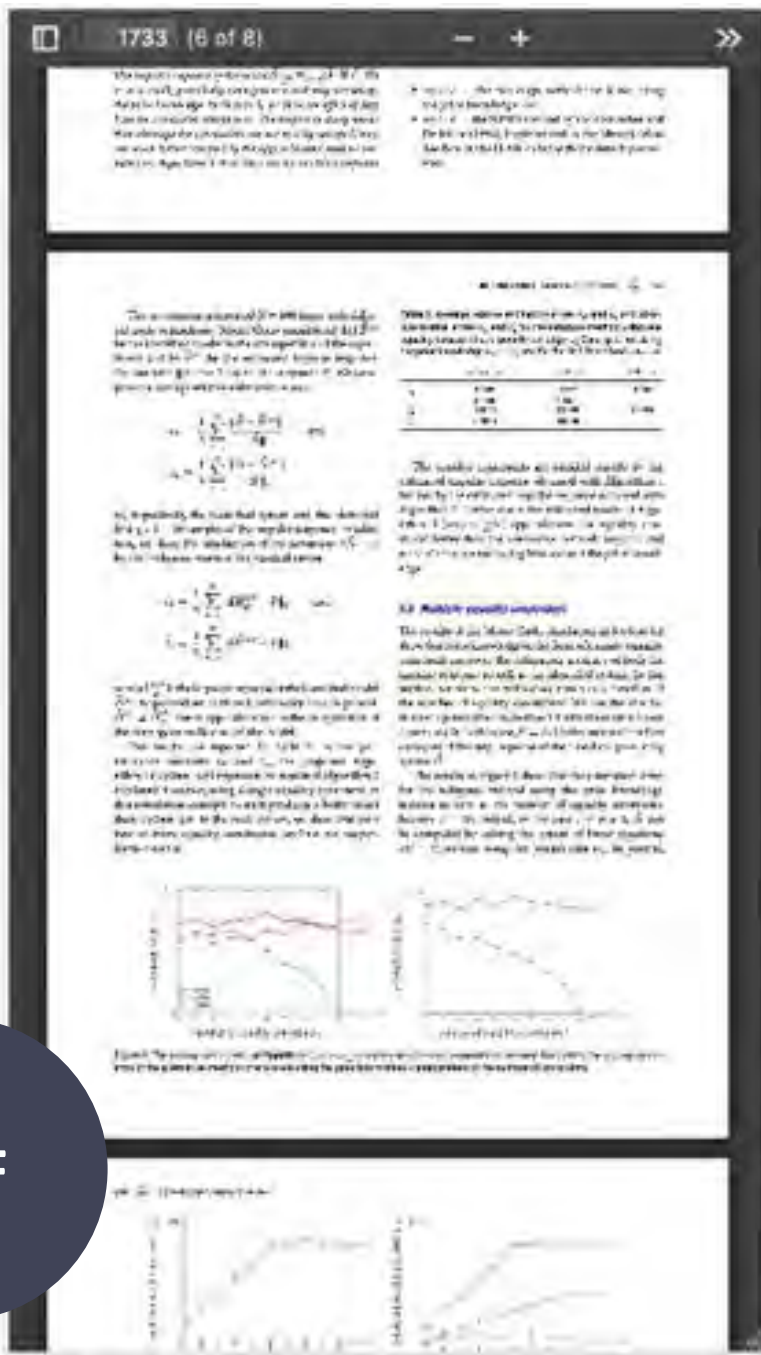
The results are reported in Table 1. In the performance measures ϵ_B and ϵ_h , the proposed Algorithm 1 (uy2ss_pk) improves the results of Algorithm 2 (uy2ss). However, using a single-equality constraint, in this simulation example n4sid produces a better result than uy2ss_pk. In the next section, we show that with two or more equality constraints, uy2ss_pk outperforms n4sid.

Table 1. Average relative estimation errors ϵ_B and ϵ_h and absolute residual errors ϵ_B' and ϵ_h' for the subspace method using one equality constraint a priori knowledge uy2ss_pk, not using the a priori knowledge uy2ss, and for the N4SID method n4sid

	uy2ss_pk	uy2ss	n4sid
ϵ_B	0.1385	0.1572	0.1031
ϵ_h	0.1358	0.1565	—
ϵ_B'	0.0025	0.0069	0.0004
ϵ_h'	0.0000	0.0068	—

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IMAGES IN CLINICAL MEDICINE

Radial Keratotomy



A 41-YEAR-OLD WOMAN PRESENTED TO THE OPHTHALMOLOGY CLINIC WITH vision that had been deteriorating during the preceding 20 years. Her subjective refraction showed that a hyperopic shift had occurred since her current corrective lenses had been prescribed. Her best corrected visual acuity was 20/25 in both eyes. Slit-lamp examination revealed features that suggested that radial keratotomy had been performed: a clear central cornea with 16 corneal incisions extending from the periphery. Because radial keratomies are performed manually, the incisions are neither perfectly radial nor symmetric. The patient confirmed that she had undergone this surgery for the treatment of myopia 23 years before presentation. At the time of the procedure, she had had no immediate complications. Radial keratotomy was frequently performed in the 1980s and 1990s to correct myopic refractive errors. However, the procedure is associated with a number of complications. Overlapping or excessively central incisions may lead to reduced visual acuity, and corneal scarring is associated with glare and halos. Patients are at risk for progressive hyperopia and, in rare cases, owing to reduced corneal biomechanical strength, globe rupture with minimal trauma. The patient received a new prescription for corrective lenses and was advised of the importance of protective eyewear. At a 6-month follow-up visit, her vision had not deteriorated further.

