WORLD ECONOMIC FORUM

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Industry Agenda

The New Plastics Economy
Rethinking the future of plastics

J 2016

WORLD ECONOMIC FORUM, 2016. A
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Foreword

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Executive Summary

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Towards the Circular Economy

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The case for rethinking plastics, starting with packaging

Plastics and plastic packaging are an integral and important part of the global economy. P 50 , 15 1964 311 2014, 20 . P 26% P

The new plastics economy demands a new approach

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1.1 Plastics and Plastic Packaging Are an Integral and Important Part of the Global Economy

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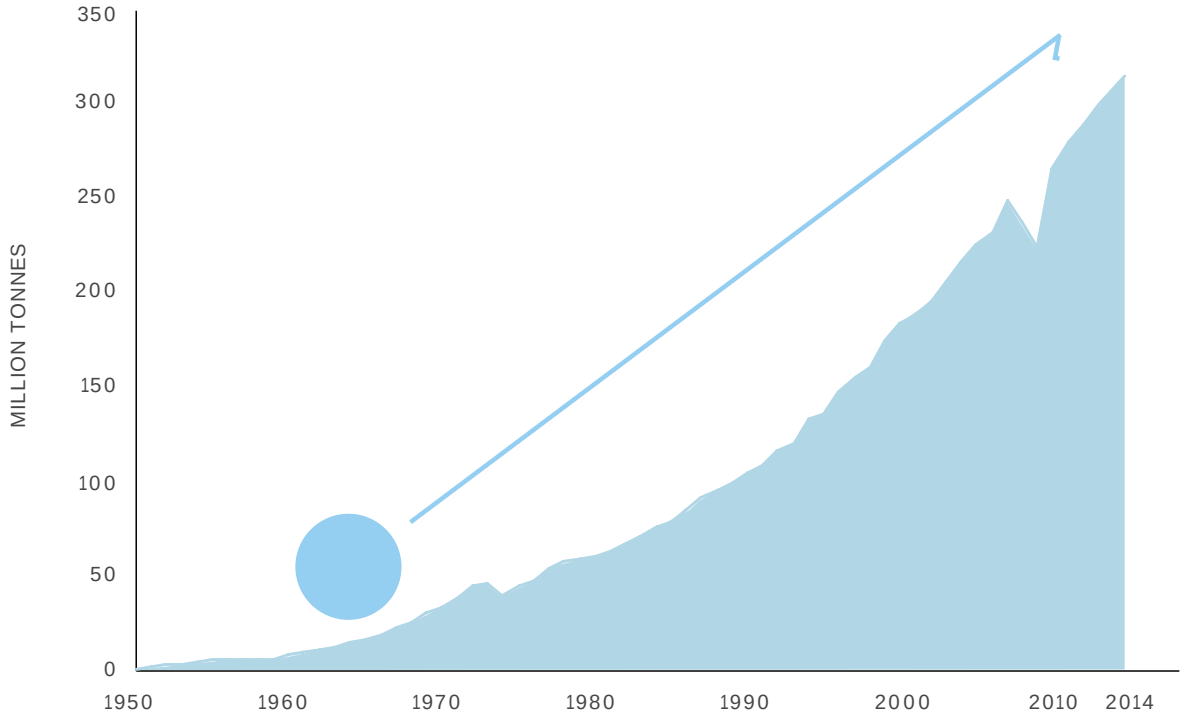
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2014

1.2 Today's Plastics Economy Has Important Drawbacks

A F 4. I
14%
14%

1.2.1 Plastic packaging is an iconic linear application with $80–120 billion annual material value loss

T , 95% $80–120
. M 40 -
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5%
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(58%)[12]
(70–90%).[13] PET,[14]
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PET 7%
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Figure 3: Plastic Packaging Material Value Loss after One Use Cycle

1.2.2 Production relies on finite stocks of fossil feedstocks

T 90%

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390 CO2

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$23 .[30] T

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15%

2050, 1% .[34] T

2°C 2100.[35] E

P 1% 0 0 5.83 250.6032 431.1585 T (35)T ET 685 549. 85 T 00.

