

The Economic Straight Talk Newsletter

eResearch Corporation is pleased to provide a synopsis of a daily economic circular, entitled The Economic Straight Talk Newsletter, and authored by Ian R. Campbell.

This Abbreviated Newsletter, beginning on the next page, provides the Headlines for each pertinent and current Topic that is discussed more fully in the complete Newsletter. In addition, we provide one Topic, in full, that is presented in the Newsletter.

Today's Topic is: **Manufacturing: 3D Printing and Economic Change**

Ian R. Campbell, FCA, FCBV, is a recognized Canadian business valuation authority. Through this Newsletter, he shares his perspective on the world economy, country specific economies, the financial markets, and natural resources.

If you value Mr. Campbell's shared insights, and are intrigued by the Topics that are discussed, **eResearch** strongly recommends that you proceed to the Newsletter's website and sign up for the full commentary. There is a small fee involved with becoming a Subscriber to the Newsletter.

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Director of Research

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In This Issue

The Headlines for the Topics contained in today's Newsletter are as follows:

- Manufacturing: 3D Printing and Economic Change (see Lead Article)
- Credit Downgrade: Moody's Downgrades McGraw-Hill (and S&P)
- G20 Meeting: Currency Wars and Deficit Cutting
- Manufacturing: 2012 Statistics
- Spain/Portugal: Protest Marches

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Today's Lead Article

Manufacturing: 3D Printing and Economic Change

This commentary was written by Dr. Ron Burnett, President and Vice-Chancellor, Emily Carr University of Art and Design, Vancouver.

Technological Innovation drives economic change. This seems like a common-place notion. In reality, technological change is now outpacing both economic policy in Canada and the capacity of industry to respond in a timely fashion. And, many of the transformations we are experiencing are coming from do-it-yourself (DIY) models that are lowering the costs and democratizing the production of everyday products, heralding a new age of manufacturing. 3D printing, which is one of the best examples of this process, is opening up new opportunities and new manufacturing activities at a rapid pace in industries as varied as aviation, the production of cars, medical devices, and jewelry.

Technically, the 3D process is called additive printing. The more common term, 3D printing, allows individuals and companies to create a prototype or product on their computers and simply press print to produce it.

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3D printers are like inkjet machines. The printing head moves back and forth over a small area and, by accretion, builds an object, like an iPhone case for example. A Canadian company by the name of Kor EcoLogic, based in Manitoba, has produced one of the world's first 3D-printed body frames for a car, the Urbee. The car-frame was printed in 50 large blocks using a Stratasys Fortus printer.

3D printing actually began in 1984 when early inkjet printers were adapted to print materials. Essentially, 3D printing moves a digital file from the computer to a "printer" that layers plastics, resins, and other materials onto a flat surface and, over time, builds the object. Larger and larger machines became available in the 1990s and, by the early 2000s, there were even experiments with printing tissue and, in one case, creating a kidney.

If all of this sounds like a science fiction film, you are probably right, except that the potential economic benefits far outweigh any of the doubts we may have about the process. For example, a RepRap machine is a low-cost self-replicating device that can reproduce itself almost as quickly as it can fabricate the toe-clips for a bicycle or a plastic cup. More recently, MakerBot Industries has released a machine that can not only replicate itself, but also with open source software allow users and creators

to produce the castings needed for the fabrication of ceramic objects — a new technology recreates an old one.

In 2008, the first prosthetic leg was produced using 3D printers. In 2009, a company by the name of Organovo produced blood vessels using 3D printers. And then, in 2011, the world's first airplane was produced using the same methods and machinery that also made it possible to produce a complete functioning bicycle and even a gun. A company in the Netherlands used a 3D printer to produce an implantable jaw.

All of these activities are evidence of a field that is growing at a very fast pace. The Mars Rover, for example, has a number of parts that were made with 3D printers, and what this points towards is that no manufacturing activity will ever again escape the impact of this technology.

As the software and the hardware improve, and as the speed of production accelerates, we will be able to repatriate some of the manufacturing that we sent to China and other countries. In the second article of this series, I will explore the potential economies of scale that 3D printing and technologies like it will introduce into the manufacturing process. I will also discuss why this may be an opportunity for Canada to link its investment in research and innovation to design.

About Dr. Ron Burnett: A communications and technology expert, [Dr. Burnett](#) has extensive experience in Internet technologies, and in 3D printing and other manufacturing related technologies expected to impact future world and country economics.



Newsletter Methodology and Objective

Each morning, we personally filter (on average) over 750 economic and resource articles published in the previous 24 hours. We select those we think to be particularly important, comment on their subject matter, and give you balanced views and contextual comments that save you time.

Our objective is to help you keep up to date, gain new ideas, better trade and invest, better communicate with your investment advisor if you have one and, importantly, make your own “penny drop”.

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About The Author



Through the [Economic Straight Talk Newsletter](#), [Ian R. Campbell](#) shares his perspective on the world economy, the financial markets, and natural resources. A recognized business valuation authority, he founded Toronto-based Campbell Valuation Partners (1976), [Stock Research Portal](#) (2007) a source of resource companies market data and analytic tools, and [Economic Straight Talk](#) (2012). The CICBV* annually funds business valuation research in his name**. Contact him at icampbell@srddi.com.

* Canadian Institute of Chartered Business Valuators

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