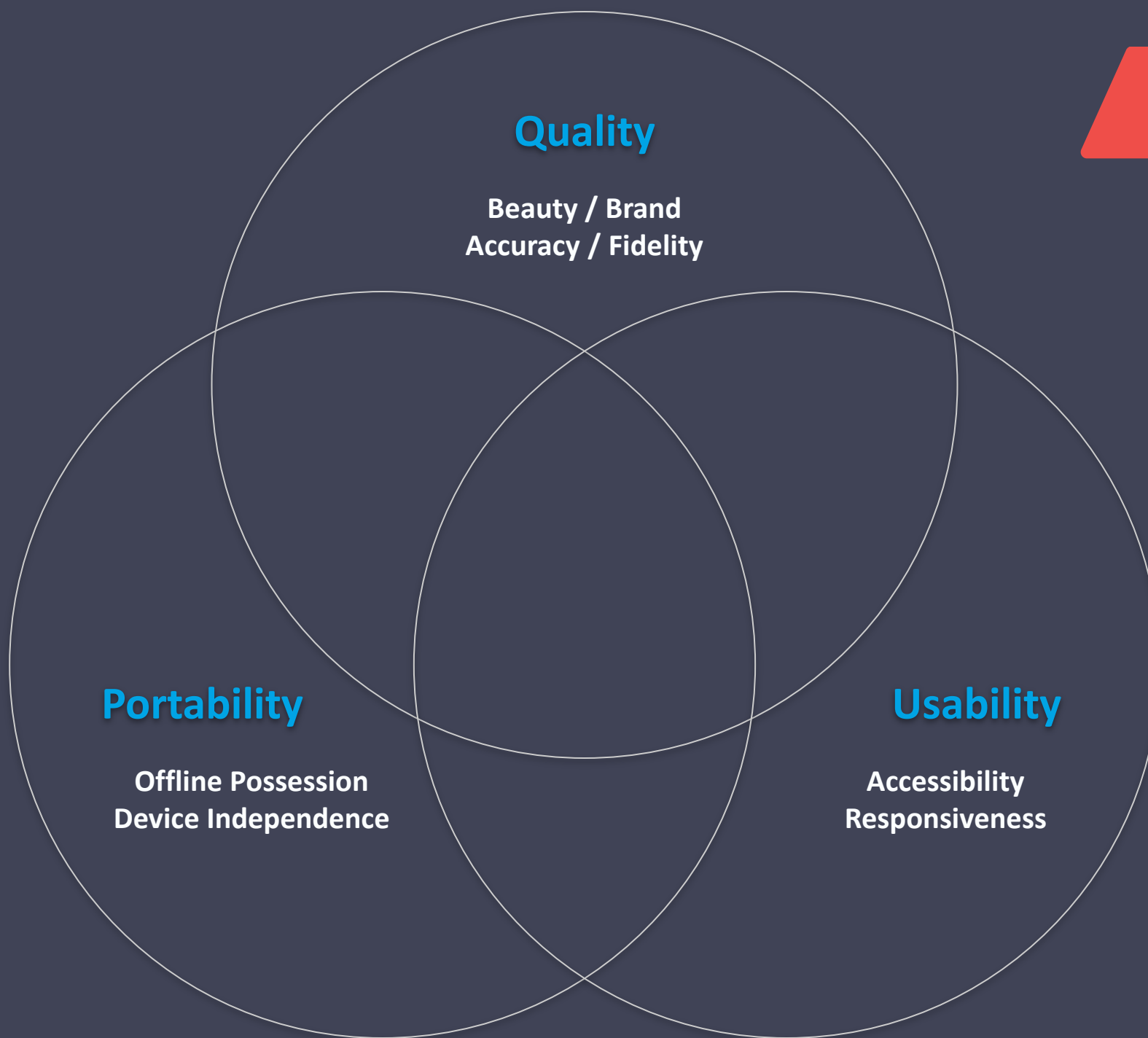
RADIAL KERATOTOMY

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Beauty / Brand
Accuracy / Fidelity