2 The New Plastics Economy: Capturing the Opportunity

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N P E T

2.1 The New Plastics Economy Proposes a New Way of Thinking

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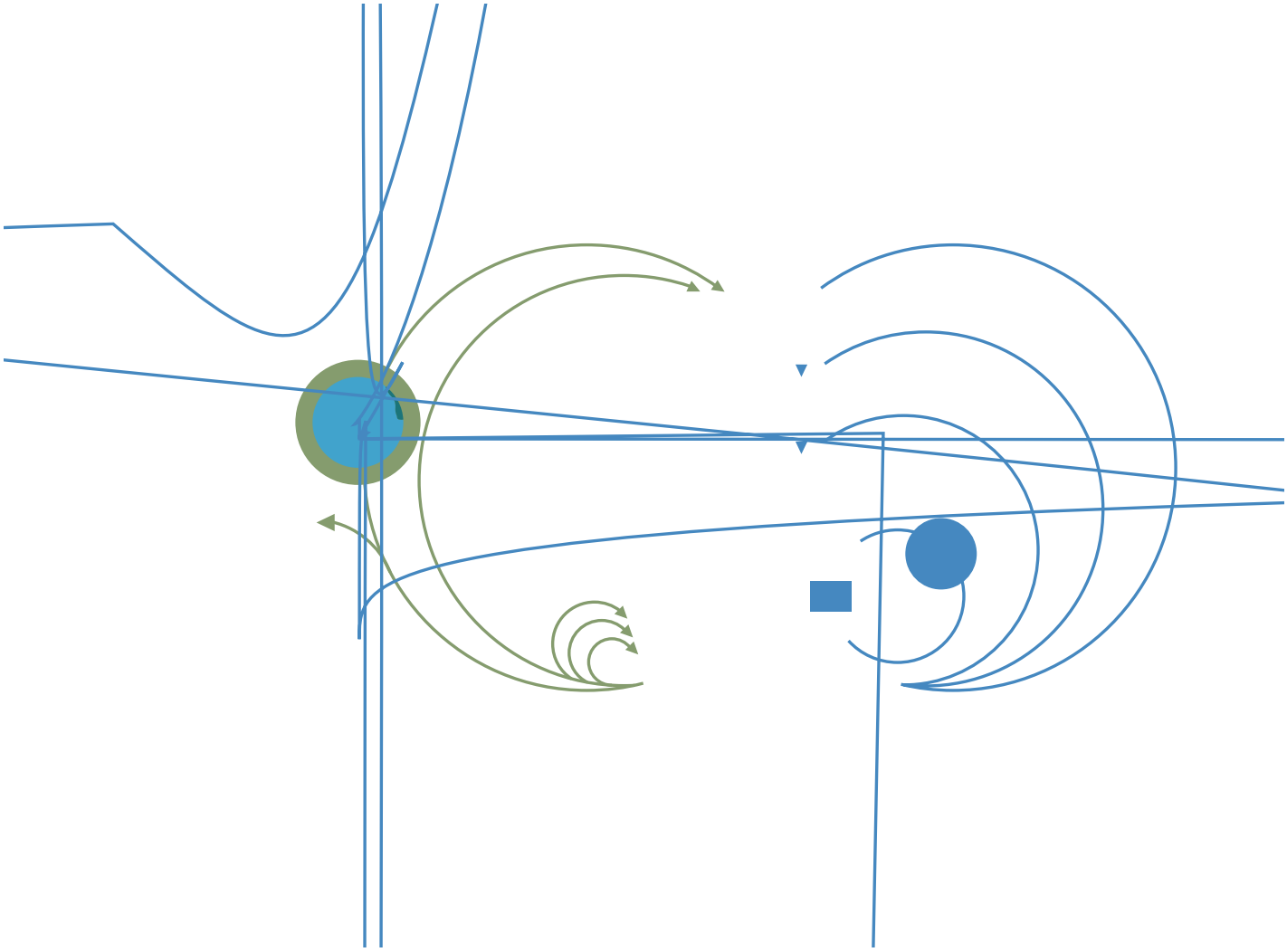