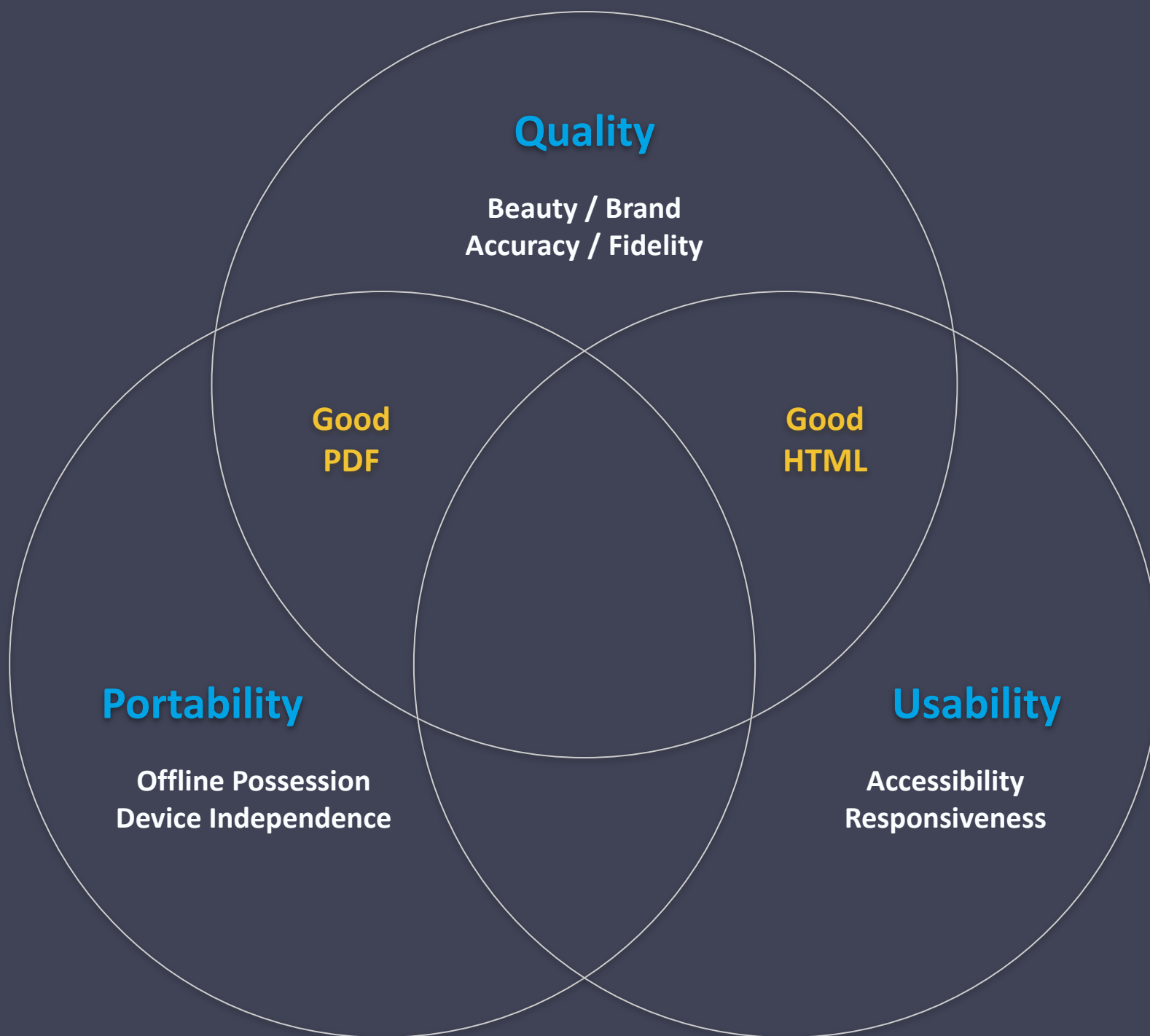
Good
PDF

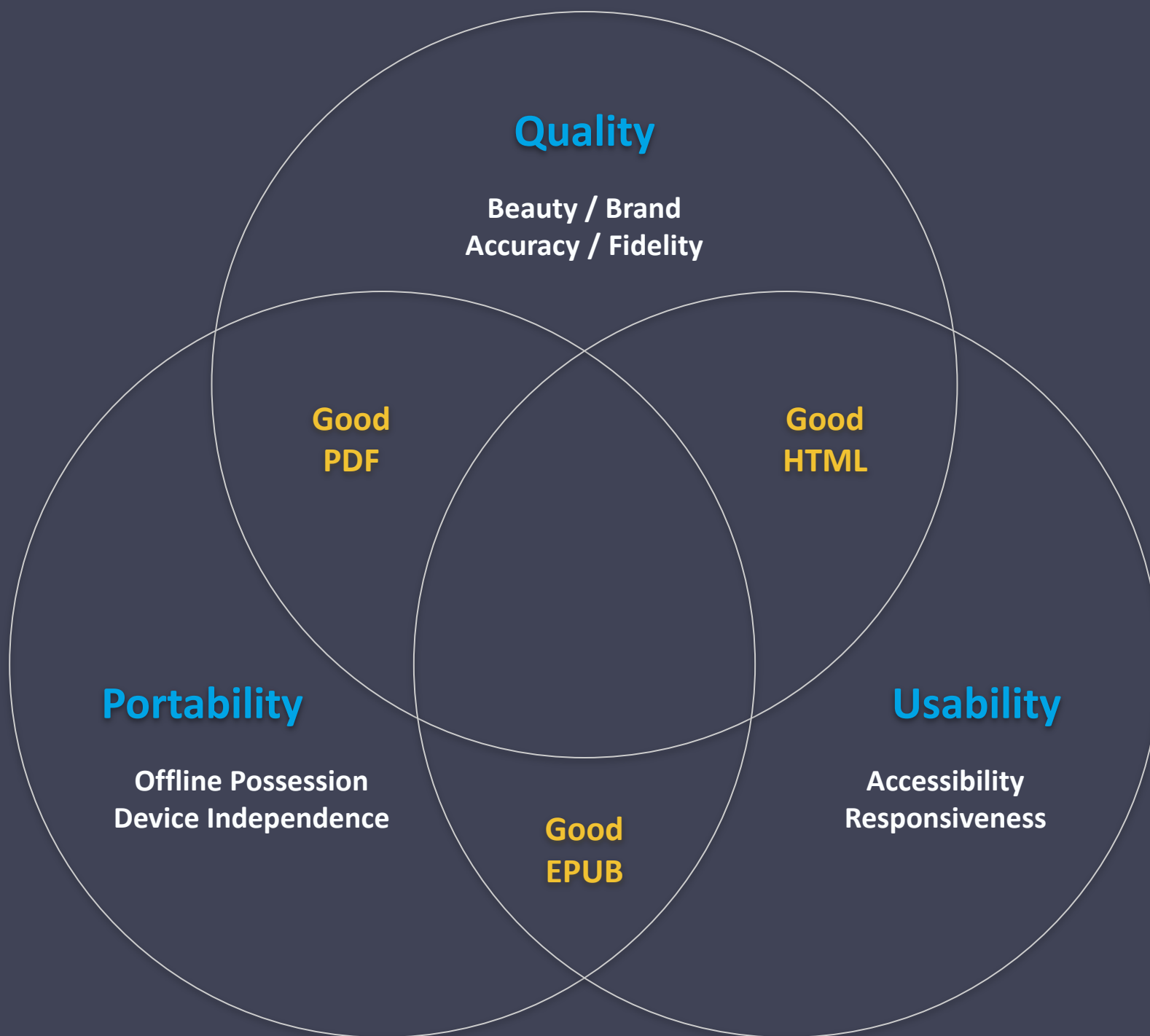
Portability

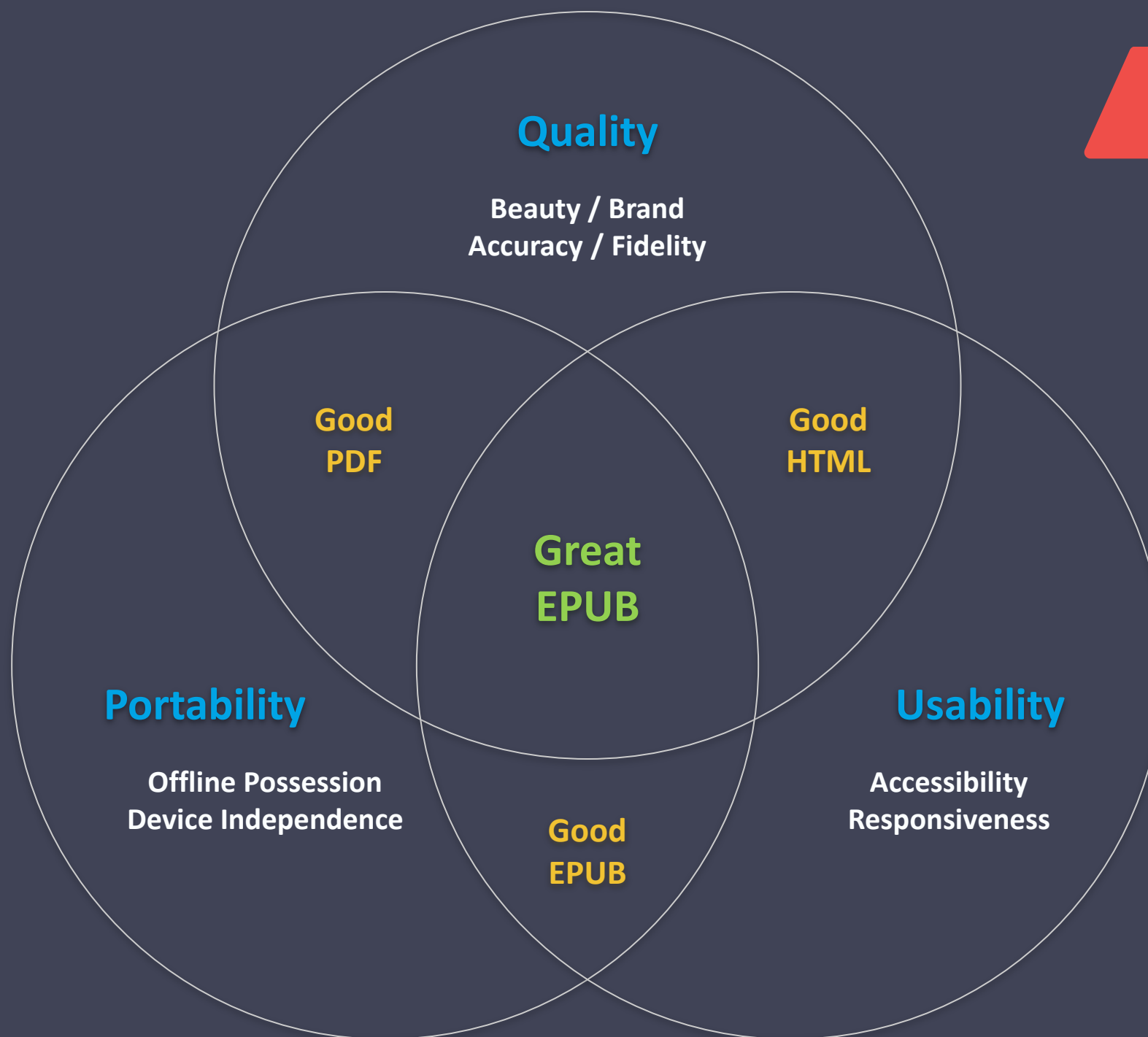
Offline Possession
Device Independence

Usability

Accessibility
Responsiveness







Quality

Beauty / Brand
Accuracy / Fidelity

Good
PDF

Good
HTML

Great
EPUB

Portability

Offline Possession
Device Independence

Usability

Accessibility
Responsiveness

Good
EPUB

ATYPON eReader

Reader and publisher benefits

For readers



- Convenient, immersive UX
- Content streaming (no more downloads!)
- Cross-device syncing
- Sharing and collaborating
- Recommendations
- Full-document preview and browse
- Freedom from closed reading ecosystems
(works across participating publishers)

ATYPON eReader

For
publishers



- Satisfied readers
- Longer site visits
- Works with books *and* journals (COUNTER report usage)
- Reduced piracy: Promotes the legitimate version of any publication
- Free to all Literatum publishers
- **Numerous new ways to monetize existing content**
- **Cost-savings/cost-avoidance**

ATYPON eReader

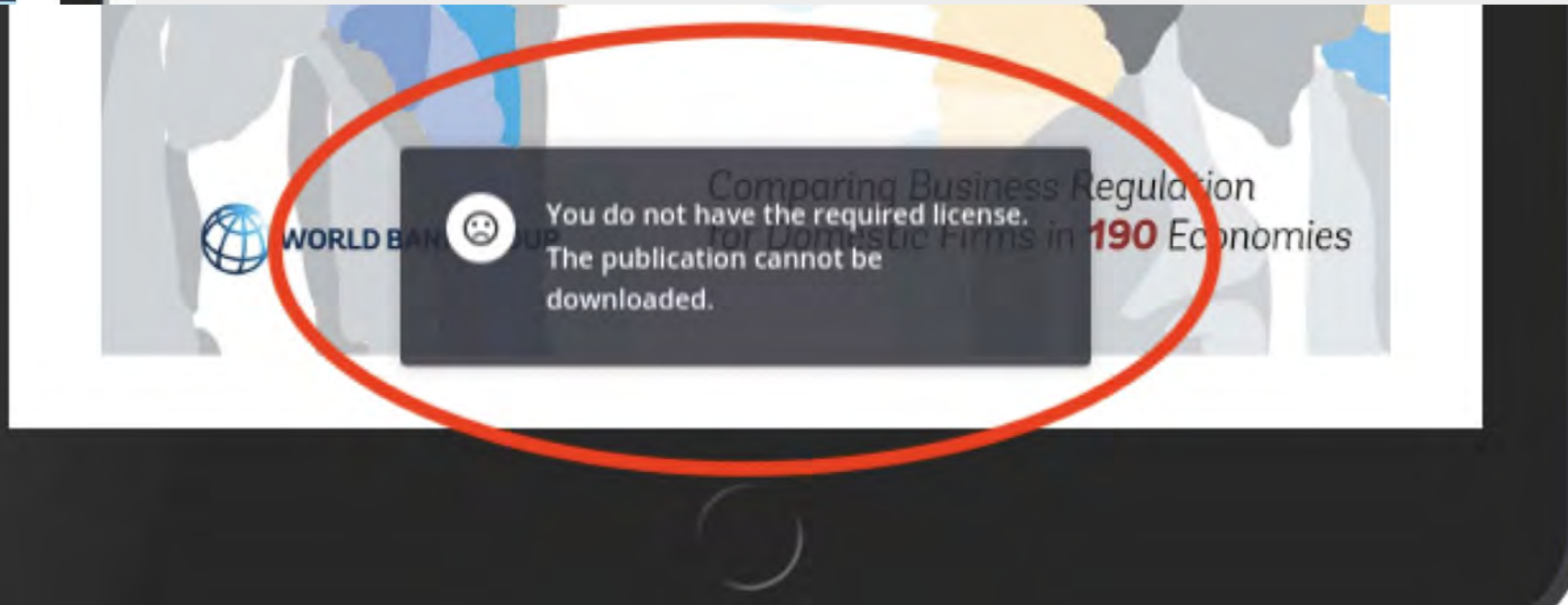
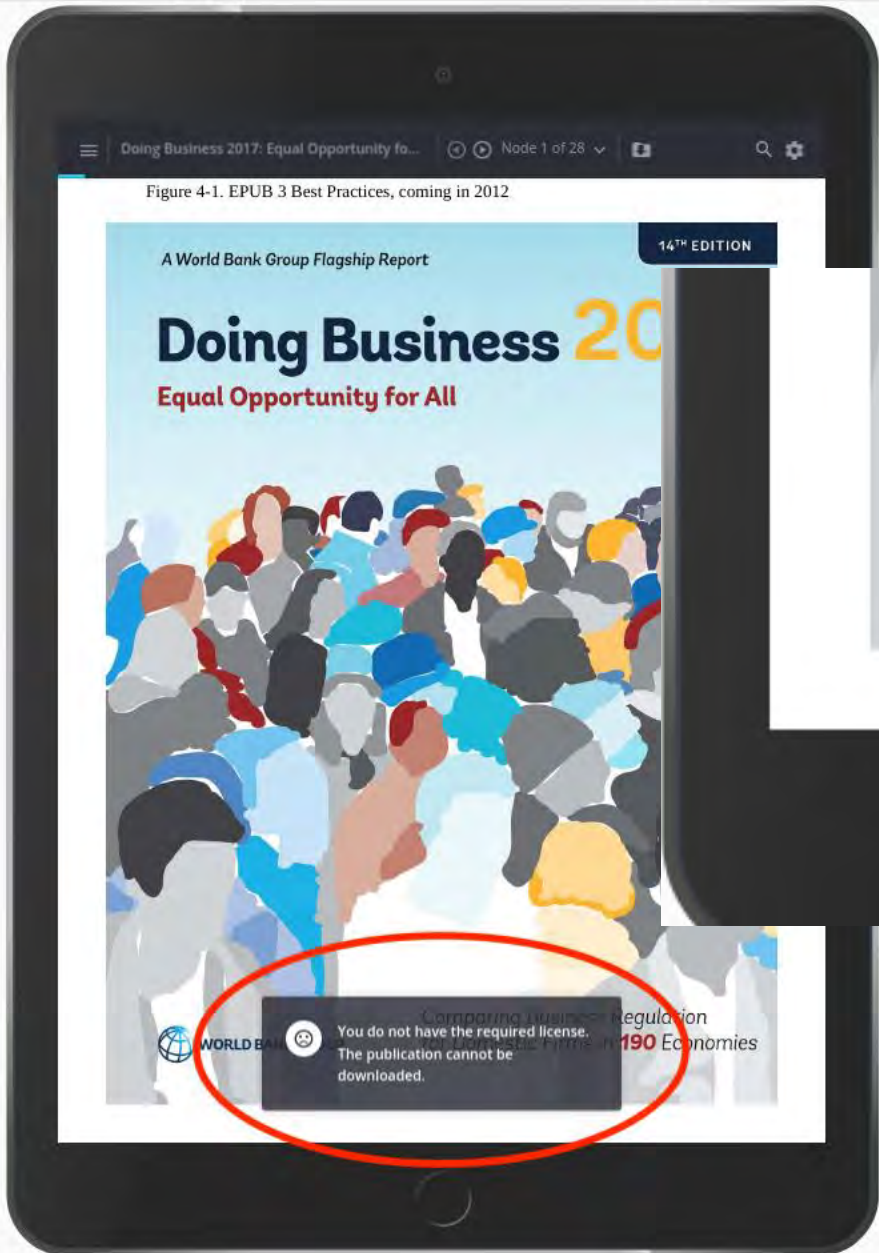
**Monetization
opportunities**

ATYPON

Powerful sales and subscription models

- Literatum's powerful licensing models and offers apply to all eReader content
- Specify who can download, print, and/or share
- Sell publications through Literatum's modern eCommerce workflow

No revenue sharing with Atypon



ATYPON


Drive revenue with content previews

Allow users to preview or sample content before they buy (à la Amazon)


- X number of free articles or
- limited viewing time


**Increase your
purchase conversion rates**

Current and future methods of breast density assessment: a brief comparative review

Mark A Sak , Peter J Littrup, Neb Duric, M

First published online 28 Aug 2015 | <https://doi.org/10.1080/17513758.2015.1080000>

 Access this article

 Preview


Breast density is one of the strongest predictors of breast cancer risk. Women with dense breasts are four- to six-times more likely to have breast cancer than women with non-dense breasts.



Breast density is generally assessed using mammographic imaging; however, this approach has limitations. Magnetic resonance imaging and ultrasound tomography are some alternative imaging modalities that can aid mammography in patient screening and the measurement of breast density. As breast density becomes more commonly discussed, knowledge of the advantages and limitations of breast density as a marker of risk will become more critical. This review article discusses the relationship between breast density and breast cancer risk, lists the benefits and drawbacks of mammography, MRI, and ultrasound, and discusses the use of breast density as a marker of risk.

This review article discusses the relationship between breast density and breast cancer risk, lists the benefits and drawbacks of mammography, MRI, and ultrasound, and discusses the use of breast density as a marker of risk.

Preview

2 previews still available for this hour

 **Initiate 1 hour preview**

 View your total preview allowance 

Cancel **Continue**

Breast Cancer Management



Vol. 4, No. 4

History

Published online 28 August 2015
Published in print 1 September 2015

Information

© Future Medicine Ltd

**Targeted
in-document ads and
promotions**

**Increase your
ad real estate and
ad CPM revenue**



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- EXPLORE BEAUTIFUL COLORADO
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MAY 7-8, 2018
COLORADO SPRINGS, CO // 9:00 AM - 5:00 PM

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- Statistical Database Analysis with RITtrend™
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- Hancock MLC Test for Elekta Machines
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Figure 4-1. EPUB 3 Best Practices, coming in 2012

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- Full Suite of Phantom Analyses

Full-page, targeted third-party or in-house ads

Create a new campaign

1 General — 2 Target — 3 Content — 4 Placement — 5 Schedule

1. General

Title*		Description*	
<input type="text"/>		<input type="text"/>	
Code*	Priority*	Tags	
<input type="text"/>	<input type="text"/>	<input type="text" value="Separate each tag using commas"/>	

2. Target

Campaign targets determine which users and under which conditions will experience the campaign. Add criteria to narrow your audience.