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M[illegible] 2015[illegible] *Growth Within: A Circular Economy Vision for a Competitive Europe*[illegible] F[illegible] E[illegible] 1.8[illegible] ($2.0[illegible]).[40]

2.1.3 Decouple plastics from fossil feedstocks

14% 55%

2050.[46]

Box 2: The Role of Life Cycle Assessment (LCA)

L C A (LCA) [48]

individual target today

system as a whole

LCA

2011

4%, [49]

95%

toda

2.2 The New Plastics Economy Could Bring Substantial Benefits

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C 5% $4 6 [50] W (F 7).

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2.3 Now Is an Opportune Moment to Act

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Establish the Global Plastics Protocol and coordinate large-scale pilots and demonstration projects

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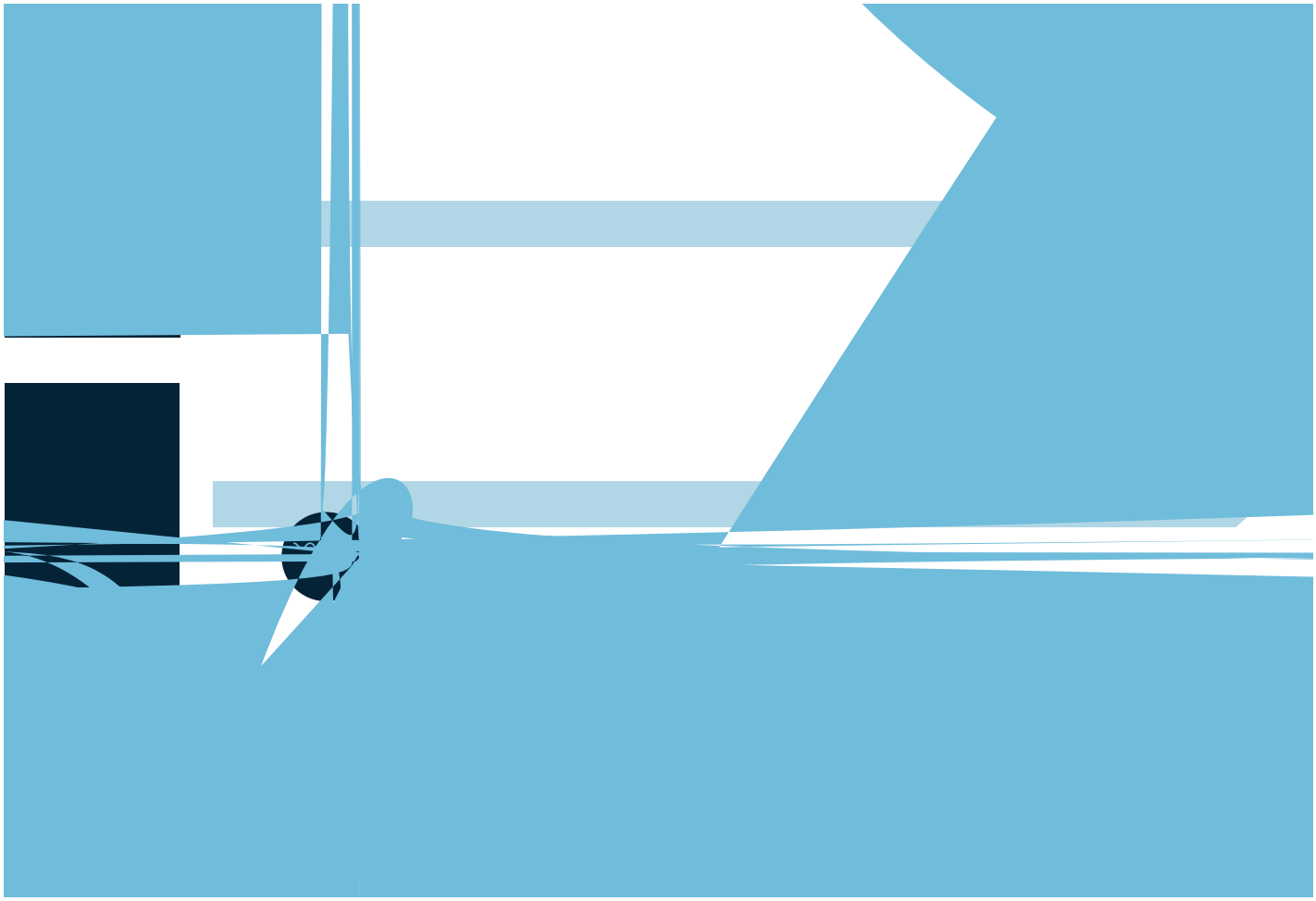
T G P P