Audience

Group membership [+](#)

Publications

Content slices [+](#)

Context

Location [+](#)

Websites [+](#)

Targeted ads
command a
higher CPM

Determine when
and to whom
ads appear

3. Content

Locale*

English

HTML Snippet*

Files

[Add files](#) ×

4. Placement

Ad mode*

5. Schedule

Available from*

 yyyy-mm-dd

Available to

 yyyy-mm-dd

Max impressions

ex. 1000

Days

Mo Tu We Thu Fri Sa Su

Advanced, intuitive
ad scheduling

ATYPON eReader

Attract new audiences

Research outputs have broader audiences and impact—**beyond scholars**

Deliver quality content *and* a quality experience **to new audiences**





Attract new audiences

1. Researchers & society members
2. **Corporations' employees**

Content feeds

enabled by the Atypon eReader

Sell content to corporations that consume scientific research

- Create branded portals for company's employees
- Provide “online-access only”
- Target discipline-specific content to corporation types (e.g., pharma)
- Opens in eReader for an enjoyable reading experience



Attract new audiences

1. Researchers & society members
2. Corporations' employees
3. **Consumers**

Media sharing

enabled by the Atypon eReader

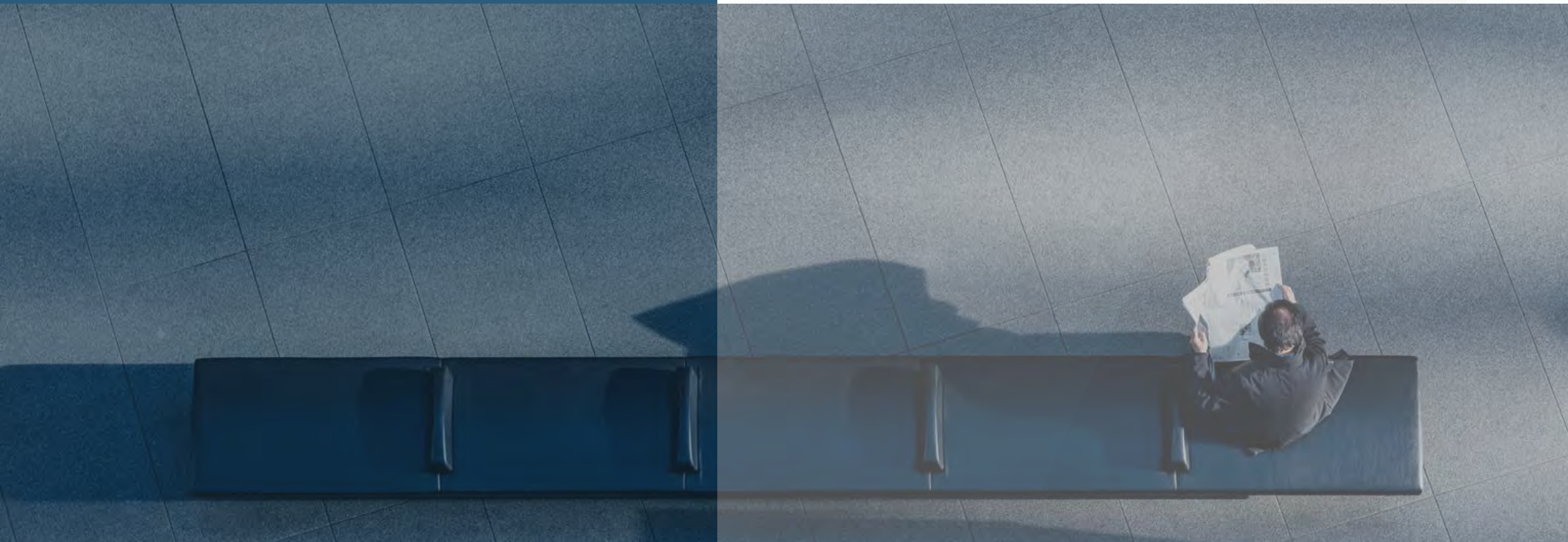
Connect consumers with research they care about

- Links that give consumers free, online access to your content through online newspapers, magazines and other media sites
- Opens in eReader for an enjoyable reading experience



ATYPON eReader

Readers of the *Guardian* and the *New York Times* are interested in ground-breaking climate-change research, too.



ATYPON eReader

**Cost-savings
opportunities**

ATYPON

The Atypon eReader is free.

No licenses,
no revenue sharing.

Publishers can
eliminate sizable third-party costs

	Third-party eReader	The Atypon eReader
eReader	Annual license fee	FREE
eCommerce	Rev share on PPV sales	No rev share
Ad targeting	Flat fee + rev share Content targeting only	More competitive pricing Content, location, and end-user targeting
Content feeds	Annual fee	More competitive pricing
Media sharing	Annual fee	FREE

ATYPON eReader

**eReader
impact**

eReader views Vs Downloads (books&chapters)

SCHEDULE EXPORT SHARE COPY PREVIEW SAVE

Views vs downloads

- Dataset**
- Content Access
-
- Fields**
- Search Fields
-
- Access token customer code
- Access token domain name
- Access token name
- Author
- Backfile date
- Content age
- Content area
- Content tag code
- Content tag label
- Country name
- Custom Event Type
- Customer code
- customerDescription
- Date
- Electronic pub date
- Event referrer description