: *To what extent could plastic packaging be designed with a significantly smaller set of material/additive combinations, and what would be the resulting economic benefits? What would be the potential of designing out small-format/low-value plastic packaging such as tear-offs with challenging after-use economics and a high likelihood of leakage? What would be the economic benefits of harmonizing labelling and chemical marking across plastic packaging and aligning it with after-use separation and sorting systems? What if after-use systems, currently largely fragmented across municipalities due to uncoordinated historic developments, were rethought and redesigned to achieve optimal scale and economics? What would be the best levers to stimulate the market for recycled plastics?*

T G P P

I [illegible] T RECOUP, WRAP, ARP, EPBP EUPR, T C G F 76 B

Figure 9: Examples of Promising Enabling Technologies for the New Plastics Economy and Their Level of Maturity



Develop insights and build an economic and scientific evidence base. M

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For further information

A [illegible] E
M A F [illegible] :
http://www.ellenmacarthurfoundation.org/publications.

List of Figures

11. F 1: G G P P 1950–2014
11. F 2: M P R T T
A P
12. F 3: P P M V L
O U C
13. F 4: G F P P M
2013
15. F 5: F P V G ,
E O C B -A -
U S
16. F 6: A N P E
20. F 7: T P C M V
22. F 8: D P H ,
P L
25. F 9: E P E T
N P E T L M

Endnotes

1 T : P
PP- .
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2 A. T. K , *Plastics: The Future for Automakers and Chemical Companies* (2012).

3 A. A M. N , *Applications and societal benefits of plastics* (P T, R S B, 2009).

4 A. A M. N , *Applications and societal benefits of plastics* (P T, R S B, 2009).

5 P E U N E P , *UNEP Year Book 2014: Emerging issues in our Global Environment* (2014), 8: P D O .

6 S 26% 78 299 ( )-1336.2( )9(9)32.7(-12.6( )-13.7( )-9.5( )-2()-11.8( )-17.9(1.87-54.698)-148 T 01)-13.1 .5(12.6(

22 2015-2025 [illegible] 150 [illegible] 2015 (O[illegible] C[illegible] M K[illegible] C[illegible] B[illegible] E[illegible], *Stemming the Tide* (2015)), [illegible] J[illegible]. 8[illegible] 2010[illegible] 9.1[illegible] 2015 (J. R. J[illegible]., *Plastic waste inputs from land into the ocean* (S[illegible], 2015), [illegible]), [illegible] 5% [illegible] 2025 ([illegible] 6.8%[illegible] 2015[illegible] 2025 [illegible] *Plastic waste inputs from land into the ocean*, [illegible]). 2025-2050 [illegible] 3.5% [illegible] GDP [illegible] (I[illegible] E[illegible] A[illegible], *World Energy Outlook 2015* (2015)).

(2 [illegible]

Acknowledgements

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Core project team

Ellen MacArthur Foundation

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