Filters

Date X
2018-11-01 to 2019-04-26

Pub type X
chapter, book

Viewer X
Present

License type X
Present

Format X
PDF, HTML

Page description X
Full-text PDF, Full-text EPUB

Response X
success

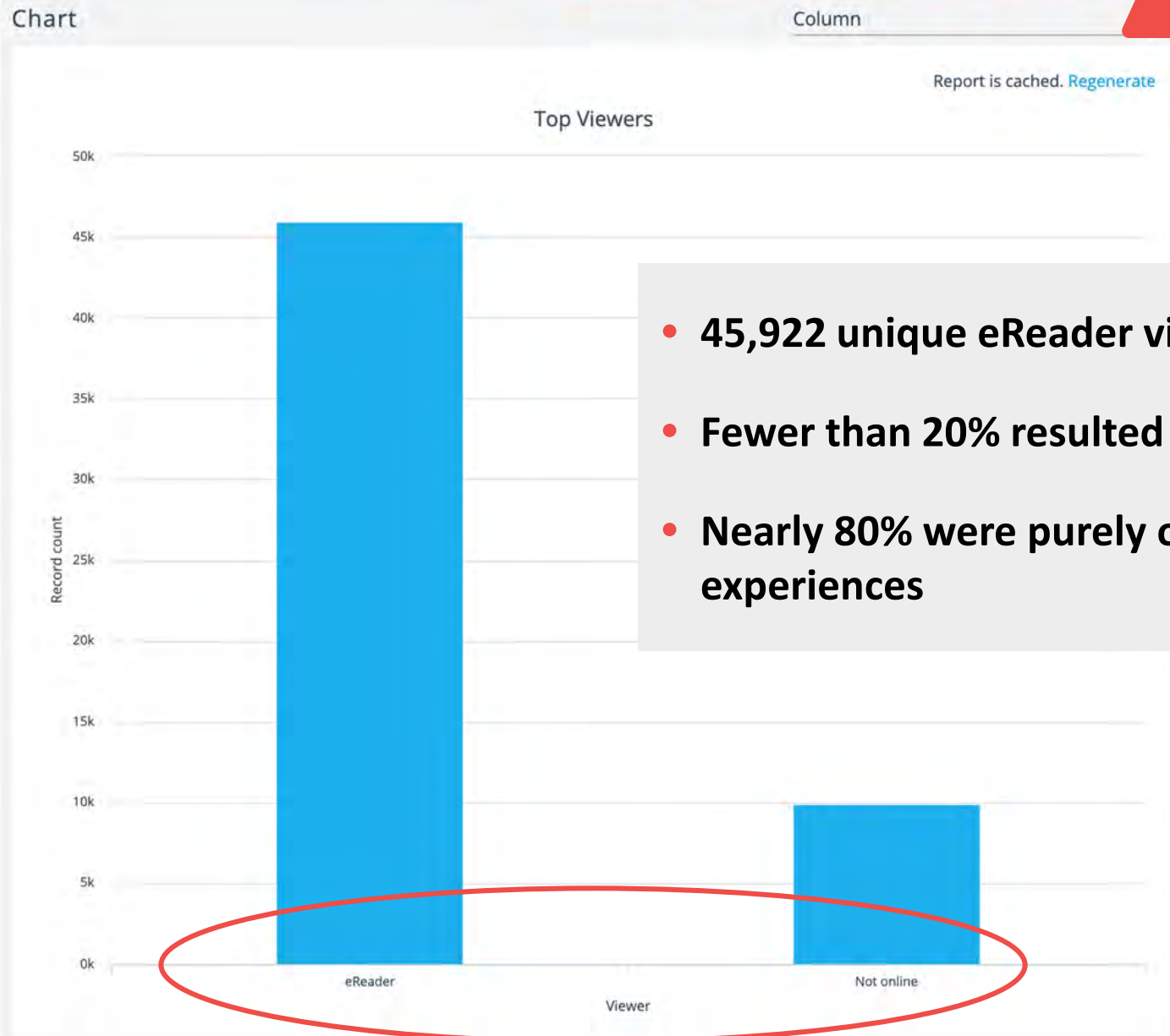
Chart fields

License name X
Top Values

Viewer X
Top Values

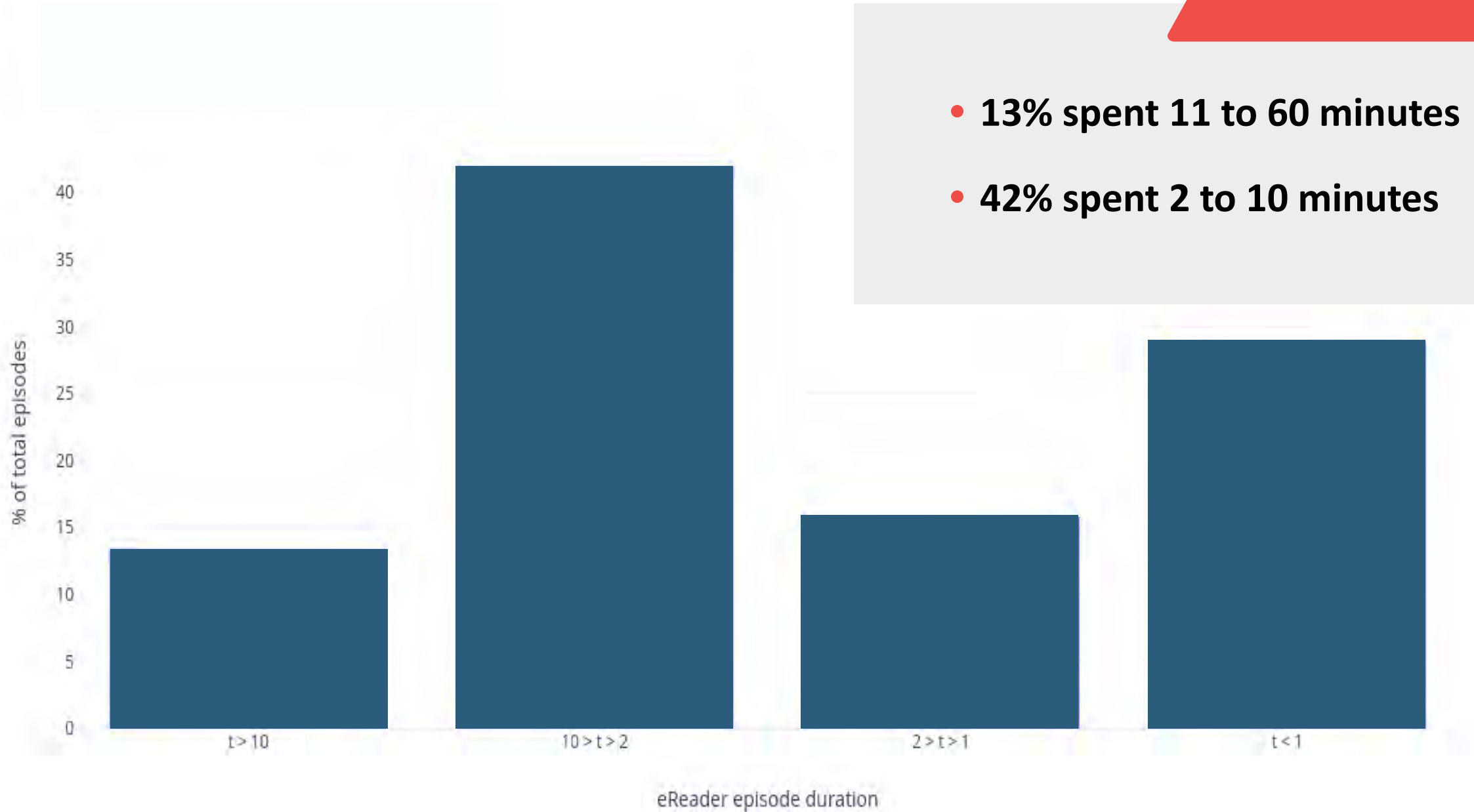
Values

Drag and Drop field tiles



- **45,922 unique eReader views**
- **Fewer than 20% resulted in downloads**
- **Nearly 80% were purely online experiences**

Reading duration in eReader



eReader views Vs Downloads (books&chapters)

SCHEDULE
EXPORT
SHARE
COPY
PREVIEW
SAVE

Dataset

Content Access ▾

Fields

Search Fields

Format

Free after embargo

Free by article type

Group categories

Group DOI

Group eisbn

Group pisbn

Group title

Group type

Institution customer code

Institution name

Institution tag code

Institution tag label

Is denial

Is digital object

Is download

Filters

Date X
2018-11-01 to 2019-04-26

Pub type X
chapter, book

Viewer X
Present

License type X
Present

Format X
PDF, HTML

Page description X
Full-text PDF, Full-text EPUB

Response X
success

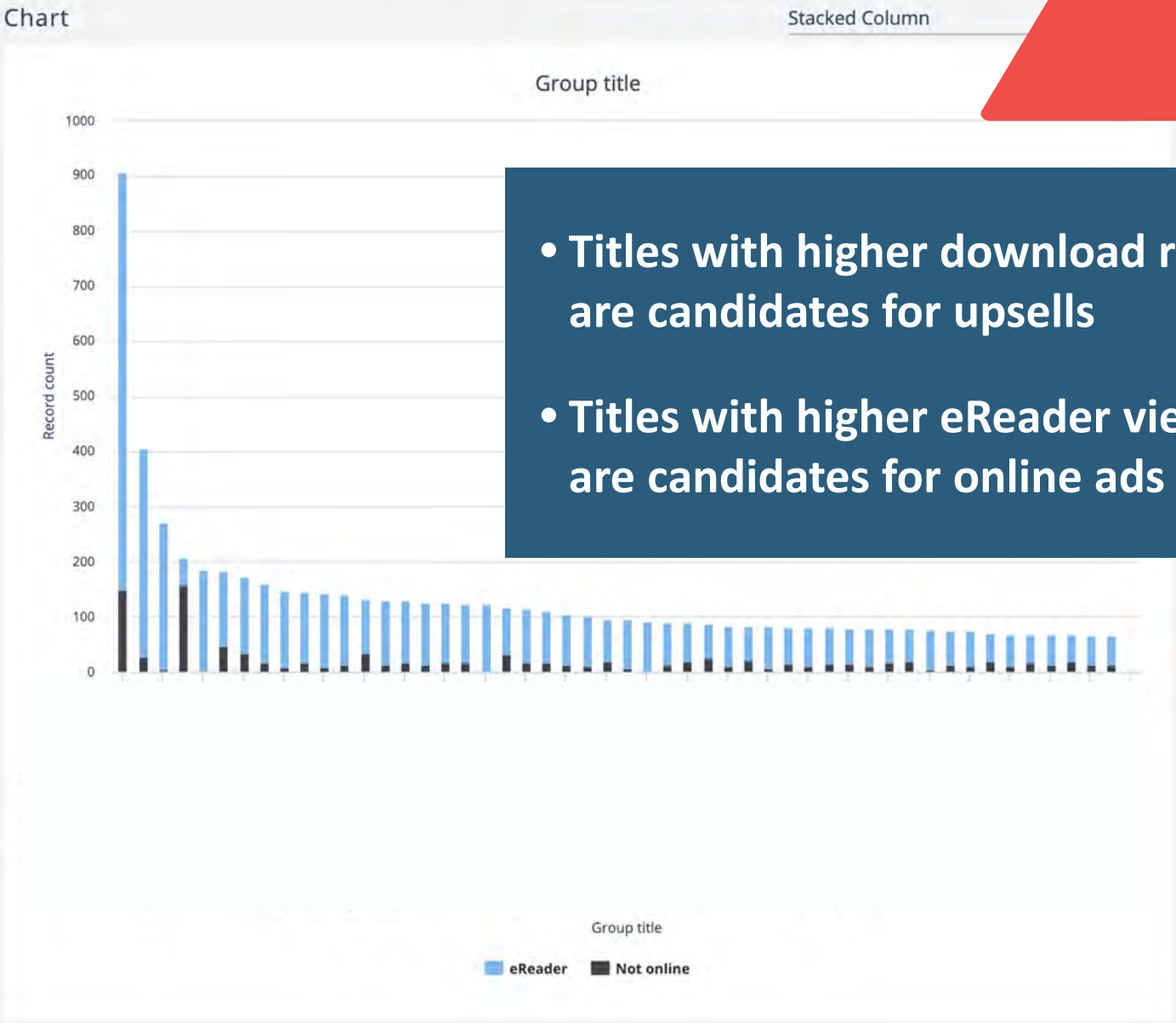
Chart fields

License name X
Top Values

Group title X
Top Values

Licensee name X
Top Values

Group DOI X
Top Values



Monetization

- Titles with higher download rates are candidates for upsells
- Titles with higher eReader views are candidates for online ads

ATYPON eReader

**How to make the
eReader work for you**

The specifics

- **The eReader is free** to all Literatum publishers!
- Supports your current file formats
- Atypon converts your JATS/NLM and PDF to EPUB

Ask your Account Manager
to enable the
Atypon eReader
on your site

A

Deliver experiences,
not documents.

Change how readers
engage with your content.

Improve your bottom line



Q&A

ATYPON

WebinarSeries

“How to Create New
Subscription Revenue Streams
Using Existing Content”

JACOB WILCOCK, DIRECTOR OF SALES

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Next!
June 12

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